



# Machinga District Council

## Socio Economic Profile 2017-2022



**MACHINGA DISTRICT COUNCIL**

Private Bag 1, Machinga

December, 2017

On the Cover:

The photo shows a Standard 1 class at Namasika F.P. School in TA Kapoloma, Machinga District. This congested classroom shows one of the serious challenges for the education sector in Malawi, in general, and in Machinga, in particular. Machinga District Council, using this Socio Economic Profile (SEP) and the District Development Plan (DDP) which will be formulated based on this SEP, seeks to improve this situation.

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## ACRONYMS

ACP	Assistant Commissioner of Police
ADC	Area Development Committee
ADD	Agriculture Development Division
AEDC	Agriculture Extension Development Coordinator
AEDO	Agriculture Extension Development Officer
AIDS	Acquired Immuno Deficiency Syndrome
BMC	Block Management Committee
BMO	Borehole Maintenance Overseer
BVC	Beach Village Committee
CACC	Community AIDS Coordinating Committee
CAMFED	Campaign for Female Education
CBCC	Community Based Child Care Centre
CBO	Community Based Organisation
CBRLD	Community Based Rural Land Development Programme
CCPW	Community Child Protection Workers
CHAM	Christian Hospitals Association of Malawi
CMAM	Community Management of Acute Malnutrition
COMSIP	Community Savings and Investment Promotion
CSO	Civil Society Organisation
CVSU	Community Victim Support Unit
DACC	District Aids Coodinating Committee
DADO	District Agriculture Development Office
DCT	District Coordinating Team
DEC	District Executive Committee
DEMIS	District Education Management Information System
DEVPOL	Statement of Development Policy
DREAMS IC	Determinded Realistic Empowerment AIDS Free Mentored Scale up Innovation Challenge
DWSIP	District Water and Sanitation Investment Plan
DYO	District Youth Officer
ECD	Early Childhood Development
EPA	Extension Planning Area

FAO	Food and Agriculture Organisation
FBO	Faith Based Organisation
FHI360	Family Health International
GFS	Gravity Fed System
HIV	Human Immuno Virus
HSSP	Health Sector Strategic Plan
HTC	HIV Testing and Counselling
ICT	Information Communication Technology
IGA	Income Generating Activities
IPTe	Initial Primary Teacher Education
LDF	Local Development Fund
LED	Local Economic Development
LGAP	Local Government Accountability and Performance project
LUANAR	Lilongwe University of Agriculture and Natural Resources
MALDECO	Malawi Lake Development Company
MDHS	Malawi Demographic and Health Survey
MGDS	Malawi Growth and Development Strategy
MoEST	Ministry of Education, Science and Technology
MP	Member of Parliament
MSME	Micro, Small and Medium Enterprises
NAC	National AIDS Commission
NCST	Nutrition Care and Support Treatment
NGO	Non-Governmental Organisation
NRU	Nutrition Rehabilitation Unit
NSO	National Statistical Office
ODL	Open and Distance Learning
OPC	Office of the President and Cabinet
OTP	Outpatient Therapeutic Program
OVC	Orphan and Vulnerable Children
OVOP	One Village One Product
PEA	Primary Education Advisor
PHC	Population and Housing Census

PMTCT	Prevention of Mother to Child Transmission
RDP	Rural Development Programme
REE	Rare Earth Elements
RUTF	Ready-to-use Therapeutic Food
SDG	Sustainable Development Goal
SEP	Socio Economic Profile
SFFRFM	Smallholder Farmers Fertiliser Revolving Fund of Malawi
SFP	Supplementary Feeding Programme
SIVAP	Small Irrigation and Value Addition Project
STA	Sub Traditional Authority
TA	Traditional Authority
TDC	Teacher Development Centre
TEVETA	Technical Entrepreneur Vocational Training Authority
VDC	Village Development Committee
VFA	Village Forestry Area
VNRMC	Village Natural Resources Management Committee
WMA	Water Monitoring Assistant
WMS	Welfare Monitoring Survey
WPC	Water Point Committee

## Foreword

The Machinga District Council 2017-2022 Socio Economic Profile (SEP) has been developed following a thorough consultative and technical process. Reliable data and technical information were obtained from the various sources.

### Malawi Vision 2020

Malawi Vision 2020 is the country's official long-term development perspective from which medium- and short-term development strategy and plans are developed. The development of the Vision 2020, which was officially published in 1998, followed 10-year Statements of Development Policies (DEVPOs) that were used after Malawi attained Independence in 1964.

Vision 2020 seeks to address nine strategic challenges which are:

(1) Good governance, (2) Sustainable economic growth and development, (3) Vibrant culture, (4) Economic infrastructure, (5) Social sector development, (6) Science and technology-led development, (7) Fair and equitable distribution of income and wealth, (8) Food security, (9) Sustainable natural resource and environmental management.

### The Malawi Growth and Development Strategy (MGDS) III (2017-2022)

The aims of the MGDS III are to build a productive, competitive, and resilient nation by consolidating the achievements of MGDS I and MGDS II. The MGDS III has singled out six national priority areas that will spur the socioeconomic development of this country. Agriculture and climate change management is expected to contribute to national food security status, nutrition enhancement, environmental management, agro-processing and value addition, and manufacturing and trade. Education and skills development will promote industry, trade, technology adoption, increased productivity, and improved levels of employment. Energy, industry, and tourism development will increase employment, productivity, exports, and net trade. Transport and ICT infrastructure will augment agri-business, private sector growth, education and health service provision, tourism development, and global partnerships, as well as security enhancement. Lastly, effective implementation of health and population as a priority area will enhance productivity among the labour force, reduce the disease burden, reduce unemployment and gender inequality, and enhance land-use planning and human settlements to optimize ecosystem services to support key sectors such as energy, health, agriculture, and tourism.

In line with the above MGDS III aspirations, the Machinga Socioeconomic Profile has analyzed gaps and achievements to see where increased interventions should be made. The findings and conclusions of the SEP will inform the preparation of the District Development Plan to be implemented during the period of 2017-2022.

**Councillor Margaret Uladi**

Machinga District Council Chairperson

## Acknowledgements

The 2017 – 2022 Socioeconomic Profile (SEP) was prepared by the Machinga District Council through the Socioeconomic Profile drafting team that was assembled by the District Executive Committee.

### Contributors

The Machinga District Council is highly indebted to the following task team members for their contributions towards the development of the various SEP chapters:

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The District would also like to thank the Local Government Accountability and Performance (LGAP) project for the financial and technical support, particularly by providing the technical services of the Lead Consultant and the District Consultant, Dr. Milton Kutengule and Macward Themba, respectively. It would have been difficult to accomplish this task without their capable facilitation.

Last but not least, I would like to commend the District Executive Committee (DEC), the Development Committee of the Council, and the Full Council itself for contributions, recommending, and approving the document. We have together charted a new direction for Machinga District Council, which should see us effectively, and efficiently designing and implementing socioeconomic development activities in the district.

### Bester Mandere

District Commissioner

## Executive Summary

Machinga District Council has produced this socioeconomic profile as a tool to provide an overview of the district and trigger sustainable development of its communities. The profile highlights three focus areas that are critical and interdependent in the enhancement of socioeconomic development of the district: social services delivery, economic services delivery, and demography and settlement patterns of the district.

The socioeconomic profile has, at all stages during its development, been responsive and aligned to the global Sustainable Development Goals, the Malawi Vision 2020, and the priority areas in the Malawi Growth and Development Strategy III, in particular, as well as sector-specific policy instruments, as will be noted in the respective chapters.

Under social services delivery, the profile has critically analysed the current situation, gaps and their impact on the district education, health, water service, social welfare, HIV/AIDS and nutrition, and disaster and risk management.

An analysis of economic services also hinges on the current situation, gaps, and their impact in areas of agricultural production (crop and livestock), irrigation, fisheries, forestry, mining, commerce and industry (banking and credit facilities), labour and employment, communication, and tourism.

An analysis of the district geographic areas, demography, and settlement is similarly extensive. This analysis focuses principally on population and its characteristics, settlement and migratory patterns, and land use and available natural resources. The profile thus singles out three priority areas that have a huge bearing on the socioeconomic development of the people of Machinga: health, agriculture, and education.

**Health services:** The socioeconomic profile provides information on the level of health services delivery and access. It outlines the required and real situation of health services on the ground, and gives a snapshot of disease prevalence and affects.

**Agriculture:** in this area, this socioeconomic profile highlights major cash crops for potential export and food crops cultivated in Machinga. Likewise, aquaculture and capture fishery is one of the most important economic undertakings by the people living near Lake Chilwa and Chiuta. Livestock keeping is another major economic activity for the majority of people in the district; cattle, goats, and poultry are important sources of income.

**Education:** The profile outlines the state of education mainly at the primary and secondary levels in the district and indicates required spatial material for education improvement. The profile also looks at literacy rates in the district, which are comparatively very low. The literacy rate in the general adult population in the district is 59.7% (46.4% females); this is lower than the national adult literacy rate of 73.6%. A high number of pupils drop out of the school system before they reach Standard 5. The district will therefore consider education its priority area for development in the next five years, from 2017 to 2022.



### 1.0 GENERAL FEATURES

Machinga District is richly endowed with natural resources. In the development of this Socio-economic profile, the District Council seeks to capitalize on its potential in line with the development goals and benchmarks outlined in the Malawi Growth and Development Strategy III (MGDS) III and the global Sustainable Development Goals (SDGs). For example, particular note has been made of Priority Area #6, sub section 1:7 in the MGDS III, which outlines how the vast geological and mineral potential in Malawi in general, and Machinga in particular, can be economically exploited.

#### 1.1 Physical Description

##### 1.1.1 Location and Size

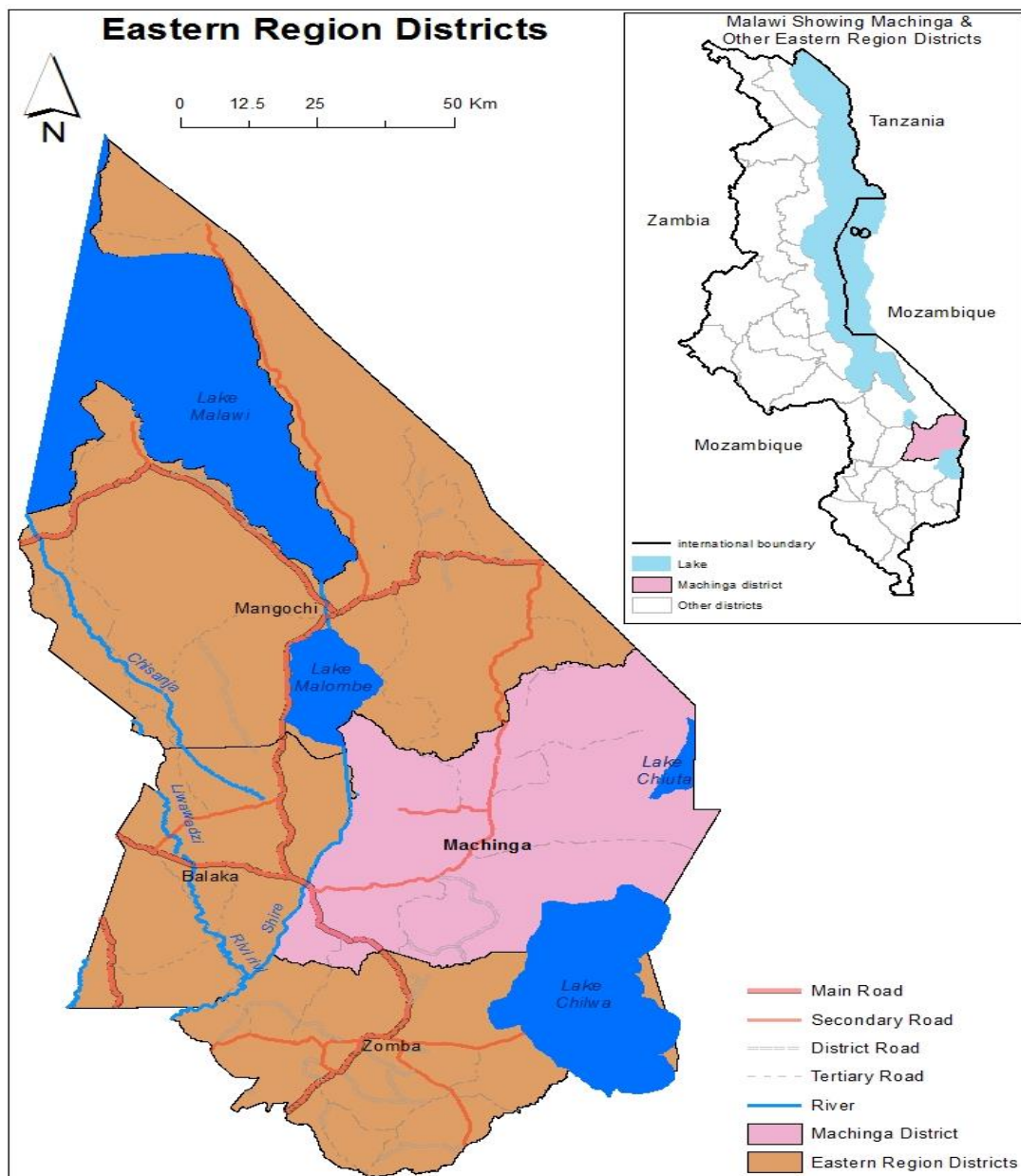
Machinga District is located in the Eastern Region of Malawi. It is between Lakes Chilwa, Chiuta, and Malombe and shares common boundaries with Mangochi District in the north, Zomba District in the south, Balaka District in the west, and the Republic of Mozambique in the east (Map 1). The district is approximately 101 km north of Blantyre, the country's main commercial and financial centre, and about 258 km south of Lilongwe, the capital city of Malawi.

According to the National Statistical Office (NSO), the district's population is expected to grow from 490,579 in 2008 to 647,401 in 2017 (NSO 2008). The total land area is estimated at 3,771 square km and its population density is 172 persons per square km, making the district one of the least densely populated in the Eastern Region.

Liwonde National Park covers 596 sq. km of flat terrain of the Rift Valley floor east of the Shire River and south of Lake Malombe. The Malosa-Liwonde Forest Reserves, Ntaja Escarpment in Kawinga, and Lungwe Hills in the Nyambi area are mountainous with gradients of more than 12% and flat-bottom valleys.

The Kawinga Plain is drained by the Mpiri, Mikoko, Lifune and Sankhwi Rivers, which flow into Lakes Chiuta and Chilwa. With the exception of the natural mound running east to west, dividing the marshes and providing a transportation corridor through to Nayuchi, the area around the lakes is flat with strips of seasonal marshes bordering Lakes Chilwa and Chiuta.

Map 1: Machinga District and other Eastern Region Districts



Source: Malawi Political Map – Extract of the Eastern Region (2008 PHC)

## 1.2 Geology and Mineral Resources of Machinga District

### 1.2.1 Geology

The Machinga area is underlain by rocks of the Malawi basement complex in some cases blanketed by drift and colluvium. Gneisses containing pyroxene, hornblende, biotite, and garnets dominate the area. Biotite-bearing felsic gneisses are also common.

The Lake Chiuta plain is mostly covered by thick superficial soil and weathered pelitic, semi-pelitic, quartzo-feldspathic, and calc silicate rocks. Predominant metamorphic facies are hornblende granulite and upper almandine-amphibole. Orthogneisses predominate in the northern part of the area.

The distinctive hill group of Nabwasi, Nafisi, and Nsili represents eroded remnants of perthitic-syenite and granitic intrusions. Adyke swarm trends north-northwest across the Mlomba Uplands and contains both Chilwa Alkaline Province and Stormberg Vulcanicity. The most interesting

superficial deposition in the area is the Chiuta/Chilwa sandbar, which formed as a result of the shrinkage of Lake Chilwa (Dawson, 1970).

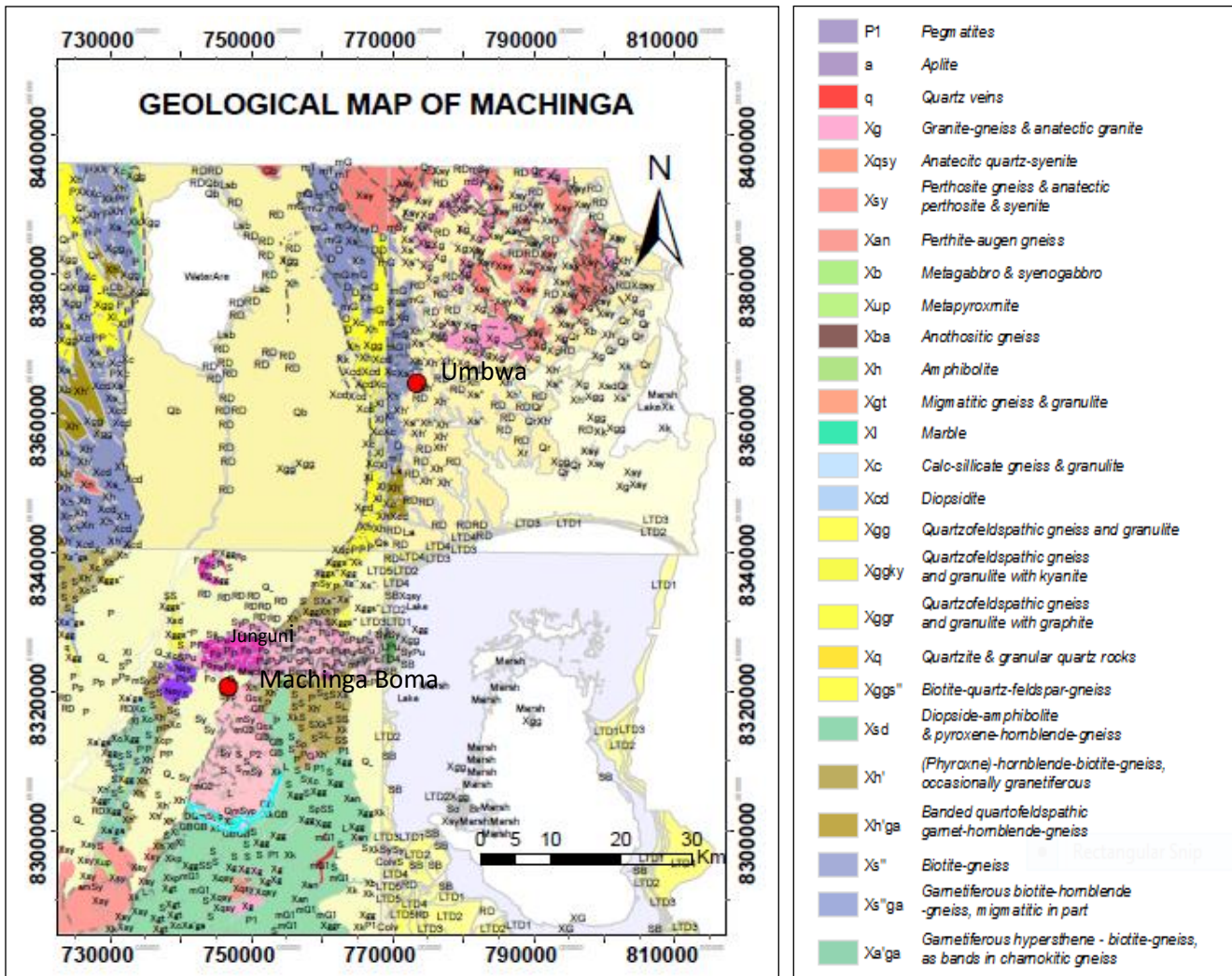
The Upper Jurassic to Lower Cretaceous Chilwa Alkaline Province is well represented by a number of both saturated and under-saturated plutons, some small vents, and numerous minor intrusions. The four linked nepheline syenite ring complexes of Chikala, Chaune, Mongolowe, and Chinduzi Hills form an east-west line and become increasingly alkaline westwards. There is also a small foyaitic ring complex called Junguni Hill near the Shire River.

Chikala Hill is made up of three main groups of rocks: basement complex gneisses, metavolcanics, and altered basic rocks, both syenites and nepheline syenites. The rocks in Chaone Hill are mainly pulaskites and foyaites, while rocks in Mongolowe Hill are mainly syenite, pulaskite, foyaite, and microfaite.

Chinduzi Hill lies to the south of Chikala Hill and is one of the nepheline syenites of complex basic xenoliths and schlieren that are often oriented parallel to the lineation of the surrounding rocks. There are also many thin pegmatite bands rich in nepheline.

Junguni Hill forms the smallest nepheline-syenite ring complex and lies on an isolated position. The hill is surrounded by colluvial black sandy clay and is the most nepheline-rich of all the ring complexes (Bloomfield, 1965).

Map 2: Geological of Machinga District



Source: Geological Map of Malawi (Machinga Extract) (Bloomfield, 1965).

### 1.2.2 Mineral Resources

Machinga District is endowed with both mineral and industrial rocks, notably rare earth elements, glass sand, nepheline syenites, and sodalite. There have been no detailed studies to establish the quantities or economic potential of mineral or geothermal resources. No major mining activities are taking place in the district except for quarrying of rocks by small-scale miners in some parts of the area.

#### 1.2.2.1 Rare Earth Elements (REE)

Rare Earth Elements are considered critical raw materials for the new technologies (Table 1). Chaphuka Village in Traditional Authority (TA) Nkula has significant levels of heavy rare earth elements such as dysprosium, which is used for commercial lighting, manufacturing of hard disk devices, and transducers. Globe Metals and Mining Company drilled 30 boreholes through 3,348m, revealing four mineralized plurimetric levels content ranging from 0.8% to 2.18%. Further work is recommended on this prospect.

**Table 1: Rare earth elements and their uses**

Element	Symbol	Use
Scandium	Sc	Aerospace framework, high intensity street lamps, high performance equipment
Yttrium	Y	Television sets, cancer treatment drugs, strength of alloys
Lanthanum	La	Camera lenses, battery electrodes, hydrogen storage
Cerium	Ce	Catalytic converters, coloured glass, steel production
Praseodymium	Pr	Super-strong magnets, welding goggles, lasers
Neodymium	Nd	Extremely strong permanent magnets, microphones, electric motors for hybrid automobiles, lasers
Samarium	Sm	Cancer treatment, nuclear reactor control rods, x-ray lasers
Europium	Eu	Television screens, fluorescent glass, genetic screening tests
Gadolinium	Gd	Shielding nuclear reactors, nuclear marine propulsion, durability of alloys
Terbium	Tb	Television sets, fuel cells, sonar systems
Dysprosium	Dy	Commercial lighting, hard disk devices, transducers
Holmium	Ho	Lasers, glass colouring, high strength magnets
Erbium	Er	Glass colorant, signal amplification for fibre optical cables, metallurgical uses
Thulium	Tm	High efficiency lasers, portable x-ray machines, high temperature super-conductor
Ytterbium	Yb	Stainless-steel, lasers, ground monitoring devices
Lutetium	Lu	Refining petroleum, LED light bulbs, integrated circuit manufacturing

Source: <https://cyberraiden.wordpress.com/2012/04/22/rare-earth-elements-and-their-uses>

### 1.2.2.2 Glass/Silica Sands

A large deposit of glass sand (some 40 km long long) occurs in a sand bar between Lakes Chiuta and Chilwa near the Mozambique border. Reserves of well-sorted quartz sand are estimated at 25 metric tonnes, averaging 92.7% SiO<sub>2</sub> and 0.62% iron, which are suitable for the manufacture of brown (amber) quality glass containers.

The deposits also contain quartz sands (low Fe<sub>2</sub>O<sub>3</sub>/Al<sub>2</sub>O<sub>3</sub> contents) that could be suitable for the manufacture of plate and window glass, as well as reasonably clear glass containers (Marteau. et al, 2015). The sand is also suitable for building purposes.

### 1.2.2.3 Nepheline Syenites

Nepheline syenites are under-saturated plutonic silica rocks made up of nepheline and alkali feldspars in association with varying amounts of clinopyroxene, amphibole, sphene, zircon, and biotite. These rocks are highly sought-after on international markets for their high feldspar content, used in ceramic and glass manufacturing. They are also used as pigments and fillers. These rocks are found in all the five nepheline syenite ring complexes: the Chikala, Chaone, Mongolowe, Chinduzi, and Junguni Hills. No proper estimates of the reserves have been made so far but speculations are that they may be in excess of 1 million tonnes.

### 1.2.2.4 Sodalite

Sodalite is a tectosilicate mineral widely used as an ornamental gemstone. Although massive Sodalite samples are opaque, crystals are usually transparent to translucent. Machinga has a deposit of sodalite at Junguni Hill. The hill is essentially composed of coarse-grained sodalite-nepheline plus

or minus cancrinite syenites (Photo 1A). It is the strongest silica-under-saturated peralkaline pluton in the province. Sodalite is used for making pavements. No assessment has been done so far to establish the reserve, since the deposit is located in the protected Liwonde National Park.



**Photo 1: (A) Sodalite from Junguni ;(B)a man at his quarry site at Chapola village, TA Chiwalo**  
*Sources: (A) Geological Survey Department and (B) field photo*

### **1.2.2.5 Rocks/Stones for Construction**

In Machinga District, quarrying of rocks is done mainly by small-scale miners. The rocks mostly quarried are the quartzofeldspathic charnokitic granulites, banded charnokitic granulites and perthosite gneisses (Photo1B). Most of the miners use simple tools such as hammers and chisels to break the rocks into small aggregates. The miners operate along the road especially from Umbwa towards Nselema and sell their rock aggregate to local people and construction companies. This is mostly an informal activity without proper data.

### **1.2.3 Geothermal Resources**

A geothermal resource is a reservoir inside the earth from which heat can be extracted economically and utilized for the generation of electric power or any other suitable industrial, agricultural, or domestic application (Gupta and Roy, 2007).

Machinga District has a number of geothermal manifestations in the form of hot springs, most of them located about 1km south of the Shire River Bridge especially on the eastern side of the Shire River. The springs are popular bathing places frequently used by the people of the surrounding villages.

#### **1.2.3.1 Morphology**

The predominant morphological feature of the area where the geothermal springs occur is the Shire River plain, which extends for hundreds of square kilometers. The hot springs are at an elevation of about 480m. The Mongolowe Hills are southeast of the springs at an elevation of 1277m. Smaller hills such as Junguni are located in Liwonde National Park with elevation of about 670m. The vegetation in the lowlands is generally grass with some short and thorny bushes. The highlands are covered with moderately thick natural forest, particularly within the national park.

#### **1.2.3.2 Geological Setting**

In the lowlands, rock outcrops are very rare due to thick and widespread soil. However, near the geothermal manifestations, there are Precambrian Basement Complex outcrops composed of

quartz-feldspathic gneiss with some strips of high grade-course grained marble. In the western and southern parts, the regionally predominant biotite-hornblende gneiss largely outcrops the area. The topographically high domes of Junguni and Mongolowe are composed of syenites and nepheline syenites belonging to the Paleozoic Lake Malawi Granite Province.

There are many evident morphological breakups that may be referred to as faults, and the drainage pattern itself indicates some preferential trends that could be related with hidden structures. Accordingly, on the western side of the Shire River almost all the tributary streams flow to the east. On the other hand, the rivers and streams on the eastern side of the Shire flow to the south following the regional trends of the Rift Valley.

### 1.2.3.3 Thermal Manifestations and Current Uses

The hot springs' temperatures range from 36-45°C with a pH of 8.68, which make them ideal for recreation. Locals use them for bathing and washing clothes (Balsotti, 2016). The hot springs could also a tourist attraction if improvements were done to make them more attractive.



Photo 2: Enjoying a warm bath at Mawira Geothermal Spring pool in Liwonde.

Source: Field photo

### 1.2.4 Hydrology

Piezometric contour maps for confined aquifer are between 850m and 500m for the whole district. Flow of groundwater is perpendicular to equipotential planes, flowing from places with higher heads to places with low heads. Flow of groundwater is that of constant head boundary, where the flow lines are perpendicular to the open water boundaries. In the case of Machinga, the flow is towards the Shire Plain, Lake Chiuta, and Lake Chilwa. For the Shire Plain, the equipotential planes depress from 550m (Makongwa Scarp) to 500m towards the Shire River indicating a 50m difference. For the Lake Chiuta area, the planes depress from 850m from the hills in the Nyambi area to 640m near Lake Chiuta, a fall of 210m. For the Lake Chilwa area, the fall is from 680m (Mlobwa Uplands) to 640m near Lake Chilwa, a 40m difference. It should be noted that the high figures that indicate depressed groundwater heads are from the mountain areas. The groundwater connected to the streams and rivers in the district, and the flow direction is influenced by the geomorphology of the area. Hence, the groundwater flow direction is predominantly to the southeast and partially to the east into the Shire River. However, it has to be noted that there are local convergences and divergences in groundwater flows due to the nature of metamorphic rock aquifer, which develops local weathered zones and local aquifers. All localized aquifers are recharging, establish regional continuity during the wet season as the water level rises, and connect these pocket aquifers.

### 1.2.5 Soil

The district has areas of low, medium, and high agricultural potential. Total arable land in Machinga District is 3,012 square km, or 80% of the district's total land area. Of that, only 1,340 square km (44%) has high agricultural potential; 207 square km (3%) have low agricultural potential. There are 1,381 square km of marginal lands (46%) that are considered unsuitable for agriculture.

#### 1.2.5.1 Soil Types

There are four soil types occurring in the district. Nsanama, Nampeya, Nanyumbu, and Chikweo EPAs have loamy sand to sandy loam soils and occur around Lakes Chiuta and Chilwa. Nyambi, Mbonechera, and Mtubwi EPAs have clay loam-to-loam clay soils. The upper parts of the EPAs have sandy loam to sandy clay, while the lower parts of EPAs have loam to sandy clay loam soils.

Soil erosion in the district has resulted in significant reduction of yields and formation of gullies and floods in areas like TAs Liwonde and Sitola. The grazing lands in the district are all punctuated with reels and gullies. According to the World Bank's National Environmental Action Plan (1991), 13 tons of soil per hectare per year are lost through erosion in Machinga District. This results in yield loss from 2.6 to 7.4%. Erosion has been accelerated by:

- Cultivation on steep slopes, river beds, and river banks
- Poor cultivation practices
- Overgrazing
- Monocropping

### 1.2.6 Vegetation

There are two major vegetation types in the district: semi-evergreen forest and perennially wet grasslands. Semi-evergreen forest is found in Malosa, Chikala, Chinduzi, and Liwonde Forest Reserves, where the dominant tree species are *Brachystegia boehmii* (Ntwana, Tsamba), *Burkea Africana* (Nkalati), *Brideliamicrantha* (Nsopa), *Pericopsisangolesis* (Muwanga) and *Pterocarpusangolesis* (Mlombwa). Perennially wet grasslands are in the Lake Chilwa and Chiuta marshes, while open canopy woodlands and shrubs are mostly located in upland areas and in the Kawinga Plains.

### 1.2.7 Climate and Climate Change

Machinga District generally experiences warm to hot temperatures. Minimum temperatures range from 14°C to 22°C in June and July, while maximum temperatures range from 22°C to 33°C in October and November. The maximum extreme temperature registered was 33.4°C in December 2013 and minimum extreme temperature registered was 14.0°C in July 2013.



**Table 2: Minimum temperatures for Machinga District**

Yr	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Mean	Min	Max
2013	21.4	20.7	20.6	18.4	16	14.5	14.0	15.6	18.7	20	22.7	21.6	18.7	14.0	22.7
2014	21.3	20.9	20.9	19.1	16.7	14.8	14.9	15.8	17.3	19.1	21.0	21.8	18.6	14.8	21.8
2015	20.7	21.0	20.4	19.6	17.4	15.4	15.4	19.5	18.5	21.1	22.0	22.7	19.5	15.4	22.7
2016	22	21.7	21.5	20.6	17.6	14.9	15.1	14.8	16.2	20	22.5	21.4	19.0	14.8	22.5

*Source: GoM DCC&MS: Ntaja Meteorological Station*

**Table 3: Maximum temperatures for Machinga District**

Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Mean	Min	Max
2013	28.6	28.5	29.2	28.4	26.4	25.5	24.6	27.8	31.3	32.8	31.6	33.4	29.0	24.6	33.4
2014	29.5	29.3	28.6	29.6	28.4	29.3	23.6	29.6	30.9	33.1	32.9	30.6	29.6	23.6	33.1
2015	32.6	31.2	29.3	30.4	29.3	28.6	25.8	26.9	31.2	29.8	29.7	31.2	29.7	25.8	32.6
2016	29.7	30.7	30.6	29.8	30.6	29.6	26.2	29.3	30.6	31.6	30.4	31.9	30.1	26.2	31.9

*Source: GoM DCC&MS: Ntaja Meteorological Station*

Like most districts in Malawi, Machinga has two seasons, the hot dry season that runs from May to October and sometimes extends to November, and the rainy season from October to March. For the past few years, there have been changes to the rainfall pattern, which now normally starts in November. Rainfall reaches its peak in January and February. The normal average rainfall for Machinga ranges from 750mm to 1000mm per year.

**Table 4: Rainfall trends for Ntaja Station (mm)**

	2012/2013	2013/2014	2014/2015	2015/2016	2016/2017
January	512.4	392.2	504	291.9	300.7
February	191	357.1	208.9	108	208.6
March	40.9	110	57.1	142.4	39.1
April	0	0	1.4	39.1	8.8
May	0	0	0	1.1	0
June	0	0	1.5	0	0
July	0	0	0	6	0
August	0	0	0	0	0
September	0	0	0	0	0
October	1.6	21.3	3.8	41.1	5.8
November	22.6	55	29.3	27.6	34.2
December	107.4	143.7	132.4	65.6	203.4
<b>Total</b>	<b>875.9</b>	<b>1079.3</b>	<b>938.4</b>	<b>722.8</b>	<b>800.6</b>

*Source: GoM DCC&MS: Ntaja Meteorological Station*

The precipitation regime is also affected by topography. The high rainfall belt is confined to the highlands that extend from Malosa and Chikala and northeast towards Ngokwe. Rainfall is both

conventional and orographic in nature, resulting in light to moderate intensities, except in severe storms.

The low-lying areas experience low and unreliable rainfall, spatially and temporally, because the rainfall is dominantly convective. Centres of low rainfall exist over rain shadow areas of Liwonde Township and its extremities and Chilwa/Chiuta Marshes, with mean annual rainfall below 750mm and 800mm, respectively. Any tropical cyclone moving from the Mozambique Channel westwards passes over the southeastern part of the district during the rainy season, bringing with it strong winds and torrential rainfall.

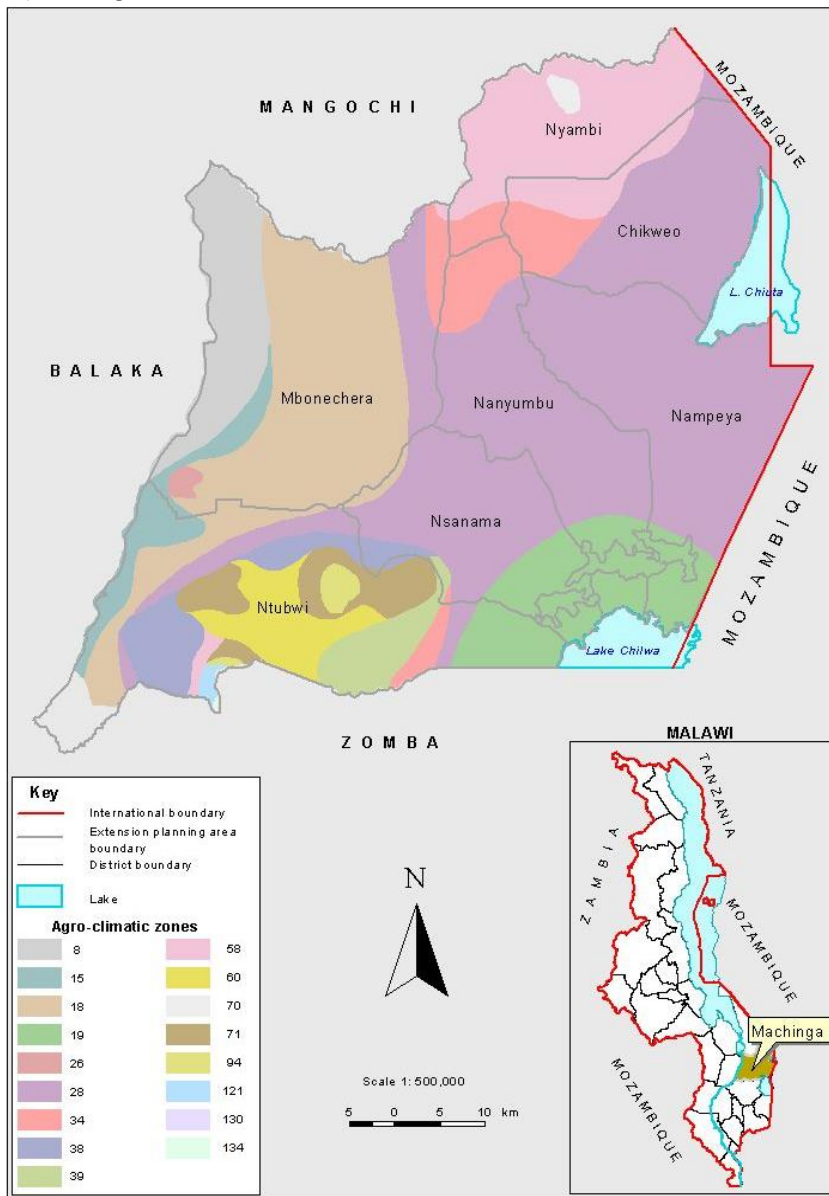
**Table 5: Average rainfall per extension planning area (mm)**

EPA	2013/2014	2014/2015	2015/2016	2016/2017
Chikweo	1018.3	1065.3	426.5	1014.2
Nyambi	911.6	1407.5	699.0	819.1
Ngokwe	1038.0	-	530.3	1376.5
Nampeya	944.3	1134.2	431.2	677.9
Nanyumbu	932.0	1118.0	334.7	891.5
Nsanama	1101.3	1054.3	240.0	621.5
Mbonechera	718.0	1025.5	441.1	482.5
Mtubwi	1423.0	848.4	639.3	895.7
Domasi	1302.4	1067.5	817.7	1188.1

*Source: Machinga RDP*

Machinga has only one full meteorological station based at Ntaja, and weather parameters obtained from this represent the district as a whole. This station is in traditional authority Liwonde, Mbonechera EPA, which is in a low rainfall belt. At least four stations are needed to give a true reflection of the district and improve decision making pertaining to the area (Map 3).

**Map 3: Agro-climatic zones**



*Source: District Agriculture Development Office (DADO)*

For agricultural purposes, there should be at least one rain gauge in each section. Climatologically, one rain gauge may cover an area of 3 km to 5 km radius (Table 6). Machinga has no climate data bank for the EPAs.

**Table 6: Size of extension planning area and number of rain gauges**

EPA	Area (km <sup>2</sup> )	Area (ha)	Number of Sections	Number of Rain Gauges
Nyambi	429.96	42,996	18	3
Nanyumbu	488.04	48,804	22	3
Mbonechera	214.55	21,455	20	10
Ngokwe	655.79	65,579	10	6
Chikweo	563.27	56,327	13	5
Nsanama	354.47	35,447	11	4
Mtubwi	352.75	35,275	16	4
Domasi	198.90	19,890	12	4
Nampeya	513.27	51,327	18	9
Total	3,771.00	377,100	140	48

*Source: District Agriculture Development Office (DADO)*

### 1.3 Administrative Structures and Local Politics

#### 1.3.1 Formal Administrative Structures

##### 1.3.1.1 District Administration and Local Governance

Machinga District Council is the body that represents the system of local governance in the district. The Council was established through the Local Government Act of 1998 that merged the Machinga District Council and the then District Commissioner's Office, who were each reporting directly to the Office of the President and Cabinet (OPC). The amended Local Government Act of 2011 made the District Council merge again with Liwonde Town Council, and the name 'Assembly' changed back to 'Council'.

The government of Malawi has consolidated this enabling environment through deliberate inclusion of specific sections in the Malawi Vision 2020 like the 'Separating powers and creating checks and balances' and 'Improving the role and performance of the public sector' as contained on page 36. Also included is Chapter 3 (Section 3.5) of the MGDS III, which supports the establishment and implementation of governance structures. In particular, this section highlights the government's commitment to provide a platform on which a development strategy can thrive under good governance.

Under the new setup, the District Council is made up of elected councillors or ward members, members of Parliament (MPs), chiefs or traditional authorities, and representatives of interest groups, as voting members, save for the chiefs. It is composed of elected members, each representing one of the District's 14 wards, and is headed by a chairperson.

An administrative body referred to as the secretariat services the business of the council under the leadership of the District Commissioner. The District Council is a corporate body that has perpetual succession and that may sue and/or be sued, enter into agreements and contracts, and own assets such as land. It has powers to create committees at the traditional, ward, or village level for purposes of facilitating the participation of the people in the Council's decision-making processes. It also has powers to make by-laws and raise funds for carrying out its functions.

The functions at the District Council, which are provided for in the Local Government Act of 1998 and are subject to National Development Plans and Policies, include:

- Make policy and decisions on local governance and development for the district;
- Consolidate and promote local democratic institutions and democratic participation;
- Promote infrastructural and economic development through district development plans;
- Mobilise resources within and outside the district;
- Maintain peace and security in the district in conjunction with the national police service;
- Make by-laws that facilitate its functions;
- Appoint, develop, promote, and discipline its staff;
- Cooperate with other district councils to learn from their experiences and exchange ideas;
- Perform other functions and responsibilities, including the registration of births, deaths, and marriages; and
- Participate in the delivery of essential and local services as may be prescribed by an Act of Parliament.

In the performance of its functions, the District Council has been mandated to form committees, comprised of the councilor and co-opted members, which include 14 traditional authorities and 7 members of Parliament. There are six mandatory committees:

- Finance Committee
- Development Committee
- Education Committee
- Works Committee
- Health and Environment Committee
- Human Resource Committee

The Council may create additional bodies as it deems necessary.

### **1.3.1.2 Government and Non-Governmental Sectors**

Under the administrative set-up of the Council, there is a District Executive Committee (DEC) that is responsible for the preparation and execution of development plans. DEC draws its membership from government ministries and departments, statutory co-operations, NGOs, and other civil society groups.

The Local Government Act and Decentralisation Policy of 1998 recommended the devolution of central government functions to district councils. In Machinga District, the following sectors have devolved their functions: agriculture, education, fisheries, forestry, gender, health, housing, immigration, irrigation, labour, national registration bureau, sports, trade, water development, and youth development. Agriculture, health, and education are the only sectors that have completely devolved their human resources.

There is also representation by the following statutory organisations:

- Agricultural Development & Marketing Corporation (ADMARC)
- Malawi Postal Corporation (MPC)
- Malawi Council for the Handicapped (MACOHA)
- Southern Region Water Board (SRWB)
- Malawi Revenue Authority (MRA)

- Electricity Supply Commission of Malawi (ESCOM)
- Malawi Housing Corporation (MHC)

Machinga District has a number of non-governmental organisations (NGOs) and civil society organisations (CSOs) that contribute to participation and economic empowerment of the vulnerable groups, improve food security levels at household level, reduce illiteracy levels, and increase access to health services. In contributing to these outcomes, there is good coordination between the district council and these stakeholders(Annex 1 NGO database).

The council coordinates NGOs and CSOs through its DEC and the sub-committees of the DEC like DACC. NGOs and CSOs play an integral part in the development of the district by working with relevant sectors. The district, through DMECC, is involved in planning, monitoring, and evaluation of their programmes by Organising joint monitoring and learning visits, and joint planning and project review meetings.

### 1.3.1.3 Traditional Administration

Machinga District has 16 Traditional Authority (TA) areas, which comprise one paramount chief, three senior chiefs, ten traditional authorities, and two sub-traditional authorities. These are Paramount Chief Kawinga; Senior Chiefs Nyambi, Liwonde and Chamba; Traditional Authorities Chikweo, Chiwalo, Kapoloma, Mlomba, Mposa, Ngokwe, Nkula, Sitola, Nkoola, and Nsanama; and Sub-Traditional Authorities Nchinguza and Sale.

The TAs are involved in development administration through the District Council, Area Development Committees (ADCs), and Village Development Committees (VDCs) structures spread over a network of 1,450 villages throughout the district. Paramount Chief Kawinga has the highest number of villages in Machinga, while TA Ngokwe has the lowest number of villages (Table 7).

**Table 7: Number of village and group village heads by TA/STA**

TA / STA	Number of Village Headmen	Number of Group Village Headmen
Chamba	107	22
Chikweo	131	23
Chiwalo	67	12
Kapoloma	51	15
Kawinga	176	33
Liwonde	137	38
Mlomba	112	46
Mposa	78	16
Nchinguza	48	8
Ngokwe	115	23
Nkoola	105	26
Nkula	61	14
Nsanama	59	19
Nyambi	144	22
Sale	45	7
Sitola	54	10
<b>Total</b>	<b>1,450</b>	<b>334</b>

*Source: Machinga District Council*

### 1.3.2 Informal Administrative Structure

The dominant informal structures in the district are youth, men's, and women's groups. These include community-based organisations (CBOs), faith-based organisations (FBOs), and support groups. Such groups are most active in sports, traditional dances, and in caring for the aged, orphans, and HIV/AIDS-affected persons (see details under the sector of Gender and Community Services).

### 1.3.3 Politics

Since the advent of multi-party politics in 1994, the District has had the following active political parties: Malawi Congress Party (MCP), United Democratic Front (UDF), Democratic Progressive Party (DPP), and Peoples Party (PP). Five constituencies were won by UDF, while one was won by PP and the other by an Independent Member of Parliament during the 2014 General Elections (Table 8). All the 14 Wards except one (areas covered by councillors) were won UDF during 2014 General Elections. The remaining Ward is covered by an Independent Councillor (Machinga Likwenu). Despite this scenario, there are still traces of intra-party conflicts between MPs and Councillors based on their roles and characters.

**Table 8: Electoral trends**

	UDF		DPP		PP		Independent	
	MPs	Councillors	MPs	Councillors	MPs	Councillors	MPs	Councillors
<b>1994</b>	7		NA		NA		0	
<b>1999</b>	7		NA		NA		0	
<b>2004</b>	4		NA		NA		3	
<b>2009</b>	7		0		NA		0	
<b>2014</b>	5	13	0	0	1	0	1	1

*NB: NA refers to parties that were not in existence during the electoral period*

*Source: Machinga District Council*

## 1.4 The People

### 1.4.1 Tribes

The main ethnic groups in the district are the Yao and Lomwe. The Yaos account for about 50% of the population, while the Lomwes comprise about 40%. There are also minor tribes of Nyanjas and Ngonis, accounting for about 6% and 4%, respectively. Mixed ethnic groups are also observed in major towns such as Liwonde, Ntaja, Nsanama, and Nselema.

### 1.4.2 Languages

The major languages in the District are Chiyao, Chichewa, Chinyanja, and Chilomwe. The 1998 census revealed that Chiyao is spoken by about 55% of the population, Chichewa 22%, Chinyanja 14%, and Chilomwe 7%. Other languages are spoken by about 1% of the population.

### 1.4.3 Religion

Machinga District is a predominantly Muslim community, with about 64.5% of the population following the laws and beliefs of Islam, according to the 2008 Census main report. In that year, Christians of various sects and denominations constituted about 35%; about 0.3% practiced other religions and 0.2% had no religion.

#### 1.4.4 Culture/Beliefs

Both the Yaos and Lomwes have matrilineal societies. In this system, the woman's brothers have considerable authority and influence on all matters that impinge on the family as they exercise control over property and on the welfare of their sister's children. It is commonly expected that the groom will settle in his bride's village. Inheritance of chieftainship follows the matrilineal system where a person ascends to his uncle's chieftainship.

Initiation (*Chinamwali*) ceremonies are done for both young boys and girls. Following various government and NGO's interventions, the ceremonies are now conducted when schools are on recess. Male circumcisions are done by qualified health personnel, reducing the initiation ceremony period. This has reduced absenteeism from a period of a month to nearly nil (Machinga District Education Office 2017).

### 1.5 Demography and Settlement

#### 1.5.1 Population and Its Characteristics

According to the NSO (2008) population projections, in 2017 Machinga District had a population of 647,401 of which 312,961 were males and 334,441 were females. Chief Kawinga's area is the most populated in the district, with approximately 23% of the total population.

The population growth rate for Machinga district is 2.9%, which is slightly higher than the national average growth rate of 2.8%. The district fertility rate is 6.1 children per woman (NSO 2008), against the national rate of 5.2. The underlining causes of this high fertility rate are low uptake of contraceptives, early marriages, and teen pregnancies.

#### 1.5.2 Migratory Patterns

Migration is an important element in the growth of the population and the labour force of an area. The measurement and analysis of migration are important in the preparation of population estimates and projections of the nation as well as the district. Data on age, sex, duration of residence, and occupation of the immigrant facilitate an understanding of the nature and magnitude of the problem of social and cultural assimilation that often results in areas with heavy immigration.

In Machinga District, there are more female than male in-migrants. For out-migrants, the results show that Machinga had more males than females (Table 9).

**Table 9: In- and out-migration**

In-Migrants			Out-Migrants		
Male	Female	Ratio	Male	Female	Ratio
3,702	3,784	9	4,238	3,911	108

*Source: Census 2008, Thematic Report*

In-migrants to the district were 51,566 while out-migrants were 63,748, resulting in a net-migration of -12,182 (Table 10).

**Table 10: Net Migration**

District Total Population	In-migrants	Out-migrants	Net-migrants
494, 835	51, 566	63, 748	-12, 182
	10.4%	12.9%	-2.5%

*Source: Cencus 2008, Thematic Report*



Very high poverty levels and underdevelopment compounded by high population growth rate and rising unemployment have been the major drivers of out-migration from the country as a whole and Machinga in particular. Emigrants from Machinga mostly move as workers to South Africa. Malawians have historically been a source of cheap labour to the Southern African mines, agricultural sectors, and other social services. This continued even after the lapse of the labour agreements with the then-apartheid government in South Africa. (*Migration in Malawi: Country Profile 2014*)

Inter-district migration has also seen a number of people moving out of the district, with temporary out-migration to major tobacco estates in the Central and Northern Regions during the tobacco-growing seasons.

### **1.5.3 Urbanisation**

Urbanisation is a process whereby populations move from rural to urban area, enabling cities and towns to grow. It is highly influenced by the notion that cities and towns have achieved better economic, political, and social statuses compared to the rural areas. The United Nations projected that half of the world's population would live in urban areas at the end of 2008. By 2050, it is predicted that 64.1% and 85.9% of the developing and developed world, respectively, will be urbanized.

Under a section on 'Sustainable Natural Resource And Environmental Management' and subsections 'Developing Human Settlements' on page 85 and 'Poverty and Population' on page 87, the Malawi Vision 2020 provides a clear vision on human settlement, population, and environmental management. MGDS III, Section 6:1:6 recognises the importance for a country to put in place systematic measures and a legal framework for proper human settlement. This section of the MGDS III clearly defines policy direction for the country to undertake as it experiences unprecedented population growth and rapid urbanisation. Therefore, the need to provide safe and properly planned and adequate housing to address these demographic dynamics arises. Machinga District Council has tried to respond to these policy directions and specific legal requirements by highlighting specific areas of intervention.

The level of urbanisation in Malawi is at 15.3% (PHC 2008) and still increasing, but compared to neighbouring countries, urbanisation in Malawi is still relatively low. On the other hand, in the Southern Region, urbanisation is at 15.9%, while that of Machinga District is 4.9%. (PHC 2008)

Machinga is the fourth most urbanised districts in the Southern Region after Blantyre, Zomba, and Mangochi, with 1.2% of its total population living in urban areas. The 2008 Population and Housing census also revealed that Liwonde was the tenth-most rapidly growing urban centre in Malawi. This is attributed to both the railway link to Nayuchi in Mozambique and to tourism. In the next few years, the urbanisation rate in Liwonde will be higher than what it is today due to the construction of wet and dry ports as well as the expansion of the railway link to Nayuchi.

As is the case with the rest of the country, urbanisation in Machinga District has developed without proper planning. Urban centres have emerged and developed either due to major roads or market centres.

#### **1.5.4 Settlement Patterns**

The people of Machinga have settled in a nucleus, reserving peripheral land for agricultural activities. Most of such settlements are in the rural areas of the district. People who reside close to main roads and around trading centers settle linearly – taking advantage of the business opportunities to showcase their merchandise to the road users.

## CHAPTER II

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### 2.0 LAND USE

Machinga District Council is experiencing the widespread challenges of land issues that have arisen from improper utilisation and management of land and the environment in general. The Government of Malawi has provided insights on how the country can address these perceived development issues of land and environment. In The Malawi Vision 2020 (section on 'Political Advocacy and Natural Resources' on page 88) and MGDS III, Section 6:1:8, which provide both the country's vision and policy directions on sustainable management and utilisation of the environment. This section of the MGDS III on sustainable environment, whose goal is to 'promote sustainable management of the environment and natural resources', has given the country in general and Machinga District Council in particular motivation to address these issues.

#### 2.1 Land Tenure System

Machinga District has a total land area of 3,771 sq. km. Of that, 1,022.58sq km is for farming representing 29% of the total land. Land tenure in the district falls under three categories: customary, public and private (Malawi Land Policy of January 2002).

##### 2.1.1 Customary Land

Customary land falls under the jurisdiction of traditional authorities. Power for the distribution and control of this land is vested in the traditional leaders. It is estimated that customary land represents 75% of the total area of the district (Machinga DAO Reports). The new policy tries to formalize the role played by traditional leaders in administering this land, even providing customary landholders an opportunity to register their land.

Customary land is passed on in succession from one generation to another, in-order of importance of male relatives by birthright and marriage. Land disputes are mostly settled by traditional leaders and courts, with a few referred to the District Commissioner.

The average land holding size is 0.3 hectares (NSO 2008). This is not enough for cultivation, which has resulted in encroachment of land under conservation for cultivation and residential purposes, a problem that is worsening with the significant rate of population growth.

##### 2.1.2 Public Land

This is land under central government control, estimated at 21%, mainly confined to Liwonde National Park, forest reserves, public offices, and other public establishments such as schools and roads.

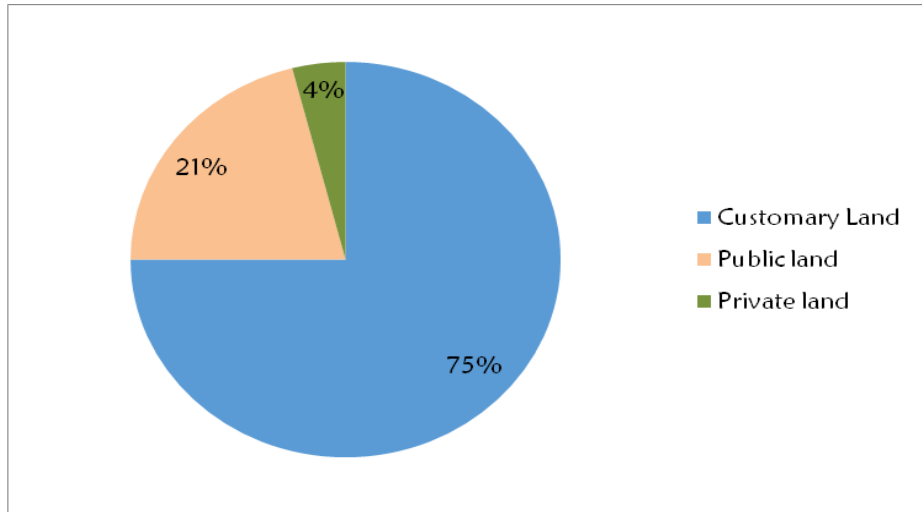
The new policy distinguishes between government land that is wholly owned by government and is exclusively used for dedicated government purposes such as government buildings or schools from public land that is managed by agencies of government such as national parks, conservation, military, or historical sites, in some cases including land managed by traditional authorities.

##### 2.1.3 Private Land

This is land that is leased by the government to individuals or corporations for a period of 21 to 99 years or is freehold. It is estimated that 4% of the district is private land. Presently, the main owners

of this type of land are indigenous Malawian and Greek estate owners engaged in tobacco farming. In order to increase access to land, the government through Community-Based Rural Land Development (CBRLD) Project, empowered communities to purchase estates for redistribution to the land poor. The current policy provides for land to be privately owned only by Malawian citizens (in special circumstances by non-Malawian citizens can own, if they owned the land before the registration of the new policy).

**Figure 1: Land ownership**



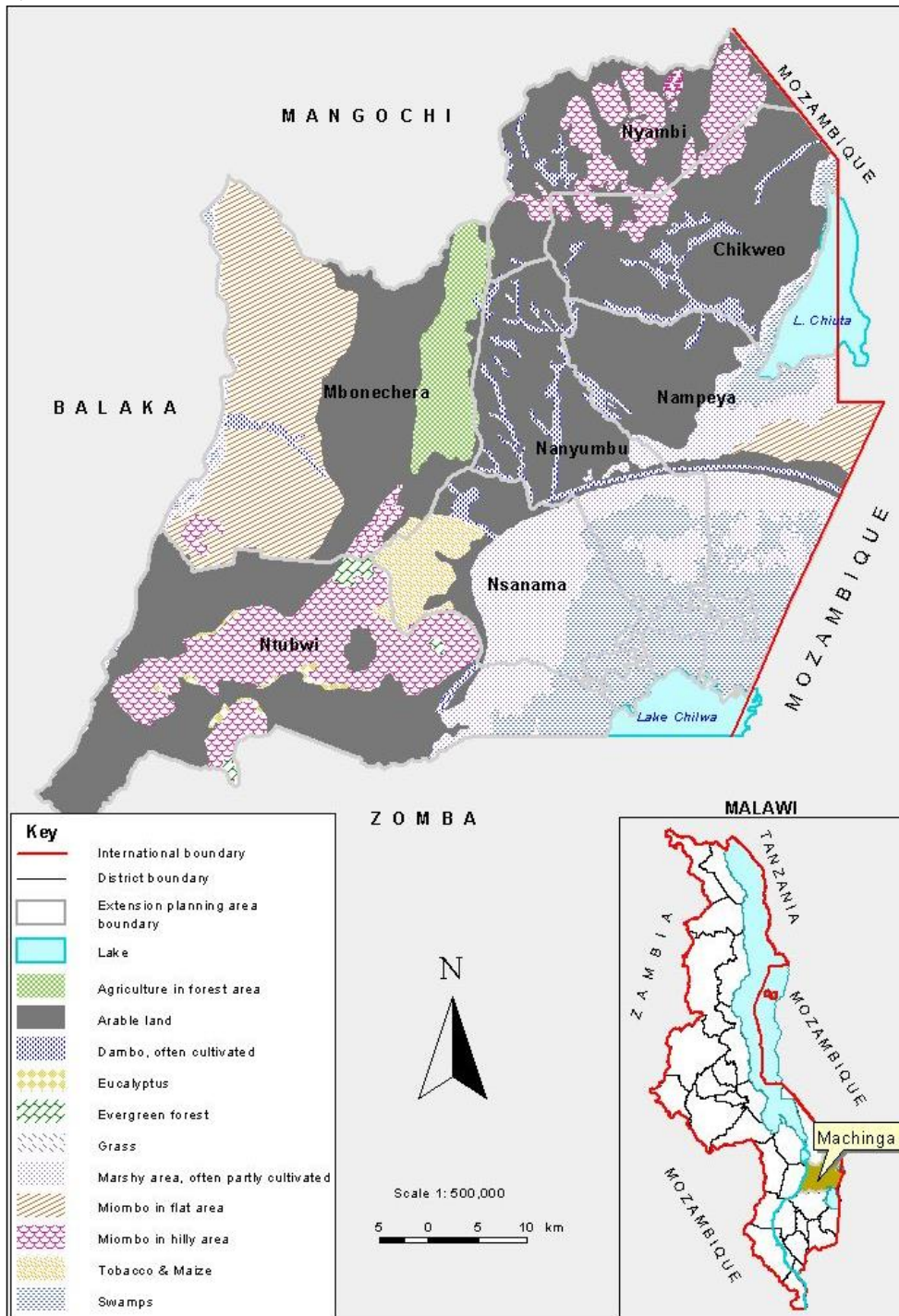
*Source: Ministry of Lands, Housing and Urban Development*

## **2.2 Land Use System**

There are 40,169 hectares classified as Forest Reserves and protected areas, representing 11% of the total land area in the district. Another 217,322 hectares (57%) are slated for various agricultural activities. The remainder of the land is for settlement and woodlands, with 0.3% of the total land area occupied by Lakes Chiuta, Chilwa, and Malombe.

The current policy encourages land use planning in both rural and urban areas, and this should include freehold, leasehold, and customary land. However, this level of planning is yet to be achieved due to inadequate qualified personnel and lack of awareness of the land policy on the part of key stakeholders.

Map 4: Land Use



### 2.3 Urban Structure Plans

Machinginga has five major trading centres that are supposed to have structured plans: Liwonde Town, Machinga Boma, Ntaja Trading Centre, Nsanama Trading Centre and Nselema Trading Centres. However, only Liwonde Town has an Urban Structured Plan; the plan for Ntaja Trading Centre is in production. Plans are in the pipeline to facilitate the development of structural plans for the remaining trading centres. Increasing urbanization has created many settlement conflicts in all trading centres, which can be directly attributed to lack of the structured plans.

### 2.4 Key Issues

- High demand for residential and business land.

## 2.5 Opportunities

- Merging of town and district councils
- Other trading centres (Ntaja, Nselema, Nsanama) could benefit from technical staff (physical planning) from Liwonde

### 3.0 Natural Resources

The importance of forests and trees in improving human welfare is increasingly recognized worldwide. Both natural forests and plantations play an important role in providing for basic human needs (fuel, food, fodder, fiber, and pharmaceuticals), employment, income, and foreign exchange. Forests help to stabilize natural systems, contribute to biological diversity, and provide habitat for fauna and flora. They also help maintain air, water, and soil quality; influence biochemical processes; regulate run-off and groundwater; control soil erosion; and reduce downstream sedimentation and the incidence of flash flooding (National Forest Policy, 2016).

#### 3.1 Forest Reserves and Wildlife

Machinga District Council's forestry sector is striving to conserve the natural resources in the district. The forestry sector implements various activities that facilitate the restoration, maintenance, and enhancement of the ecosystems and ecological processes essential for the functioning of the biosphere and prudent use of renewable resources. These activities are in line with the National Forest Policy, (2016) which has Ten Key Priority areas that will help the country combat climate change and its impacts as highlighted in the Sustainable Development Goals (SDGs) number 13. Sustaining the environment is also one of the priority areas in the MGDs 111, particularly under section 6.1.8 that emphasises Environmental Sustainability, including sustainable utilisation of natural resources including forests and forest products. The Malawi Vision 2020 has also already provided the country a guide, under 'Restoring and Conserving Bio-diversity', on page 85.

Management objectives are to:

- Increase forest cover in the customary land forests, plantations, and forest reserves
- Regulate access to forest products from the forest reserves and the surrounding customary estate forest
- Protect water catchment areas in the forest reserves and customary land forests
- Enhance capacity of the wider communities in forest-based enterprises and
- Promote biodiversity conservation and ecotourism

#### 3.1.1 Production Forests/Tree Plantations

##### 3.1.1.1 Forests Reserves

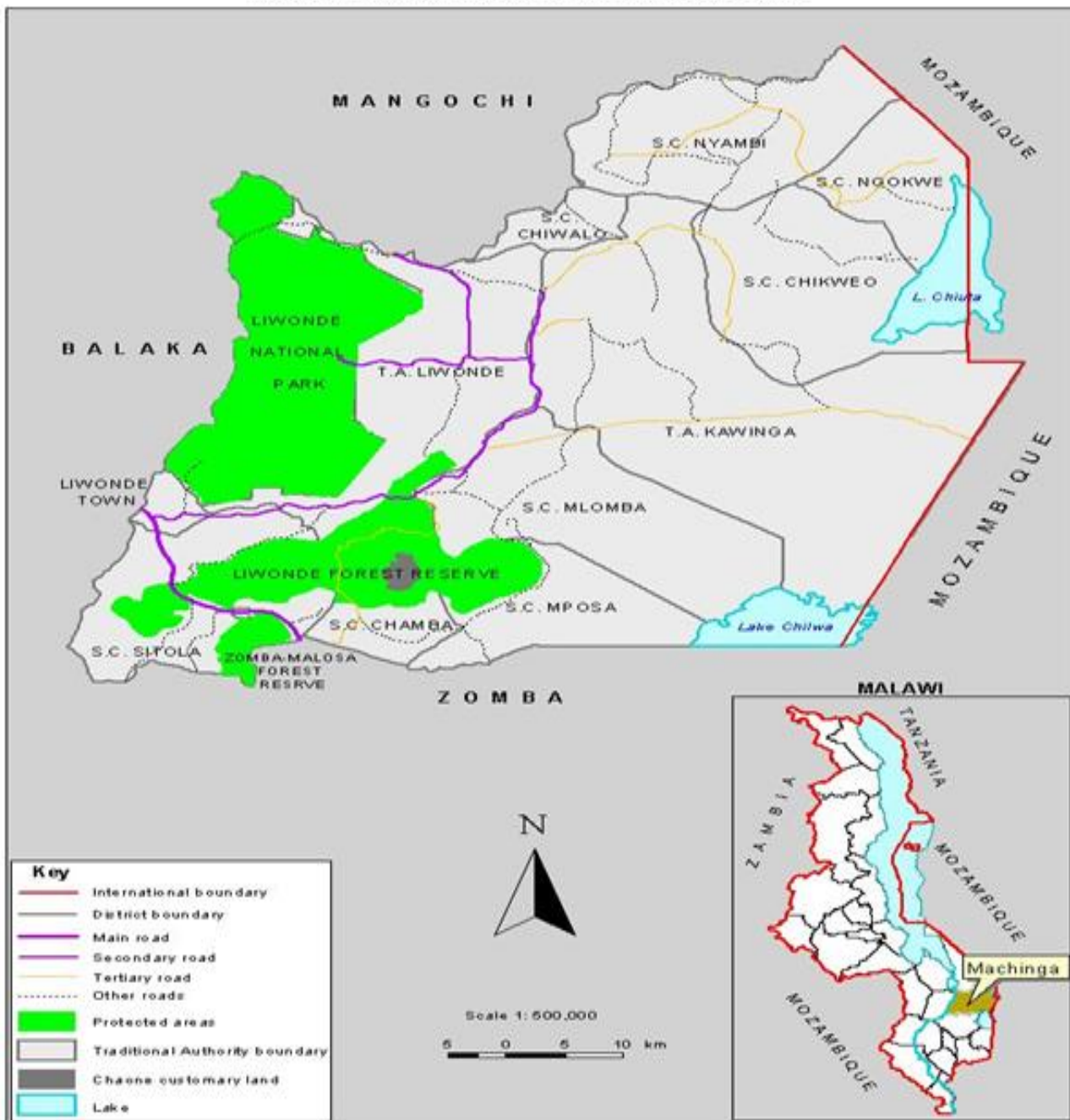
According to FAO 2010 Malawi Forest Cover Report, 34% of Malawi's total land was under natural forest cover, representing 3,237,000 ha. Machinga District has a forest cover estimated at 16% of the total land area (92,265 ha). These forests exist in gazetted forest reserves, wildlife reserves, government plantations, privately owned plantations, individual woodlots, communal forests areas, and village forests areas. The most common species are the *Brachystegia* woodlands/Miombo and eucalyptus.

The district has two protected forest areas, Liwonde and Zomba - Malosa Forest Reserves, which were gazetted in 1924. Liwonde Forest Reserve covers 24,351.87 ha, while Zomba - Malosa Forest reserve covers 2,825.89 ha. Both reserves are mostly covered with *Brachystegia species* (Mtwana

and Mombo). The reserves cover six traditional authorities: Sitola, Nkula, Chamba, Nsanama, Mposa, and Mlomba (Map 5).

The Liwonde Forest Reserve includes customary land at Chaone under Group Village Headman Kaluma in the area of TA Chamba. In 1910, the area had only one village headman; now there are seven group village headmen and 21 villages, with a population of 6,200. The village has more than 800 farm families, which has resulted in encroachment and deforestation in the forest reserve.

**Map 5: Machinga Protected Areas**



Source: Department of Forestry - Machinga



### 3.1.1.2 Status of the Forest Reserves

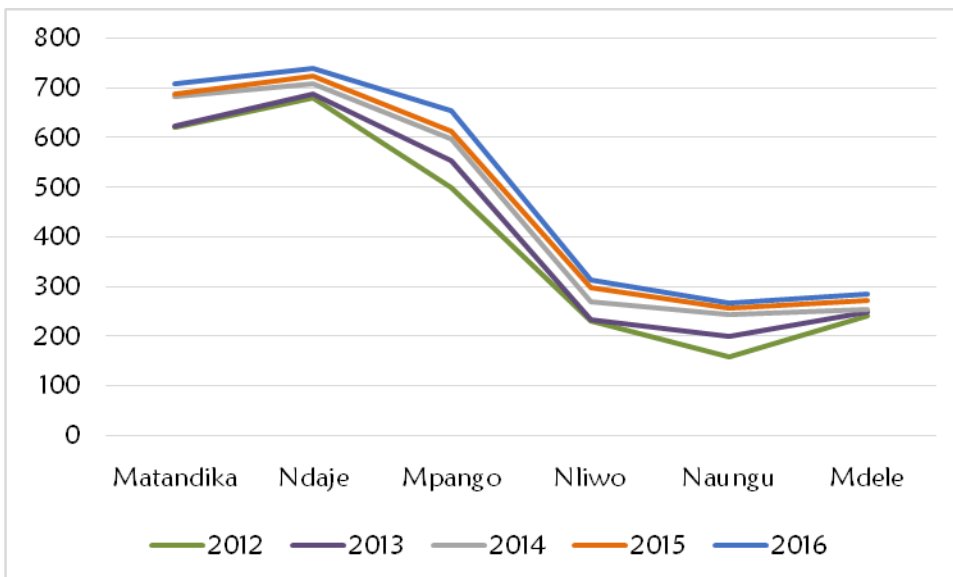
The forest reserves are under threat as the result of unsustainable use of their resources for:

- Encroachment for agricultural expansion and settlement
- Uncontrolled bush fires
- Wanton cutting of trees for charcoal production, firewood collection, pit sawing, and curio carvings

### 3.1.1.3 Confiscated Charcoal Bags

The District Office has been confiscating charcoal and firewood from the hotspots of the forest reserves (Figure 2). Matandika, Ndaje, and Mpango are heavy producers of charcoal. There is a need for more interventions in these areas to discourage people from this practice. A decrease in number of charcoal being confiscated could be attributed to increased patrols by foresters and more cooperation from community watchdogs that report the malpractice, as explained by Traditional Authority Chiwalo during the Development Committee Draft SEP hearing.

**Figure 2: Charcoal bags confiscated**

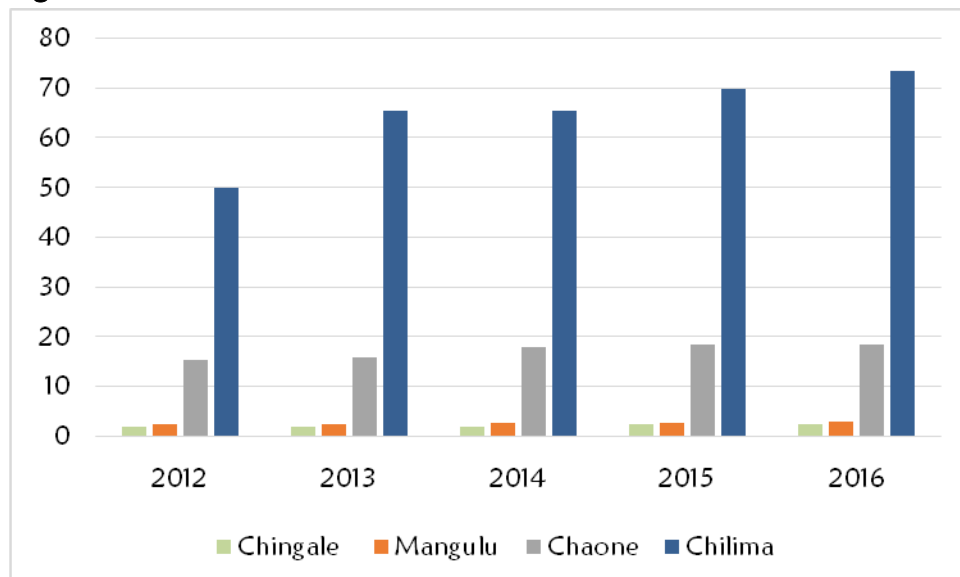


*Source: Machinga District Forestry Office (2016)*

### 3.1.1.4 Encroachment

Encroachment has been on the rise in all hotspots in the district, particularly Chilima (Figure 3), with cases registered in several areas around the forest reserves.

**Figure 3: Encroachment**



*Source: Machinga District Forestry Office (2016)*

### **3.1.1.5 Customary Land Forests**

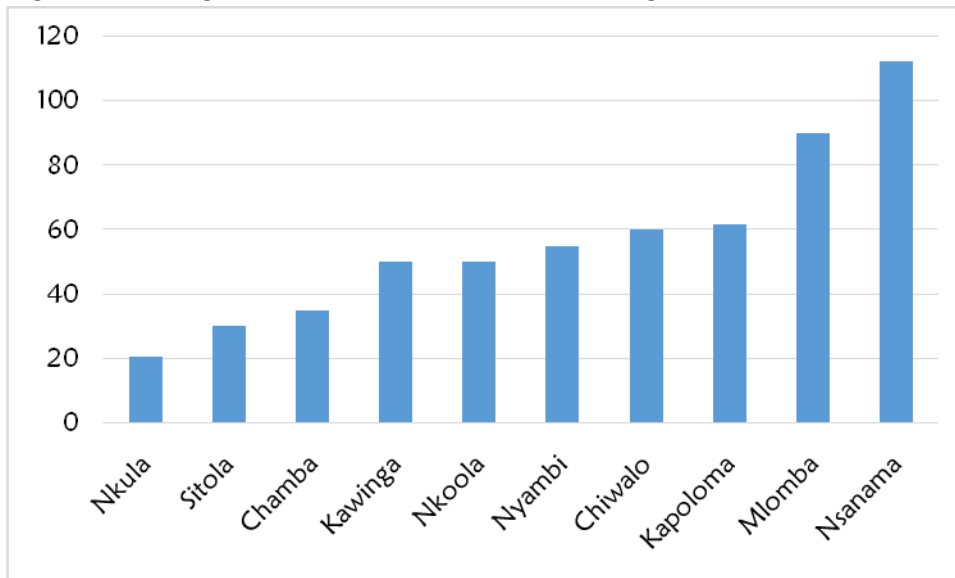
Forests on customary land cover estimated 16,321ha. Most of these forests both natural and plantation are in marginal lands under an open access regime, on and around farms and estates, graveyards, and homesteads. These forests include Village Forest Areas (VFAs) (both under controlled and uncontrolled access), communal and individual woodlots, and scattered trees on farms and in villages.

The VFAs are small forest reserves on customary land that cover an estimated area of 455.5 ha. VFAs were established to meet the demand of fuel wood and create access to various forest products such as firewood, constructional poles, ropes, fibers, fruits, mushrooms, and medicinal plants (Figure 4).

Growing population and therefore the increased demand for wood has resulted in degradation of VFAs. Considerable efforts are being made to enrich some of the areas with indigenous trees, and others are being left to regenerate naturally. The District Council, with support from Climate Proofing Development Gains, has plans to promote clan tree planting to instil as sense of forest ownership and bring back the village forests.

Of all the VFAs, only Kasiyamwini, Chambeta, Nsemba, and Bisa in TA Nkula are still intact with natural indigenous trees. The rest have been negatively affected with serious efforts to regenerate underway or in the planning phase.

Figure 4: Village forest areas and their hectarage



Source: District Forest Office 2016

### 3.1.1.6 Forest Plantations

Machinga has a number of isolated forest plantations. These were established around the forest reserves particularly in areas that had shown an increasing demand for wood poles, firewood, and bridge bearers. The plantations were established with *Eucalyptus* tree, and cover 3,222 hectares. The plantation headquarters are based at Nauko, with sub-stations all over the periphery of the forest reserves, the largest being Naminyanga.

While the forest reserves and plantations contribute significantly to soil and water conservation, the reserves provide firewood and timber from dead wood and the plantations provide stacked wood, head loads, and poles. The main buyers of wood are tobacco estates around Namadzi and Thondwe and firewood vendors from Zomba and Kachere in Blantyre. Demand for poles and firewood has grown so much that it is difficult to maintain the ideal rotation age of five years.

**Table 11: Hectarage under forest plantation**

Sub-Station	Type	TA	Hectarage	Condition
Chitokota	<i>Eucalyptus</i>	Sitola	104.0	Heavily deforested and poorly managed due to lack of staff
Lingoni	<i>Eucalyptus</i>	Chamba	150.0	Heavily deforested and poorly managed due to lack of staff
Matukuta	<i>Eucalyptus</i>	Nkula	322.2	Heavily deforested and poorly managed due to lack of staff
Milala	<i>Eucalyptus</i>	Nkula	212.0	Heavily deforested and poorly managed due to lack of staff
Mombe	<i>Eucalyptus</i>	Sitola	35.4	Heavily deforested and poorly managed due to lack of staff
Msuluzi	<i>Eucalyptus</i>	Sitola	462.0	Heavily deforested and poorly managed due to lack of staff
Naminyanga	<i>Eucalyptus</i>	Mlomba	925.0	Heavily deforested and poorly managed due to lack of staff
Nauko-Main station	<i>Eucalyptus</i>	Chamba	465.0	Heavily deforested and poorly managed due to lack of staff
Pitapansi	<i>Eucalyptus</i>	Nkula	147.6	Heavily deforested and poorly managed due to lack of staff
Ukasi	<i>Eucalyptus</i>	Nkula	135.4	Heavily deforested and poorly managed due to lack of staff
Totals			2,962.0	

Source: Department of Forestry - Machinga

Estates and local institutions have greatly contributed to the establishment of plantations and woodlots. However, communities in Machinga are worried that almost all the forest plantations are covered by eucalyptus (Blue gum tree) species, which is actually degrading the environment through its huge water uptake.

### 3.1.2 Forestry Sector Activities

#### 3.1.2.1 Tree Planting

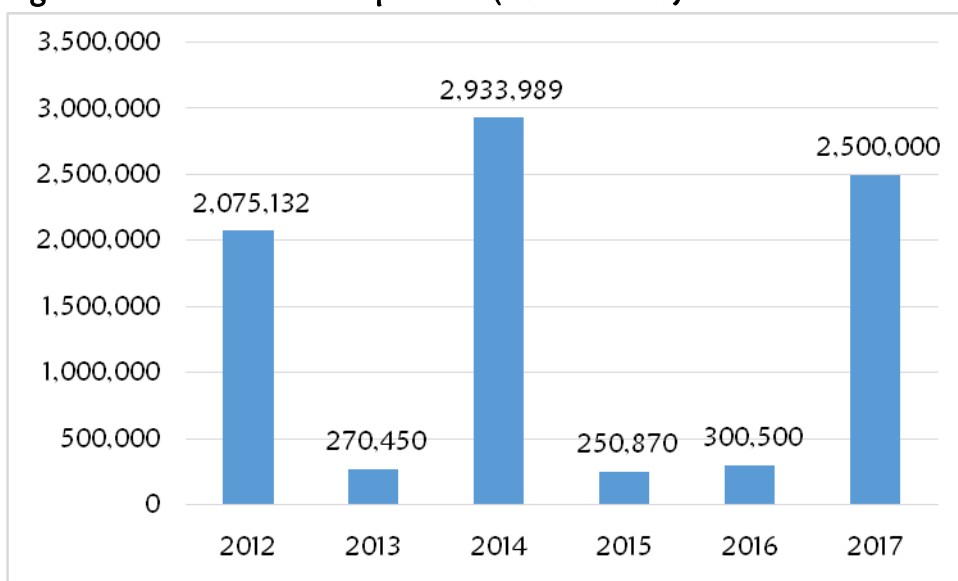
Tree planting is one of the main activities in the district. The Forestry Department, through its field staff, offers technical advice to farmers and institutions. Planting and management of trees is done in collaboration with other stakeholders.

Some of the NGOs that actively participate in tree planting program are Rural Infrastructure Development Program, Green Line Movement, National Water Development Program, Participatory Development Initiative, Total Land Care, United Nations Development Program (Climate Proofing Project), Shire River Basin Management Program, World Vision, Wildlife and Environmental Society of Malawi, Emmanuel International, and the Local Development Program through Government departments. Commonly planted tree species are blue gums (*Eucalyptus* species), Mbawa (*Khaya anthotheca*), Ngongomwa (*Azalia Quanzensis*), Mtangatanga (*Albizia Versicolor*), Nsangu (*Feidherbia albida*), Kesha waMaluwa, (*Senna siamea*), and Kesha wamilimo (*Senna spectabilis*).

With the issues of climate change affecting rainfall patterns, the sector has adopted truncheons planting techniques because they get established easily and have higher chances of surviving in the harsh weather once they are established. However, the method of tree planting using seedlings will

not be ruled out due to positive effects of genetics on tree populations. Tree planting is mainly done in areas such as VFAs, woodlots, farmlands, homesteads, and along the river banks.

**Figure 5: Number of trees planted (2012 – 2016)**



*Source: Department of Forestry - Machinga*

Stakeholders and various programmes like the Local Development Fund have supported the council's tree planting exercise. In 2012 number of tree planted were considerably higher (2,075,132) than in 2013 (270,450). Similarly, 2014 and 2017 the Council planted more trees (2,933,989 and 2,500,000, respectively) because of similar reasons while 2015 and 2016 experienced low numbers of tree planted.

The district had an 85% survival rate of seedling due to good rains and timely planting. In 2015, erratic rains affected tree planting and resulted in a very low survival rate, 53%. But in 2016, the district experienced the highest survival rate (92%) due to good rains and timely planting, along with more NGOs and other institution support, and that also the climatic conditions contributed to high tree seedling survival rate.

**Photo 4: Nguse Hill, Chikwewo, under regeneration**



*Source: Department of Forestry - Machinga*

### **3.1.2.2 Co-Management**

The district is implementing a forest reserve co-management strategy in which the communities and the Council take part in managing the forest reserves. Currently, two forest reserves are under forest co-management by the communities and the District Council for sustainable utilization of forest resources and the improvement of rural livelihoods as well as fostering ownership in the management of the protected areas. The strategy uses block committees with co-management agreements, and was initiated with support from the European Union in 2008-2014. These blocks are currently being supported by the Shire River Basin Management Program with a focus on livelihood improvement and forest conservation. Various other initiatives are being undertaken, namely the introduction of village savings and loans through provision of seed money, promotion of bee keeping, and promotion of fruit trees.

### **3.1.2.3 Promotion of Natural Regeneration**

The sector is promoting management of regenerant tree species as one way of increasing forest cover and rehabilitating degraded areas. This rehabilitation is taking place in state forest reserves, protected areas, VFAs with bare hills, and along riverbanks. Management mainly involves fire protection and prohibition of both animal grazing and improper extraction of medicine.

### **3.1.2.4 Establishment of Local Forest Institutions**

Village Natural Resources Management Committees (VNRMCs) are established at the village level as a way of promoting community participation in managing forest resources. These committees are formed only when communities have expressed interest in participating in the management of forest resources found within their jurisdiction, whether on customary land or on protected forest reserves through Block Management Committees. Currently, there are 120 VNRMCs but only 57 VNRMCs have been registered with the District Forestry Office.

### **3.1.2.5 Catchment Conservation**

The district has two main water catchment areas, Liwonde and Malosa Forest Reserves. The forest reserves are managed to protect perennial streams and rivers like Namikomia, Likwenu, Chagwa, Naminga, Lingoni, Doza, Nkala, Lingamasa, Mangale, Chanyungu-Mposa, and Zumulu. The streams and the rivers form the backbone of gravity-fed water schemes that provide potable water to communities in Machinga District.

### **3.1.2.6 Forest Extension Services**

The Forestry Department's leading role is to provide technical expertise through dissemination of forestry messages in the districts, particularly the rural areas. The messages reach the grassroots through structures such as Village Natural Resources Management Committee (VNRMCs), Block Management Committees (BMC), Forest Co-Management Arrangements, schools, clubs, estates, smallholder farmers groups, and religious organizations, as well as through trainings, field shows, awareness/sensitization meetings, video shows, radio jingles and posters.

The department also plays a coordinating role by working together with other stakeholders in the implementation of natural resources management program like formation of VNRMCs, raising of tree seedlings and sustainable utilization of natural resources.

The district has an extension and protection workforce of 189 ranging from the district forestry officer to general worker, with a deficit of 979 as per requirement. This number is inadequate to effectively perform the district's extension duties (see Table 12).

Communities and local leaders in Machinga have also complained about the laxity of the forestry staff in enforcing forest resources management that, they argue, has led to rampant forest depletion.

**Table 12: Forestry staff**

Post	Established Posts	Posts Filled	Gaps	Grade
District Forestry Officer	1	1	0	I
Assistant District Forestry Officer	1	1	0	I
Foresters	4	3	1	K
Senior Forestry Assistants	2	0	0	M
Forestry Assistants	12	3	9	M
Forestry Guards	60	18	42	O
Patrolmen/Patrol Ladies	70	28	42	Q
Senior Clerical Officer	1	0	1	L
Clerical Officer	2	0	2	M
Accounts Assistants	1	1	0	M
Copy Typist	2	0	2	Q
Messengers	1	0	1	Q
Mechanics	1	1	0	Q
Drivers	2	2	0	N
Plant Operators	1	0	1	-
PBX Operators	2	1	1	-
Tradesman	1	1	0	Q
Security Guards	3	0	3	-
Labourers	1,000	127	873	
<b>Total</b>	<b>1167</b>	<b>187</b>	<b>978</b>	

*Source: Department of Forestry - Machinga*

### 3.1.2 Forest Based Enterprises/Income-Generating Activities

The District Forestry Office has introduced environmental friendly income generating activities (IGAs) as short-term strategies to reduce pressure on forests and promote management of forest resources. Examples include beekeeping, mushroom production, fruit juice and wine production, irrigation, fish farming, livestock production, and cane furniture production, as cited in the Livelihoods Survey and VAP process of selected villages.

### 3.1.3 Forestry Worker to Population Ratio

In a normal situation, one forestry extension worker is expected to reach a population of 6,994 residents. The current ratio in the area of Paramount Chief Kawinga is 1:113,002.

**Table 13: Forestry extension services**

Forestry Extension Worker	EPA	STA
Forestry Assistant	Nanyumbu	TA Kawinga, Nyambi, Chikweo
Forestry Assistant	Mbonechera	TA Liwonde, Sitola, Nkula
Senior Technical Officer	Domasi	TA Chamba/Mposa
Forestry Assistant	Nsanama	STA Nsanama, TA Mlomba

*Source: Department of Forestry – Machinga*

### **3.1.4 Challenges in the Forestry Sector**

The major issues affecting the sector are:

- Deforestation
- Charcoal burning
- Loss of endangered species
- Encroachment for agricultural expansion and settlement
- Illegal trafficking of forest produce
- Inadequate extension delivery due to staff shortage
- Lack of management plans for most village forest areas
- Uncontrolled bush fires
- Illegal mining
- Uncontrolled animal grazing
- Poor farming practices with little or no soil and water conservation measures

### **3.1.5 Solutions to Forestry Issues**

The sector has been taking the following actions to minimise and/or mitigate the challenges:

- Reorganize/strengthen Village Natural Management Committees
- Rehabilitate degraded areas through enrichment planting
- Develop forest management plans for the area (VFA, forest blocks, and protected areas)
- Establish woodlots
- Establish forest-based enterprises like beekeeping and fish farming for income generation
- Develop MoU with stakeholders interested in watershed management
- Formulate by-laws on natural resources management
- Enhance resource mobilization activities for environmental projects
- Strengthen capacity of service providers and institutions (VNRMCs, VDCs, VCPCs, ADCs, and Water Points Committees) in environmental management
- Enforce forest policy against illegal activities in the reserves

### **3.1.6 Opportunities in the Forestry Sector**

There are some opportunities both inside and outside the sector, that make the implementation of activities possible:

- The newly approved National Forest Policy (2016)
- Availability of stakeholders supporting forests and natural resources management
- Availability of various forestry products
- Availability of indigenous and exotic forestry resource base
- Availability of local markets for forestry products
- Existing of local governance institutions like VNRMCs, VDCs, VCPCs, and ADCs
- Trained and skilled forestry staff
- Adequate water resources for nursery establishments and post-seedling management



### 4.0 Economy

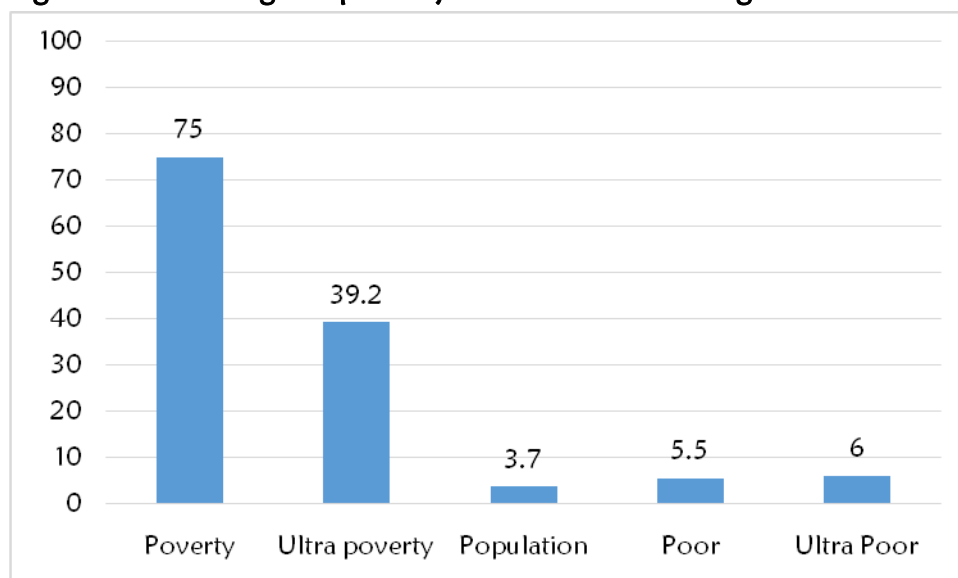
Malawi Vision 2020 would like to see the nation be secure, democratically mature, environmentally sustainable, and self-reliant with equal opportunities for active participation by all, having social services, vibrant cultural and religious values, and a technologically driven middle-income economy. Likewise, the Malawi Growth and Development Strategy III seeks to achieve poverty reduction through sustainable economic growth and infrastructure development. In particular, section 3:1 of the MGDS III, which gives a socio-economic analysis of Malawi as a country, clearly defines the socioeconomic status of the country as having rampant poverty levels (hovering over 50%) and widespread land degradation. The Malawi Government, using the MGDS III under this section, is trying to raise the country's expectations and aspirations to address the identified gaps. Machinga as a district is party to the above aspirations. However, during the past decade, the district has not made notable strides in achieving the economic development that would sustainably reduce poverty amongst its populace, largely due to population growth and low literacy levels.

Agriculture is the main economic activity for the district and has been adversely affected by the above factors. High population has had effects on land for agriculture production. Land fragmentation has seen holders have less land to meaningfully produce crops for sale as well as food. Less land per holder leads to less production, which leads to less food security which leads to less disposable income for personal investment and less employment opportunities. Low literacy levels have likewise resulted in low uptake of agricultural innovations leading to low production.

#### 4.1 Poverty Incidence

Seventy-five percent of Machinga's population lives in poverty; 39.2% of its population is ultra-poor (Figure 6). Factors of such poverty incidences in the district are high population growth (2.9%), high fertility rate (6.1), big household sizes (6.6), and a high HIV/AIDS prevalence rate (12%) resulting in an increase in orphanhood, amongst others. With support from government and its cooperating partners, the district is implementing various programmes and projects to reduce these poverty incidences. Some of such notable interventions are a Social Cash Transfer Scheme, Public Works Program, Malawi Flood Recovery Program, Malawi Drought Recovery Program, Farm Input Subsidy Program, Climate Proofing Development Gains Project, and Village Loans and Savings Programs, to mention but a few.

**Figure 6: Percentage of poverty incidence in Machinga - 2016**



*Source: Integrated Household Survey 3 Report*

## **4.2 Local Economic Development (LED)**

### **4.2.1 Agriculture**

Agriculture is a major economic activity for Machinga District. About 70% of the population depend on agriculture for livelihoods, employment, and incomes. Malawi Vision 2020 provides this clear vision for the country under section, ‘Food Security and Nutrition’ on page 58 and also under ‘Fair and Equitable Distribution of Income – Improving Smallholder Agriculture’, on page 76. In a more comprehensive way, the MGDS III (Section 5:1), provides the basis and direction for drawing policy and plans for improved agricultural productivity. Under this section, the MGDS III priority in agriculture is to ‘achieve sustainable agricultural transformation that is adaptive to climate change’. The National Agriculture policy aims to achieve sustainable agricultural transformation that will result in significant growth of the agricultural sector, expanding incomes for farm households, improved food and nutrition, and increased agricultural exports (National Agriculture Policy, 2016). Through the developments of partnerships with private sectors, the following areas of focus should be achieved:

- Increased agricultural production and productivity
- Increased diversification of agricultural production and marketed surpluses
- Increased use of irrigation in crop production
- Increased mechanisation of farming and agro-processing activities
- Increased access by producers and consumers to well-functioning agricultural markets – input, output, and consumer retail markets
- Increased engagement by women, youth, and vulnerable groups in agriculture policy processes and programs

According to the policy, one of its outcomes is increased agricultural yield and productivity. This will be achieved through promotion of innovative and high agricultural extension and advisory services involving both public and non-state extension service providers, establishment of effective demand-driven agriculture innovation system research and technology generation and

dissemination, and facilitation of timely and equitable access for farmer to higher quality farm inputs including inorganic and organic fertiliser, improved seed, livestock breeds, and fish fingerings. According to MGDS III, the agriculture sector's productive capacity is being undermined by climate change. Other challenges include low use of climate change and meteorological information, post-harvest losses, lack of agriculture diversification, low irrigation development, small landholding sizes, land degradation, and underdeveloped market systems. These challenges affect the national economy, hence the need to ensure that they are properly managed.

*“Realizing that climate change has adverse impacts on the agriculture sector, a number of strategies will be put in place to address them through adaptation and mitigation. Adaptation will enhance preparation for and negate the effects of climate change, thereby reducing vulnerability of communities and ecosystems”. MGDS III*

For the past five years, on average, 30% of the farming households in Machinga District run out of food from their own production by November, months before the next harvest is ready (APES reports). They also have no stable access to food due to lack of stable incomes. However, the 2016-17 season was different as the district received normal rains and by November, only 10% of farming households should be food insecure. Major causes of food insecurity among farming households are low food production levels and low livestock production. In some instances, crop yields are generally low due to poor soil fertility, pest<sup>1</sup> and disease<sup>2</sup> incidences, and low uptake of improved and modern agricultural technologies. Machinga District has the potential for dambo production and irrigated agriculture, but such opportunities have not been fully explored. The district has a potential of 12,500 hectares of irrigable land, of which 3,024 hectares are developed. However, only 1,572 hectares are being utilised. Livestock production in the district is affected by high mortality rate of young stocks, poor feeding practices, lack of grazing land, poor housing, livestock pests and disease incidences, and poor breeding practices. Furthermore, land degradation and soil erosion are rampant due to unsustainable farming practices such as mono-cropping and cultivation of marginal lands. Staffing constraints results in fewer farmers being reached by agriculture extension messages. The extension worker to farmer ratio is 1:2,938, well above the recommended ratio of 1:800. As a result, there is little adoption of modern farming techniques.

#### **4.2.1.1 Crops**

##### **4.2.1.1.1 Agricultural Production**

Machinga District is endowed with different soils, which enable the growing of a variety of crops. The major cash crops for the district are cotton and tobacco. Some crops like maize, rice, sorghum, groundnuts, pigeon peas, and cassava are grown for both food and sale. Smallholder farmers are growing most crops, with a few estates growing tobacco. The growing of tobacco in the district has decreased with the price fluctuations on the auction floors. The minor crops grown in the district include horticultural crops, chillies, sesame, beans, millet, and soya beans.

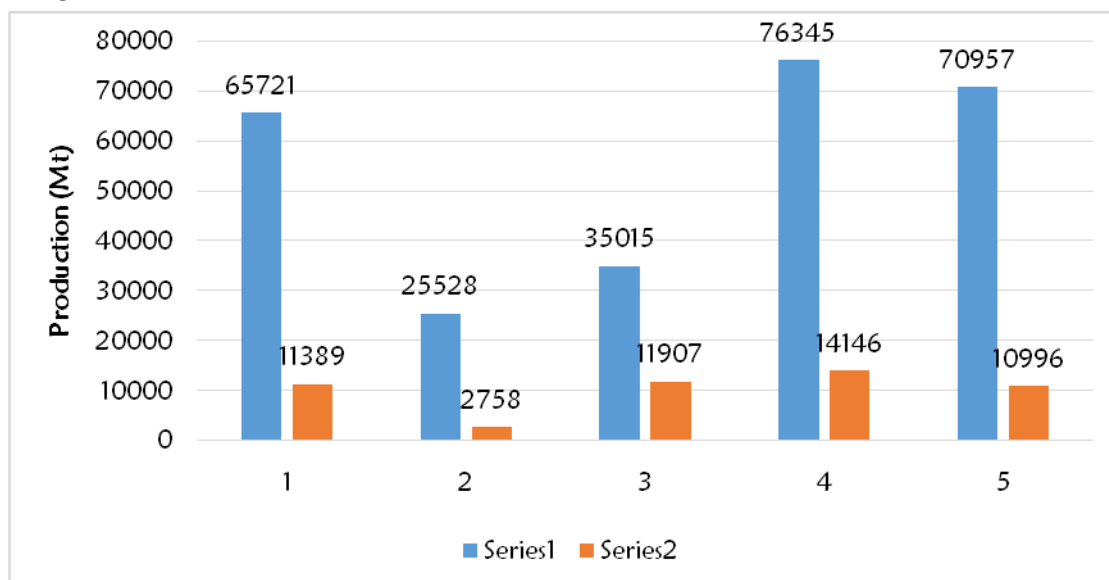
Crop production in the district has varied greatly over the past five years. In particular, there has been great variation in cropped areas, largely because of poor rainfall distribution resulting in inadequate water for either irrigation or rain-fed cropping. Input uptake has also played a role in the variations. Likewise, crop production has varied over the years (Figure 7 and Table 14).

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<sup>1</sup> Fall army worms, mealy bug, red locusts in crops, and ticks in livestock

<sup>2</sup> Cassava mosaic, banana bunchy top, tick-bone diseases, (heart water), and NCD etc

Figure 7: Production for maize and rice



Source: District Agriculture Development Office (DADO) - Machinga

There have been variations in production figures for both maize and rice over the years. The district harvested 70,957 metric tonnes of maize and 10,996 metric tonnes of rice in the 2012/13 season. In the following year, 2013/14, favourable weather conditions and high input uptake led to increased production of both maize and rice. However, the next two years, (2014/15 & 2015/16) some parts of the district were hit by natural disasters like dry spells, floods, wash aways, pests, and diseases, which contributed to a large drop in production. 2016/17 was a good year for both rice and maize despite outbreaks of pests (fall armyworm). Maize production increased by 57% over the last year, and rice 321%.

**Table 14: Smallholder Crop Production by Type of Crop, Hectarage, Yield, and Production**

	Area (Ha)						Yield (kg/Ha)						Production (mt)					
	2017	2016	2015	2014	2013	2012	2017	2016	2015	2014	2013	2012	2017	2016	2015	2014	2013	2012
<b>Major Crops</b>																		
<b>Local Maize</b>	16,833	16,105	15,782	16,430	16,650	17,374	482	168	249	530	497	456	8,120	2,704	3,925	8,705	8,274	7,919
<b>Hybrid</b>	14,553	14,361	13,950	13,671	14,062	13,067	1,972	734	1,015	2,447	2,200	1,932	28,702	10,542	14,164	33,447	30,943	25,243
<b>OPV</b>	20,954	21,197	21,093	21,569	21,436	21,604	1,379	579	802	1,585	1,481	13,856	28,899	12,282	16,926	34,193	31,740	29,286
<b>Rice (local)</b>	7,816	3,558	8,693	9,020	8,552	8,015	927	345	884	1,040	837	892	7,242	1,222	7,682	9,384	7,162	7,148
<b>Rice (Pussa)</b>	367	243	291	357	70	616	2,436	1,077	2,479	2,661	2,400	2,397	894	262	721	950	168	1,477
<b>Rice (TCG10)</b>	659	620	695	680	660	602	2,231	1,151	2,738	3,702	3,102	3,032	1,470	714	1,903	2,158	2,047	1,825
<b>Rice (Kilombero)</b>	864	588	727	705	697	622	2,064	860	2,202	2,345	2,323	2,033	1,783	560	1,601	1,654	1,619	1,264
<b>Sorghum</b>	8,481	8,143	8,317	8,310	8,305	8,366	663	440	634	644	629	591	5,619	3,583	5,271	5,351	5,222	4,948
<b>G/nuts (Chalimbana)</b>	8,367	7,882	8,098	8,039	7,906	7,950	623	385	558	598	580	533	5,209	3,036	4,517	4,808	4,583	4,235
<b>G/nuts (CG 7)</b>	2,207	1,547	1,473	1,416	1,224	1,119	803	611	667	749	690	633	1,772	796	983	1,060	845	709
<b>Cowpeas</b>	5,772	5,492	5,127	5,030	4,992	5,020	456	282	346	451	420	363	2,632	1,547	1,772	2,267	2,099	1,824
<b>Pigeon Peas</b>	17,694	16,700	16,079	14,902	14,202	13,966	959	748	838	882	830	479	16,967	12,490	13,469	13,148	11,786	10,462

<b>Cotton</b>	2,867	3,915	5,440	6,353	7,645	9,157	657	369	484	651	618	638	1,884	1,445	2,534	4,135	4,723	5,842
<b>Tobacco (Burley)</b>	757	1,089	1,535	1,453	1,479	1,098	906	499	819	1,078	1,038	921	685,875	543,683	1,257,829	1,566,631	1,535.4	10,010,761
<b>Cassava</b>	5,890	5,652	5,476	5,055	4,686	4,469	14,671	12,417	14,632	15,049	14,912	13,423	86,412	70,181	80,122	76,073	69,878	59,986
<b>Sweet Potatoes</b>	7,206	6,763	4,619	5,201	4,856	4,542	14,729	11,609	14,622	13,782	12,825	12,548	10,6139	78,510	67,538	71,680	62,277	56,991
<b>Minor Crops</b>																		
<b>Chillies</b>	84	74	100	118	228	141	512	388	455	477	456	436	43	29	45	56	104	62
<b>Beans</b>	216	210	217	210	179	159	440	350	426	465	425	387	95	74	92	98	76	62
<b>Soya beans</b>	540	443	440	320	184	97	537	345	412	478	440	434	290	153	181	153	81	42
<b>Millet</b>	661	530	551	565	579	562	528	383	449	480	465	420	349	203	247	271	269	236
<b>Sesame</b>	8	10	9	9	10	10	500	343	411	444	400	492	4	3	4	4	4	4
<b>Horticultural Crops</b>																		
<b>Oranges</b>	5,580	5,458	5,275	5,109	4,979	4,798	51	43	231	46	39	34	283	234	254	235	195	161
<b>Mangoes</b>	147,660	145,642	140,956	140,018	138,150	136,897	227	221	231	226	219	205	33,501	32,237	32,629	31,671	30,282	28,054
<b>Cabbages</b>	29	25	24	22	20	16	20,897	16,604	19,960	19,433	18,650	18,317	606	415	485	433	373	293
<b>Tomatoes</b>	173	162	160	153	136	17	7,844	7,552	8,240	8,296	8,147	7,806	1,357	1,223	1,318	1,269	1,108	133

Source: Machinga DADO 3<sup>rd</sup> Round APES Reports (2013-2017)

#### 4.2.1.1.2 Agricultural Practices

The majority of farmers in the district practice intercropping where maize, one of the major crops, is inter-planted with groundnuts or pigeon peas due to the small landholding size (0.7 ha) (Machinga DADO 2017). The district is encouraging 1-1 planting technology as it increases production through increased plant population per unit area. Livestock breeding improvement and pest & disease control are some of the practices promoted under livestock section. The district is also promoting soil and water conservation technologies, soil fertility improvement technologies, and conservation farming to improve soil fertility, control soil erosion, and improve soil structure. Manure making and utilization is encouraged as most farm families cannot afford to buy and adequately use inorganic fertilizers. In the 2016-17 season, inorganic fertilisers were applied to 11,680.9ha. To boost annual production, farmers are encouraged to use irrigation farming.

#### 4.2.1.1.3 Agricultural Marketing

There are a number of channels for agricultural output and input marketing, including produce markets and private traders. Machinga District Council manages markets distributed over all traditional authorities in the district (Table 15). Although agricultural markets are found in each TA, market prices are not competitive. As a result, farmers travel long distances in search of markets with good prices. It should be noted that a large share of the produce market in the district is controlled by vendors. Farm input sales are provided by ADMARC and private traders like Agora, Kulima Gold, Farmers World, Export Trading Group, and Chipiku.

**Table 15: Distribution of markets by EPA**

EPA	ADMARC Market	District Assembly Markets	Private Traders Markets	Total
Chikweo	3	5	1	9
Domasi	5	4		9
Mbonechera	3	5		8
Mtubwi	3	5	3	10
Nampeya	1	2		3
Nanyumbu	3	4	4	10
Ngokwe	1	1		2
Nsanama	3	3	3	8
Nyambi	4	6	3	12
<b>Total</b>	<b>26</b>	<b>37</b>	<b>14</b>	

*Source: District Agriculture Development Office (DADO) - Machinga*

#### 4.2.1.1.4 Agricultural Support Services

##### i. Institutional Set-Up

Agricultural development falls under Machinga District Council's Agriculture Office. The district is divided into 9 EPAs, which are further divided into 140 sections (1,120 blocks).

The District Agriculture Office is headed by the District Agriculture Development Officer (DADO) and supported by subject matter specialists in various sections. The office has both technical and support arms, while EPAs are managed by Agriculture Extension Development Coordinators (AEDCs). The Agriculture Extension Development Officer (AEDO) and field assistant manage sections. Field Assistants will eventually be promoted to AEDOs after completing their diploma

courses at Lilongwe University of Agriculture and Natural Resources (LUANAR) – NRC campus (Table 16).

**Table 16: List of EPAs and section vacant posts**

	Established	Filled	Vacant
Chikweo	13	5	8
Domasi	12	7	5
Mbonechera	20	9	11
Mtubwi	16	9	7
Nampeya	18	6	12
Nanyumbu	22	7	15
Ngokwe	10	3	7
Nsanama	11	4	7
Nyambi	18	7	13
<b>Total</b>	<b>140</b>	<b>57</b>	<b>83</b>

*65 established positions remain vacant, with the highest vacancy rate in TA Nanyumbu followed by Nampeya and Nyambi.*

*Source: District Agriculture Development Office (DADO) - Machinga*

## ii. The District's Farm Families

The district has 9 EPAs for a total of 167,492 farm families (Table 17).

**Table 17: District Farm Families per EPA**

	MHH	FHH	Total
Chikweo	5,057	12,064	17,121
Domasi	6,287	10,078	16,365
Mbonechera	6,240	19,074	25,314
Mtubwi	6,069	9,670	15,739
Nampeya	5,379	13,146	18,525
Nanyumbu	5,349	19,146	24,495
Ngokwe	4,302	6,668	10,970
Nsanama	4,319	9,199	13,518
Nyambi	9,163	16,282	25,445
<b>Total</b>	<b>52,165</b>	<b>115,327</b>	<b>167,492</b>

*Source: District Agriculture Development Office (DADO) - Machinga*

Farmers in the district have a number of commercial sources for inputs as well as the Farm Input Subsidy Programme (FISP) (Table 18).

**Table 18: List of Farm Input Sources by EPA (2016 – 2017)**

Source	EPAs
FISP	All
Malawi Cotton Company	Mbonechera, Mtubwi
NASFAM	Nyambi, Mbonechera, and Nsanama
AGORA	Nyambi, Mbonechera, Nanyumbu, Nsanama, and Mtubwi
Kulima Gold	Mtubwi, Nanyumbu
CADECOM	Chikweo, Nyambi, and Mtubwi
ASWAP-SP	All



Source	EPAs
Cotton Production Up-Scaling Programme	All except Domasi and Ngokwe
Emmanuel International	Nanyumbu, Domasi, Nsanama, and Ngokwe
Total Land Care	Mtubwi, Mbonechera, and Nsanama
African Institute of Corporate Citizenship (AICC)	Domasi
Lake Chirwa Climate Change Programme	Nanyumbu, Domasi, and Nsanama
Smallholder Farmers Fertilizer Revolving Fund of Malawi	Nanyumbu, Mtubwi, and Nsanama
Japanese Tobacco International (JTI)	Chikweo and Ngokwe
IFA (MFERP)	All

Source: Machinga DADO 1<sup>st</sup> Round APES Report (2017)

The agricultural sector has a number of stakeholders in the district as shown in Tables 18 and 19.

Table 19: Stake holders in the district

Stakeholder	Intervention
NASFAM	Marketing
ARET	Tobacco production
EI – NJIRA	Irrigation, livestock production
CADECOM	Irrigation, livestock production
ACTION AID	Agribusiness
Save the Children	Agribusiness
AICC	Crop production (rice)
Red Cross	Irrigation
CICOD	Crop production, animal production
FUM	Crop production (maize and rice)
JTI	Tobacco production
AGORA	Extension services
World Vision	Irrigation, livestock production
ADRA	Agribusiness
TLC	Conservation agriculture
CIP	Crop production (orange-fleshed sweet potatoes)

Source: District Agriculture Development Office (DADO) - Machinga

### iii. Ratio of Extension Worker to Farmer

The District currently has 83 extension workers, 8 of which are agriculture extension development coordinators (AEDCs), 57 are agriculture extension development officers (AEDOs), and 18 are field assistants managing sections. The district has 140 sections, but only 57 are staffed, which means some extension workers must work in multiple sections. With a total of 167,492 farm families for 75 extension workers, 1 extension worker serves 2,938 farm families in the district, which is far above the recommended extension worker to farmer ratio of 1:800 (Table 20).

Table 20: Agricultural extension worker to farmer ratio

EPA	Number of Farm Families	Number of AEDOs	Number of Field Assistants	Extension Worker to
-----	-------------------------	-----------------	----------------------------	---------------------

				Farmer Ratio
Chikweo	17,121	4	2	1:2,854
Domasi	16,365	7	2	1:1,818
Mbonechera	25,314	9	2	1:2,301
Mtubwi	15,739	10	3	1:1,211
Nampeya	18,525	6	2	1:2,316
Nanyumbu	24,495	7	4	1:2,227
Ngokwe	10,970	3	0	1:3,657
Nsanama	13,518	5	1	1:2,253
Nyambi	25,445	6	2	1:3,181
<b>Total</b>	<b>167,492</b>	<b>57</b>	<b>18</b>	<b>1:2,938</b>

*Source: District Agriculture Development Office (DADO) - Machinga*

#### iv. Type of Extension Services

The DADO's office provides a number of services that support agricultural production and utilization of produce by providing extension staff and farmers with necessary information and facilities:

- Land husbandry and natural resource management
- Farm mechanization
- Seed services
- Crop protection
- Provision of agricultural farm inputs (FISP)
- Agribusiness extension
- Food and nutrition extension
- Agricultural extension services
- Gender and HIV/AIDS in agriculture
- Animal health and livestock production
- Irrigation farming

#### v. Agricultural Credit Providers

There are a number of institutions that provide agricultural credit facilities in Machinga, but access to farm loans by smallholder farmers is still limited because of prohibitive interest rates and need for collateral security. NASFAM and Japanese Tobacco-International both provide agricultural loans.

##### 4.2.1.1.5 Farm Holding

###### i. Smallholder Farming

In Machinga, smallholder farming covers about 112,158 hectares, with the average land holding size per farming household at 0.7ha (Table 21). There are 167,492 farm families in the district growing a variety of crops intended for consumption and income such as maize, groundnuts, cassava, pigeon peas, cowpeas, beans, sweet potatoes, sorghum, rice, and millet.

**Table 21: Number of Farm Families and Average Landholding**

EPA	No. Of Farm Families 2016-17	Total Arable Land (Ha)	Average Landholding Size
Chikweo	17,121	5180	0.3
Domasi	16,365	16322	1
Mbonechera	25,314	21455	0.8
Mtubwi	15,314	18014	1.2
Nampeya	18,525	11340	0.6
Nanyumbu	24,495	9123	0.4
Ngokwe	10,970	3181	0.3
Nsanama	13,518	18627	1.3
Nyambi	25,445	8926	0.4
<b>Total</b>	<b>167,492</b>	<b>112,158</b>	<b>0.7</b>

*Source: Machinga DADO 2017*

There are variations among EPAs in landholding sizes. Domasi, Mtubwi, and Nsanama all have relatively large land holding sizes.

#### **4.2.1.1.6 Estates**

More than 50 estates cover about 4,652 ha of the total land area of Machinga District, most of which are owned by indigenous Malawians with a few estates belonging to Malawians of Greek origin. The estates are located in three EPAs: Nyambi (1,294 ha), Mtubwi (2,842 ha), and Chikweo (516 ha). Maize and tobacco are their major crops. Estate farming has contributed greatly to agriculture production in the district despite being at a small scale because it is mainly business oriented.

#### **4.2.1.2 Livestock**

##### **4.2.1.2.1 Livestock Production**

There is a range of livestock kept by farmers in the district, including cattle, pigs, goats, sheep, and poultry. Cattle are mostly kept along Lakes Chilwa and Chiuta due to availability of grazing land. The most widely kept species by farmers in the district are goats and chickens.

Livestock production in the district is seriously affected by diseases such as tick-borne disease (heart water), Newcastle Chicken Disease, and diarrhoea.

##### **4.2.1.2.2 Livestock Populations**

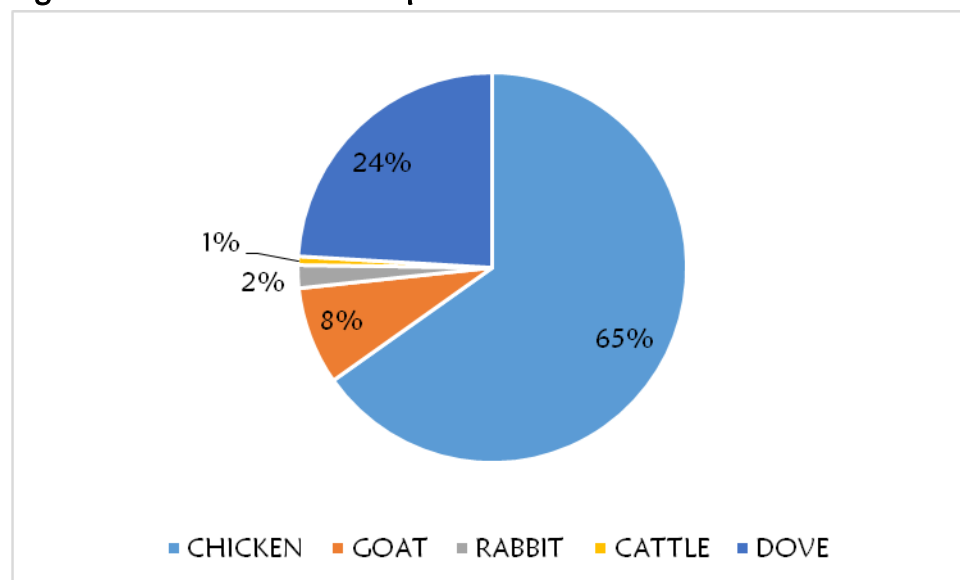
The population of different livestock species has varied over the years. The population of most species has gone down due to increased sales as a coping mechanism when poor harvests hit. The highest incidence of tick-borne diseases was recorded in 2012 when a total of 42 heads of cattle were reported dead around the Nafisi Dip Tank area. The outbreak of these diseases was due to poor management by farmers, uncontrolled movement of infected cattle from neighbouring districts, and traders who illegally move cattle across borders.

**Table 22: Livestock population dynamics (2011 – 2017)**

Year	Cattle	Goat	Sheep	Pigs	Chicken	Rabbit	G/fowl	Duck	Dove
2016-17	13,269	148,756	17,767	16,977	1,195,154	34,808	21,216	60,674	440,993
2015-16	13,252	145,880	19,035	15,814	905,617	36,147	27,433	56,172	346,048
2014-15	13,292	147,055	19,619	12,441	885,626	35,557	27,445	51,676	297,989
2013-14	13,348	138,618	21,017	9,473	792,013	39,760	23,868	41,359	217,353
2012-13	12,589	134,296	20,789	9,090	701,520	38,854	28,142	36,800	141,156
2011-12	12,181	136,805	20,277	8,393	627,512	41,093	30,625	36,800	141,156

Source: *Machinga DADO APES Reports*

**Figure 8: Livestock ownership**



Source: *District Agriculture Development Office (DADO) - Machinga*

Most livestock species have increased in population, largely due to newly adopted good agricultural practices.

Figure 8 shows the relative numbers of some major livestock species kept in the district. Chickens dominate the livestock population due to many interventions by government and non-state actors in promotion of small stocks through pass-on programs and improved animal regulatory services. It should also be noted that most households in the district keep livestock for resilience. Chickens are the most highly consumed livestock species (cattle are the least), so promotion of small stocks contributes to nutrition security greatly.

#### 4.2.1.2.3 Diseases/Parasites Affecting Livestock and Livestock Production

The important diseases and parasites encountered by livestock farmers in the district for the past years include pneumonia, bovine tuberculosis (TB), Newcastle Chicken Disease (NCD), coccidiosis, tick-borne diseases (Babesiosis, heart water), Haemonchosis (worm infestation), and ectoparasites (biting flies, lice, and fleas). For details about livestock pest and disease management, refer to 'Livestock Services' below.

#### 4.2.1.2.4 Livestock Uses

Livestock is largely a source of food (meat, milk and eggs) besides providing a ready source of cash income to most households in the district through selling live animals and products like meat, milk,

and eggs. On a smaller scale, livestock provide draft power for transporting various agricultural produce and non-agricultural commodities, and working fields for crop cultivation. Livestock dung provides manure for enriching and replenishing the soils. Some also sell hides and skins.

#### 4.2.1.2.5 Usage of Animal By-Products

The use of livestock dung to make compost manure or cured livestock droppings in crop fields is gaining popularity for its ability to replenish depleted soils and complement inorganic fertilizer use. Liwonde Tannery offers a ready market for farmers for their hides and skins.

#### 4.2.1.2.6 Livestock Services

Since decentralization, the Department of Animal Health and Livestock Development policy has been realigned and its mandate restricted to core functions, leaving other players to handle non-core functions. The core animal production and animal health services offered to the public in the district include rabies vaccination, meat inspection services, disease surveillance and monitoring and farmer capacity building in technical management of various livestock enterprises, as listed below

##### i. Cattle Dips

There are a total of six dip tanks in the district and one spray race. Only three of these are currently functional. Four were vandalized, including the spray race.

**Table 23: Cattle dip tanks and spray race**

Name of Dip Tank/Crush	Type	EPA	TA	Status
Mikoko	Dip Tank	Nanyumbu	Kawinga	Functional
Mposa	Dip Tank	Domasi	Mposa	Functional
Nafisi	Dip Tank	Nampeya	Nkoola	Partially rehabilitated by farmers, functional
Madziabango	Dip Tank	Nampeya	Kawinga	Vandalized, farmers willing to restart
Chikomoni	Dip Tank	Ngokwe	Ngokwe	Partially rehabilitated by farmers
Masinde	Dip Tank	Nsanama	Mlomba	Vandalized, farmers willing to restart
Nayiwale	Spray Race/Crush	Nampeya	Nkoola	Vandalized

*Source: District Agriculture Development Office (DADO) - Machinga*

##### ii. Feeds, Pharmaceuticals, and Other Supplies

In 2010, Proto opened a depot at Liwonde to offer a variety of services including day-old chicks (broilers and layers), compounded feeds, premixes, drugs and vaccines, and other supplies like feeding and watering troughs. In 2011, Lilongwe Livestock Centre opened a pharmaceutical outlet offering a variety of drugs and vaccines to farmers at competitive prices.

##### iii. Meat inspection services

The district has three designated slaughter sites: Liwonde, Ntaja, and Nselema. Five personnel, assistant veterinary officers, offer meat inspection services. No inspection is conducted at Nselema slaughter slab because there is no qualified meat inspector. There are also slaughters at other trading centers like Ngokwe, Nsanama, Nayuchi, Machinga Boma, and Namanja but they have no slaughter slabs and no qualified personnel are available to conduct inspections.

#### iv. Dog baths

The only two government-owned dog baths in the district at Machinga Agricultural Development Division headquarters and District agriculture offices at Ntaja are not functional. The district has one private dog bath located within Liwonde town assembly offering services to the public.

#### v. Livestock Marketing

There is no organized market for livestock in the district, so farmers sell directly to butchers, consumers, or vendors on-farm and at commodity market centres. This gives farmers less choice in terms of to whom they can sell and little negotiating power on the prices.

#### 4.2.1.3 Irrigation

##### 4.2.1.3.1 Area under Irrigation Farming

The district has a potential 12,500 ha that can be used for irrigation farming, of which 3,024 ha is developed area and 1,572 ha is currently underutilised. Major sources of water for irrigation are the Lifune, Mpiri, Mikoko, Nkhande, Zumulu, Lingoni, Domasi, and Lingamasa Rivers, which supply water to major irrigation projects, namely Kamwaza Irrigation Scheme, Naming'azi Irrigation Scheme, Mikoko Irrigation Scheme, Nkhande Irrigation Scheme, Zumulu A & B Irrigation Schemes, Phandiro Irrigation Scheme, Domasi Irrigation Scheme, and Wenzide Irrigation Scheme, respectively. The Shire River banks and the flood plains of Lakes Chirwa and Chiuta also provide potential land for irrigation farming.

Table 24: Major Irrigation Schemes

Irrigation Scheme	Potential Area	Developed Area	Utilised Area	Beneficiaries		
				Male	Female	Total
Kamwaza	130	110	105	206	201	407
Domasi	500	485	370	1058	999	2057
Naming'azi	80	43	15	123	127	250
Mikoko	80	56	56	45	63	108
Nkhande	150	68	35	51	123	174
Zumulu A	110	110	60	97	146	243
Zumulu B	90	85	49	25	36	61
Phandiro	150	85	65	96	63	159
Wenzide	50	45	40	97	169	266
<b>Total</b>	<b>1,340</b>	<b>1,087</b>	<b>795</b>	<b>1,798</b>	<b>1,927</b>	<b>3,725</b>

Source: District Agriculture Development Office (DADO) - Machinga

It should be noted that even given this potential land, development and utilisation are great concerns in the district. In the long-run, they contribute to the food insecurity levels and low farmer income generation. Scheme utilisation is low because of water inadequacy, which is due to climate change and low farmer participation.

#### 4.2.1.3.2 Irrigation Methods

There are four irrigation technologies used in the district: gravity-fed irrigation systems, treadle pumps, motorised pumps, and watering cans. Among the technologies, most farming households with irrigation use gravity-fed systems due to their low operation costs, followed by watering cans (Tables 25 and 26).

**Table 25: Area under irrigation by technology**

Technology	July 2013-June 2014				July 2014-June 2015				July 2015-June 2016				July 2016-June 2017			
	Sites	Dev. Area	Utilisation	FHH	Sites	Dev. Area	Utilisation	FHH	Sites	Dev. Area	Utilisation	FHH	Sites	Dev. Area	Utilisation	FHH
Gravity	48	2150	1,283	7,328	48	2,150	1250	7,350	50	2,150	1,143	6,899	54	2,150	1,200	4,843
Motorised Pump	13	42.5	38	423	12	42.5	33	408	9	42.5	22.5	274	9	42.5	23.5	261
Treadle Pump	31	396.7	94	851	31	396.7	90	845	132	396.7	209	3,068	132	396.7	209	2,762
Watering Can	53	435.2	104	1,092	53	435.2	99	997	172	435.2	239	3,289	171	435.2	240	3,289
Totals	145	3,024.4	1,519	9,694	144	3,024.4	1,472	9,600	363	3,024.4	1,613.5	13,530	366	3,024.4	1,672.5	11,155

*Source: District Irrigation Office 2017.*

**Table 26: Utilised irrigated area by EPA**

EPA	July 2013-June 2014				July 2014-June 2015				July 2015-June 2016				July 2016-June 2017			
	Sites	Dev. Area	Utilisation	FHH	Sites	Dev. Area	Utilisation	FHH	Sites	Dev. Area	Utilisation	FHH	Sites	Dev. Area	Utilisation	FHH
Domasi	35	1,523	1,008	6,006	35	1,523	1,008	5,956	39	1,523	968	3,099	39	1,523	804	3,747
Nsanama	13	384	197	907	13	384	197	892	19	384	156	1,906	19	384	253	822
Mtubwi	21	237.1	72.1	656	21	237.1	72.1	650	54	237.1	87	1,144	55	237.1	99.8	1,259
Nanyumbu	19	292	43.5	419	18	292	43.5	416	50	322	114	2,036	51	322	114	1,198
Chikweo	13	24.7	92.2	679	13	24.7	29.5	670	12	24.7	19.6	2,922	12	24.7	19.6	398
Nampeya	21	205	59.5	592	21	205	59.5	589	52	205	105	2,214	52	205	105	1,521
Ngokwe									29	81.5	34	605	28	81.5	14.8	487
Nyambi	18	188	33	333	18	188	33	329	65	188	108	1,103	65	188	109	1,103
Mbonechera	5	58.7	14	102	5	58.7	14	98	44	58.7	21	502	45	58.7	21.4	618
Totals	145	2,912.5	1,519.3	9,694	144	2,912.5	1,456.6	9,600	364	3,024	1,612.6	15,531	366	3,024	1,540.6	11,153

*Source: District Irrigation Office 2017.*

#### **4.2.1.4 Nutrition**

##### **4.2.1.4.1 Facilities Offering Nutrition Support**

The agriculture sector's food and nutrition section promotes dietary diversification and backyard gardening as well as providing trainings and nutrition education to community nutrition groups/CBOs on a number of food and nutrition-related issues:

- Food processing, preparation, utilization and storage
- Food budgeting
- Nutrition and HIV/AIDS
- Micronutrient deficiency disorders
- Dietary-related non-communicable diseases

##### **4.2.1.4.2 Nutrition Support for HIV/AIDS-Affected People**

MGDS III (Section 6:1:10) discusses the HIV/AIDS Management in Malawi. Its broader goal is to enhance efforts for HIV/AIDS prevention, treatment and management of related impacts and has provided the national policy guiding principle on nutrition and management of HIV/AIDS.

One major pathway is through agriculture. There are a number of trainings being provided to people living with HIV/AIDS by the agriculture sector and other stakeholders. Most of these trainings are provided for CBOs. These trainings include linking nutrition to HIV/AIDS; participants are trained on frequency of feeding, choice of foods, food preparation, and use of herbal remedies for different opportunistic infections that may result from their infection. Programs like the FISP also deliberately target such vulnerable groups to ensure food and nutrition security; the program provides a nutritionally valuable legume package in addition to maize.

##### **4.2.1.4.3 2% ORT Support for Government Employees**

Different sectors are implementing the 2% ORT support differently. Some sectors provide food items, while others provide cash to employees that have declared their positive sero status. The agriculture sector provides MK5, 000 to each employee.

#### **4.2.2 Fisheries**

Fishing is a significant livelihood source for people of Machinga District. Approximately 4,000 people are directly engaged in fishing as gear owners and crew, and more than 5,000 people work in fish processing, transportation, and marketing. The number of people engaged in the fishery value chain fluctuates year on year depending on the water surface area, which is a major determinant of fish productivity.

Lakes Chiuta and Chilwa and the Shire River are the three major fisheries in the district. Despite the high potential, the Shire River fishery is not well developed and not easily accessible to the major market routes. Subsistence fishing occurs in the Domasi, Likangala, Lisanjala, Lifune, Mpiri, and Likwenu Rivers. There are 30 active fish beaches in Lakes Chilwa and Chiuta, which form the base for fishing activities in fishing villages, processing, and marketing. In Lake Chilwa, these beaches are under the jurisdiction of Senior Chief Kawinga, Traditional Authorities Mlomba and Mposa, and STA Mchinguza. In Lake Chiuta, they are under TAs Ngokwe and Chikwewo. Fish production from Lake Chiuta is estimated that between 3,000 – 5,000 tonnes per year and valued at \$394,800



(beach price). There are about 828 full time fishers in Lake Chiuta. Fish production from Lake Chilwa (Machinga side) is estimated at between 3,700 – 6,000 tonnes per year valued at \$1,546,665. There are more than 800 full-time fishers in Lake Chilwa on the Machinga side. In the district, capture fisheries is predominantly artisanal and is characterised by lack of motorised fishing crafts. It relies much on traditional fishing gear, including fish traps, gillnets, long line, and hook and line, and a few seine nets for Matemba fishing.

#### 4.2.2.1 Aquatic Ecosystems

Historically, the Makumba and Mlamba have been the target species in Lake Chiuta’s fishery. Both catfish and *Barbus spp.* are consumed locally rather than sold (Ngochera et al. 2001). Since 1979, the primary catches consist of Makumba (54%), Mlamba (13%), Matemba (12%), and 21% miscellaneous (GoM 1999). Mormyrids are also consumed locally, while the Makumba species are the primary catch with approximately 60 tons/month harvested and sold (Ngochera et al. 2001) in the late 1990s. Catch levels have remained relatively stable for most species, except for Makumba, which has decreased. Passive gear is used to harvest the majority of fish from Lake Chiuta, and the submerged aquatic vegetation areas and the shallow depth prevents the use of large-scale boats or active fishing gear (i.e. trawling). Fish landings from Lake Chilwa historically represented on average ~25-30% of Malawi’s total catch (Macuiane et al 2009, Kalindekafe 2014); it can yield ~344 kg/ha/yr. of fish. The main fish caught, *Barbus paludinosus* and *B. trimaculatus*, constituted up to 70% of Lake Chilwa’s 15,000 ton/yr total catch in 2000 (Environmental Affairs program 2000, Njaya 2001). However, the mean total catch has been on the decline since the highs in the 1990s from 12,000 mt to about 7,500 mt in 2009 (GoM 2010), and now represents only 10% of the country’s fishery (GoM 2010).

The human population has greatly increased in the Lake Chilwa catchment area. Small-scale fisheries, livestock, and bird hunting complement food and income when other resources are low (Chiwaula et al. 2012, Kafumbata et al. 2013, Phipps 1973, Kalk et al. 1979). The increasing population levels have led to increased number of fishers and fish processors. The level of effort varies with the health of the fish stocks, with the number of fishing crewmembers fluctuating from 3,000 to 6,000. There is a similar number of people involved in processing and trading (GOM DoF 2014; Machinga District Council, 2012; UN Machinga Climate Proofing Profile). Fish processing and trading are common livelihoods among women living in fishing communities.

**Table 27: Machinga lakes profiles**

	Lake Chiuta	Lake Chilwa
Lake Length (km)	60 km	60
Lake Width (km)	20 km	40
Lake Area (water)(km <sup>2</sup> )	200	600
Catchment Area (km <sup>2</sup> )	2,462	175,000
Lake Depth (m)	3-4 m	2.5m
Lake Altitude (masl)	620 masl	624m
Fish Production (t/yr)	3,000 – 5,000	15,000- 20,000
Estimated beach value (2015)	\$394,800	\$6,186,660
Number of fishers (full-time)	828	~3,197
Plank boats	144	562: 6 with engines, 556 without engines
Canoes	1,283	1066
Value of fishery (USD/yr)	\$394,800	\$17 million
Number of BVC	15	32 (97% active)

**Note:** The Machinga side of Lake Chilwa is almost one-quarter of the whole lake.

Source: Fisheries Department - Machinga

#### 4.2.2.2 Fisheries Governance and Structure

In order to protect and manage fisheries resources and to support local communities and the private sector in the development of capture fisheries and aquaculture, the Department of Fisheries offers extension and training services, research (in both capture fisheries and aquaculture), and enforcement of fisheries laws and regulations.

The extension services for capture fisheries follow the participatory fisheries management (PFM) regime, which advocates the participation and engagement of local communities through Local Fisheries Management Authorities (LFMAs) e.g. Beach Village Committees (BVCs) and Fisheries Associations (FA) with support from government. The LFMAs (BVCs and FAs) act as intermediaries between fishing communities and the Department of Fisheries. Participatory fisheries management allows for a two-way channel of communication in the sustainable management of the fisheries resources through active engagement of resource users and adoption of fisheries regulations. The extension services are delivered through designated areas known as minor strata along the coastline and corresponding beaches. As stipulated in the local community participation act, fishing communities form local management structures known as BVCs and a sub-committee is elected to assist in the management of the fisheries resources in a designated area (Table 28).

**Table 19: BVCs established in the minor strata for fisheries resource management**

Water Body	Minor Stratum	Number of BVCS	Total
Lake Chiuta	10.1 Dinji	7	15
	10.2 Saleya	8	
Lake Chilwa	9.1 Namanja	6	18
	9.2 Mposa	12, including 5 RVCs	

*Source: Fisheries Department - Machinga*

Extension services in the aquaculture subsector follow the new agriculture demand-driven pluralistic extension policy. Pluralistic extension recognizes the inherent diversity of farmers and farming systems and the need to address challenges in rural development with different services and approaches. It is characterized by the coexistence of multiple public, private, and mixed extension systems and approaches; multiple providers and types of services; diverse funding streams; and multiple sources of information—all of which benefit from some degree of coordination and regulation that facilitates interaction and learning. Ideally, the outcome of pluralistic extension services is that different client groups in different contexts are satisfied with their access to the services that they have demanded.

##### 4.2.2.2.1 Enforcement and Inspectorate Services

Monitoring and controlling of fishing activities by government is needed to ensure that fishing laws and regulations are complied with. The main goal of the licensing and inspectorate unit is to maintain effective fisheries inspections in areas not under participatory fisheries management and also to support local fisheries management authorities in enforcement in order to control exploitation and ensure sustainable utilisation of fish resources.

Due to limited staffing levels in the Department of Fisheries, the enforcement section for the district is located in Zomba District. Machinga District carries out enforcement activities in liaison with the Zomba District Fisheries Office, especially for Lake Chilwa. Enforcement activities for Lake Chiuta very much rely on local community participation as they have strong fisheries governance structures in place.

Licensing of fishers is mainly done with help from inspectorate officers from Zomba; in 2015/16, the district collected MK450, 000 from licensed entities from the Lake Chilwa side of Machinga and MK400, 000 from Lake Chiuta.

#### 4.2.2.3 Contribution of Fisheries to Machinga District Economy

Machinga district fisheries resources are valued at about \$4.8 million annually. The total value is comprised of \$4.25 million from Lake Chilwa, \$394,800 from Lake Chiuta, and \$165,746 from fish farming activities.

Total fish production from capture fisheries has been declining over the years because of recession of the lakes due to climate change and variation and use of illegal fishing gear and methods. As the catches decline, their monetary value increases, attracting even more local community members to get involved in fishing activities as a means of livelihood. The district has, on average, more than 1,624 full-time fishers, of which 825 are from Chiuta and 799 from Chilwa (GOM DOF, 2015).

**Table 20: Volume of fish catch by water body and values (2010 – 2015)**

Years	Lake Chilwa Fish Production (metric tonnes)	Lake Chiuta Fish Production (metric tonnes)
2010	2,004.75	2,549.00
2011	4,240.00	2,627.00
2012	1,998.25	1,322.00
2013	745.50	290.00
2014	722.25	293.00
2015	1,679.88	1,165.35

*Source: Coastal Resource Centre 2016.*

##### 4.2.2.3.1 Fish Processing and Marketing

The main objectives of fish processing are two-fold: increasing fish shelf life and improving quality to reduce post-harvest losses. The most practiced technologies in both Chilwa and Chiuta include sun drying, pan roasting, and smoking. In Lake Chilwa, most of the processing activities are conducted right in the waters on floating islands locally known as “Chimbowera”.



**Photo 5: Fish drying at Chimbowera**

*Sources: Fisheries Department - Machinga*



**Photo 6: Fish smoking kiln**

In Lake Chilwa, about 735 fish processors, who mostly do their work on floating islands, use the improved smoking kilns that are being promoted by the Department of Fisheries. Fish marketing is done right at the lake, either processed or fresh. The fish market chain involves the fishers,

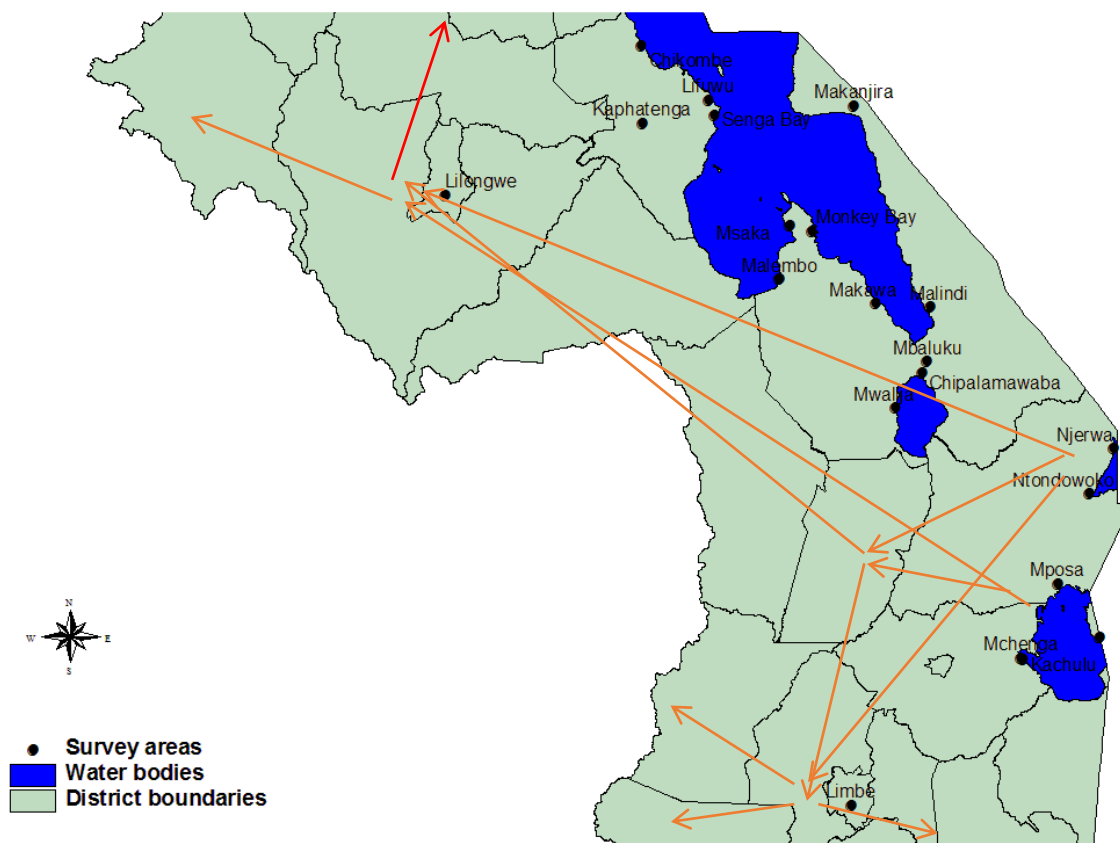
processors, venders, and retailers. Fish from Lake Chilwa is not only sold in the surrounding trading centres but is also sold to market centres such as Lilongwe and Blantyre.

**Photo 7: Fish transport**



*Source: Fisheries Department - Machinga*

**Map 6: Market routes of processed fish from Machinga to Central and Southern Malawi**



*Source: Fisheries Department - Machinga*

#### 4.2.2.3.2 Aquaculture (Fish Farming)

Aquaculture, the management of aquatic organisms under controlled or semi-controlled environments, is to a large extent still under-developed and has the potential to supplement the declining fish catches from natural water bodies. The aquaculture section has more than 160 ponds

throughout the district. Benefits from aquaculture include promoting household-level food security, increasing animal protein intake, providing an alternative source of livelihood, and a source of income.

**Table 30: Status of fish farming**

Total # of Fish Farmers	Total # of Ponds	Total Pond Area (sq.m)	Total Area (ha)	Total Ponds under Utilization	Total no of ponds dried up
623	168	54627.8	5.4627	154	14

Source: Fisheries Department - Machinga

**Table 21: Production estimates for Machinga fish farming**

ADD	District	Fish Species	Area (ha)	Average Yield (kg/ha)	Production (mt)	REMARKS
Machinga	Machinga	<i>Oreochromis shiranus</i>	6.25	5,934	37.09	8.00
		<i>Oreochromis karongae</i>	0	0	0	
		<i>Tilapia rendalli</i>	0	0	0	
		Other	0	0	0	
	Machinga Total		6.25	5,934	37.09	
Final Round 2015-16			5.46	6,289	34.34	Production increase by 8% due to increase in area.
First Round 2015-16			3.61	9,972	36.00	

Source: Fisheries Department - Machinga

Production increased by 8% 34.34 to 37.90 tonnes due to an increase in pond area and good management. With the estimated production of about 37.09 metric tonnes from fish farming and a minimum fresh fish price of MK2,000 per kilogram, the value of fish farming in the district is pegged at MK74,180,000(\$98,906.7)

#### **i. Opportunities and Challenges to the Development of Small-Scale Aquaculture**

The district has one of the highest potentials for growth in fish farming in the country. The district has several perennial rivers, the presence of several irrigation schemes as potential areas to expand with fish ponds, and good soils for the construction of fish ponds. Lake Chiuta and the Shire River could be potential sites for small-scale cage culture. There are, however, a number of challenges, including low precipitation leading to low water levels, lack of capacity for the fish farmers (especially in the areas of pond management and marketing), and low availability of inputs like fingerlings and feeds, which are currently produced by the National Aquaculture Centre at Domasi and MALDECO Aquaculture Limited in Mangochi, respectively.

#### 4.2.2.4 Partners

**Table 32: Collaboration with other partners**

Organization	Activity	Period	Location
PACT	Promotion of biodiversity conservation and climate change resilience	2014 to 2018	Areas around Lake Chilwa and Lake Chiuta
UNDP (Climate Proofing)	Promoting climate change adaptation, proofing and sustaining economic growth and food security	2015 to 2019	TAs Chikwewo, Nyambi, and Mlomba
MASAF 4	Promote fish farming and improve livelihoods of the local people	2015 to 2018	Whole district
AGRI TT	Aquaculture technology transfer	2014 to 2017	TAs Nkula and Chamba
ASWAP-SP	Promotion of best aquaculture practices	2014 to 2017	TA Nkula

*Source: Fisheries Department - Machinga*

#### 4.2.2.5 National Fisheries Policy Objectives

The main objective of the National Fisheries and Aquaculture Policy 2016 is to sustainably increase fisheries and aquaculture productivity for accessible nutritious food and increased contribution to economic growth.

**Table 33: District fisheries office priorities**

Issue	Causes	Immediate Development Objective	Strategies
Reduced annual fish production from capture fisheries	Illegal fishing Non-compliance with fisheries regulations Habitat degradation Inadequate financial resources Drying up of water bodies due to effects of climate change	Increase annual fish production from capture fisheries	Develop area-specific management plans for various water bodies in the district Enhance monitoring and control of the use of the fisheries resources in collaboration with various stakeholders Promote ecosystem fisheries and natural resources management
Low fish production from aquaculture in the district	Poor quality fish fingerlings Lack of quality fish feed Drying of ponds due to effects of climate change	Promote development of small- and large-scale commercial aquaculture production in the district	Promote development of integrated fish farming schemes Promote local feed production Increase utilization of dams, Irrigation canals, and other water bodies for small-scale aquaculture Facilitate/promote the establishment of fingerling production centres/hatcheries Promote large deep fish pond technology
Weaker participatory fisheries management regimes	Weak local community fisheries management institutions Inadequate financial resources from government to enforce regulations.	Strengthen participatory fisheries management structures in the community	Promote the formation and sustainability of strong local fisheries management institutions for devolution of fisheries management and enforcement of regulations Enhance collaboration among

Issue	Causes	Immediate Development Objective	Strategies
	Increased non-compliance of fisheries regulations Corruption		natural resource management sectors and programmes Develop local fisheries management plans for different fish stocks and geographical areas where they do not exist already, in collaboration with local management institutions Integrating fisheries extension in District Assembly's structure and functions Maintain up-to-date fisheries legislation and regulations
High levels of fish post-harvest losses	Poor infrastructure for fish handling, processing and value addition Weak enforcement of fish quality standards	Reduce fish post-harvest losses	Promote fish quality inspection Facilitate development of appropriate infrastructure for fish handling, processing, and value addition by establishing landing and marketing facilities for fish in key areas Collaborate with competent authority in the development and enforcement of fish quality standards

Source: Fisheries Department - Machinga

**Table 22: Machinga Fisheries Development Planning Framework**

Issue/Problem	Causes	Development Objective	Immediate Objective	Strategy
Declining fish production from capture and aquaculture fisheries	Overfishing Sedimentation Climate change and variability Lack of compliance to fisheries regulations	Increase fish production from both small scale and commercial fish farming	Increase and promote annual fish production from capture and aquaculture fisheries	Promote alternative business Promote fish farming Strengthen supervisory and reinforcement Promote integrated catchment management
Low investment and participation in small and large aquaculture production	Inadequate knowledge of fish-farming technologies		Promote development of small- and large-scale commercial aquaculture production in the district.	Promote community and private sector participation in small and large aquaculture production Lobby for more budgetary support to fisheries Establish database for highly potential areas

				for aquaculture
Weak governance structures at district and community level	Inadequate institutional capacity for sustainable fisheries management		Strengthen participatory fisheries management regimes	Capacity building for community and district level institutions Lobby for full decentralization of fisheries activities
Low value addition to fisheries products	High post-harvest losses		Reduce fish post-harvest losses	Enhance appropriate fish post-harvest handling technologies and infrastructure

Source: Fisheries Department – Machinga

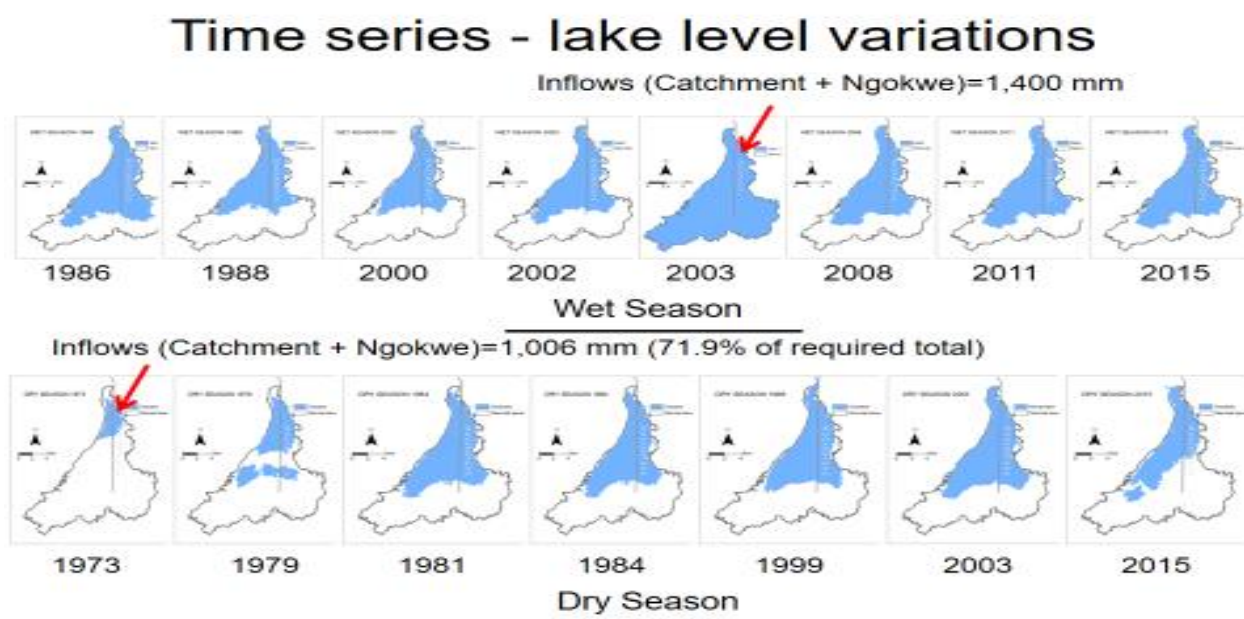
#### 4.2.2.6 Key Fisheries Issues and Most-Affected Areas

Lake Chiuta and Lake Chilwa (Machinga side) are the areas most affected by overfishing, illegal fishing, sedimentation, trans-boundary conflicts with Mozambique fishers, and climate change/variability (See Figure 9 and 10). Some threats affecting fisheries resource management are highlighted in Table 35.

Lake Chiuta has not been at maximum capacity since 1986, except in 2003, and even that year during the dry season, the lake lost almost half of its waters. Catchment water retention is very low due to catchment degradation.

By 2028, Lake Chiuta water levels are predicted to dwindle to below 500mm. However, if the district engages in Lake Chiuta catchment rehabilitation, water levels might instead rise to a minimum of 1,500mm by the same year. This could be the same with Lake Chilwa.

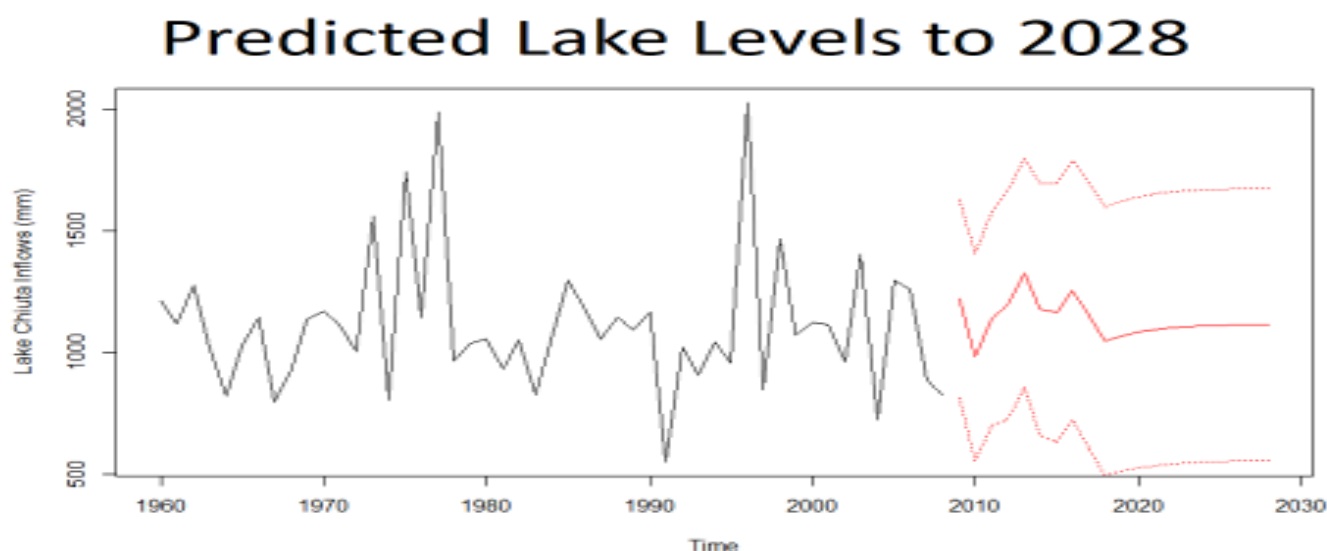
Figure 9: Lake Chiuta water level variation during wet and dry seasons



Source: Fisheries Department - Machinga



Figure 10: Predicted water levels in Lake Chiuta by 2028



Source: Fisheries Department - Machinga

These diagrams were sourced from a research database that did not have the complete information to enable Machinga District Council to match years of wet season lake status to that of dry season status, correspondingly, especially figure 21. As a result, the presented picture is fragmented.

Table 35: Threats, drivers, and impacts on fisheries resources

Threats	Drivers and Contributing Factors	Impacts
Loss and fragmentation of submerged and emergent aquatic vegetation	Removal of submerged and emergent aquatic vegetation by the local communities to create beach landing sites and additional fishing grounds and for farming	Decline in fish abundance due to loss of habitat for breeding, feeding, and nurseries Loss of buffer to capture sedimentation, which in turn increases the lake's turbidity levels Eutrophication of the lake due to the rotting of cut vegetation left in the lake
Overfishing due to increase in numbers of fishers, boats, and gear	Open access nature of the fishery Lack of effective governance limits on fishing capacity Catch drive exploitation beyond biological and economic sustainability High Post-harvest losses (30-40%) of Matemba and other species due to poor fish handling and processing practices and facilities Population growth Lack of alternative livelihood opportunities	Reduced abundance and size of fish Post-harvest losses reduce economic value of the fishery and total available protein for human consumption Reduced per capita consumption of fish

Illegal and destructive gears	Poor governance capacity Low compliance and enforcement of rules (including non-compliance with closed areas/seasons and use of illegal and under-meshed gear) Corruption that often creates disparities in traditional fishery management across fishing villages Ineffective coordination of traditional and formal fisheries management system	Catch of juvenile fish Reduced recruitment of fish Destruction of habitat Reduced abundance and size of fish
Sedimentation	Catchment land use change Deforestation causing erosion and sediment run-off Bad farming practices Non-compliance to regulations on buffer zone along rivers and lakes (10 meters buffer zone)	Silt on river inlets and lake bed lowers lake level Destruction of fish breeding sites and habitat Reduction in species abundance and diversity Increases nutrient levels
Climate change and variability	Natural and anthropogenic activities	Lower lake level Habitat degradation Reduction in species abundance and diversity Drying of rivers, lakes and fish ponds

*Source: Fisheries Department - Machinga*

#### 4.2.2.7 Possible Solutions to the Challenges Affecting Aquaculture

- Construct larger and deeper ponds to accommodate higher stocking densities and reduce rate of evaporation.
- Promote feeding of fish with good quality fish feeds.
- Raise only males to increase fish growth.
- Avoid recycling of fish from one growing season to another and prevent stunting.
- Encourage stocking of good quality fingerlings from a recommended source.

#### 4.2.2.8 Possible Solutions to Fisheries Issues

- Protect fisheries by addressing sediment loading.
- Protect fisheries by establishing no fishing zones (sanctuaries for fish breeding).
- Educate communities on forest and river-line management.
- Promote energy saving and climate-smart fish processing facilities.
- Form and strengthen beach village and natural resources conservation committees.
- Provide loans to start businesses and reduce pressure on fisheries resources.
- Plant trees on deforested areas and along river line.
- Implement by-laws that prevent illegal fishing.
- Provide education and training on climate change effects and adaptation.
- Initiate mapping and development of climate change adaptation planning.
- Rehabilitate catchments.

#### 4.2.2.9 Existing Interventions in Fisheries Resource Management

Complementing its mandate to protect and conserve the national fish heritage of Malawi through appropriate research and application of appropriate control mechanisms, the Department of Fisheries has several projects underway supporting fisheries resource conservation and management. A good example is the USAID-funded Fisheries Integration of Society and Habitats (FISH), which will run up to 2019.

#### 4.2.2.10 Strengths, Weaknesses, Opportunities, and Threats

**Table 36: SWOT analysis for fisheries sector**

<b>Strengths</b>	<b>Weaknesses</b>
Availability of trained fisheries extension officers Ability of district fisheries office to enforce the fisheries regulations and conducting licensing campaigns Support from traditional leaders to manage the fisheries resource	Inadequate staff Inadequate resources, especially transport Poor housing for field staff
<b>Opportunities</b>	<b>Threats</b>
Other stakeholders are taking part in fisheries resource management Fishing communities are forming and reactivating BVCs and Area Fisheries Committees	Illegal fishing Non-compliance with fisheries regulations Habitat degradation due to poor farming techniques and siltation Loss of breeding grounds

*Source: Fisheries Department - Machinga*

### 4.3 Commerce and Industry

#### 4.3.1 Types and Size of Business Establishments

Business activities in Machinga District range from small to large scale in the areas of trading, manufacturing, agriculture, credit, and banking. In trading, there are several retail and wholesale outlets such as Peoples Trading Centre, Petroda Filling Station, Puma Service Station, Total Service Stations, Chipiku Stores, Kulima Gold, Agora, and Southern Bottlers.

**Table 37: Large retail and wholesale outlets by location**

<b>Business Type</b>	<b>Business Category</b>	<b>Location</b>
<b>Southern Bottlers Limited</b>	Wholesale	Liwonde Ntaja
<b>Chipiku Stores</b>	Wholesale	Liwonde Ntaja
<b>Agora</b>	Wholesale/Retail	Liwonde Chikweo Ntaja Nselema Nsanama
<b>Kulima Gold</b>	Wholesale/Retail	Liwonde Ntaja Nsanama
<b>Nyanja Bakery</b>	Wholesale/Retail	Liwonde Ntaja Nsanama Nselema
<b>Cosmos Bakery</b>	Wholesale/Retail	Liwonde

		Ntaja Chikweo
<b>Puma Filling Station</b>	Retail	Liwonde
<b>SFFRFM</b>	Retail	Ntaja Nselema Nsanama
<b>Plastico Industries</b>	Retail/Wholesale	Nsanama
<b>Petroda Filling Station</b>	Retail	Liwonde
<b>Total Filling Station</b>	Retail	Liwonde/Mangochi turn off
<b>AFSHEM Limited</b>	Wholesale/Retail	Liwonde Nsanama Ntaja Nselema
<b>Export Trading Limited</b>	Retail	Liwonde, Ntaja, and Nselema

*Source: Machinga District Council Business Register 2017.*

Table 37 shows that most of the trading centres lack major wholesalers. Out of the major wholesalers, only AGORA and Nyanja Bakery are found in most locations. This creates also a gap in the availability of major suppliers of farm inputs in other trading centres. This is a challenge for farmers to access the farm inputs, as they have to travel long distances. Likewise, farmers have to travel long distances to sell their agricultural commodities because major buyers like Export Trading and AGORA are not located in remote trading centres. Vendors in these remote areas exploit farmers, offering only very low prices so farmers do not profit from their produce.

The district is encouraging farmers to work together in cooperative societies in order to increase their bargaining power. This will also attract major buyers, as they will be assured of buying agricultural commodities at one point of collection.

Absence of filling stations in rural areas has created a condition where people buy fuel from illegal traders at exorbitant prices, affecting prices of commodities relying on fuel such as maize mills.

Some services are both medium- and small-scale businesses, including privately owned motels, motor vehicle garages, restaurants, and rest houses.

Agro-based businesses also operate in the district. Liwonde Tannery processes leather. This company currently does not process finished products from the hides, but is one of the major buyers of skin/hides in the district. Their near-monopoly has an effect on the prices they offer. The company exports semi-processed leather to China, but they could process the leather or even make shoes or other products. There is a ready market for those leather products within the district and outside. This could create jobs in the district.

Malawi Fertilizer Company employs people from the communities surrounding Liwonde to process fertilizer. It also has no competitors in its industry. This means that if production is scaled up, it can take 100% of the market share for the supply of fertilizer to farmers.

Machinga has 23 graded trading centres. Liwonde Trading Centre is the highest graded trading centre in the district due to the quality and level of services offered including availability of piped water supply, electricity, security facilities like the police, markets, hospitals, banks, and other social amenities, which other trading centres in the district do not have. The District Council is in the process of expanding social amenities to trading centres through proposal writing and the Local Development Fund.

Ntaja is the second-fastest growing trading centre in the district. It has recently been connected with piped water under the national water program, and also has other social amenities like police, hospital, schools, markets, and major shops.

**Table 38: Trading centres and grades**

No.	Trading centre	Code	No.	Trading centre	Code
1	Liwonde	B2	13	Nyenje	D
2	Machinga	C	14	Chinguni	E
3	Nsanama	C	15	Molipa	E
4	Ntaja	B	16	Nkasaulo	E
5	Mpiri	C	17	Nyambi	E
6	Namanja	C	18	Nampeya	E
7	Likhonyowa	C	19	Msosa	E
8	Nselema	C	20	Mikachu	E
9	Mposa/Mapira	D	21	Mmwenye	E
10	Ngokwe	D	22	Mpheta	E
11	Chikweo	D	23	Umbwa	E
12	Nayuchi	D			

*Source: Department of Physical Planning, Zomba*

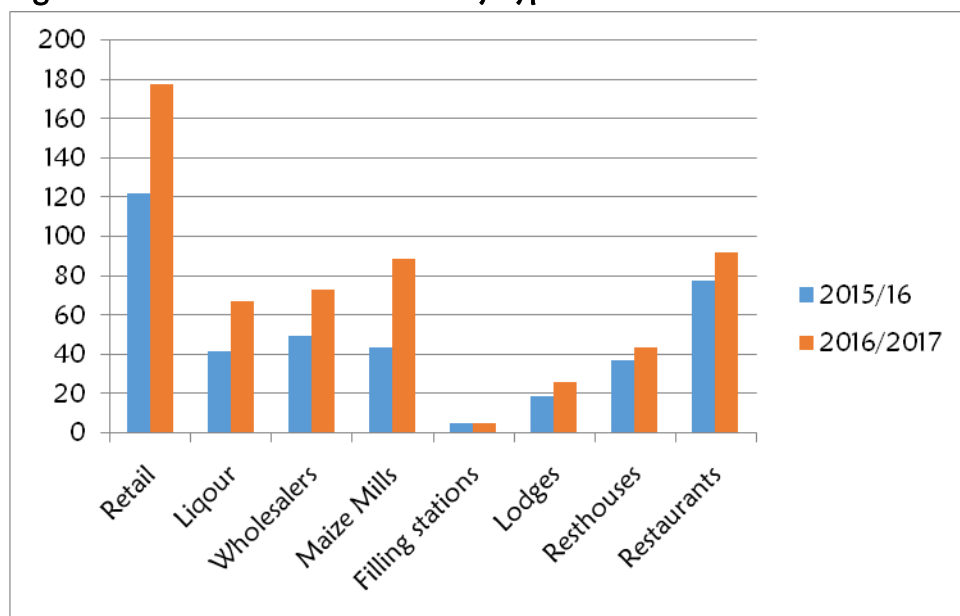
Most of these trading centres have not grown into higher class trading centres because of inadequate security, structures, and connectivity to electricity and water. The Department of Water Development embarked on connecting piped water to Nsanama and Ntaja Market centres, which is an improvement in terms of business operations.

The District Council is also mandated to collect revenue for the business establishments in its jurisdiction. Figure 11 shows the number of businesses operating and licensed by the district council. This, however, does not reflect the true picture; there is a need to conduct a thorough business survey. In Liwonde township fast growth from the movement of district offices from Machinga Boma to Liwonde, the coming of the dry port project and increased urban migration is causing an increase in demand for services including both residential and commercial accommodation and food and other commodities.

Of the non-graded trading centres, the most notable ones are Chamatwa, Mbanila, Chipamba, Mpita, Mkwepere, Mangamba, Mwitiya, Mpotola, Chingale Turn-Off, and Mpilisi. These should be included in an update and upgrading of the trading centre planning document by the Department of Physical Planning since the current one dates from 2003.

The district is already working towards grading the remaining trading centres and upgrading the others already graded.

**Figure 11: Number of businesses by type**



*Source: Machinga District council business register*

There has been an increase in the number of almost all the types of business ventures except filling stations due to increased demand for commodities and an increased number of investors in the district. The number of upcoming projects in Liwonde for example, construction of roads, Nacala corridor railway line has increased demand for accommodation among employees. In the process, the number of restaurants has also increased. The number of maize mills has increased due to connectivity of several trading centres to electricity under MARLEP projects. Many people have ventured into retail businesses due to improved access to loans. Women especially are able to access loans through village savings and loans and microfinance institutions.

Filling stations are currently concentrated in only Liwonde and Ntaja. But the improved road network to the trading centres means the district council is in the process of courting potential investors to open filling stations in Nselema and even Ngokwe.

#### **4.3.2 Banking and Credit Facilities**

There are four banking and six lending institutions in the district: National Bank of Malawi, NBS Bank, FDH Bank, First Merchant Bank (FMB), Pride Malawi, Green Wing Financial Services, Malawi Enterprise Development Fund (MEDF), CUMO Finance, FINCA, and Microloan Foundation.

All are available in Liwonde Township apart from FDH Bank, which has a branch at Ntaja Trading Centre. NBS Bank has satellite banking points called *banki pafupi* in Ntaja and Nselema Trading Centres that are operated by shop owners in the district. In general, access to banking services is inadequate. Communities do not demand these facilities largely because of low knowledge on their availability, lack of a saving culture, low levels of disposable income, and failure of banks to reach out to potential customers. The banks say that the district does not have the infrastructure to accommodate more banks, and in some cases the banks fail to open up new branches due to small number of customers in those trading centres. Poverty is a major factor leading to a poor saving culture.

Some banking institutions including NBS and FMB have introduced mobile credit and banking vans that visit Nsanama, Ntaja and Nselema Trading Centres at least once a week.

Some people do not patronize banks because access to loans is very limited. Most of the commercial banks offer loans to both the formal and informal employment sector. For commercial banks, the base lending rate is 30.5%, while for micro-finance institutions, it is 38%.

Apart from these formal banking and lending institutions, there are several village banks that are organized by the community members themselves. This Village Savings and Loan initiative is being spearheaded by government and NGOs through the Community Development Office under COMSIP. The loans given or accessed from the village banks have interest rates ranging from 10% to 30%, and are available to members only. Data shows that these loans are accessed mostly by women, who use them to run small-scale businesses. Farmers access loans from MEDF at 15%. They do not use the banks because of lack of collateral or because they are not organised as cooperatives or associations.

### **4.3.3 Business Promotion Services**

Business advisory, promotion and training services are provided by both private and public institutions such as MACOHA, Ministry of Labour, Ministry of Gender and Children and Social Welfare, Ministry of Industry and Trade, and Ministry of Agriculture and Food Security. These institutions offer different services in the promotion of businesses in the district, including business idea generation, group formation, value addition, provision of processing machines, market linkages, product packaging and quality control, technical skills development, and cooperative member education/management.

There are many small and medium enterprises (SMEs) in the district but only a few are formally registered by the government. Currently the district has a total of 19 registered farmer's cooperatives and 7 farmers' associations. Support is needed for the provision of business advisory services to these SMEs as the development of these organisations will facilitate growth in per capita income, access to markets, business performance, access to foreign exchange and employment.

Realising the importance of the MSME sector in improving the productive base of the economy through value addition and job creation, the district has embarked on some efforts in supporting these SMEs in value addition and market linkages. Currently, the district has two One Village One Product (OVOP) projects: Likhomo Beekeeping and Honey Processors Cooperative Society and Zumulu Rice Milling, Packaging and Marketing Cooperative Society.

There are 19 registered cooperatives in the district, but only 9 are functional. Sometimes farmers are not committed to running cooperatives. Other cooperatives are established by projects and lack proper handover to the relevant government sector (Trade and Industry). Support is needed to build the capacity of the cooperatives to make them vibrant.

Cooperatives are supposed to be supervised by the district trade officer on monthly basis, but resource limitations means that this does not always happen. The district currently receives monthly average funding of MK240, 000 to monitor and build the capacity of the cooperatives. The required amount is about MK1, 000,000. It is therefore important that government consider increasing this allocation.

It has been shown that farmers with value addition equipment have a comparative advantage over those without as they are able to fetch better prices on the market as well producing quality value-added products. Value addition facilities in the district are still a challenge since only seven groups have them and demand is increasing. Farmers are, however, accessing these facilities through other

projects in the district, including Climate Proofing Project, which is providing honey processing equipment to farmers in Mlomba, Nyambi, and Chikweo. SIVAP project also constructed a value addition centre in Traditional Authority Nsanama. The district should work towards the provision of value addition equipment for these farmer groups.

Currently the district does not have an established business support unit as are found in other districts. These services are now offered in the respective government offices as well as by NGOs.

#### 4.3.4 Labour and Employment

##### 4.3.4.1 Labour Force

The Machinga District Labour force comprises men, women, and youth. The labour force participation rate for both the formal and informal sectors is 99.1%, 99.2% for men and 98.9% for women (NSO 2008) (Table 39).

**Table 39: Employment status by gender**

Gender	Unemployment Rate	Employment Rate
Female	93.4	6.6
Male	81.3	18.7
District		

*Source: NSO 2008*

Most employment is done informally, as is evidenced by the low numbers of people seeking formal employment through the District Labour Office. A total of 361 job seekers reported over the last five years (Table 40).

**Table 40: Job seeker's profile**

	2012	2013	2014	2015	2016
Clerical	3	100	1	1	1
Painter	0	0	1	1	1
Cook	1	1	1	0	4
Labourer	2	3	13	19	25
Sales	0	0	0	0	0
Security Guard	11	19	50	4	5
Bricklayer	1	22	4	2	1
Driver	2	4	2	5	7
Teacher	0	0	0	0	0
Electrician	0	0	0	0	0
Carpenter	0	0	0	0	0
House Servant	1	4	1	4	1
Gardener	1	0	0	0	0
Secretary	0	0	0	0	1
Waiter/Waitress	0	0	0	0	0
Cleaner	2	0	0	2	0
Messenger	1	0	0	1	0
Tailor	1	0	0	0	0
Data Entry	23	0	0	0	0
Plumber	1	0	0	0	0
<b>Total</b>	<b>50</b>	<b>152</b>	<b>73</b>	<b>40</b>	<b>46</b>

*Source: District Labour Office 2016*



The total number of employed people in the formal and informal sector is 8,100, of which 5,600 are men and 2,500 are women. Records for employment figures in the formal sector are scarce and indicate that almost 25% of the total 8,100 are employed formally.

**Table 41: Employment status by gender**

Type of Employment	Number Employed	
	Males	Female
Formal	1,600	400
Informal	4,000	2,100

*Source: District Labour Office 2016*

#### 4.3.4.1.1 Employment Sectors

The current minimum wage in Machinga District is MKW962 per day, for eight hours a day, six days a week. The district has no organized labour union of its own and all those interested affiliated themselves to national bodies like the Civil Service Trade Union or the Teachers Union of Malawi.

#### 4.3.4.1.2 Labour Inspections and Types of Inspections

Labour inspections are core functions of the Ministry of Labour. One labour inspector is supposed to conduct 60 labour inspections in a year, spending 75% time working in the field and 25% time in the office. Labour inspections include:

- Checking the condition of services of employers and ensuring that they are in line with current labour laws.
- Giving technical information and advice to employers, employees, and any other persons on labour matters.
- Enforcing labour laws.

The types of inspections include:

- Routine labour inspections
- Follow-up inspections
- Special labour inspections
- Labour complaints inspections
- Workers' compensation inspections

**Table 42: Number of inspections conducted**

Type of inspection	2012	2013	2014	2015	2016
Routine	21	12	20	25	18
Follow-up	0	1	10	2	5
Special	0	2	0	0	0
Complaints	5	5	10	8	15
Workers' compensation	0	0	8	5	5
<b>Total</b>	<b>26</b>	<b>20</b>	<b>48</b>	<b>40</b>	<b>42</b>

*Source: District Labour Office 2016*

The District Labour Office settles labour complaint cases and industrial disputes (Table 43).

**Table 43: Number of labour complaints registered and settled**

Year	Number of Complaint Cases Registered	Number of Complaints Settled
2012	132	156
2013	79	62
2014	97	86
2015	72	71
2016	68	61

*Source: District Labour Office 2016*

The District Labour Office is mandated to process workers' compensation on behalf of employees who are injured or die in the course of employment (Table 44).

**Table 44: Number of workers' compensation processed and settled**

Year	Number of Cases Registered	Number of Cases Processed and Settled
2012	24	14
2013	16	10
2014	14	19
2015	21	13
2016	21	16

*Source: District Labour Office 2016*

#### **4.3.4.1.3 Elimination of Child Labour**

The Machinga District Labour Office has the additional duty of eliminating child labour in the district, which it works towards through:

- Prevention of children from entering into the labour market through awareness campaign and sensitization meetings.
- Withdrawing children from child labour.
- Rehabilitating child labourers.
- Prosecuting perpetrators of child labour

#### **4.3.4.2 Opportunities and Problems for Employment**

The District Labour Office highlights the following as problems or challenges in the labour sector:

- Insufficient funding for elimination of child labour:
- Payment of wages below statutory minimum wage
- Low minimum wage
- Non-provision of terminal benefits and leave days
- Non-existence of written conditions of services
- Ignorance on the calculation of severance allowance and gratuity
- Non-reporting of injuries to workers by employers
- Under staffing
- Lack of national ID use for age determination
- No provision for funeral assistance and repatriation in the Employment Act

These problems or challenges could be overcome through:

- Increasing the budget allocation for elimination of child labour

- Reviewing the minimum wage every three years
- Provision of terminal benefits on termination of employment
- Granting of annual leave days to employees by employers
- Training of employers on the calculation of gratuity
- Recruitment of additional staff
- Intensification of labour inspections
- Formation of district- and sector-based labour unions
- Provision of funeral assistance and repatriation provision in the Employment Act
- Reporting of injuries when they occur to workers
- Development of conditions of services in line with current labour laws for workers
- Reveal employment Act No. 6. Of 2056400

#### **4.4 Tourism**

Malawi Vision 2020 envisages a country full of blossoming tourism as an ingredient to economic development. This vision is spelt out in a section on 'Achieving Sustainable Economic Growth and Development' and subsection 'Developing Domestic and International Tourism' on page 43. Similarly, Chapter 6:1 of the MGDS III highlights areas with potential for exploitation and investment in the tourism sector in Malawi. Machinga District is taking full advantage of this vision and policy guide.

Machinga District is rich in forms of recreation, tourism, and entertainment. Tourist destinations include Liwonde National Park, the Shire River, forest reserves, mountains, and Lakes Chiuta and Chilwa. Liwonde National Park and the Shire River offer diverse wildlife and vegetation and natural scenery. Tourist accommodations are concentrated in Liwonde Township within reach of all tourist destinations.

##### **4.4.1 Liwonde National Park**

Located at the southern tip of Lake Malombe, Liwonde National Park is a national treasure. While Malawi is not as well known for big game as other African countries, Liwonde is brimming with wildlife, making this national park the most popular in the country.

Map 7: Location of Liwonde National Park



Source: Department of Tourism - Machinga

#### 4.4.1.1 History and Conservation

Liwonde National Park was proclaimed in 1973 after Chief Liwonde called for its recognition as an area of importance for Malawi's wildlife heritage. A committee of local chiefs, farmers, a judiciary, and Wilderness Safaris continues the most active conservation work in the country. They also work to expand community development projects around the park, which play an important role in the success of Liwonde National Park as a safari destination.

Photo 8: Elephants and vegetation in Liwonde National Park



Source: Department of Tourism – Machinga

#### **4.4.1.2 Travel to the Park**

Blantyre, the commercial capital of Malawi, is the closest large city to Liwonde, with a travel time of only 30 to 40 minutes by small plane. Visitors may also travel from Lilongwe, which is only a little further afield. With the availability of an airstrip in the park, a common option for visitors is to travel by chartered flight.

Liwonde National Park is accessible year round. During the rainy season (from February to April), visitors travel to Mvuu Wilderness Lodge and Camp by boat.

#### **4.4.1.3 Bird Life**

Liwonde has the best year-round bird watching in Central and Southern Africa, not only due to the 300 species found at the park, but also because 'specials' such as Livingstone's Flycatcher, Pel's Fishing-Owl, Spur-winged Lapwing, Lillian's Lovebird, and the rare Brown-breasted Barbet can easily be spotted. Other species that are often seen are Bohm's Bee-eater, African Skimmer, Palmnut Vulture, White-baked Night heron, and Dickinson's Kestrel.

While the best bird watching is thought to be during the rainy season, tracks in the park can be closed off at this time due to flooding, which means that some safari drives and walks may not be available.

#### **4.4.1.4 Big Game**

As with bird life, there is plenty of wildlife to experience at Liwonde. Visitors who choose to stay at Mvuu Wilderness Lodge and Camp will find their lodgings right on the banks of a lagoon, where they will have prime viewing of animals such as hippos, Nile crocodiles, and elephants. This is especially the case during the dry season when the animals come to the banks of the Shire River to drink. Liwonde National Park is home to Malawi's largest elephant population.

Other animals that tourists may encounter are sable antelope, impala, waterbuck, reedbuck, warthog, kudu, yellow baboon, pangolin, monitor lizard, leopard, and velvet monkey. Lions are reported to have taken up lodgings in the park in the last few years, but sightings are rare.

Photo 9: Elephants along the Shire River



*Source: Department of Tourism - Machinga*

There is also a 4,000ha fenced-in sanctuary in the park. Wilderness Safaris is striving to reintroduce animals such as rhino, buffalo, Lichtenstein's hartebeest, zebra, roan, and eland, all of which were once hunted to local extinction. Sightings of these animals are not frequent.

Photo 10: Liwonde landscape



*Source: Department of Tourism - Machinga*

#### **4.4.1.5 Landscape**

The landscape of Liwonde is highly diverse, with dry *Mopani* woodlands covering the eastern half of the park interspersed with Candelabra trees (euphorbia). Areas of *Miombo* woodland can be found on a few hill slopes in the south and east, while palm savannah and baobabs are found on the extensive floodplains of the river, which have a more tropical feel due to the dense vegetation along the riverbanks.

#### **4.4.1.6 The People**

Five hundred people benefit financially from the Wilderness Safari Lodge and Camp in Liwonde National Park through employment and education for the local people, as well as conservation efforts in and around the park.

## CHAPTER V

### 5.0 Social Services

It is the vision of the Malawi Government to improve quality of life of its people by 2020. The Government explains this vision under ‘Social Sector Development’, which largely envisages reduced illiteracy; improved quality education; developed, deployed, and effectively used human resources; an improved education system; and improved availability, accessibility, and quality of health services. The Government of Malawi has developed strategies to realise these dreams through the MGDS III, Key Priority Area 5.2 for Education, which spells out that ‘Education and skills development is key for socio-economic development; industrial growth and major source of economic empowerment for different groups of people especially women, the youth and disabled persons’, on page 33. For health services, the strategy is well articulated in under Key Priority Area 5.5, page 41 of the MGDS III, which states that ‘Health is the linchpin for social economic development being the primary factor for improving quality of human capital of any nation’. Machinga District Council is now fulfilling this vision and is implementing the MGDS III.

#### 5.1 Health

**Photo 11: Machinga District Hospital, The Baby Friendly Hospital.**



*Source: DHO – Machinga 2017*

The role of the health sector in Machinga is in line with overall vision, mission, and goals of the health sector in Malawi. Currently health services in Malawi are guided by the new Health Sector Strategic Plan (HSSP), which runs from 2017 to 2022, while being responsive to specific health needs. The HSSP itself is aligned with other local and international level policies guidelines, especially the Sustainable Development Goals (SGDs) and MGDS III. SDG 3 and Key Priority Area (KPS) 5 of the MGDS III are the most relevant to health services delivery.

The vision of the health sector in Malawi as enshrined in the 2017-22 HSSP is to achieve a state of health for all the people that will enable them to lead quality lives. The mission is to provide strategic leadership for the delivery of a comprehensive range of quality, accessible, and efficient health services to all through the creation and sustenance of a strong health system.

The current goal of the health sector, endorsed by the World Health Organization, is to move towards universal health coverage with quality, equitable, and affordable health services, without



discrimination, and available to all irrespective of social economic status, distance to health facilities, age, sex, or tribe.

Machinga District Health Office develops annual implementation plans to guide delivery of health services in line with the HSSP. The community needs are factored into the plans through their participation, along with local leaders, during the planning and review meetings.

### **5.1.1 Health Services**

#### **5.1.1.1 Type of Health Services Offered in Machinga**

All health facilities in the district have outpatient services, and the district hospital has admission services. In addition to these curative health services, programs also provide specific curative and preventive health services:

- Maternal and child health services such as antenatal, child nutrition screening and treatment, immunization
- HIV/AIDS services such as anti-retroviral viral treatment, prevention of mother-to-child transmission
- Youth-friendly health services
- Environmental health services such as water and sanitation, food safety and hygiene, disease surveillance and control, disaster management, health care waste management, occupational health and safety, and port health services
- Health promotion and behaviour change
- Disease control programs for Malaria, Schistosomiasis, and TB
- Palliative and home-based care
- School health and nutrition
- Infection prevention
- Baby-friendly health initiatives
- Voluntary medical male circumcision

#### **5.1.1.2 Target Population for Health Services in Machinga**

The population of Machinga District is estimated at 647,401, and is projected to rise to 760,547 by 2022. Since various age groups and age categories have specific health needs, the population is further broken down (Table 45).

**Table 45: Machinga population by health service needs**

Category	Population Number
Under 1 population	33,412
Under 5 Population	113,598
Under 15 Population	320,747
Women of child bearing age population	153,692
Expected pregnant women population	33,412
Expected deliveries population	33,412
Expected emergency obstetric complications population	4,978

*Source: DHO – Machinga 2017*

The whole population is entitled to have curative health services offered in all twenty two (22) health facilities. However, there are some services offered to specific groups, such as maternal health services for women of child-bearing age. Child health services are targeted to children under the age of five years. The goal is for all targeted populations to access their particular services, but this does not always happen, due to many limitations and challenges in the health system.

### 5.1.1.3 Health Facilities

Machinga District has twenty-two (22) health facilities, which are owned by the government and CHAM. These facilities are located in almost all TAs. They are staffed by clinical, nursing and preventive health personnel (Table 46).

**Table 46: Health facilities**

Health Facility	Ownership	Traditional Authority	Population Served	Number of Beds
Machinga District Hospital	Government	TA Sitola	58,740	256
Gianni Health Centre	CHAM	TA Nkula	11,527	7
Machinga Health Centre	Government	TA Nkula	22,587	7
Chamba Health Centre	Government	TA Chamba	33,352	7
Mposa Health Centre	CHAM	TA Mposa	24,468	7
Mlomba Dispensary	Government	TA Mlomba	33,213	7
Nsanama Health Centre	CHAM	STA Nsanama	44,304	7
Ntaja Health Centre	Government	TA Kawinga	46,569	7
Kawinga Health Centre	Government	TA Kawinga	16,979	7
Nainunje Health Centre	Government	TA Kapoloma	18,895	7
Mpiri Health Centre	CHAM	TA Nkoola	30,389	7
Nyambi Health Centre	Government	TA Nyambi	33,440	7
Mkwepere Health Centre	Government	TA Nyambi	21,600	7
Namandanje Health Centre	CHAM	TA Liwonde	18,352	7
Mbonechera Health Centre	Government	TA Liwonde	13,976	7
Mangamba	Government	TA Liwonde	24,166	7

Health Facility	Ownership	Traditional Authority	Population Served	Number of Beds
Nayuchi Health Centre	Government	TA Nchinguza	20,539	7
Namanja Health Centre	Government	TA Nchinguza	36,607	7
Ntholowa Health Centre	CHAM	TA Kawinga	13,397	7
Chikweo Health Centre	Government	TA Chikweo	86,528	7
Ngokwe Health Centre	Government	TA Ngokwe	37,354	7
Chaone Health Centre	CHAM	TA Mposa	90,087	7

Source: DHO – Machinga 2017

Machinga District has only one secondary health facility, located in Liwonde Town. This means the district hospital receives many referrals from health centers, which affects the quality of health service delivery. If the district could have a rural health centre at Ntaja Trading Centre, some of the referrals could be handled there, improving quality and access to health services.

Health policy provides for at least one health facility for a population of 10,000. With the current population of Machinga at 647,401, the district should have at least sixty (60) health facilities instead of twenty-two (22). This has led to congestion and long distances to reach health facilities. For instance, Chikweo catchment area has a population of about 86,000 but only one health centre.

#### 5.1.1.4 Health Workers Staffing Levels

The district requires various cadres of health workers to effectively deliver health services. When health workers are few, those available are overworked and quality of health services suffers.

Table 47: Health workers staffing levels

Cadre	Requirement	Available	Shortfall
HSA's	668 (1/1000)	341	327
MA/Clinical Officers	70	46	24
Nurses	376	89	287
Doctors	10	2	8

Source: DHO – Machinga 2017 Annual Report

The current staffing levels show that the district has a critical shortage of health workers. Almost all health centers have one medical assistant (MA) except Chikweo and Ntaja, which have two MAs and seven nurses. Most health centers have an average of only two nurses. This means that the district cannot effectively deliver health services, and that the available health workers are completely overworked. There is a need to recruit more health workers as established in the Machinga Establishment Warranty.

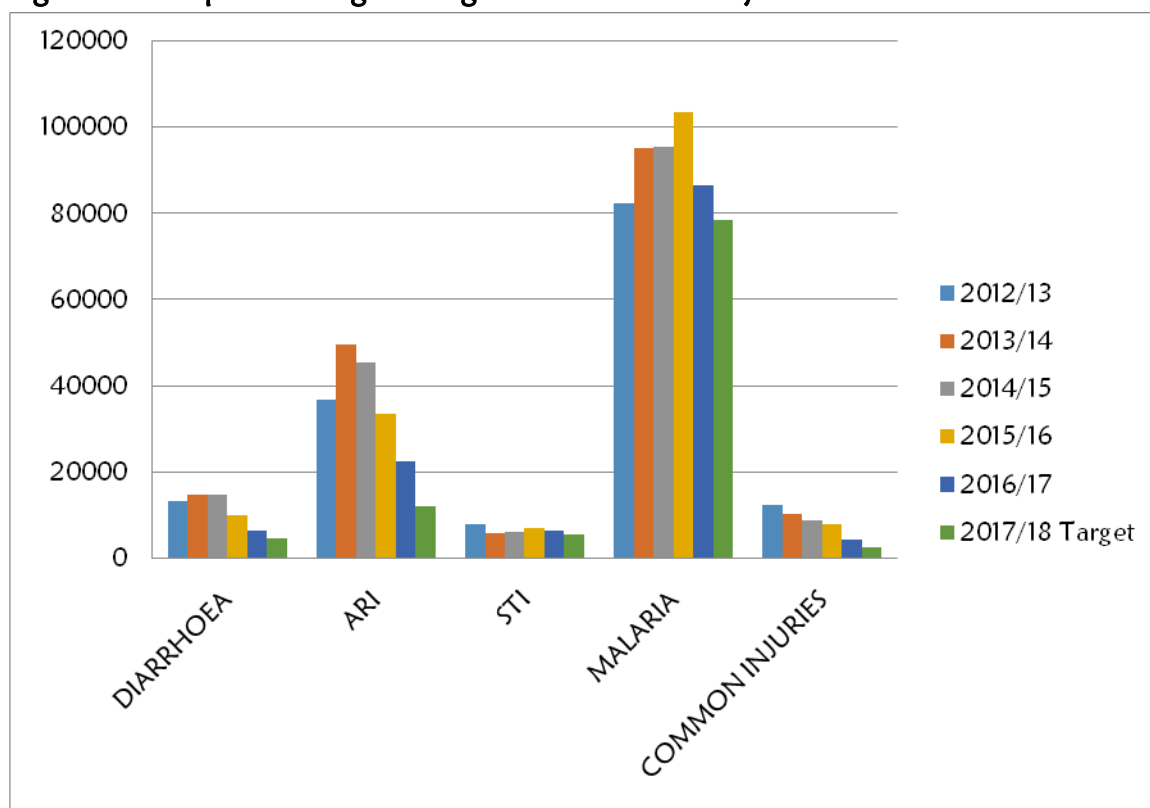
#### 5.1.2 Machinga Health Status

##### 5.1.2.1 Leading Causes of Sickness and Deaths

The primary aim of health services is to reduce morbidity (sickness) and mortality in the general population. The leading cause of morbidity is malaria followed by acute respiratory infections (ARI) and diarrhea. These diseases are also the leading causes of the high mortality rate. Malaria leads to several complications such as anemia, low birth weight in babies, stillbirths, and malnutrition.

Addressing these diseases requires sensitization on use of long-lasting insecticide-treated bed nets and increased access to safe water and sanitation.

**Figure 12: Graph showing leading causes of morbidity**



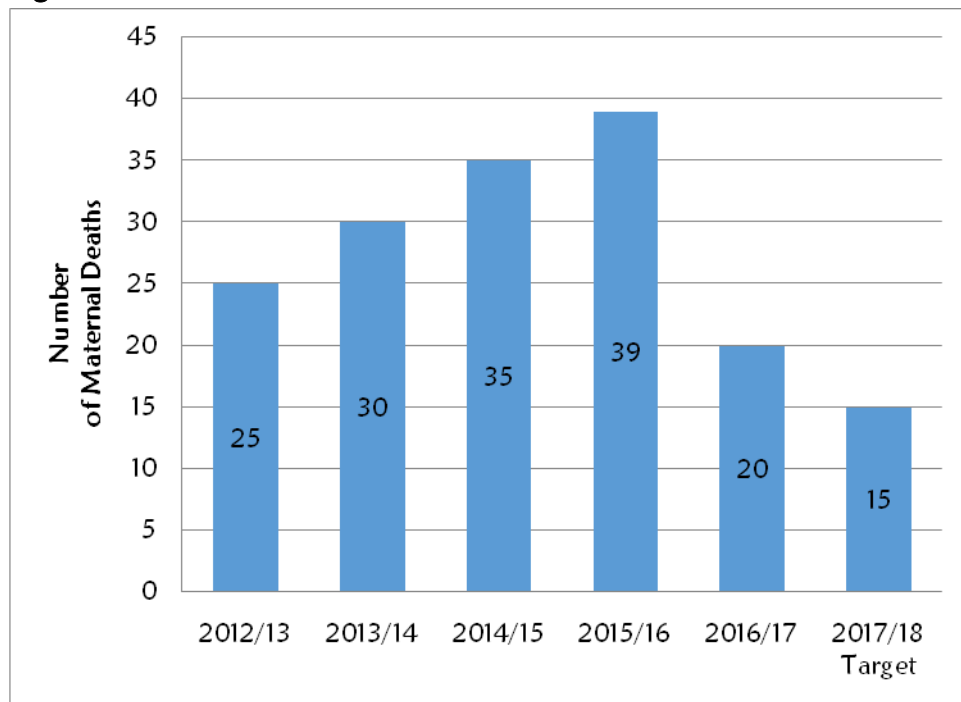
Source: DHO – Machinga 2017

### 5.1.2.2 Maternal Deaths

Machinga District has more maternal deaths than most other districts, largely related to early pregnancies, high fertility rates, and late referrals. There is a need to intensify family planning, specifically among the youth, and reduce fertility rates, as well as to strengthen referral systems by providing adequate ambulances.

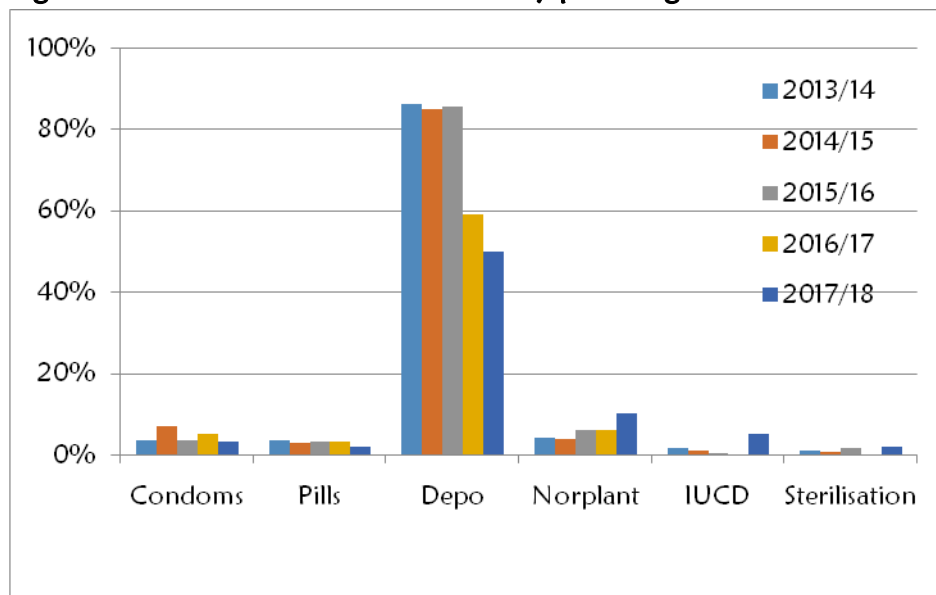
One of the critical interventions to address maternal deaths and promotion of maternal and child health is family planning, especially long-term methods. However, in Machinga the utilization of family planning is still low. Most women who use modern family planning methods are using Depo Provera, which is a short-term method. This leads to high fertility rates and maternal deaths. There is a steady decline in the use of Depo Provera because there’s a deliberate policy to discourage its use. Instead, Norplant is being promoted and there’s an increase in its uptake (See Figure 14).

**Figure 13: Maternal Deaths**



Source: DHO – Machinga 2017

**Figure 14: Utilisation of modern family planning methods**

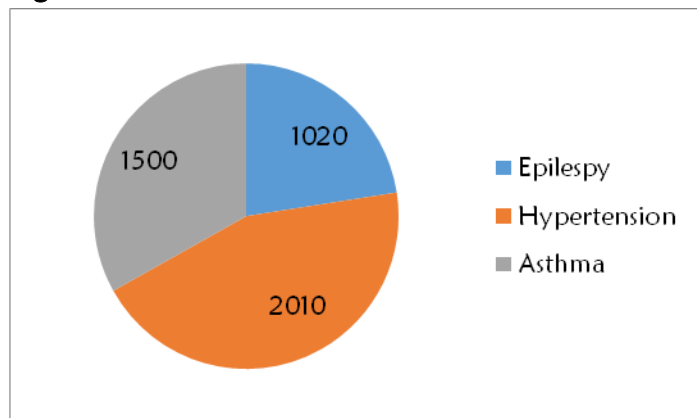


Source: DHO – Machinga 2017

### 5.1.2.3 Non-Communicable Diseases

Machinga is also affected by non-communicable diseases, which require awareness on management and prevention of these diseases. Cases of hypertension, asthma and epilepsy are prevalent as Figure 15 shows. There is need therefore to step up efforts to address this.

**Figure 15: Prevalence of non-communicable diseases**



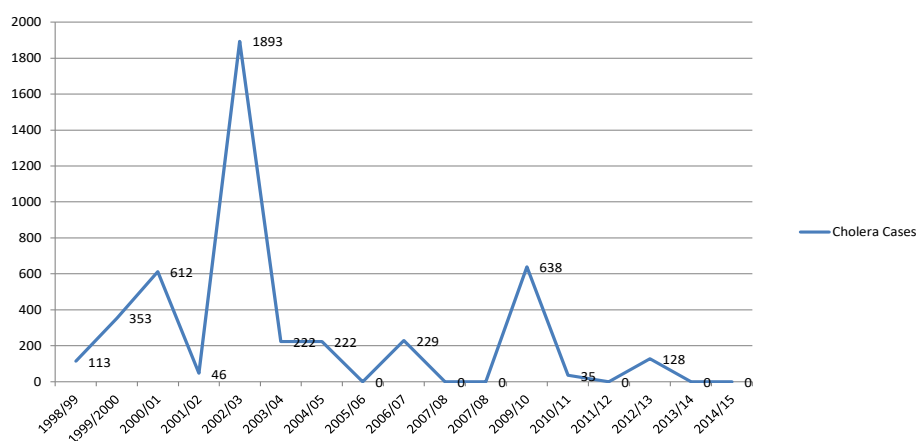
Source: DHO – Machinga Annual Report 2017

#### 5.1.2.4 Cholera

Machinga is one of the cholera hotspots in Malawi; experiencing outbreaks almost every year (see Figure 16). The main risk factors are use of unsafe water, poor hygiene practices, and poor sanitation. The problem is worst in Lake Chilwa where people live right on the lake in temporary shelter built on the lake locally known as Zimbowela and use the lake both as a toilet and a source of drinking water.

Cholera outbreaks lead to unnecessary loss of life and disrupt health services and economic activities. There is a need to intensify water, hygiene, and sanitation activities with special attention to Lake Chilwa’s community. Local leaders, beach committees and the fishermen themselves should effectively address this health issue.

**Figure 16: Trend in the Incidence of Cholera (1998 – 2015)**



Source: DHO – Machinga 2016 Report

### 5.1.2.5 Other Health Indicators

Table 48: Health status and health services coverage

Health Indicator	Previous Survey	Current Situation (Most Recent Survey)
Infant Mortality Rate	77/1,000	46/1,000
Child Mortality	125/1,000	37/1,000
Prevalence of Fever (2weeks before survey)	35.8%	39%
Under-Five Mortality	53/1,000	81/1,000
Fertility Rate	6.9	6.6
HIV Prevalence	17%	14%
% of Men Circumcised	85.4%	90%
Malaria Prevalence (fever before survey)	35.8%	39%
Children Anaemic	29.9%	27.6%
% of Women 15-19 Pregnant	27.4%	34.4%
% 15-19 with First Child	33.1%	41%
% of Households with at Least One Bed net	69.6%	58.6%
% of Pregnant Women Slept Under ITN	50.7%	49.8%

Source: DHO – Machinga 2017

Data obtained through routine HMIS and surveys indicate that the health status and health service coverage on some health indicators is still poor and the situation needs improvement. Child and infant mortality is still high, which is a call for the intensification of key interventions such as immunization, nutrition, and WASH. There is also a need to increase number of households using mosquito nets to reduce malaria and fever cases.

### 5.1.3 Health Facility WASH

Health service delivery generates highly infectious waste, which requires safe management and disposal. Used needles, cotton wool, and syringes can contain highly infectious blood and have to be safely transported and incinerated. The same applies to waste from maternity units such as placentas, which have to be safely disposed of in placenta pits.

Table 49: Availability of WASH structures in health facilities (2017)

Type of WASH Infrastructure	No. of Health Facilities	No. with the facilities	Remarks
Incinerators	22	17	
Placenta Pit	14	14	Dilapidated
Latrines	22	14	
Water Sources	22	18	

Source: DHO - Machinga

There is a shortage of WASH facilities such as incinerators in most health facilities. Those without use rubbish pits to burn waste, which is not effective if poorly done. Some health facilities do not have adequate latrines for either patients or staff, which promotes open defecation and the spread of diseases.

### 5.1.4 Availability of Transport

The health sector requires various modes of transport, including ambulances, utility vehicles, motorcycles, and bicycles. Every 50,000 people need on ambulance. Motorcycles and bicycles are used for community activities such as outreach clinics.

The district has shortfalls in all modes of transport. The impact the shortage of ambulances is the late referral of cases to higher levels of care such as district and tertiary hospitals, leading to mortality. The shortage of utility vehicles, motorcycles and bicycles is compromising community-level activities such as outreach clinics, child health campaigns, and sensitization activities.

**Table 50: Transport for health care**

Mode of Transport	Requirement	Available	Gap
Ambulances	12	5	7
Utility Vehicles	4	2	2
Motorcycles	50	20	30
Bicycles	400	20	380

*Source: DHO – Machinga 2017 Annual Report*

### 5.1.5 Health Governance and Community Participation

Effective health delivery systems require involvement of the community members as beneficiaries. This is achieved through structures such Village Health Committees, Hospital Advisory Committees, and other structures.

**Table 23: Availability of Health Committees**

Type of Committee	Number of Health Facilities /Villages	No. with Committees	Gap
Village Health Committees	100% of Villages	40%	60%
Health & Environment Committees	1	1	0
Hospital Advisory Committees	1	22	21
Stakeholder Forum	1	0	1

*Source: DHO – Machinga 2017 Annual Report*

The number of health committees is not adequate. This compromises community participation and involvement, which is critical for effective health delivery. Hospital Advisory Committees represent the community in every health facility, and any issues or concerns between communities and staff should be resolved through this forum. Their absence is therefore a serious gap that should be addressed.

## 5.2 Water and Sanitation

### 5.2.1 Water Supply



Rural water supply sources for the district are ground water (by drilling boreholes and shallow wells) and surface water (water intakes at springs and streams connected to gravity system). Safe water is considered to be one that is obtained from taps in dwelling units/public taps, boreholes, and protected shallow wells. The major source of safe drinking water in the district is from boreholes, most of which are fitted with Afridev hand pumps. Other sources include protected shallow wells, public taps in dwelling units, and gravity-fed water supply schemes.

**Photo 12: Functional borehole in a village in TA Nsanama, Machinga**



*Source: Machinga District Water Development 2016 Annual Report*

The water-mapping database reports that Machinga has a total number of 3,256 water points including 1,137 taps supplied by gravity-fed systems (GFS) (Table 52).

**Table 52: Distribution of water points in Machinga District**

TA	Boreholes	Shallow Wells	Taps (GFS)	Total	Percentage
Chamba	65	40	145	250	8%
Chikweo	203	58	59	320	9%
Chiwalo	41	1	0	42	1%
Kapoloma	93	4	10	107	3%
Kawinga	308	65	82	455	13%
Liwonde	212	14	0	226	7%
Mlomba	152	11	95	258	8%
Mposa	64	62	87	213	7%
Ngokwe	69	4	16	89	3%
Nkoola	85	13	45	143	5%
Nkula	90	12	251	353	115%
Nsanama	106	9	104	219	75%
Nyambi	205	38	6	249	75%
Sitola	86	9	237	332	11%
Total	1,779	341	1,137	3,256	100%
Percentage	54%	11%	35%	100%	-

*Source: Machinga District Water Development 2016 Annual Report*

While in some TAs the percentage of distribution of water points is good, the actual distribution is uneven. As Chiwalo, Kapoloma, Ngokwe, and Nkoola have inadequate safe water supplies,

according to the government standard of 250 people per water source (borehole) and 120 people per tap.

### 5.2.2 Status of Water Points

Almost 20% of water points in the district are not functioning due to poor drilling techniques by some drilling contractors, poor yield of water sources, sitting, lowering of the water table, salinity and acidity of water source, poor timing of hand pumps installation, lack of ownership, untrained water point committees, and vandalism. The functionality of taps is variable by TA, ranging from 0% to 92% (Table 53).

**Table 53: Functionality of water points in Machinga District**

TA	Boreholes	Shallow Wells	Taps (GFS)	Total
Chamba	83%	75%	79%	82%
Chikweo	81%	84%	0%	65%
Chiwalo	78%	100%	-	69%
Kapoloma	60%	100%	50%	61%
Kawinga	79%	80%	43%	77%
Liwonde	75%	100%	-	78%
Mlomba	84%	27%	71%	77%
Mposa	78%	86%	63%	71%
Ngokwe	70%	75%	0%	57%
Nkoola	72%	92%	0%	48%
Nkula	70%	92%	92%	86%
Nsanama	78%	100%	78%	79%
Nyambi	67%	87%	-	73%
Sitola	74%	100%	85%	83%
Average	79%	87%	76%	81%

*Source: Machinga District Water Development 2016 Annual Report*

TAs Chiwalo, Chikweo, Ngokwe, Liwonde, and Nkoola have no taps as they are not covered by any GFS.

### 5.2.3 Management of Water Supply Facilities

#### 5.2.3.1 Piped Water Supply Schemes

Sustainability of the water supply facilities is vital for the continued benefit of communities and users. This is enhanced if the beneficiaries themselves understand their roles and responsibilities in caring for the facilities. Often the best way to do this is if the beneficiaries themselves manage the water supply schemes under the leadership of an organized body, either a water users association or a cooperative. In Machinga District, there are six water users associations and one cooperative (Table 54).

**Table 54: Water supply management styles**

Name of Scheme	Management Style	Water Supply Area	Legal Status
Kawinga	Water Users Association	TA Mlomba, TA Kawinga	Registered
Lifani	Water Users Association	TA Chamba, TA Mposa	Not registered
Nkula (Mangale, Doza, Nkala)	Water Users Association	TA Nkula	Registered
Chagwa	Cooperative	TA Sitola, TA Nkula	Registered
Namikomia	Water Users Association	TA Sitola, TA Nkula	Not registered
Milala	Volunteers	TA Chamba	Not registered
Chanyungu	Volunteers	TA Mposa	Not registered
Ntaja	Water Users Association	Ntaja Market Centre	Registered
Nsanama	Water Users Association	Nsanama Market Centre	Registered

*Source: Machinga District Water Development Annual report, June 2016*

## 5.2.4 Hydrology

### 5.2.4.1 Status of Water Resources

Water resources in the district are mainly used for domestic and agricultural purposes, either consumptive or non-consumptive. In addition, water provides a natural habitat and a suitable environment for the survival of a wide range of living organisms.

The water resources of Machinga District exist as either ground or surface water. The surface water is found in natural water drains and bodies, including the Shire River and its tributaries, Lakes Chiuta and Chilwa, and associated rivers and streams. The main rivers in Machinga that drain into Lake Chiuta are Mpiri, Lifune, and Chitundu. Zumulu, Naminga, Nkhande, and Lingoni are the main rivers flowing into Lake Chilwa from Machinga District.

### 5.2.4.2 Drainage

Drainage in Machinga District can be categorized into three areas:

- Lake Chilwa area
- Lake Chiuta area
- Shire Plain

In the Lake Chilwa area, the Masanje is the only perennial river draining to the west and emptying into Lake Chilwa. Two mature perennial rivers, the Mkhande and Mikoko, flow southeast into Lake Chilwa.

The two perennial rivers flowing into Lake Chiuta are the Mpiri and Lifune, but their flows become sluggish in the dry season. Short, steep boulder-stream courses of minor streams drain the Nsili Hills as flash floods only in times of heavy rainfall.

The Shire River connects Lake Malawi with the Zambezi flowing southwest. The Likwenu and Lisanjala Rivers, which begin in major mountains masses, flow into the Shire River.

### 5.2.5 Overview of Gravity-Fed Pipe Schemes in Machinga District

There are 11 gravity-fed piped water supply schemes in Machinga of various sizes and age, with 1,137 standpipes that were previously constructed by the government (Table 55).

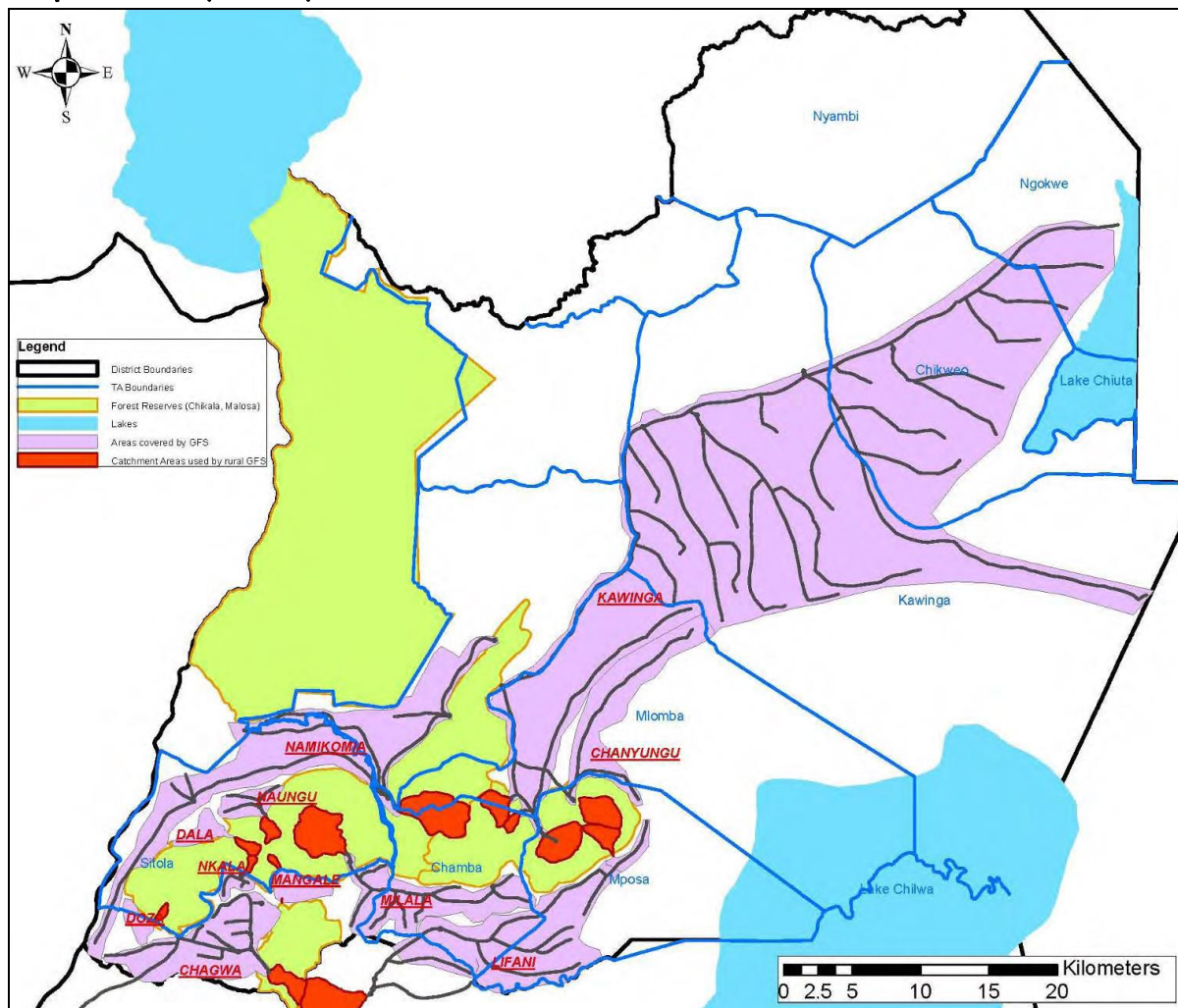
**Table 55: Sizes of GFSs in Machinga District**

Name of Scheme	Location	System Size Total Pipeline Length (m)	Year	
			Constructed	Rehabilitated
Kawinga	Mlomba, Kawinga	174,590	1983	2013 (Not completed)
Lifani	Malemia (Zomba), Chamba, Mposa	31,055	1977	2013 (Not completed)
Milala	Sitola, Nkula, Chamba	11,570	1985	Needs to be rehabilitated
Chagwa	Nkula	29,055	1976	2007
Namikomia	Sitola, Nkula, Nsanama	66,290	1983	2003 (Has turbidity problems)
Chanyungu	Mlomba	12,936	2000	Needs to be rehabilitated
Naungu	Sitola	7,754	2003	Needs to be rehabilitated
Doza	Nkula	2,329	2001	2013
Dala	Sitola	2,429	2003	Needs to be rehabilitated
Mangale	Nkula	4,494	2001	2013
Nkala	Nkula	5,876	2001	2013

*Source: Machinga District Water Development Annual report, June 2016*

All these GFSs depend on surface water sources originating in the Malosa Hills and the “Mtonya Ring Structure” (Chikala, Chaone, Mangolowe, and Chinduzi Hills) located in the southwestern part of the district. Only the Kawinga System stretches its distribution lines into the centre and eastern parts of Machinga District. All the 10 other GFS pipelines remain within a close perimeter around those hills covered by forest reserves.

## Map 8: Gravity-Fed Systems

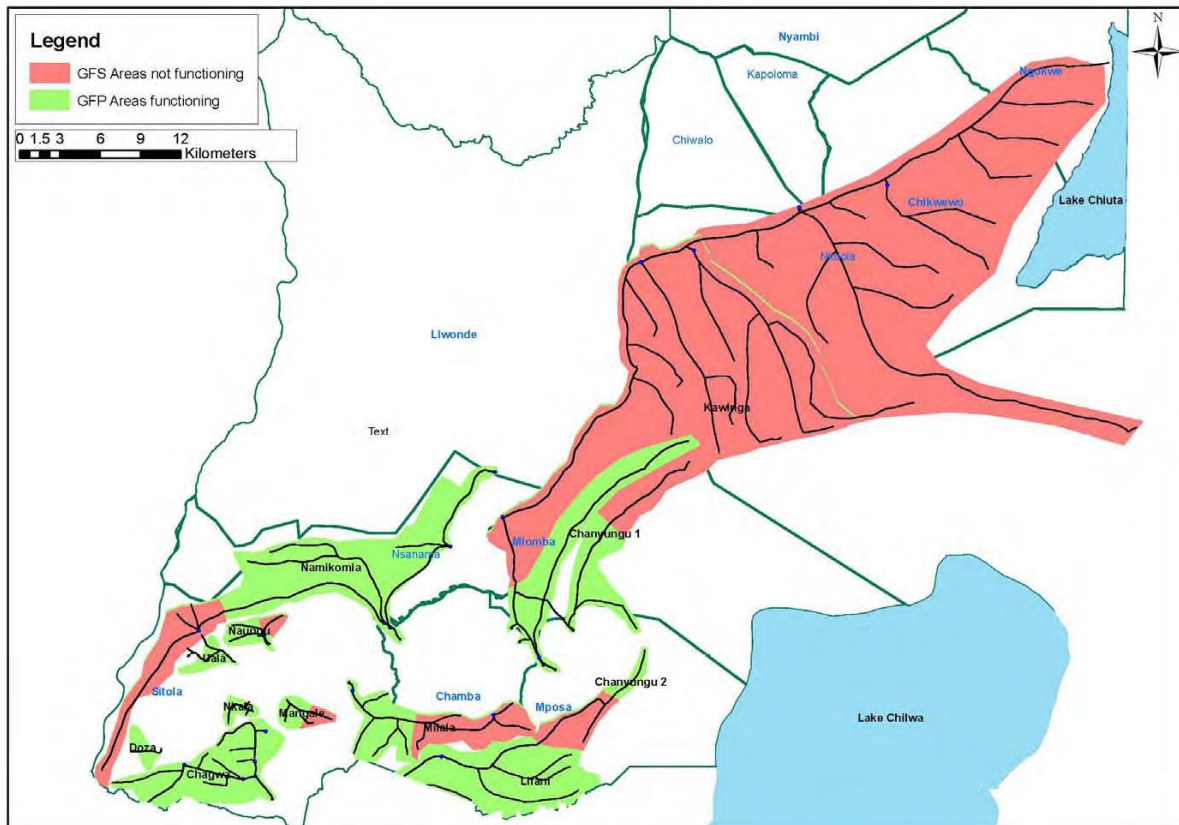


Source:

*Preliminary design for the rehabilitation and extension of Gravity Fed Pipe Schemes in Machinga District report, March 2011*

Of the 11 schemes, only 2 currently do not function: Chanyungu and Milala. They require heavy maintenance/rehabilitation if they are to function. Additionally, Kawinga GFS is not functioning as it was earlier designed because the water resource in the mountains is under threat from deforestation. This has resulted in the drilling of more boreholes in the district, especially in those areas that were initially covered by the GFS, such as Kawinga, Namikomia, and Milala.

## Map 9: Functionality of Gravity-Fed Systems



Source:

*Preliminary design for the rehabilitation and extension of Gravity Fed Pipe Schemes in Machinga District report, March 2011*

### 5.2.6 Surface Water Monitoring

Water flowing in the district's different rivers is monitored in terms of water flows and water levels at different gauging stations. The main station is the Liwonde Hydrometric Station, located on the Shire River, downstream of the Liwonde Barrage (Report on the Collection of Coordinates of Hydrometric Gauging Stations on Shire River Basin Hydrological Network, January 2012). The readings recorded twice a day are used as a flood warning system.

Photo 13: Liwonde Hydrometric Station along Shire River



Source: *Shire River Basin Hydrological Network, (January 2012)*

Over the past 20 years, a combination of decreasing rainfall reliability, land resources degradation, and human activities in the river catchment areas has had an adverse effect on the quantity and quality of water resources of Machinga. Most streams and rivulets, which were once perennial, run dry one to two months after the rainy season. All the major rivers experience high flows in the rainy season and very low flows in the dry season. This is attributed to deforestation of river catchments and banks coupled with poor land husbandry practices, leading to an increase in run-off and soil erosion, and a decrease in infiltration. As a result, there are high sediment loads in the rivers, making the water turbid and unfit for human consumption and silting of the rivers. The capacity of the rivers has been reduced such that when it rains, banks easily overflow, particularly near river mouths.

### **5.2.7 Availability of Ground Water in Machinga District**

Availability of groundwater in Machinga District is grouped as follows:

- Within the areas of the plain along the Shire Valley, Lake Chiuta, and Lake Chilwa, the underground water supply is found in the thin bands of sand and gravel, which may be perched above lenses of clay and mud.

- In the highlands areas of Nyambi, Nkula, and other places, the water is either contained in the narrow fissures following sub-vertical fracture or pegmatite zones or occurs in basin-like depressions of weathered gneiss at the interface between solid and decomposed rocks.
- Within the river valleys and inter-hill valleys, the loose sediments composed of gravel, sand, silts, and clay store sub-surface water in their openings.

### 5.2.7.1 Ground Water Monitoring

Machinga has three ground water level monitoring stations. Water monitoring assistants take water level readings at the boreholes at these stations once a week over a specified timeframe. These boreholes are located at Mmanga FP School, Kaombe Dam in Ntaja, and Ntaja Water Supply Sub-Office.

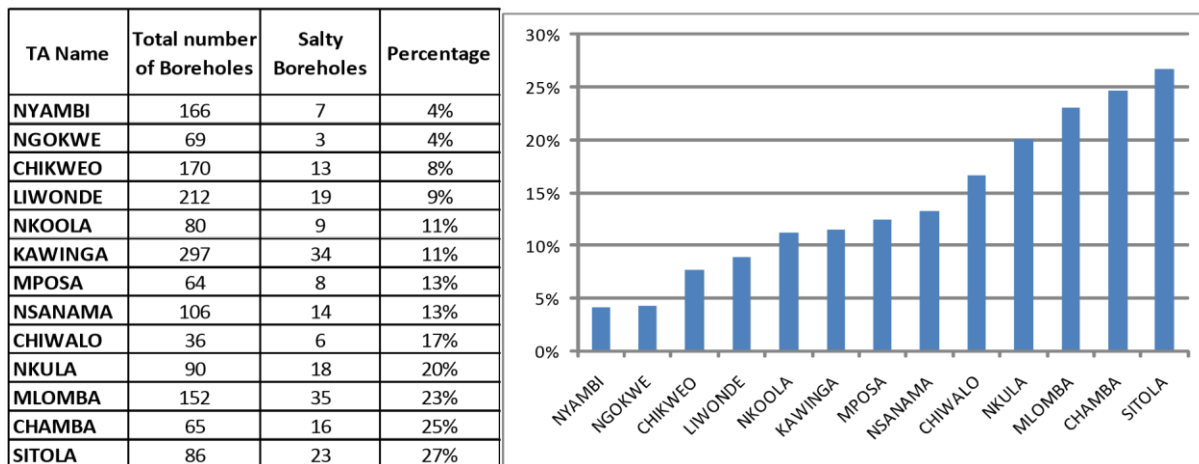
### 5.2.7.2 Boreholes

Many rural communities in Machinga District access potable water for their domestic use from boreholes, which are fitted with AFRIDEV hand pumps. Management of these facilities is mostly done by the communities themselves through the Water Point Committees and with the assistance of well-trained area pump mechanics who work on a voluntary basis. The district has 1,779 boreholes across all traditional authorities.

### 5.2.7.3 Salinity

Salinity of groundwater is a common problem in Machinga affecting the availability of potable water. According to a 2009 survey of existing boreholes in Machinga District, the occurrences of salinity vary between 4% (TA Nyambi) and 27% (TA Sitola).

**Table 56: Reported problems of salinity in boreholes in Machinga District (2009)**



Source: District water mapping database, 2009

### 5.2.7.4 Potential Water Supplies

The availability of ground water in Machinga District generally varies from locality to locality, with about a 70 to 80% success rate in terms of drilled productive boreholes. There is groundwater potential in the alluvial aquifers of the plains, river valleys, and inter-hill valleys and in the district's weathered and fractured basement rock. Drilling experience in the district indicates that drilling depth is between 25 m to 60 m with varied yields from as low as 0.04 l/s to 3 l/s. The Static Water Level (SWL) is between 1m to 43m.



Spring water is available in the high altitude areas, and a number of rivers can be tapped for gravity systems.

**Photo 14: Borehole drilling works in a village in TA Sitola, Machinga**



*Source: Machinga District Water Development Office*

Water quality parameters that need particular attention are those of salinity reported along Lake Chilwa and fluoride in the TA Sitola area.

#### **5.2.7.5 Additional Piped Scheme in TA Ngokwe**

There is also water potential from the Nsili-Lungwe Hills in TA Nyambi / TA Ngokwe, which offers the possibility of creating a new GFS in those areas. Another interesting potential is found in the Majuni Hills about 11 km north of Ngokwe Trading Center from the Masela catchment area northwest of Muwawa with three potential water intakes and a cumulative flow potential estimated at 5 to 10 litres/second in the dry season. Water intakes would be at 825 m elevation. A storage tank would need to be constructed close to the intake to allow the best possible hydraulic potential (elevation at 800m).

This potential could supply water to 45 standpipes and a population of about 5,400 inhabitants. However, the location of those standpipes would be limited according to the gravity flow constraints. It would require a storage tank of 100 m<sup>3</sup> and distribution pipeline mains of about 16 km to deliver water to the various areas.

## 5.2.8 Urban/Peri-Urban Water Supply

### 5.2.8.1 Peri-Urban Water Supply

Machinga District has 13 peri-urban market centres spread across the district, which all require potable water.

**Table 57: Provision of safe water in trading centres**

Trading Centre	Traditional Authority	Technology	Quantity
Nsanama	Nsanama	Borehole, Stand pipe	1
Ntaja	Liwonde	Stand pipe	1
Nselema	Kapoloma	Borehole	1
Nkwepere	Nyambi	Borehole	0
Chikweo	Chikweo	Borehole	0
Mangamba	Liwonde	Borehole	0
Mpita	Chamba	Stand pipe	0
Machinga Boma	Nkula	Borehole	0
Chipakwe	Kawinga	Borehole	0
Nsosa	Nkula	Stand pipe	1
Molipa	Nsanama	Stand pipe	0
Nayuchi	Kawinga	Borehole	0
Ngokwe	Ngokwe	Borehole	0

*Source: Revised DSIP report, 2014*

### 5.2.8.2 Urban Water Supply

In urban sections of the district, mainly Liwonde Township and Machinga Boma, the Southern Region Water Board (SRWB) that is responsible for the supply of water. In total, there are 21 communal taps, 13 of which are functioning for a population of 4,005 individual water consumers. On average 50,000 cubic meters are consumed per month. The source of water for Liwonde Town is the Shire River using motorized pumps.

**Table 58: Water production and consumption for Liwonde and Machinga BOMA**

Year	Area	Number of Consumers	Water Produced (m <sup>3</sup> )	Water Consumed (m <sup>3</sup> )	Estimated Cost for Water Consumed (MK)
2007	Machinga	161	41,493	33,097	2,382,984
	Liwonde	1,679	559,890	293,389	21,124,008
2008	Machinga	181	39,620	35,672	3,174,808
	Liwonde	1,886	528,890	339,594	30,223,866
2009	Machinga	205	46,788	40,255	3,944,990
	Liwonde	2,174	558,665	376,101	36,857,898
2010	Machinga	210	52,307	45,955	5,276,790
	Liwonde	2,393	651,230	469,481	54,392,744
2011	Machinga	279	50,545	44,641	5,708,776
	Liwonde	2,682	643,720	474,798	68,946,811
2012	Machinga	314	55,826	48,408	6,541,239
	Liwonde	3,338	666,730	500,176	76,297,522
2013	Machinga	346	50,815	43,660	9,888,409
	Liwonde	3,748	670,300	459,412	85,609,229
2014	Machinga	372	60,935	55,228	14,952,212
	Liwonde	4,009	746,068	476,756	109,461,477

*Source: Southern Region Water Board, Liwonde Zone Office, 2014*

## 5.2.9 Water Pollution

While the district has a goal of providing safe potable water, pollution has hindered this achievement. The water distributed to the people around the Liwonde town is not entirely safe; a test conducted in 2016 of the piped water by the district technical team revealed high turbidity and coli forms. The problem of water pollution is such rampant due to open defecation, use of agriculture chemicals, and poor positioning of some water points close to toilets.

**Table 59: Water quality tests at Liwonde Intake**

	2012					2013					2014				
	Sample frequency				Average	Sample frequency				Average	Sample frequency				Average
	1	2	3	4		1	2	3	4		1	2	3	4	
pH value	7.39	6.75	7.01	7.16	7.08	7.14	7.3	7.2	7.31	7.24	6.8	7.06			6.93
HCO <sub>3</sub>					0	63.3	66.73	64.66	64.87	64.89	89.06	89.91			89.49
Sulphate					0					0					0
Ca					0					0					0
Mg					0					0					0
Cl <sub>2</sub>	28.29	28.69	31.99	30.23	29.8	29.99	30.69	31.59	30.88	30.79	37.99	34.29			36.14
Turbidity	3.05	0	0.07	2.06	1.30	0.8	0.5	0	2.58	0.97	0.4	0.65			0.525

*Source: Southern Region Water Board, Water Quality Laboratory, Zomba, 2014*

### 5.2.9.1 Water Quality Testing

Water quality is one of the elements of integrated water resource management (IWRM). Most of the infectious diseases that prevail in the developing world are related to the deficiency of safe water supplies and sanitation facilities. Therefore, clean water is vital for consumers to achieve continuous good health. To this end, a water quality monitoring programme (WQMP) is being implemented by Machinga District Council in an attempt to document and ensure the ongoing quality of water being provided to its population. The WQMP was developed in consultation with the District Coordination Team (DCT), Ministry of Health (MOH), and Ministry of Irrigation and Water Development (MoIWD).

**Table 60: Water quality tests at Liwonde Intake**

Parameter		World Health Organisation (WHO)	Malawi Bureau of Standards (MS 733:2005)	Water Dept Temporary standards (WDT)	2012	2013	2014	2015	2016
pH Value		6.5 – 8.5	6.5 – 8.5	6.0 – 9.5	7.08	7.24	6.93		
Bicarbonate (as HCO <sub>3</sub> .)	mg/l					64.89	89.49		
Sulphate (as SO <sub>4</sub> <sup>2-</sup> )	mg/l	0 – 400	0 - 400	0 - 800					
Calcium (as Ca <sup>+</sup> )	mg/l	0 – 200	0 - 200	0 - 250					
Magnesium (as Mg <sup>+</sup> )	mg/l	0 -150	0 - 150	0 - 200					
Cl <sub>2</sub>	mg/l				28.29	30.79	36.14		
Turbidity	NTU	0 – 5	0 - 5	0 - 25	3.05	0.97	0.525		

*Source: 2012, 2013, and 2014 Water Quality tests at Liwonde Intake*

### 5.2.10 Human Resources

The district has a shortfall of major human resources necessary for the provision of water and sanitary facilities. For example, the district has no water monitoring assistants (WMAs) who are the frontline extension staff. It is in the interest of the district that more personnel, particularly, borehole maintenance overseers (BMOs), water monitoring assistants, maintenance assistants, and hydrological assistants be recruited. The human resource gap is currently being compensated for through various village committees such as Water Point Committees (WPCs) and Catchment Conservation Committees, among others. There are also 35 volunteer area pump mechanics spread out in the district to assist in maintaining water supply facilities.

**Table 61: Staffing profile of Water Development Division by grade**

Post	Grade	Establishment	Filled Post	Gap
Principal Water Engineer	G/M5	1	0	1
Senior Water Supply Officer	H/M6	1	1	0
Community Water Supply Officer	I/M7	1	0	1
Senior Assistant Community Water Supply Officer	J/M8	2	0	2
Assistant Community Water Supply Officer	K/M9	12	0	12
<b>Total</b>		<b>17</b>	<b>1</b>	<b>16</b>

*Source: Machinga District Water Development Office*

The District Water Development Office is composed of eight staff who strive to make sure that the communities in the district are served with adequate and potable water at all times (Table 62).

**Table 62: District Water Development Office**

Post	Grade	Establishment		
		Male	Female	Total
Senior Water Supply Officer	H	1	0	1
Borehole Maintenance Overseer	O	2	0	2
Messenger	P	0	1	1
Security Guards	P	4	0	4
<b>Total</b>		7	1	8

*Source: Machinga District Water Development Office*

### **5.2.11 Threats to Water Resources and Water Supply Management**

Although there have been notable positive developments in the management of the district's water resources (the key one being the production of the District-Wide Sector Investment Plan for Water, Sanitation and Hygiene), the district's water resources still face several threats and challenges arising from within and without the district.

#### **5.2.11.1 Water Catchment Degradation**

Destruction of catchment areas through deforestation and poor land use practices like overgrazing and cultivating along river banks have adversely affected the district's effort to manage its water resources.

#### **5.2.11.2 Theft and Vandalism of Water Supply Facilities**

Theft and vandalism of water facilities, especially boreholes, has become a problem in Machinga. Water pump parts are stolen, frustrating the efforts of government and cooperating partners in the provision of potable water to the rural communities.

#### **5.2.11.3 Inadequate Staff and Equipment**

There are too few staff members in the district to provide the required technical support in training water point committees and conducting water-monitoring visits.

#### **5.2.11.4 Inadequate Funds Allocated to the Sector**

At the district level, the water sector is much underfunded. The vibrancy of the sector depends on availability of funds to run the office and provide adequate service to the community.

#### **5.2.11.5 High Level of Political Interference**

Most politicians have used water points as campaigning tools, using their political power to drill boreholes where there is no demand or where the technology is not supported by the environment.

#### **5.2.11.6 Static Information System for Water Sector and Inadequate ICT Skills**

Lack of a feedback mechanism to the information system has led to poor planning due to unavailability of timely and updated data. There is inadequate capacity to manage information.

### **5.2.11.7 Lack of Information Sharing Among Stakeholders**

Since there is poor coordination among stakeholders, no common plan for the district exists. It is a challenge for stakeholders to share notes on the progress of various programs.

### **5.2.11.8 Invasive Species**

Invasive species have a negative effect on water resources as they reduce the amount and quality of water in a dam. The main invasive species in Machinga District is water hyacinth, locally known as *Namasipuni*.

### **5.2.11.9 Poor Supply Chain for Spare Parts**

Unavailability of retail outlets that sell parts for the maintenance of water supply facilities in some areas of the district poses a challenge to the sustainable supply of potable water for the rural communities. Most non-functional boreholes are not functioning as a result of non-availability of spares in the proximity of the communities.

### **5.2.11.10 Inaccessibility of Some Areas Due to Terrain**

The location of some hilly settlements makes it difficult for service providers to develop water points to supply these areas.

## **5.2.12 Recommendations**

It is important to note that in an effort to establish sustainable management of the district's water and wetland resources, and properly coordinate resource allocation, the District Council through the DCT produced a District Water and Sanitation Investment Plan (DWSIP) for Water, Sanitation and Hygiene for 2008 – 2015. It is expected that, in line with the decentralisation policy, all actions on water and environmental sanitation will be managed at district level following this plan. With this plan in place, general management of the district water and wetland resources seems to be on the right track. However, in order to improve management of water and wetland resources, the following need to be considered:

- There is a need for communities to be sensitised on the importance of protecting their water supply facilities. They need to realise that taking care of water facilities is their responsibility. Likewise, communities need to realise that the protection of facilities reduces the need for frequent maintenance, which ultimately helps to ensure a reliable water supply.
- There is a need to strengthen coordination of water resource management at the district level by utilising the DWSIP in the management of the water and wetland resources, and through coordination of all interventions on safe water supply. The plan advocates an integrated approach to management of water and wetland resources.
- There is a need to train VNRMCs to enable communities have the technical know-how of catchment area protection. The training should also instil a sense of ownership of these areas.
- When improving accessibility to safe water, emphasis should be placed on empowering local communities to maintain and repair their own water facilities. Communities should be trained in operation and maintenance. At the same time, provision should be made to ensure that spare parts are easily available to communities. Furthermore, community-policing structures should be strengthened.
- The District Council should improve roads and bridges to make remote villages accessible to water service providers.

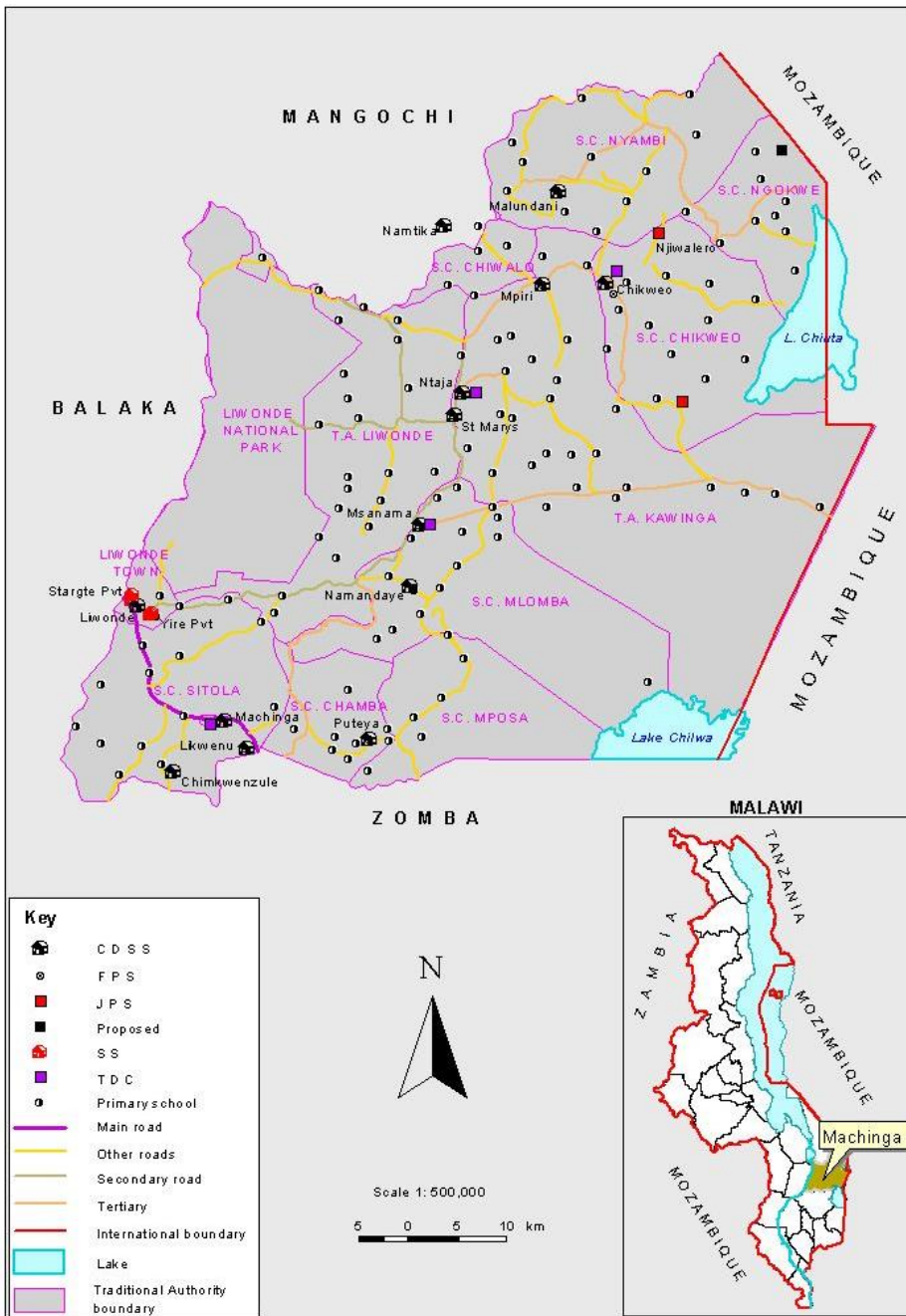
- The business community should be encouraged to stock more water point spare parts in their retail outlets, ensuring the availability of parts within the proximity of rural communities.

### 5.3 Education

#### 5.3.1 Education Services

The literacy rate of the adult population in the district as reported in the Welfare Monitoring Survey (WMS) (2011) was 59.7%, which is lower than the national average adult literacy rate of 73.6%. The literacy rate for Machinga’s women is 46.4%. High illiteracy levels can be attributed to the large number of pupils who drop out of the school system before they reach Standard 5.

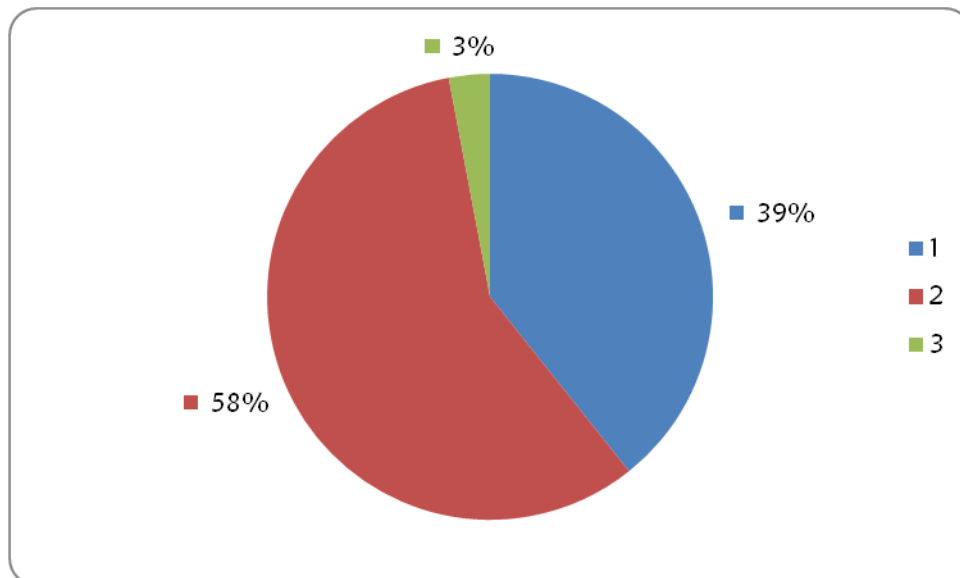
Map 10: Primary Schools in Machinga



Source: Machinga District Education Office 2017

There are 168 primary schools in Machinga. Out of these, 163 are public schools and 122 are full primary schools. There are also religious agency and private schools. Though religious agency schools are categorised differently from government schools, they receive financial and technical support is from the government. Figure 16 shows that 58% (97) of the primary schools are owned by religious agencies, 39% (66) of the primary schools are owned by government, and 3% (5) of the primary schools are privately owned.

**Figure 16: Proprietorship of Schools in Machinga District**



*Source: Machinga District Education Office 2017*

Machinga District has twelve (12) zones, 2 of which – Nampeya and Mlomba – were administratively created to shorten distances from schools to the Teacher Development Centre (TDC). The ten (10) zones are Machinga Boma, St.Theresa, Puteya, Nsanama, Ntaja, Namandanje, Namasika, Chikweo, Mpombe, and Ngokwe.

### **5.3.1.1 Preschool Education**

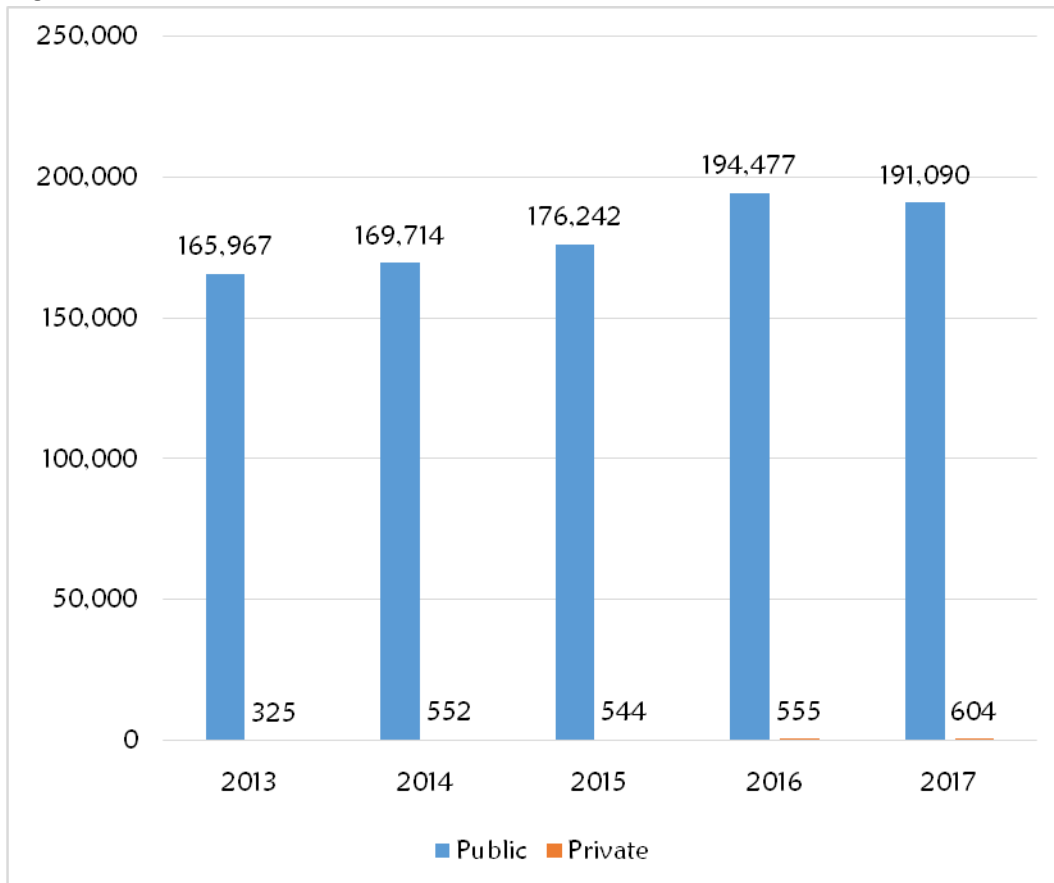
There are 371 Community-Based Childhood Care centres in Machinga District with a total enrolment of 18,583 learners (10,026, or 53.95%, are girls) (Social Welfare Office 2017). Most of these CBCC centres operate in sub-standard facilities, follow unregulated curriculum, and have untrained caregivers. There is need to sensitize communities to the importance of early childhood education services for learners who are below age 5.

### **5.3.1.2 Primary School Education**

The total primary school enrolment in the district has increased from 166, 292 in 2012/2013 to 191,694 in 2016/2017 because of the general increase of the school-going population and immigration of learners from neighbouring districts such as Mangochi, Balaka, and Zomba as well as Mozambique.



**Figure 17: Primary school enrolment**

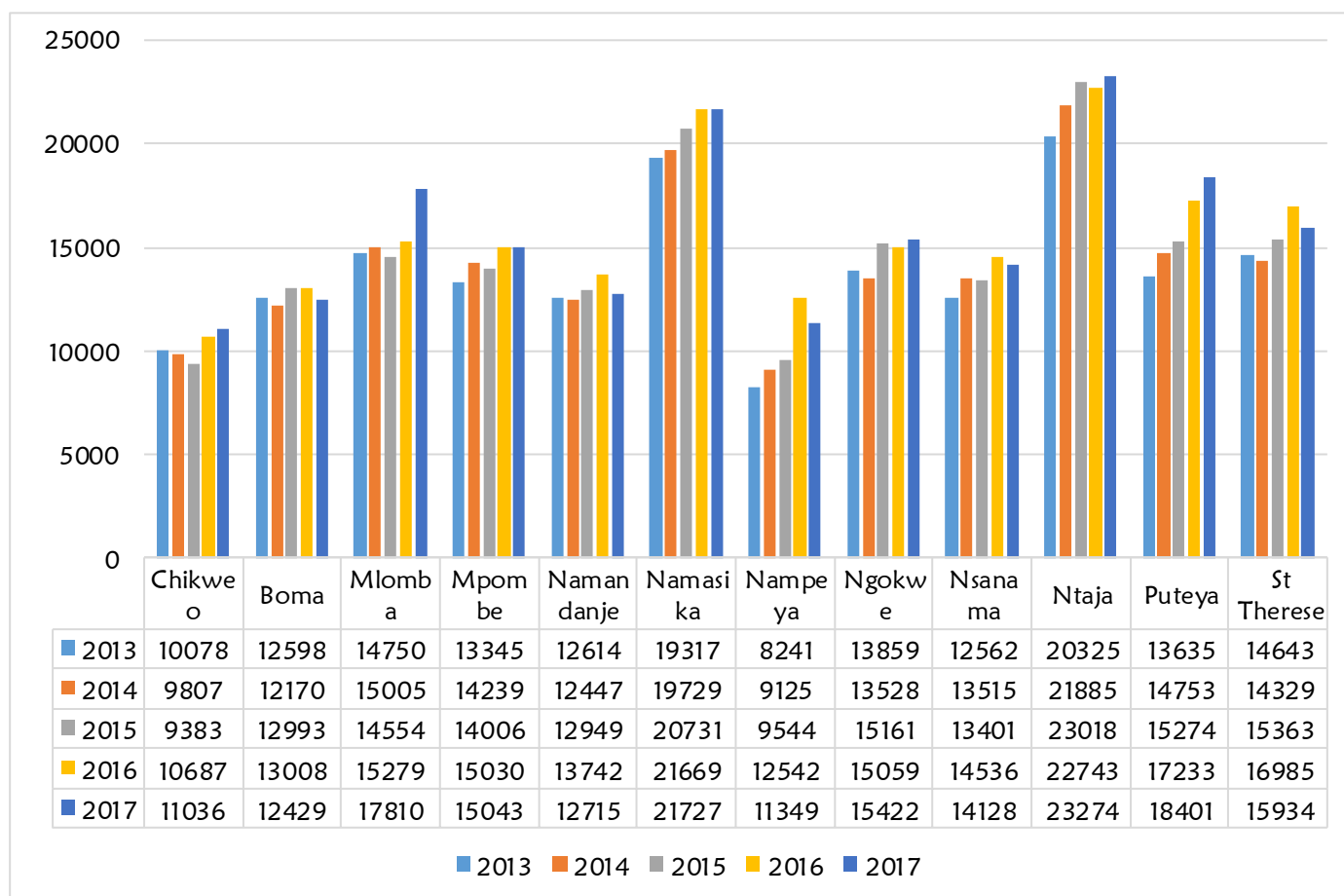


*Source: Machinga District Education Office 2017*

#### **5.2.1.2.1 Primary School Enrolment by Zone**

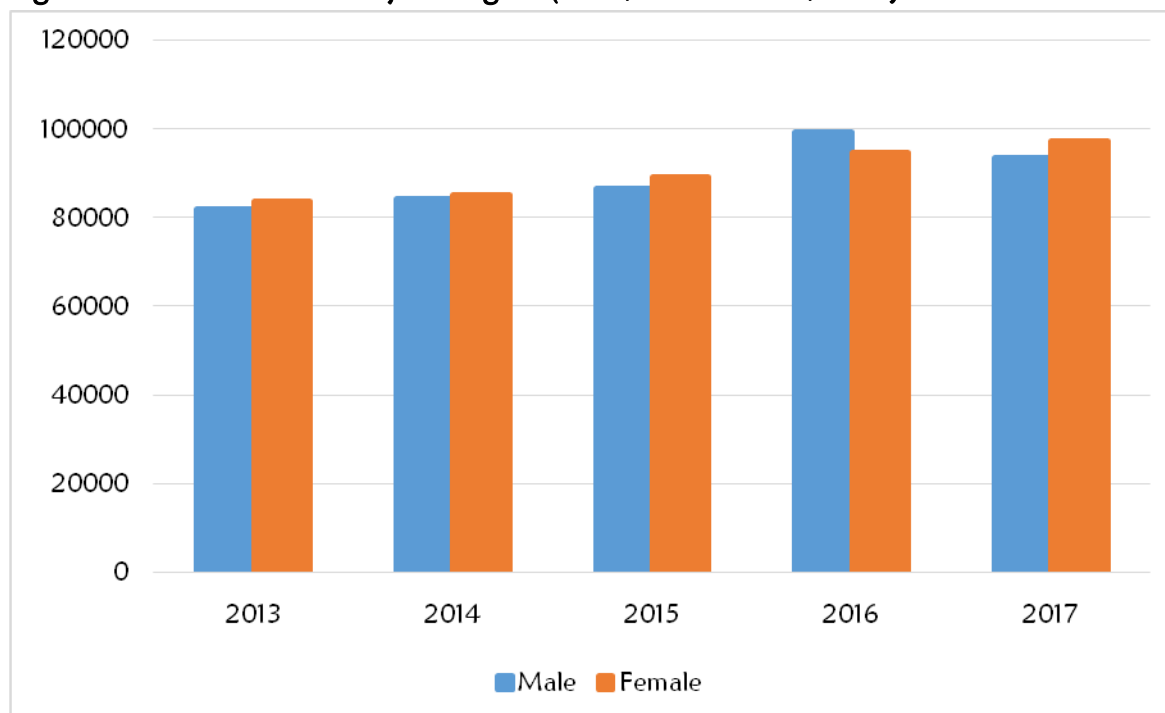
Figure 18 shows that Namasika and Ntaja Zones had much larger enrolments than other zones between 2012/2013 and 2016/2017 mainly because they are big trading centres and/or there are some positive by-laws that the leaders of these communities adhere to.

**Figure 18: Primary school enrolment by zone (2013 – 2017)**



Source: Machinga District Education Office 2017

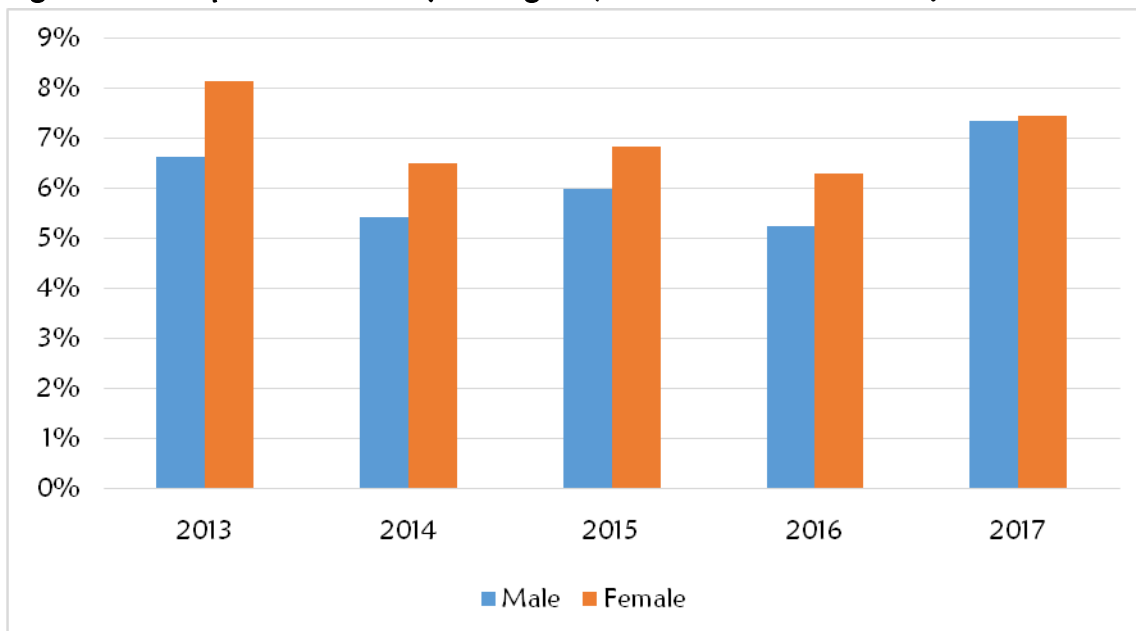
**Figure 19: Enrolment of boys and girls (2012/2013 – 2016/2017)**



Source: Machinga District Education Office 2017

Figure 20 shows that although more girls than boys are enrolled in primary schools (see Figure 19); keeping them in school remains a challenge as their dropout rate was consistently higher than that of boys over the reference period. The district needs to develop more interventions to stem this dropout rate.

**Figure 20: Dropout rate of boys and girls (2012/2013 – 2016/2017)**

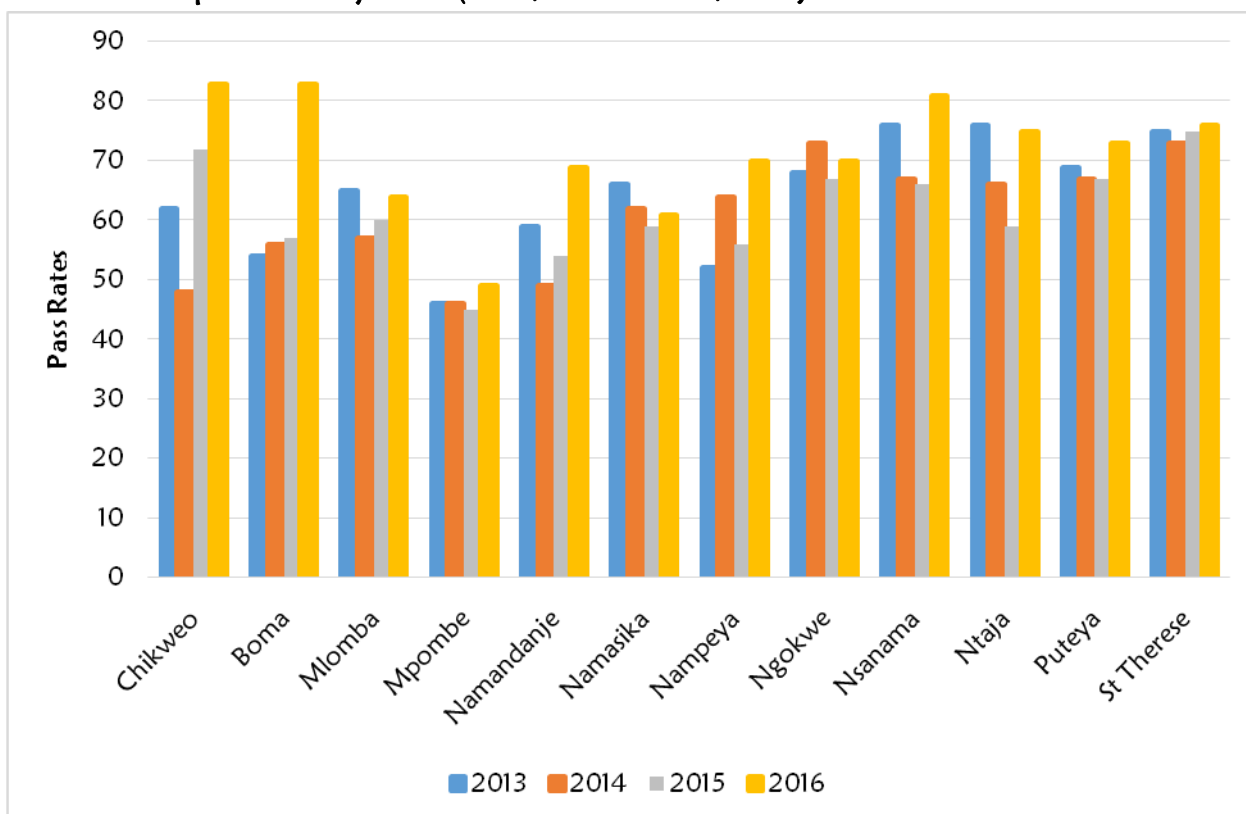


*Source: Machinga District Education Office 2017*

#### **5.3.1.2.2 Primary School Pass Rates**

Overall pass rate is calculated as a percentage of the pupils who have passed out of all who sat for the test. For all zones, there was a drop in 2015, but it has rebounded to more than 50%, except for Mpombe Zone.

Figure 21: Overall pass rates by zone (2012/2013 – 2016/2017)



Source: Machinga District Education Office 2017

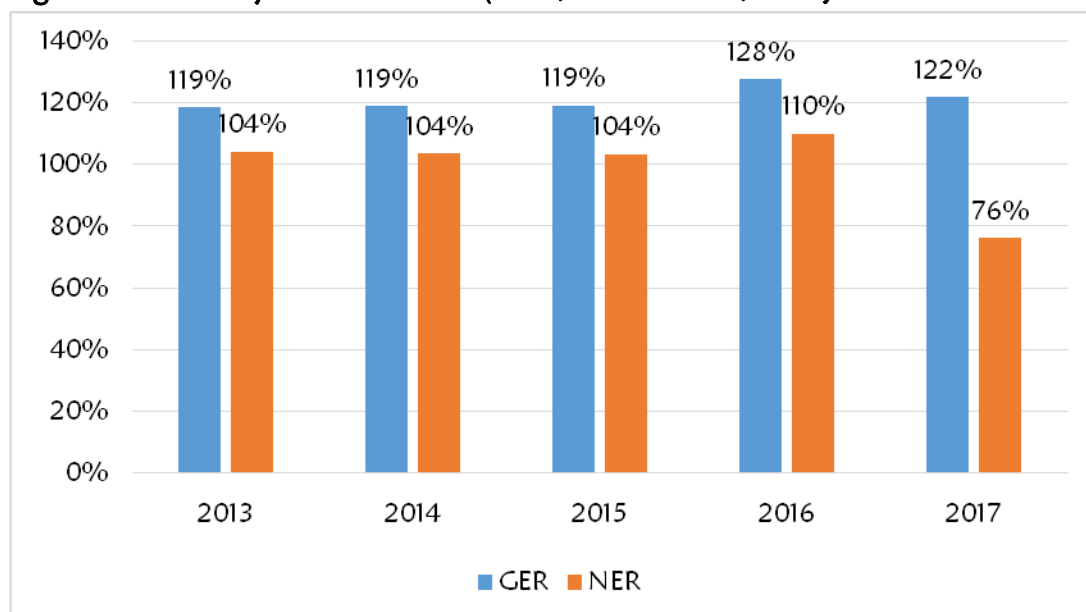
### 5.3.1.2.3 Gross and Net Enrolment Ratios

The gross enrolment ratio (GER) is the total number of pupils enrolled in a given level of education, regardless of their ages, expressed as a% of the eligible official school age population for that same level of education. The net enrolment ratio (NER) is the total number of the official school age group pupils for a given level of education expressed as a percentage of the corresponding population.

EMIS data from 2012/2013 to 2016/2017 clearly shows that GER increased in 2015/2016 and then declined again in 2016/2017. But in general, it shows that schools are able to attract learners to join the system. It should also be noted that the GER is above 100%, showing that the system is absorbing both under- and over-aged pupils.

The NER for the reference period has not been constant. It is supposed to always be less than 100%, but from 2013 to 2016, NER was above 100%. This could be attributed to a lack of data on the denominator population.

**Figure 22: Primary GER and NER (2012/2013 – 2016/2017)**



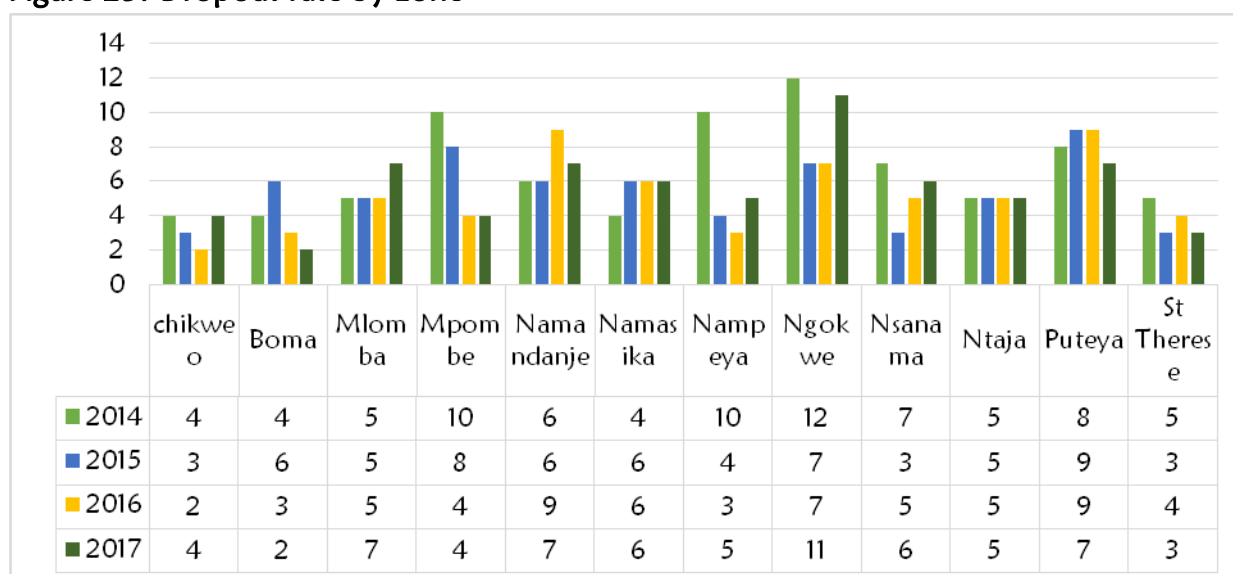
Source: Education

Office, Emis Data Base for 2013 – 2017

#### 5.3.1.2.4 Dropout Rates

The dropout rate is the proportion of learners who leave a school system without completing a given grade. Figure 23 shows that the dropout rate declined in Chikweo, Boma, Mlomba and Mpombe during the reference period. This can be attributed to the campaigns that are being championed by stakeholders on the importance of education especially for girls. However, there are still many pupils dropping out for reasons such as child labour, early marriages, orphanhood, and high illiteracy levels.

**Figure 23: Dropout rate by zone**



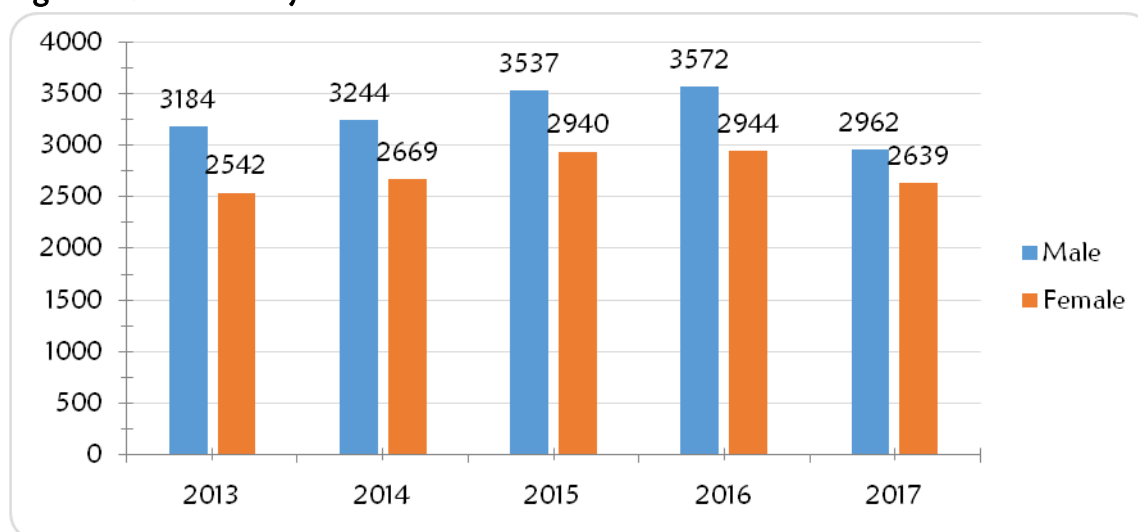
Source: Education Office 2013 – 2017 Data

#### 5.3.1.3 Secondary Education

Currently, Machinga District has 25 secondary schools, 21 of which are public schools. In 2008, there were more private secondary schools than there are now, but most were closed by MOEST because they failed to meet the required minimum standards. The need for more secondary schools is still high as some learners walk long distances to the nearest school. Additionally, there are no

district boarding schools as is the case in other districts. Despite these challenges, enrolment has been steadily increasing due to the efforts of many NGOs that support the sector.

**Figure 24: Secondary school enrolment**



*Source: Machinga District Education EMIS 2013 - 2017*

The number of orphans in Machinga District Secondary Schools is steadily increasing due to HIV/AIDS. Most of these orphans require material as well as psycho-social support and care to enable them to withstand the effects of orphanhood. To alleviate some of these challenges, bursaries are being provided by the government, NGOs, and religious institutions.

#### 5.3.1.4 Tertiary Education

Machinga District has one conventional teacher training college, which provides a two-year teacher education programme. Machinga Teacher Training College opened in September 2010. Currently, the college accommodates 2,608 students (Table 64). Note that Open and Distance Mode of Learning phased out in 2015/2016.

**Table 64: Enrolment of student teachers against school years (2012/2013 – 2016/2017)**

Year	Males		Females		Total
	IPTE	ODL	IPTE	ODL	
2013	328	658	306	322	1,614
2014	364	566	227	384	1,541
2015	290	296	132	28	746
2016	241	0	95	0	336
2017	293	0	62	0	355

*NB: IPTE means Initial Primary Teacher Education and ODL stands Open and Distance Learning.*

*Source: Machinga District Education Office 2017*

The student teacher dropout rate increased from 2.41% in 2015 to 4.76% in 2016. Most students drop out mainly due to pregnancy, alternative employment and family responsibility.

**Table 65: Number of Students who dropped-out (2012/2013 and 2015/2016)**

Year	Death		Pregnancy		Marriage		Employment		Medical Grounds		Family Responsibility		Dismissal		Other reasons	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
2013																
2014																
2015				2			11					2			2	1
2016				3			7					2	2		1	2

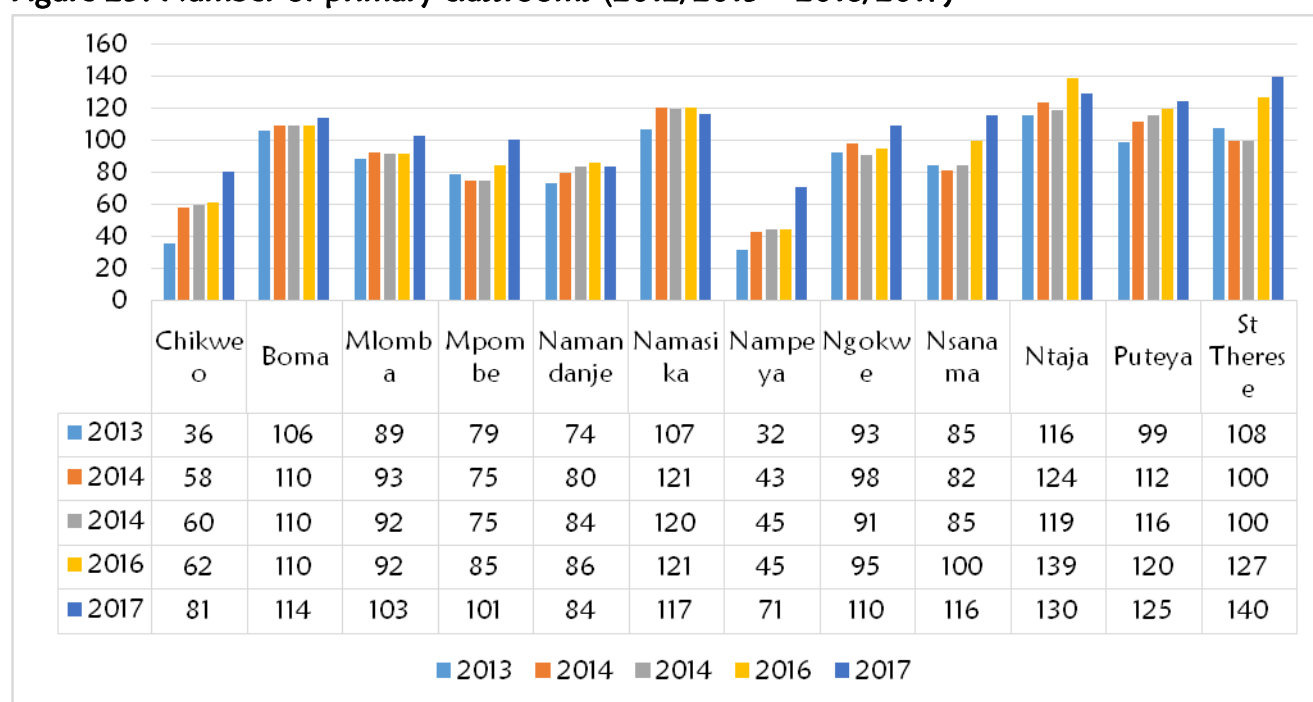
Source: Machinga District Education Office 2017

### 5.3.2 Educational Facilities

#### 5.3.2.1 Classroom Blocks (Primary School)

One of the major challenges in the education sector is an inadequate number of classrooms, even though several stakeholders are constructing and/or maintaining school blocks. Figure 25 shows that there was a steady increase in the number of classrooms between 2012/2013 and 2016/2017 due to these interventions. However, there's need for more classrooms because of increasing enrolment in primary schools.

**Figure 25: Number of primary classrooms (2012/2013 – 2016/2017)**



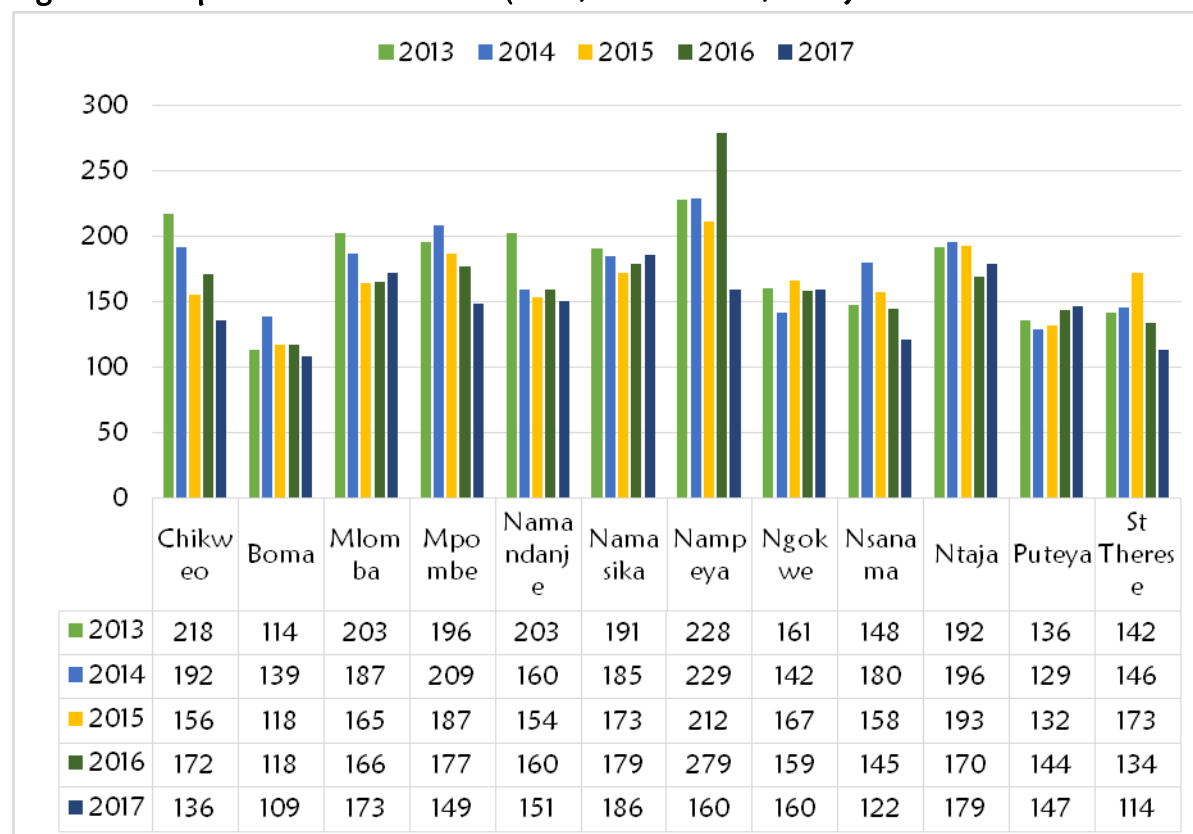
Source

e: Education Office 2017

### 5.3.2.1.1 Pupil to Classroom Ratio

The pupil to classroom ratio shows the number of pupils per classroom. This ratio has been increasing steadily due to an increase in enrolment coupled with the low number of classrooms. It does not reflect the number of classes that are held in temporary shelters or in the open air.

**Figure 26: Pupil to classroom ratio (2012/2013 – 2016/2017)**



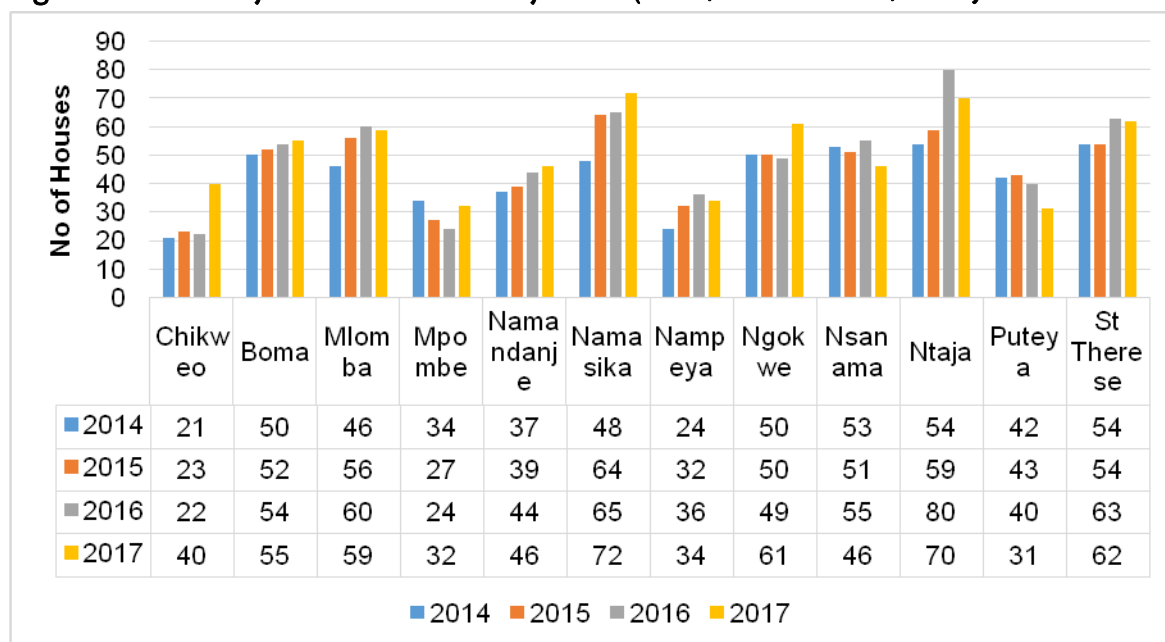
*Source: Machinga Education Office, EMIS Data 2013 - 2017*

### 5.3.2.2 Primary School Teachers' Houses

Accommodation of teachers at their duty stations remains another key area to improve. Efforts are being made to ensure that all teachers have decent accommodation so they will be motivated to improve the performance of their pupils. Though the number of teachers' houses has increased from 2013/2014 to 2016/2017, especially with support from the government under the LDF project, the average teacher to house ratio is still around 3:1 due to the high number of teachers being deployed to the district to meet the demand.



Figure 27: Primary teachers' houses by zone (2013/2014 – 2016/2017)

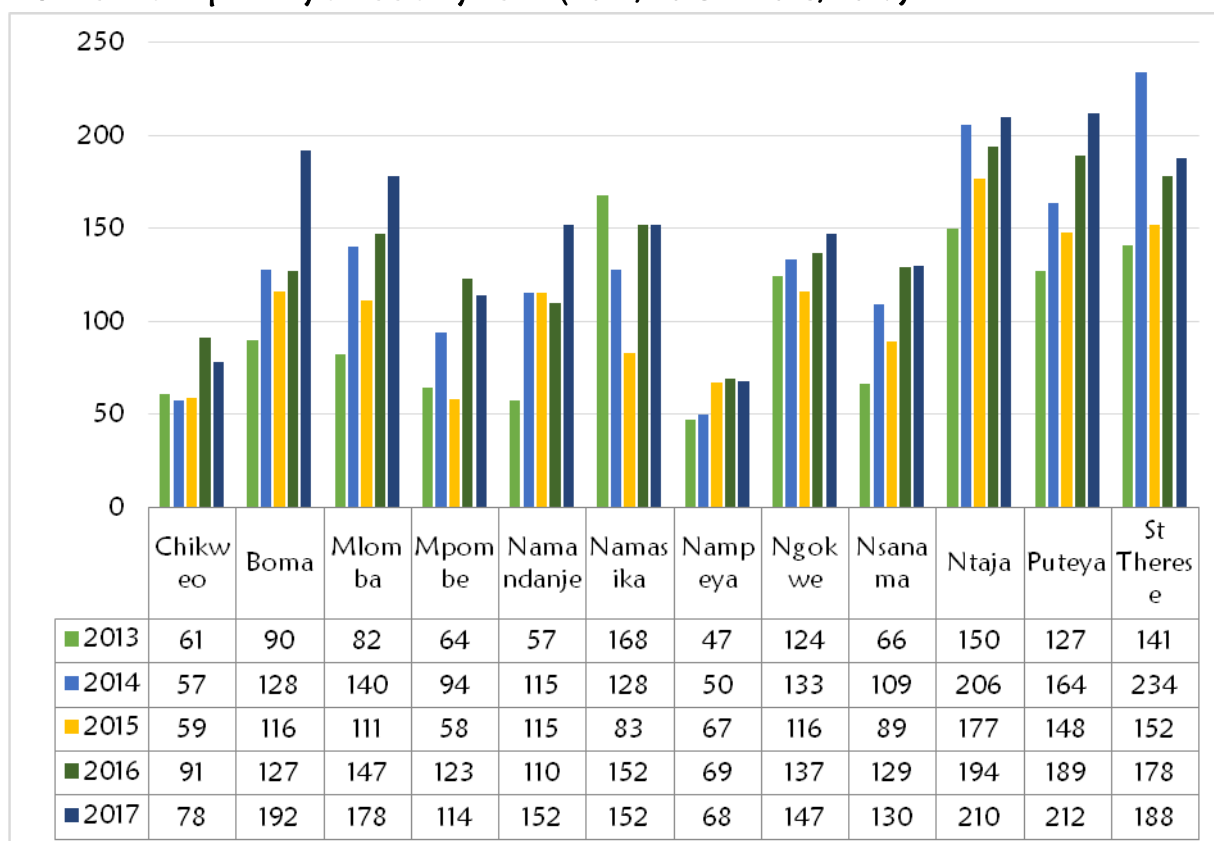


Source: Machinga Education Office, EMIS Data 2014 - 2017

### 5.3.2.3 Primary School Toilets

One of the contributors to the high dropout rate, especially among girls, is the lack of sanitary facilities, especially toilets. The learner to toilet ratio is 163:1 which is far above the recommended ratio of 22:1 despite efforts by government and other stakeholders.

Figure 28: Toilets in primary schools by zone (2012/2013 – 2016/2017)

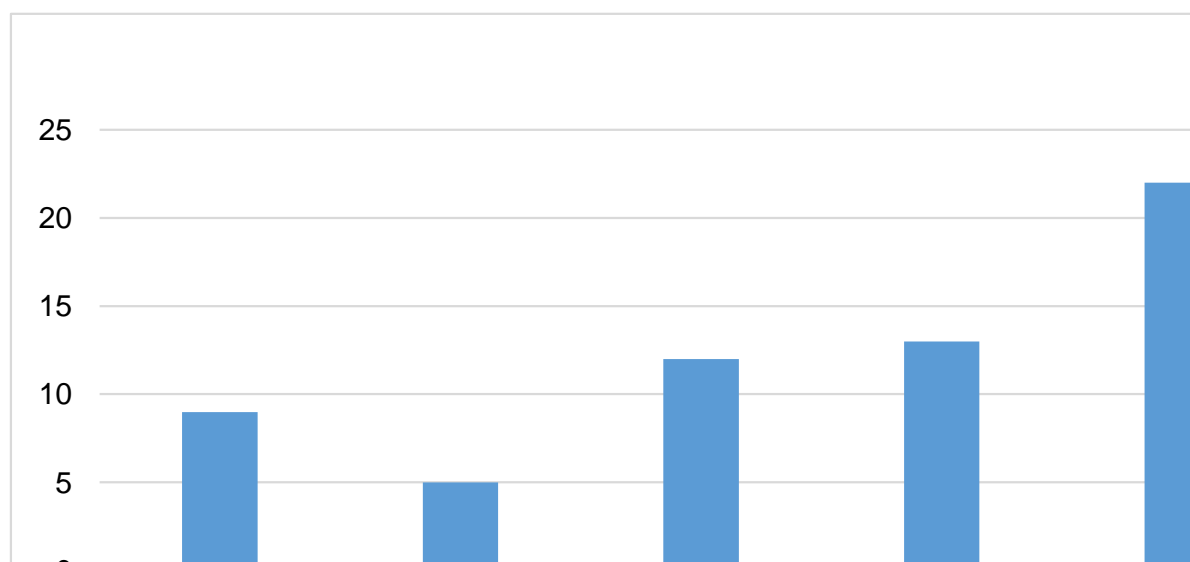


Source: Machinga Education Office, EMIS Data 2013 - 2017

### 5.3.2.4 Primary School Libraries

Libraries are established to encourage a reading culture. Currently, 14% of Machinga's primary schools have libraries. The number of libraries has slowly increased from the 2012/2013 to 2016/2017 school years as depicted in Figure 29 below. This increase is attributed to communities' initiatives in constructing library structures and sourcing books from the National Library Services. NGOs working in the sector have also assisted in bringing awareness to the communities and instilling a reading culture in learners in the district.

**Figure 29: Libraries in primary schools by zone (2012/2013 –2016/ 2017)**

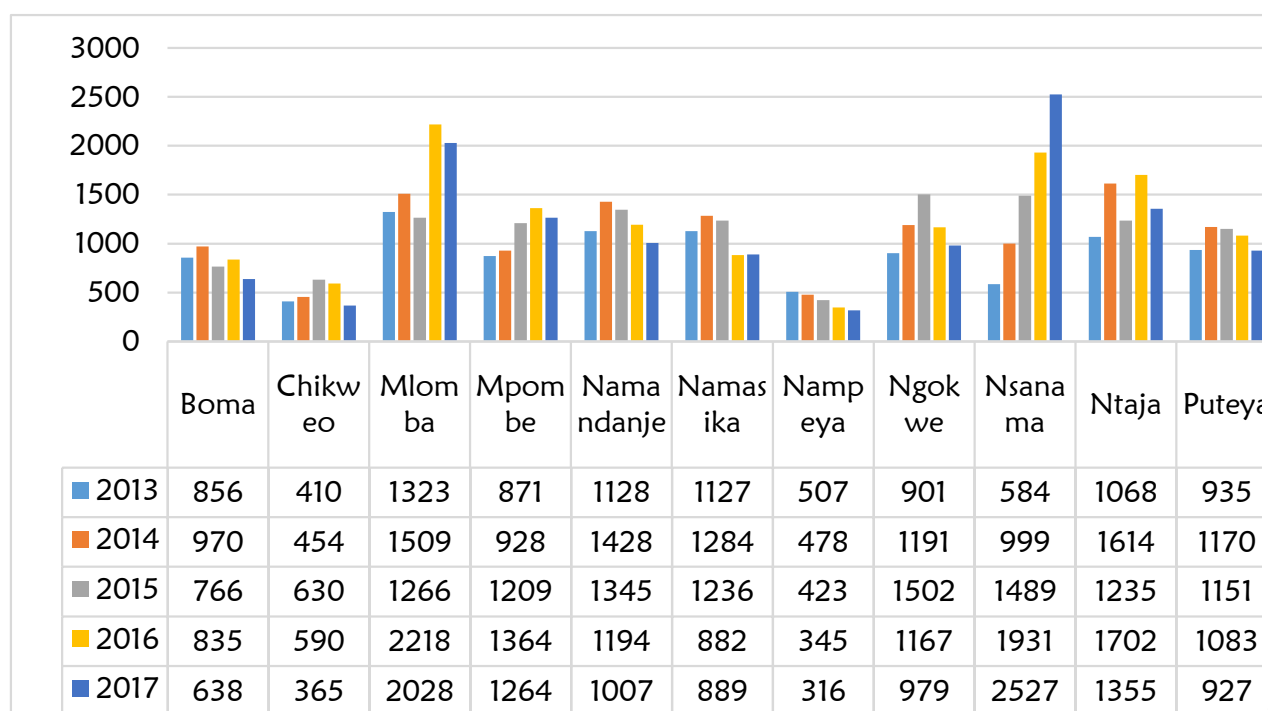


*Source: Machinga Education, EMIS Data 2013 - 2017*

### 5.3.2.5 Desks

The number of desks in the primary schools has increased by 31% from 2012/2013 to 2016/2017, as presented in Figure 30. This has reduced the pupil to desk ratio from 15:1 to 12:1. Even so, the district still needs many more desks to create a conducive learning environment in schools.

Figure 30: Primary school desks by zone (2012/2013 –2016/ 2017)



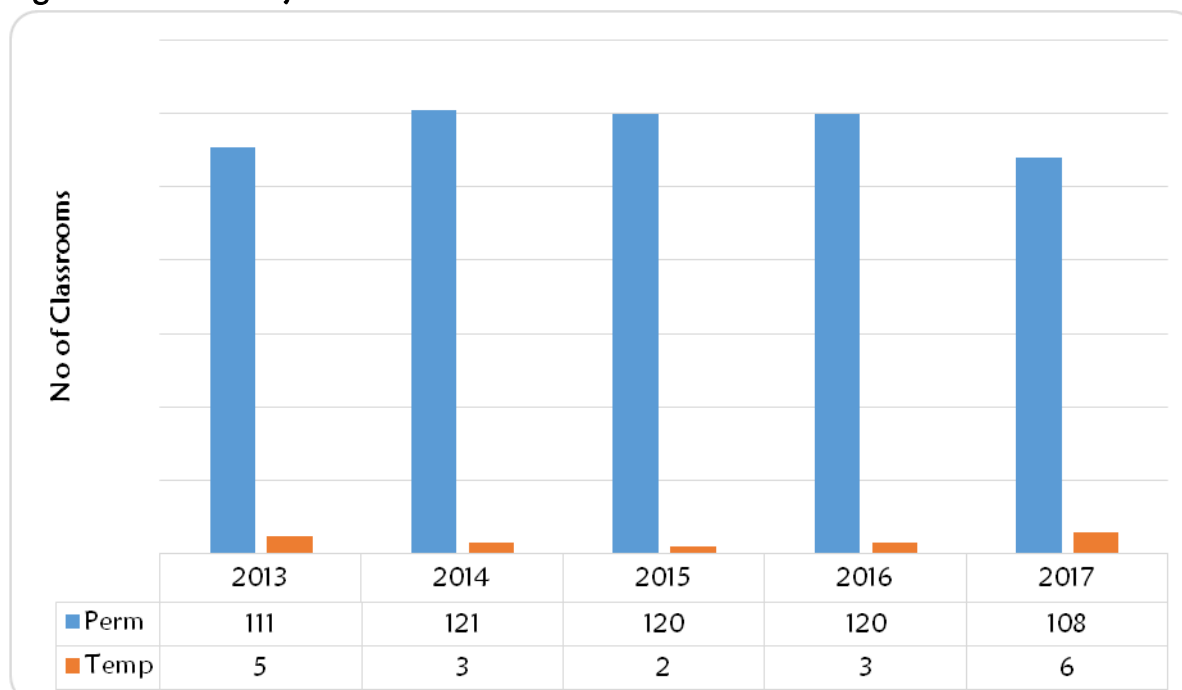
Source:

Education Office

### 5.3.2.6 Secondary School Classrooms

The number of classrooms increased from 2012/2013 to 2013/2014 but decreased from 2015/2016 to 2016/2017 due to maintenance problems with some existing structures.

Figure 31: Secondary school classrooms

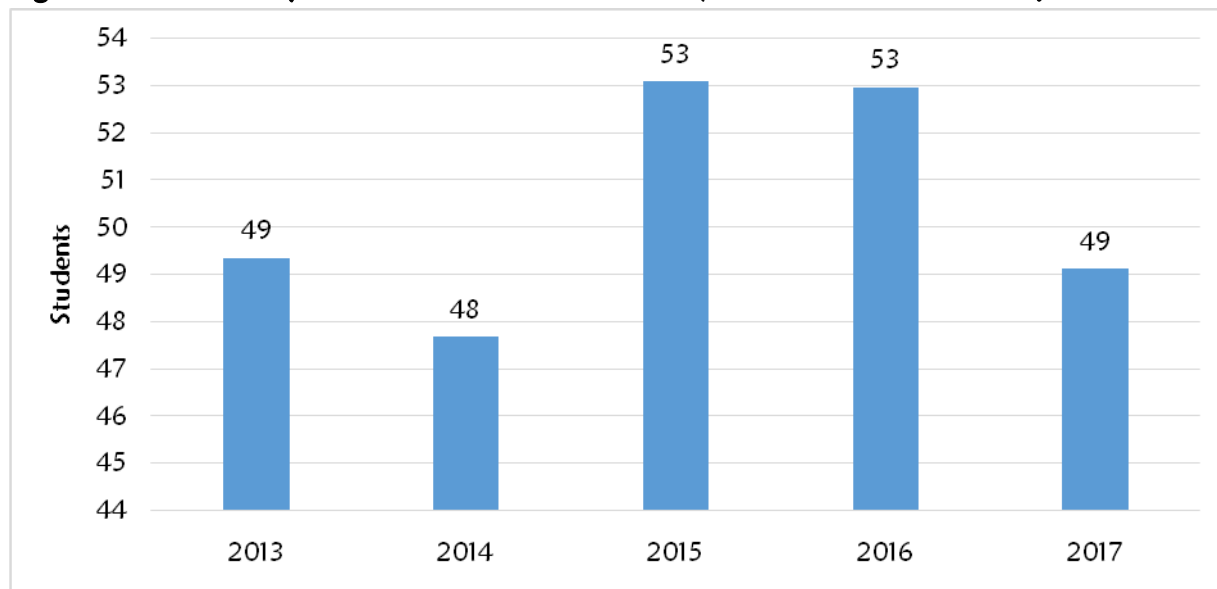


Source: Machinga District Education Office 2017

The secondary school student to classroom ratio increased from 2013/2014 to 2015/2016 because of higher enrolment levels. FHI360 is currently providing bursaries to 5,780 girls and 1,170 boys, representing 80% and 20% coverage, thereby contributing to the increase in enrolment. The

remaining 20% of the girls are being supported by CAMFED, NAC, and government, meaning all the girls in the district are under bursary. Introduction of the double shift secondary school system has also helped to increase selection rate and hence increase enrolment.

**Figure 32: Secondary student to classroom levels (2012/2013 – 2016/2017)**



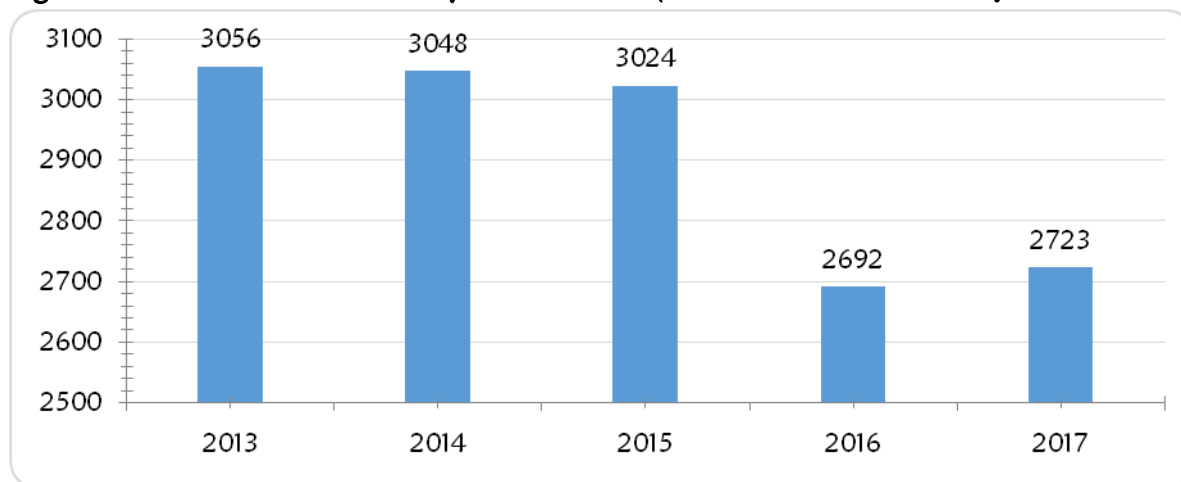
Source:

*Machinga Education Office, EMIS Data 2013 - 2017*

### 5.3.2.7 Secondary School Desks

There was a tremendous decline in the number of desks in the secondary schools after 2015 due to maintenance problems (Figure 33). Additional desks are needed to reduce the student to desk ratio.

**Figure 33: Number of secondary school desks (2012/2013 – 2016/2017)**

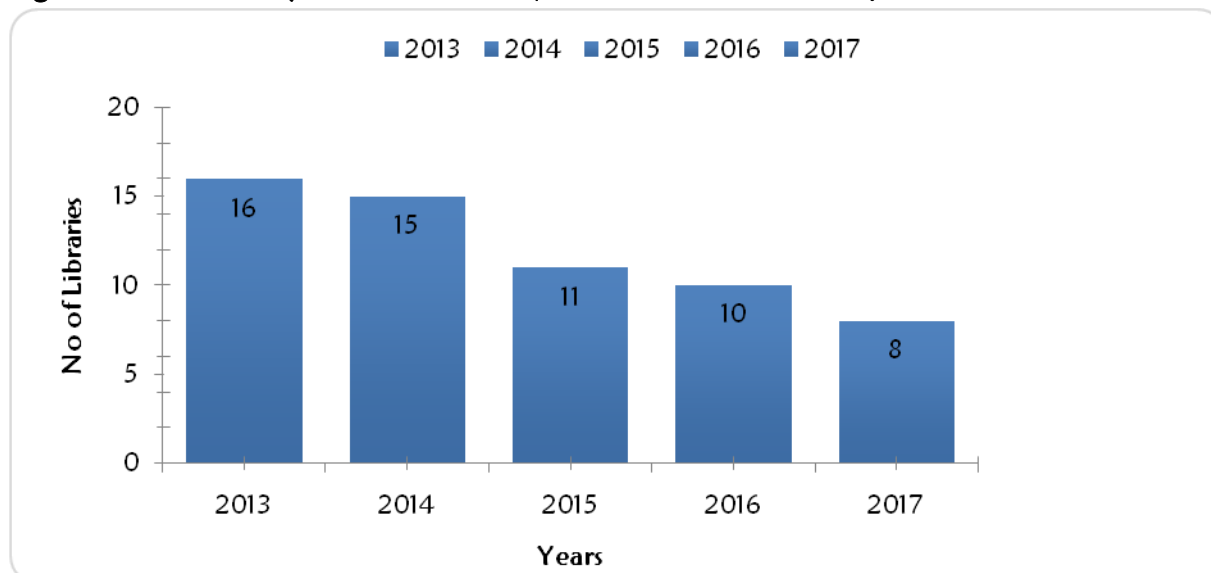


Source: *Machinga Education Office, EMIS Data, 2013 - 2017*

### 5.3.2.8 Secondary School Libraries

Libraries are very important in secondary schools since learners are encouraged to look for new information on their own for their studies. The number of secondary schools with libraries rose from 2008 to 2013 but thereafter started to decline due to scarcity of library books and libraries being turned into classrooms.

Figure 34: Secondary school libraries (2012/2013 – 2016/2017)

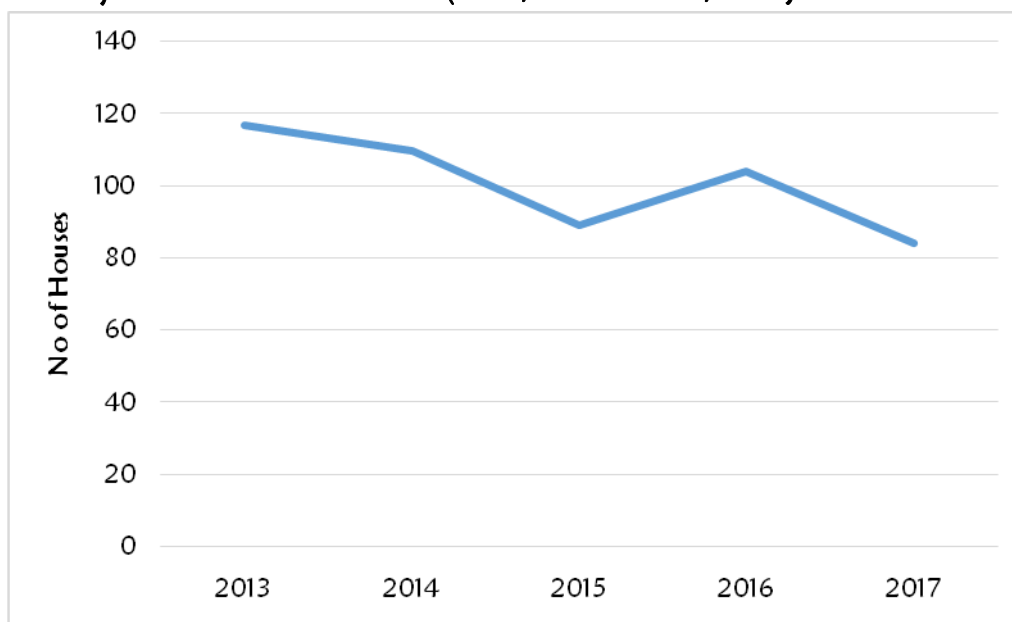


Source: Machinga Education Office, EMIS Data 2013 - 2017

### 5.3.2.9 Secondary School Teachers' Houses

The number of teachers' houses for secondary schools is inadequate and of low standard especially for rural Community Day Secondary Schools due to inadequate financing for teachers' houses. Currently, the house to teacher ratio is 3:1, which is one of the reasons why newly trained teachers decline posts in rural secondary schools, prompting the system to instead use under-qualified teachers.

Figure 35: Secondary school teachers houses (2012/2013 – 2016/2017)

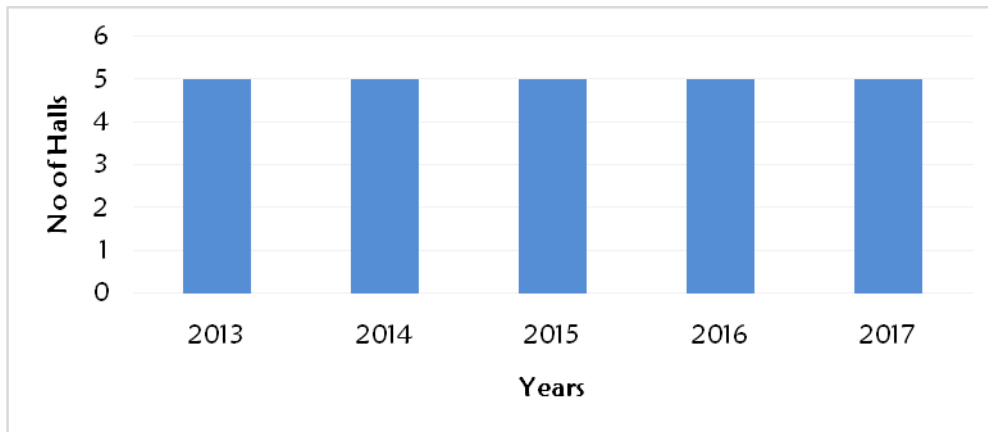


Source: EMIS 2013, 2014, 2015, 2016, 2017

### 5.3.2.10 Entertainment Halls

Secondary school entertainment halls play a vital role in providing recreation to learners as well as providing space for community meetings and administration of national examinations. These structures can also be used to generate income for the running of the institution through rental fees. No new hall was constructed during the covered period due to lack of funds.

**Figure 36: Secondary school halls (2012/2013 – 2016/2017)**

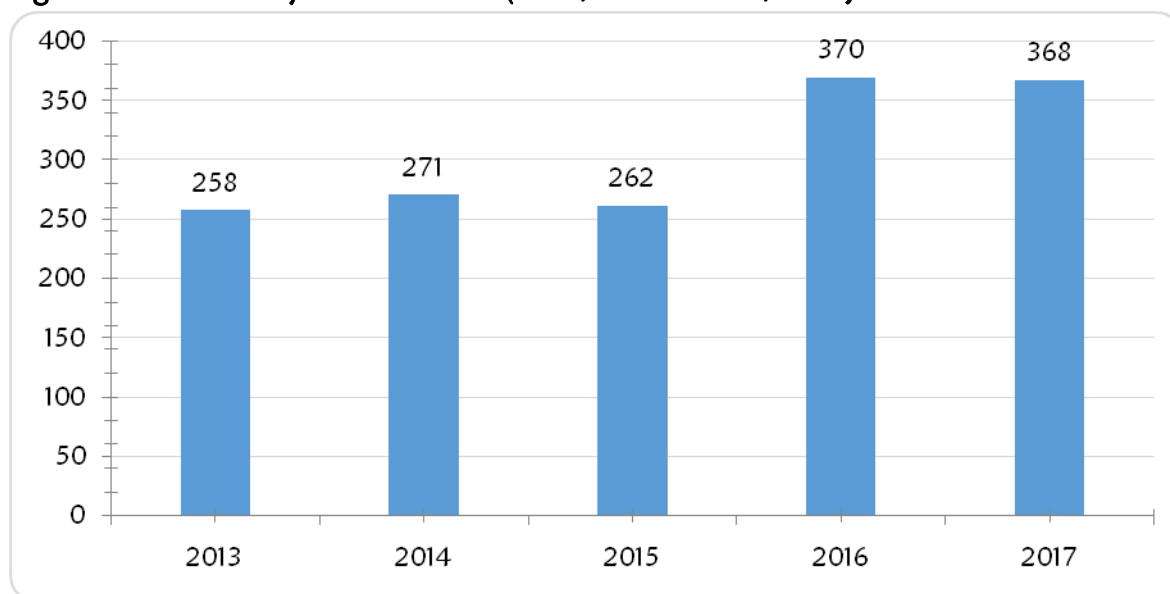


*Source: EMIS 2013 - 2017*

### 5.3.2.11 Secondary School Toilets

Inadequacy in sanitary facilities has a negative impact on female students especially in secondary school. The number of toilets in secondary schools increased from 258 in 2012/2013 to 368 in 2016/2017 as presented in Figure 37. This has resulted in a learner to toilet ratio of 15:1, which is better than the national ratio of 25:1.

**Figure 37: Secondary school toilets (2012/2013 – 2016/2017)**



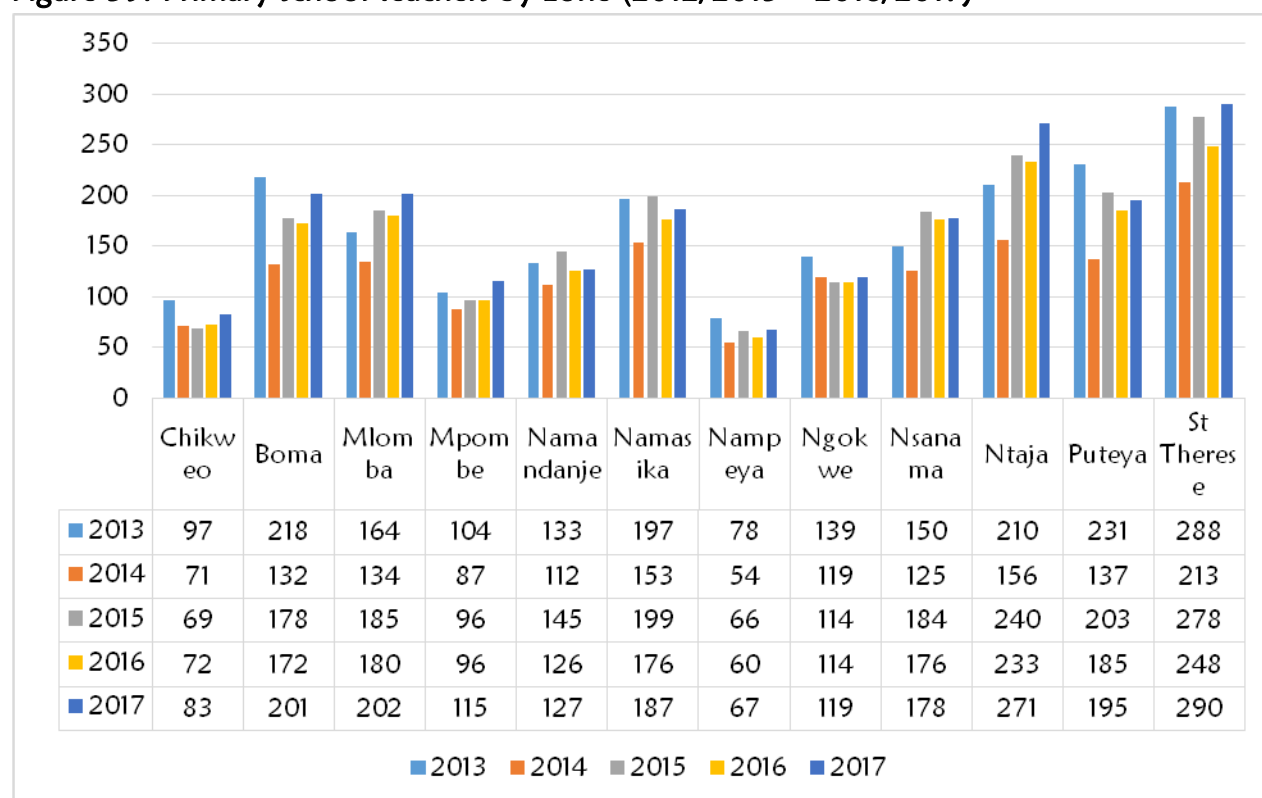
*Source: EMIS 2013 - 2017*

### 5.3.3 Staffing Levels

#### 5.3.3.1 Primary School Teachers

The number of teachers in the primary schools fluctuated between 2012/2013 and 2016/2017, leading to a pupil to qualified teacher ratio of 97:1, which is higher than the recommended 60:1. The high attrition rate through teacher transfers leads to a need to recruit more teachers. The pupil to teacher ratio is particularly critical in Chikweo, Mpombe, Nampeya, and Ngokwe, where the ratio is more than 120 pupils per teacher.

**Figure 39: Primary school teachers by zone (2012/2013 – 2016/2017)**

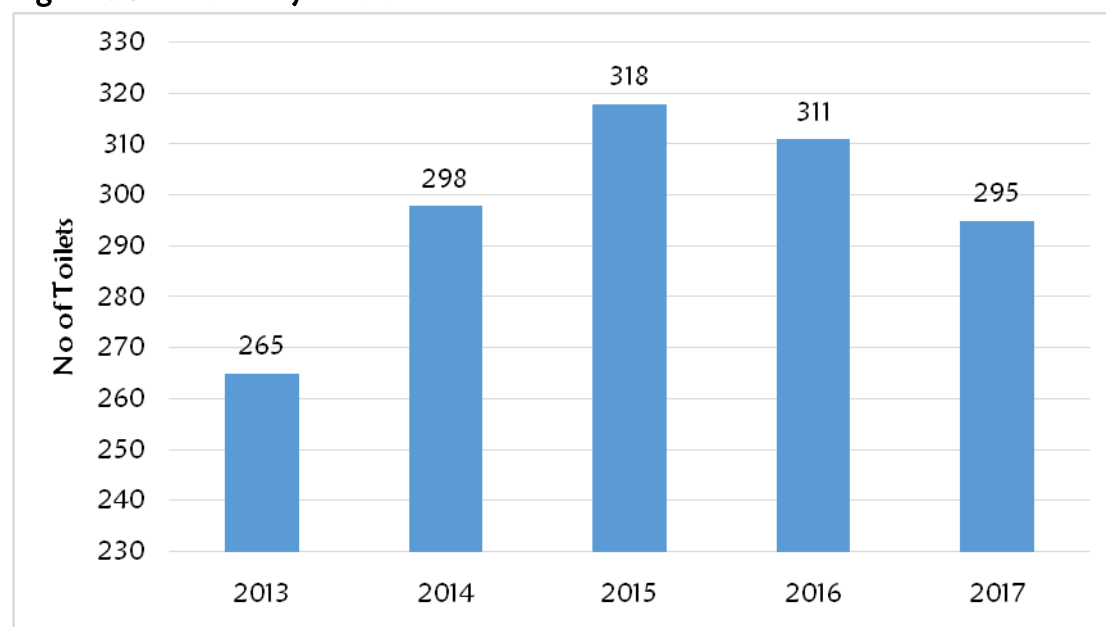


Source: Machinga District Education Office 2017

### 5.3.3.2 Secondary School Teachers

The number of secondary school teachers fluctuated between 2012/2013 and 2016/2017. Primary school teachers are being appointed to teach in secondary schools to reduce the secondary pupil to teacher ratio, which was 33:1. This is higher than the ESIP target for 2016/2017 of 26:1. Incentives such as standard houses are needed to attract qualified teachers to rural areas.

**Figure 38: Secondary school teachers**



*Source: Machinga District Education Office 2017*

### 5.3.3.3 Tertiary Education

Machinga Teachers Training College is the only tertiary institution in the district. In 2012/2013, the college had 56 lecturers, translating to a student to lecturer ratio of 29:1. The student lecturer ratio for 2016/2017 has improved so that it was well below the recommended ESIP target of 20:1 (Table 66). The higher student lecturer ratio in earlier years was due to the larger number of Open Distance Learning students.

**Table 66: Machinga Teacher Training College**

Years	Males	Females	Total	Student: Lecturer Ratio
2012/2013	38	18	56	29
2013/2014	45	24	69	22
2014/2015	39	24	63	12
2015/2016	32	16	48	7
2016/2017	32	22	54	7

*Source: Machinga District Education Office 2017*



## 5.4 Social Welfare and Community Development

### 5.4.1 Social Welfare Services

Social welfare services are designed to support individuals, families, and communities that cannot support themselves. They include child protection, early childhood development (ECD), family and child welfare, probation and after care, OVC care and support, child rehabilitation and social support, and destitution support.

#### 5.4.1.1 Child Protection

Child protection refers to preventing and responding to specific situations where children are at risk from physical, sexual, mental, and emotional abuse, violence, torture, and exploitation, or deprivation of parental or other family care. Child protection services are intended to end the abuse or remove children from the abusive situation and then secure those children's full integration or reintegration to their families and communities.

Machinga District has 19 community child protection workers, 9 women and 10 men. 7 of these are volunteers while 12 are on the government payroll. There are also 16 Community Victim Support Units (CVSU).

**Table 67: Distribution of CPW by TA (2012– 2017)**

Traditional Authority	2012		2013		2014		2015		2016		2017	
	M	F	M	F	M	F	M	F	M	F	M	F
Kawinga	1	1	1	1	1	0	1	0	1	0	1	0
Chiwalo	1	0	1	0	0	1	1	0	1	0	1	0
Nyambi	1	0	2	0	1	0	1	0	1	0	1	0
Chikweo	1	0	0	0	0	0	0	0	0	0	0	0
Ngokwe	0	0	0	1	0	1	0	1	0	1	0	1
Kapoloma	0	1	0	0	0	0	0	0	0	0	0	0
Chamba	2	0	2	0	2	0	2	0	2	0	2	0
Sitola	0	1	0	1	0	1	0	1	1	1	1	1
Nsanama	0	2	0	1	0	1	0	1	0	1	0	1
Mlomba	1	1	1	1	1	0	0	1	0	1	0	1
Liwonde	1	1	1	1	1	1	1	1	0	2	0	2
Mposa	1	0	1	0	1	0	1	0	1	0	1	0
Nkula	1	0	1	0	1	0	1	0	1	1	1	1
Nkoola	0	1	0	1	0	1	0	0	0	0	0	0
Mchinguza	1	1	1	1	0	0	0	0	0	0	0	0
Sale	1	0	2	0	0	2	0	2	0	0	0	0

*Source: DSWO's Annual Report*

Ideally, each TA would have three child protection workers (CPWs), at least a male and female, but there are now just one or two child protection workers per TA, except Nkoola, Kapoloma, Chikwewo, Mchinguza and sub TA Sale, which have no CPWs at all. There are 12 CPWs, of which 5 are women and on payroll, and 5 volunteers. This low number has compromised child protection service delivery.

#### 5.4.1.1.1 Community Victim Support Unit

Community Victim Support Units are community-based institutions that counsel individuals who have been abused and make referrals. Each Traditional Authority has one unit, except TA Liwonde, which has two due to its population size.

The district has victim support units in all TAs but some trained volunteers are no longer available so training is needed for new volunteers.

**Table 68: Distribution of Community Victim Support Units as per TA**

Traditional Authority	Number of CVSU	Number of Volunteers
Kawinga	1	6
Mchinguza	1	6
Chiwalo	1	6
Nyambi	1	6
Chikweo	1	6
Ngokwe	1	6
Kapoloma	1	6
Chamba	1	6
Sitola	1	6
Nsanama	1	6
Mlomba	1	6
Liwonde	2	6
Mposa	1	6
Nkula	1	6
Nkoola	1	6
Sale	1	6

*Source: DSWO Annual Reports*

#### 5.4.1.1.2 Children's Corners

Children's Corners are places where orphans and non-orphaned children aged 6 to 18 meet after school hours to play and share experiences on issues affecting them with support from community volunteers.

The district has Children's Corners in all TAs except Nyambi. The district requires at least 10 Children's Corners in each TA, which means that there should be an additional 60. Trained support volunteers are also needed.

**Table 69: Distribution of Children's Corners per TA (2012 – 2017)**

	2012	2013	2014	2015	2016	2017
Kawinga	2	0	5	7	10	14
Chiwalo	0	0	1	1	2	3
Nyambi	1	0	0	0	0	0
Chikweo	0	0	0	0	1	4
Ngokwe	0	3	3	5	6	12
Kapoloma	0	0	0	0	0	1
Chamba	2	2	2	3	4	5
Sitola	1	0	0	0	1	3
Nsanama	1	0	0	0	1	3

Mlomba	0	0	0	2	3	8
Liwonde	0	3	5	9	11	15
Mposa	1	3	4	5	6	8
Nkula	1	6	4	6	7	10
Nkoola	0	0	1	2	3	5

Source: DSWO Annual Reports

#### 5.4.1.2 Early Childhood Development

Early Childhood Development refers to comprehensive programmes for children from birth to eight years of age, their parents, and community, including nutrition, education, psychosocial support, and development. This approach promotes and protects the rights of children for survival, growth, development, and participation and includes community-based childcare centres (CBCCs), day care centres, nursery schools, and parent education.

CBCCs are a valuable response to care for all young children including orphans, children with disabilities, and other vulnerable children. Machinga District has 402.

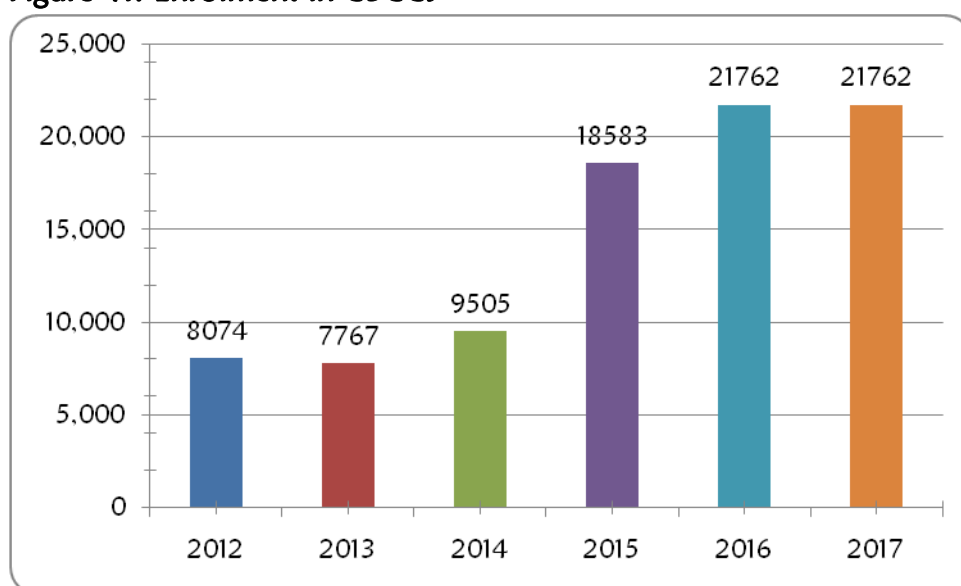
Table 70: Community-based childcare centres (2012 – 2017)

Year	Number of CBCCs	Number of Children		
		Boys	Girls	Total
2012	217	3,007	5,067	8,074
2013	215	2,910	4,857	7,767
2014	239	3,500	6,005	9,505
2015	371	8,557	10,026	18,583
2016	402	10,304	11,458	21,762
2017	402	10,304	11,458	21,762

Source: DSWO Annual Report

The number of children has been growing since 2012, with particularly rapid growth in 2015. This creates the need for more well-equipped CBCCs and trained caregivers.

Figure 41: Enrolment in CBCCs



Source: DCDO Machinga Annual Report

**Table 71: Number of caregivers (2014 – 2017)**

	Trained		Untrained	
	M	F	M	F
2014	49	184	300	1,035
2015	65	201	356	1,209
2016	81	237	389	1,343
2017	81	237	389	1,343

*Source: DSWO ECD data Annual Report*

#### 5.4.1.3 Care and Support for Orphans and Other Vulnerable Children

In Malawi, an orphan is defined as any person below 18 years who lost one or both parents. Machinga District's CPWs collected data for orphans and other vulnerable children in 2016, which was possible with funding from Ministry Headquarters. However, inadequate funding and few child protection workers are adversely affecting regular updates of this data (Table 72).

**Table 72: Number of OVC registered as per TA**

Traditional Authority	Number of Registered OVC				
	2013	2014	2015	2016	2017
Kawinga	6,020	0	0	0	0
Chiwalo	560	0	0	0	0
Nyambi	2,390	0	0	0	0
Chikweo	1,240	0	0	0	0
Ngokwe	2,990	0	0	0	0
Kapoloma	305	0	0	0	0
Chamba	2,000	0	0	0	0
Sitola	3,550	0	0	0	0
Nsanama	6,050	0	0	0	0
Mlomba	3,008	0	0	0	0
Liwonde	8,079	0	0	0	0
Mposa	980	0	0	0	0
Nkula	820	0	0	0	0
Nkoola	1,010	0	0	0	0
<b>Total</b>	<b>26,034</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

*Source: DSWO OVC Database 2017*

Table 73: Registered CBOs per Traditional Authority (2012 – 2017)

TA	Number of Registered CBOs							Catchment Areas (GVHs)
	2012	2013	2014	2015	2016	2017	Total	
Kawinga	9	0	1	2	0	0	12	Mbanila, Mpiranjala, Chiuja, Misi, Likhonyowa, Ntaja, Chilala, Kankhomba, Mnyumwa, Siwoya, Mchingusa, Ntalika
Chiwalo	3	0	0	0	0	0	3	Chiwalo, Umbwa, Sale
Nyambi	7	0	0	0	0	0	7	Chitanganya, Maole, Chikojo, Mbwabwa, Mlanje, Puluma II, Nchimbo
Chikweo	5	0	0	1	0	0	6	Adamson, Chikweo, Nkumbira, Chipolonga, Nyama, Mlaluwere
Ngokwe	5	0	0	0	0	0	5	Dinji, Chitapa, Selemani, Mpacha, Peheliya
Kapoloma	5	0	0	0	0	0	5	Kapoloma, Mapata, Makata, Nselema, Mchelera
Chamba	5	1	1	0	0	0	7	Nanda, Mitawa, Mpita, Putheya, Nsumbo, Kapeta, Kaluma
Sitola	3	0	0	0	0	0	3	Magadi, Kalonjere, Mpotola
Nsanama	5	0	0	0	0	0	5	Malowa, Nkhumbwa, Nyama, Chisuwi, Nsanama
Mlomba	9	0	0	0	0	0	9	Mlomba, Nsinja, Chibwana, Lambulira, Mbalaka, Mpelula, Ntokoma, Misi, Masinde
Liwonde	5	0	0	0	0	0	5	Nkhuna, Ngongondo, Mwikala, Njamba, Mangamba
Mposa	6	0	0	1	0	0	7	Mpheta, Chilomba, Matache, Ntamira, Mbanda, Manja, Mikunga
Nkula	4	0	0	0	0	0	4	Ndaje, Mkalawire, Nkula, Mlelemba
Nkoola	6	0	0	2	0	0	8	Ntajachipanga, Mitusi, Ngunga, Issa, Chikuwita, Madi, Mlimbula, Chitimba
<b>Total</b>	<b>77</b>	<b>1</b>	<b>2</b>	<b>6</b>	<b>0</b>	<b>0</b>	<b>86</b>	

Source: DSWO CBO Register 2015

The number of supported male OVC is greater than those of female. However, most girls have been supported by NGOs and other projects in the district like Campaign for Female Education (Camfed), although this support may phase out.

**Table 74: Needy OVC supported with bursary**

	Male	Female	Total
2012 -2013	254	164	418
2013 – 2014	318	183	501
2014 – 2015	462	152	614

*Source: DSWO Annual Report*

#### 5.4.2 Human Resource

The District Social Welfare Office has only five (5) positions filled out of 20, for a sector vacancy rate of 75%. This compromises service delivery.

**Table 75: Staff positions at Social Welfare Office (2013 – 2017)**

Posts	Established	Filled	Vacant
DSWO (PO)	1	0	1
Gender Officer (PO)	1	1	0
SASWO (STO)	3	0	3
ASWO (TO)	3	2	1
SSWA (STA)	3	0	3
SWA (TA)	5	0	5
S/ COPY TYPIST	1	0	1
Messenger	1	1	0
Security Guard	2	1	1

*Source: DSWO Annual Report*

#### 5.4.3 Community Development Services

The overall aim of Community Development (CD) Services is to facilitate and coordinate the acquisition of literacy skills among adults, and to mobilise and empower communities to actively participate in development activities.

There are four major CD programmes being implemented in the district:

1. Functional Literacy Programme
2. Economic Empowerment Programme
3. Community Capacity Building Programme
4. Community Mobilisation Programme

##### 5.4.3.1 Functional Literacy Programme

Literacy among the adults lets them actively participate in development endeavours within their communities. The aim of the Functional Literacy Programme is to develop and increase literacy levels among adults in the country in order for them to be able to read, write and do some simple numeracy. By the end of one learning cycle, learners are expected to improve their capacity in knowledge, attitude, and skills. In 2013, English classes were introduced to the adult programme.

**Table 24: Number of adult literacy classes -Chichewa (2013 - 2017)**

Traditional Authority	2013	2014	2015	2016	2017
Ngokwe	24	24	24	24	25
Chikweo	36	36	36	34	32
Nkoola	34	34	34	34	32
Kawinga	15	20	15	15	19
Nyambi	31	31	33	31	21
Chiwalo	21	21	21	21	21
Kapoloma	17	18	19	17	18
Liwonde	16	20	24	16	19
Mlomba	18	18	18	18	18
Nsanama	15	18	15	15	18
Mposa	23	23	23	23	23
Sitola	31	31	30	31	20
Chamba	24	24	24	24	24
Nkula	21	21	21	21	18
Nchinguza					19
<b>Total</b>	<b>324</b>	<b>337</b>	<b>337</b>	<b>324</b>	<b>327</b>

*Source: Machinga DCDO Annual Report 2017 2017*

#### **5.4.3.2 Development of Women**

In Machinga, there are 136,088 households and 35,516 of these are female-headed households (2013 VAP Reports). An economic empowerment program was designed to promote capacity building among women through learning from each other, creating collateral for accessing credit, using peer pressure for loan recovery, and minimizing the cost of supervision and training.

In this programme, men, women, and youth are mobilised into groups that engage in income-generating activities. They are trained in group dynamics and business management and encouraged to know each other well. These groups should be self-formed, not assigned. The 10 groups (4%) that have bought shares from COMSIP Union get extra trainings on environmental safeguards, nutrition, and sanitation and are turned into cooperatives.

These activities promote equal access, control, and utilisation of financial resources. Group members are able to send their children to school and practice food utilisation and dietary diversification. Acts of gender-based violence are also reduced as would-be victims develop coping mechanisms.

**Table 25: Distribution of Business Groups by Traditional Authorities (2013 – 2017)**

TA	2013	2014	2015	2016	2017
Ngokwe	8	3	3	6	11
Chikweo	17	20	18	18	21
Nkoola	17	17	18	18	19
Kawinga	28	3	13	19	28
Nyambi	27	20	27	27	38
Kapoloma	10	6	8	7	13
Chiwalo	17	14	15	17	18
Liwonde	10	13	12	10	17
Mlomba	13	9	6	10	19

TA	2013	2014	2015	2016	2017
Nsanama	13	7	5	5	17
Mposa	12	6	7	10	14
Sitola	17	38	25	14	21
Chamba	7	16	14	7	10
Nkula	11	20	15	11	11
Nchinguza	-	-	-	-	3
<b>Total</b>	<b>207</b>	<b>192</b>	<b>186</b>	<b>199</b>	<b>260</b>

Source: Community Development Office 2017

#### 5.4.3.3 Community Mobilisation Programme

The Community Mobilisation Programme empowers communities to initiate, participate in, and benefit from their local development endeavours. Communities thus map out interventions and strategies that are implemented to address their prioritised needs. The communities are then linked to stakeholders for financial support to carry out these activities. Smooth implementation of the programme is hampered by inadequate staff at the council level, but a number of NGOs are supporting the programme financially. Established community-based organisations are helping bridge the human personnel gap at the council level.

Table 26: Human resources

Traditional Authority	Functional Literacy Instructors	Cluster Supervisors
Chikweo	32	3
Ngokwe	25	2
Chiwalo	21	2
Kapoloma	18	2
Nkoola	32	4
Kawinga	19	1
Mchinguza	19	2
Liwonde	19	2
Nsanama	18	2
Mlomba	18	2
Sitola	20	2
Nkula	18	2
Chamba	24	2
Mposa	23	2
Nyambi	21	3
<b>Total</b>	<b>327</b>	<b>33</b>

Source: Machinga DCDO Annual Report 2017

Table 79: Community mobilisation extension workers

TA	Extension Workers	Designation
Chikweo	1	SCDA
Ngokwe	-	-
Nkoola	1	SCDA
Kapoloma	-	-
Chiwalo	-	-
Kawinga	1	CDA
Mchinguza	-	-
Liwonde	1	ACDO
Mlomba	1	CDA



TA	Extension Workers	Designation
Nsanama	-	-
Sitola	1	SCDA
Nkula	-	-
Chamba	1	CDA
Mposa	-	-
Nyambi	1	CDA
Sale	-	-
Office	1	ACDO
Office	1	DCDO
Office	1	DRIVER

*Source: Machinga DCDO Annual Report 2017*

#### 5.4.3.4 Youth Development

MGDS III recognises the importance that youth can play in the socioeconomic development of the country. Under Key Priority Area 6.1.5 in the MGDS III, the goal is clearly defined as ‘to build an equitable society where opportunity is not defined by sex, age, disability, and other vulnerabilities’.

Malawi is a youthful nation; more than half of the population is below the age of 35. The National Youth Policy (2013) defines youth as any person aged 10 to 35 years, regardless of their marital status, economic status, and whether one has children or not.

The Department of Youth Development is mandated to develop the full potential of Malawi’s youth and promote their active participation in personal and national development. In order to fulfill its mandate, the department implements activities in three core programme areas: youth participation, youth reproductive health, and youth livelihood.

##### 5.4.3.4.1 Youth Participation

This programme is aimed at creating an environment that promotes meaningful and active participation of young people in *all* youth development activities and other development activities in their communities. The programme targets young people through four youth participation structures: youth clubs, youth NGOs, youth networks and youth centres. These structures offer young people opportunities to participate in development initiatives, and access and acquire information and skills helpful to leading a productive life.

In order to promote and increase young people’s participation, the District Youth Office (DYO), in collaboration with Youth Technical Working Group (YTWG) and other stakeholders in youth development, undertake activities to build the capacity of young people as well as creating an enabling environment for young people’s participation. Some of these activities include community sensitization on various issues concerning youth, leadership, IGAs, environmental conservation, sexual reproductive health among the youth and club management training including gender and human rights issues, learning visits, youth mobilization activities (open days), peer education and life skills, youth forums, training of in-school club patrons/matrons, and many others. The District Youth Office also links youth groups with relevant partners in areas of need and specialty. Some training have increased participation of female youth or improved the management of youth participation structures and sustainability of youth activities, others have helped youth run their businesses successfully. However, only a total of 535 youths were trained in all areas, much lower than the target of at least 5,000 youths.

#### 5.4.3.4.2 Youth Clubs

Machinga has a total of 340 youth clubs (Table 80).

Table 80: Youth clubs per traditional authority -of-School Youth Clubs

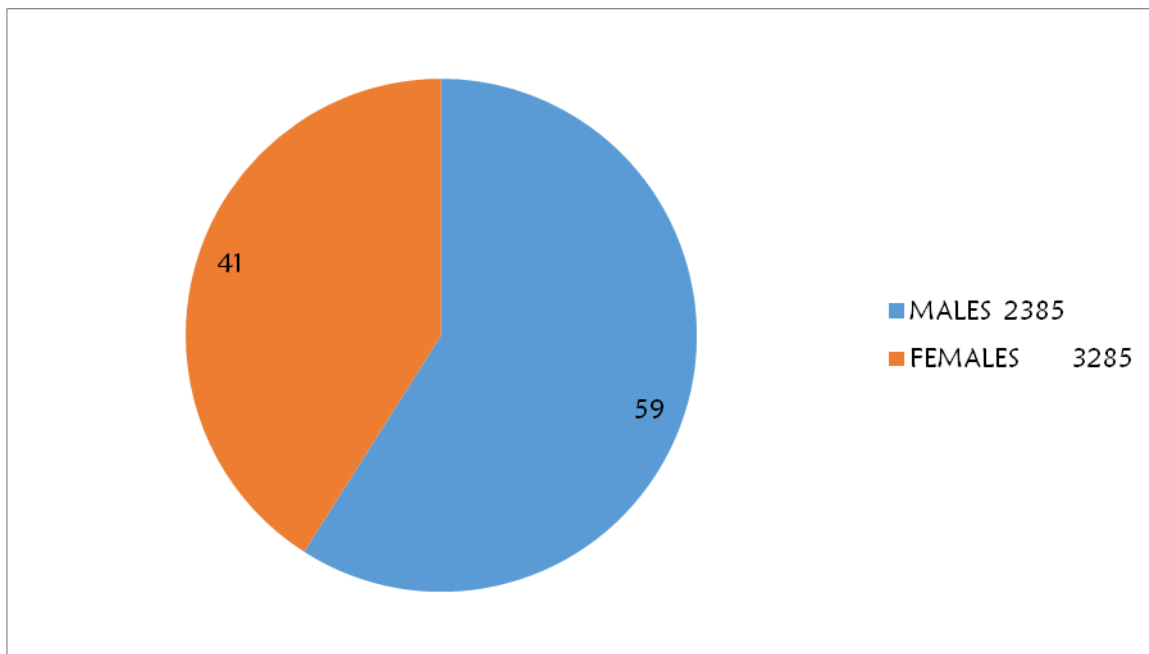
TA	No. of Clubs
Nyambi	27
Chamba	25
Chikweo	51
Kawinga	23
Mlomba	41
Sitola	23
Ngokwe	14
Nsanama	30
Nkoola	19
Liwonde	23
Mposa	10
Chiwalo	7
Kapoloma	6
Sale	6
Nkula	20
Mchinguza	15
Total	340

*Source: Machinga District Youth Office Annual Report 2017*

#### 5.4.3.4.3 Out

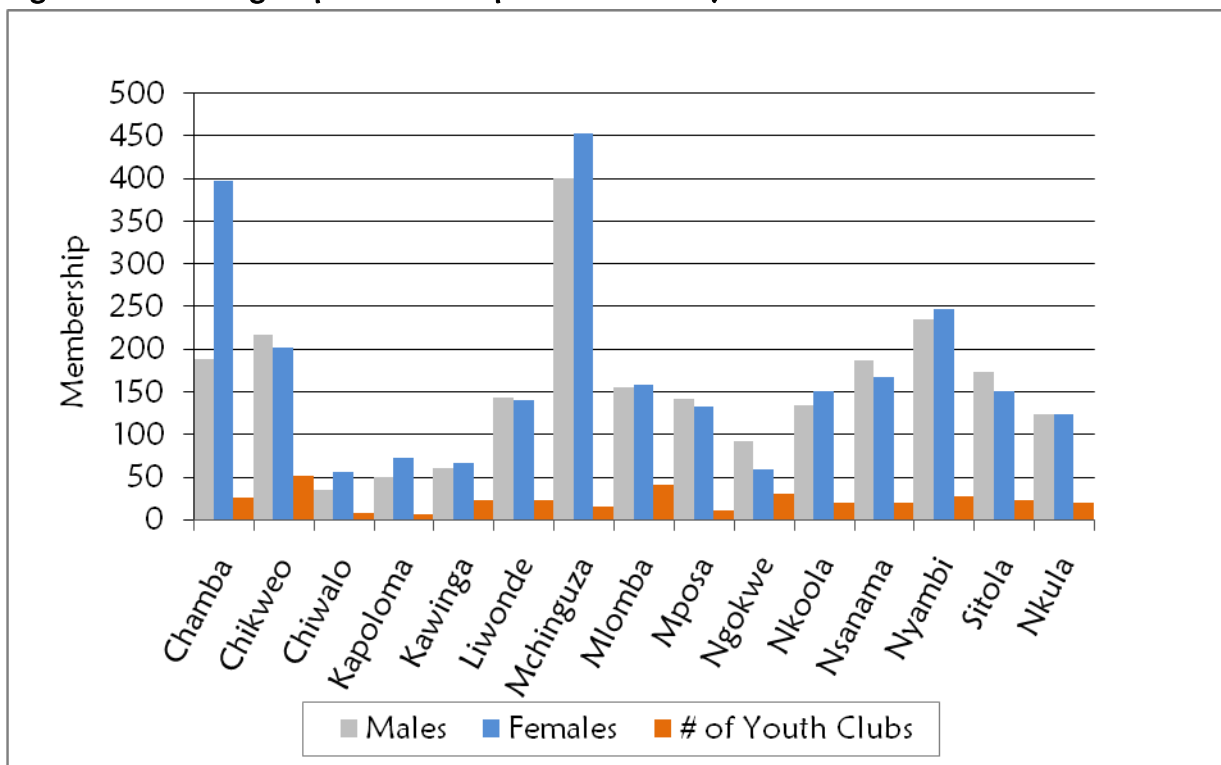
These are community-based groups initiated and managed by young people on a voluntary basis to serve the interests of both young people and the entire community in which they exist. They are major entry and access points for the DYO to reach its target population and for young people to access information respectively. There has been a remarkable increase in the number of youth clubs in the district, from 179 in 2013 to 340 in 2017; some TAs have more youth groups than others. During the same period, two youth groups were able to attain the Youth NGO status after the DYO recommended them for registration with the National Youth Council of Malawi. Sixteen youth networks were established, one in each TA. There is variation in numbers of youth groups among the TAs because of geographical positions of the villages; for some there is easy accessibility of youths to clubs of their choice. The population of youths also determines the number of youth clubs per TA.

Figure 42: Distribution of youth groups by sex



Source: District Youth Office

Figure 43: Youth group membership distribution by TA and sex



Source: District Youth Office

Some TAs have more youth club members than others because joining youth clubs is not compulsory. Areas where there is an NGO sponsoring youth activities will also have more youth clubs and more youths joining the clubs.

#### 5.4.3.4.4 Youth NGOs

Between 2013 and 2017, the National Youth Council of Malawi registered two out-of-school youth groups as youth-led NGOs: Forum for Youth Development in TA Chikweo (registered in 2014) and Namasimba. There are now five youth NGOs in Machinga District.

**Table 81: Youth NGOs**

Youth NGOs	TA
Forum for Youth Development	Chikweo
Youth Impact	Sitola
Mgodi Youth Organization	Nsanama
Youth Response	Mchinguza
Namasimba	Chikweo

*Source: Machinga District Youth Office Annual Report 2017*

#### 5.4.3.4.5 Youth Centres

Youth Centres can be multi-purpose if constructed and furnished to set standards. They are meant to provide a safe and secure space for young people to spend their time productively.

Currently only Nyambi, Chinyasa, and Ndaje Development Youth Centres are operational, located in TAs Nyambi, Kawinga, and Nkula, respectively. They offer peer education sessions, computer skills training, general entertainment, sports and recreation, and a reading resource centre. They also host TEVETA skills development trainings in carpentry, motorcycle repair, and tailoring.

#### 5.4.3.4.6 Youth Health (Sexual and Reproductive Health)

The youth Health programme promotes healthy lifestyles among young people using peer education, life skills, CBDAs, and youth-friendly health services. The latter is a strategy jointly implemented by the health and the youth sectors. All Machinga District health centres have providers trained in youth-friendly healthy services.

#### 5.4.3.4.7 Peer Education and Life Skills

Peer education and life skills programmes equip young people with knowledge and skills to help build their self-esteem and self-confidence and enable them to make informed choices and decisions about their sexual and reproductive lives.

Peer education training runs for no less than 10 days, during which young people acquire knowledge and skills, including how to prepare and conduct education sessions. A life skills training runs for 5 days and is mostly knowledge based in the sense that young people do not practice how to conduct sessions but are equipped with skills on how to make informed choices and decisions. Several other trainings have been conducted between 2013 and 2017.

#### 5.4.3.4.8 Youth-Friendly Health Services (YFHS)

Youth-Friendly Health Services (YFHS) is jointly implemented by the health and youth sectors. YFHS helps health service providers understand young people and the issues that affect them so that they can adequately assist youth while instilling an early health-seeking behaviour pattern. So far, 21 health facilities in Machinga have at least some of their personnel trained in youth-friendly health services, including Machinga District Hospital and Ntaja, Nyambi, Chikweo, Ngokwe, Mbonechera, Chamba, Nayuchi, Nainunje, Mangamba, Mlomba, Mkwepele, Mposa, Nsanama, Mpiri,

Gawanani, Ntholowa, Namanja, Machinga Boma, Namandanje, and Kawinga Health Centres. Banja la Mtsogolo health facilities also offer their services in a youth-friendly manner.

Through the same programme, some young people have been trained as peer/HTC counsellors. Nyambi, Ntaja, and Chikweo HTC centres have young people in the forefront doing counselling and testing.

#### 5.4.3.4.9 Youth Economic Empowerment

Youth economic empowerment improves the livelihoods of young people by providing them with vocational and business management skills and/or provision of soft loans for small-scale businesses. The major livelihood activities conducted by the department are trainings in non-formal vocational skills with financial support from ORT and other stakeholders e.g. Save the Children (DREAMS IC) Project and TEVETA.

**Table 82: Major livelihood trainings**

Vocational skills	TEVETA	Youth Department (Govt)
Carpentry	2	5
Hair dressing	1	2
Tailoring	7	11
Knitting	6	2
Welding	0	4

*Source: Machinga District Youth Office*

#### 5.4.3.4.10 Drug and Alcohol Abuse

There is no statistical evidence on the situation of drug and substance abuse in Machinga District, however, anecdotal evidence shows that many young people in and out of school, especially in trading centres, engage in drug and substance use. As a result, they sometimes engage in violence, vandalism, and unprotected sex, and are expelled from school. Some of these behaviours may get them arrested. The situation is aggravated by the easy accessibility of alcoholic drinks in the market.

**Table 83: Youth Issues**

Issue	Possible causes	Opportunities
<b>Drug and alcohol abuse among the youth</b>	Easy accessibility of alcoholic drinks Lack of clear laws on alcohol Flaws in enforcement of laws on alcohol	Youth development structures at all levels like youth clubs, youth networks, and youth centres Youth Office and other related sectors including NGOs
<b>Unemployment among the youth</b>	Inadequate opportunities for acquisition of entrepreneurship skills Prohibitive loan procedures and regulations Inadequate community skills development centres	Some lending institutions are interested in serving youth TEVETA and other stakeholders are interested in serving youth Youth Office has vocational skills trainings Youth are equipped with life skills and leadership trainings
<b>Low participation of female youth in leadership positions</b>	Lack of self-confidence Lack of exposure to leadership	Some stakeholders encourage female youth to take

Issue	Possible causes	Opportunities
	issues Denied participation by parents/guardians	leadership positions and participate in decision making
<b>High HIV/AIDS prevalence</b>	Culture Poverty Lack of self-awareness and self-confidence Drug and substance abuse	More stakeholders are conducting sensitization meetings with parents and youth on HIV/AIDS prevention Availability of HTC's where youth are able to know their HIV status Formulation of by-laws discouraging harmful cultural practices that affect youth
<b>Early marriages</b>	Culture Poverty Peer pressure	Awareness meetings with parents and youth themselves Availability of YFHS to youth
<b>Teenage pregnancies</b>	Culture Poverty Lack of self-awareness and self-confidence	Availability of Youth CBDAs in all areas Availability of YFHS

*Source: Machinga District Youth Office*

### 6.0 HIV/AIDS, Nutrition, and Disaster Management

#### 6.1 HIV/AIDS

The district had an HIV prevalence rate of 12.1% in 2004(MDHS 2004) and 14.3% in 2010(MDHS 2010). According to the latest MDHS (2015-2016), Machinga District has an HIV prevalence rate of 6.2%, which is lower than the national rate of 8.8%. This is attributed to behavior change interventions implemented by the Council and its development partners; deliberate programmes and activities have been created under the coordinated system of HIV/AIDS management structures. Particular recognition should go to the health and agriculture sectors that have provided relentless improved technical (information and medical) and nutritional support to communities, and to individuals who are either infected or affected.

The major drivers of HIV/AIDS infection in the district are:

- Multiple and concurrent sexual partnerships
- Transactional sex especially at fishing sites
- Mother-to-child transmission
- Harmful cultural practices e.g. fisi, kusasa fumbi
- Trans generational sex
- Polygamy
- Inconsistent and incorrect use of condoms
- Weak marriages
- Migration

##### 6.1.1 District Mandate

The mandate of the District Council in the HIV/AIDS fight is to coordinate the district's multi-sectoral response to the virus and ensure that all stakeholders in the district carry out HIV/AIDS interventions within government policies and guidelines.

##### 6.1.2 Coordination Structures

The District Council coordinates the multi-sectoral response to HIV/AIDS through the District AIDS Coordinating Committee (DACC). DACC is a sub-committee of DEC and is comprised of 15 to 20 representatives from various government departments, NGOs, private sector, and other special interest groups. The committee is elected by the DEC and it elects its own chairperson. The Committee is supported by a senior nutrition officer and the HIV/AIDS officer based at the District Council who provide secretarial services. The committee reports to DEC.

DACC operates through various sub-technical working groups: Prevention, Biomedical, Impact Mitigation, Mainstreaming, District Monitoring and Evaluation, and District Interfaith Committees. Each of the sub-committees has ten (10) representatives from different organizations.

The community response to HIV/AIDS is coordinated by Community AIDS Coordinating Committees (CACCs), which operate at the TA level. CACCs are sub-committees of ADCs and have

a membership of ten (10) extension workers and representatives of various special interest groups. The district has 16 CACCs, which report to ADCs and DACC.

There are also CBO networks at the TA level as well as a District CBO network, which helps in information sharing, among other things.

At group village headman level, HIV/AIDS interventions are coordinated by Village AIDS Coordinating Committees (VACCs), which are sub-committees of VDCs. They have a membership of ten (10) people from different sectors, and report to VDCs and CACCs.

Most CACCs and VACCs are not currently functional, yet they are a vital frontline intervention for prevention and care of those living with HIV/AIDS.

### 6.1.3 HIV/AIDS Service Organizations

Under the coordination and supervision of the District Council, the multi-sectoral response to HIV/AIDS is implemented by CBOs, NGOs, and FBOs.

CBOs operate at Group Village Headman level under the coordination of the CACCs. All CBOs report to their respective ADCs/CACCs and to the District Council. The CBOs serve as support groups that implement interventions in the areas of HIV prevention and behavior change, treatment, care, and support, as well as impact mitigation. More capacity building, resource support, and monitoring is needed at the community level to enable CBOs to provide much needed support. NGOs and FBOs are also involved in HIV mainstreaming and capacity building.

### 6.1.4 Facility-Based HIV/AIDS Services

#### 6.1.4.1 HIV Testing Counselling (HTC) and PMTCT Services

The first HIV testing and counselling (HTC) site in the district was established in 2003. By the end of 2006, the district had 11 and it now has 24 HTC sites. The trend is the same with Prevention of Mother-to-Child Transmission sites; there are currently 22 sites as compared to 2005-2006 when there were only 3 (Table 84). However, there is still a big need to increase the number of HTC sites for the size of the population. PMTCT services are only provided in health facilities.

**Table 84: Number of facilities offering VCT and PMTCT**

Year	Number of HTC sites	Number of PMTCT sites
2004-2005	3	0
2005-2006	12	4
2006-2007	16	5
2007-2008	20	14
2008-2009	22	22
2012-2013	24	22
2015-2016	34	22

*Source: Machinga DAC 2017 Report*



Table 85: Machinga HTC sites

TA/STA	HTC Site
Sitola	Machinga DHO, BLM (Private), Liwonde Medical Clinic (Private), PSI
Kawinga	Kawinga Health Centre, Nayuchi HC, Namanja HC, Ntholowa HC (CHAM)
Liwonde	Mbonechera HC, Namandanje HC, Mangamba HC
Kapoloma	Nainunje HC
Chamba	Chamba HC
Mlomba	Mlomba HC
Nyambi	Nyambi HC, Mkwepere HC
Chikweo	Chikweo HC, Mpiri HC (CHAM)
Nsanama	Nsanama HC
Chiwalo	None
Mposa	Mposa HC (CHAM)
Nkoola	None
Ngokwe	Ngokwe HC
Nkula	Gawanani, Machinga Health Centre

Source: Machinga DAC 2017 Report

There are no HTC sites in TA Nkoola and TA Chiwalo. These areas need to be provided with HTC services.

#### 6.1.4.2 ART Services

In 2006, Machinga District Hospital was the sole provider of Antiretroviral Therapy (ART). There are now 22 health centers providing ART services, including Banja La Mtsogolo (a private health facility) (Table 86).

Table 86: Number of ART sites

Year	Number of ART Centres
2004-2005	0
2005-2006	1
2006-2007	1
2007-2008	3
2008-2009	4
2009-2010	7
2010-2011	
2011-2012	
2012-2013	8
2013-2014	
2014-2015	
2015-2016	22

Source: Machinga DAC Report 2017

The number of people accessing ART services has also been increasing since the District Health Office (DHO) started to provide these services. In 2004-2005, 1,204 people aged 15-49 years tested HIV positive and the figure rose to 7,576 in 2009-2010. The number of people receiving ARVs similarly increased over the same time.

**Table 87: Number of people testing HIV positive and number of people on ARVs**

Year	No. Tested HIV Positive (age 15-49)	No. of Positive People Receiving ARV Treatment
2004-2005	1,204	0
2005-2006	2,767	684
2006-2007	2,438	1,040
2007-2008	2,428	1,969
2008-2009	3,894	3,663
2009-2010	7,576	3,841
2011-2012		13,269
2012-13		15,657
2013-2014	Data tool does not capture positives based on age group	Data not available
2014-2015	Data tool does not capture positives based on age group	Data not available
2015-16	Data tool does not capture positives based on age group	Data not available

*Source: Machinga DHO 2017*

Since Machinga DHO started decentralizing ART services to health centers more people can access these services closer to where they live. In the past, people had to travel long distances for these services, a burden for many.

#### 6.1.4.3 ART Services for Women

Access for ART and PMTCT services for women increased starting in 2004/2005. Number of women receiving VCT and positive sero-status results, and number of positive women treated for PMTCT is here reflected in Table 88.

**Table 88: ART services for women**

Year	No. of Women Receiving VCT and Sero status Result	No. of Pregnant Women Tested HIV Positive	No. of Positive Women Treated for PMTCT
2004-2005	1,304	269	80
2005-2006	2,197	351	207
2006-2007	3,305	474	216
2007-2008	9,220	846	646
2008-2009	19,059	2,519	1,559
2009-2010	26,187	2,771	2,393
2011-2012			15,498
2012-2013			19,414
2016-2017	93,224	Positives are collective	

*Source: Machinga DHO 2017*

## 6.2 Nutrition

### 6.2.1 Facilities Offering Nutrition Support

The district has a number of players offering nutrition services, including both government sectors (agriculture, health, community development, and education) and NGOs. All offer services that

target prevention of malnutrition except for the health sector, which mainly targets management of malnutrition.

The Community Management of Acute Malnutrition (CMAM) Program offers nutrition support through a number of health facilities under the DHO. It increases the ability of people to prevent, recognize, and manage malnutrition within their communities. CMAM has four main components:

1. Community Outreach: Community activities such as case identification, referral, follow up, and case management.
2. Supplementary Feeding Programme (SFP): Managing children, and pregnant and lactating women with moderate malnutrition through supplements and other commodities –corn soy blend (Likuni phala), cooking oil, sugar – to prevent children from deteriorating to severe malnutrition.
3. Outpatient Therapeutic Program (OTP): Targeting children with severe acute malnutrition but without medical complications, and with good appetite. They are provided with Ready-to-use Therapeutic Food (RUTF). OTP assists children gain weight and prevents deaths. If conditions deteriorate, children are transferred to NRU.
4. Nutrition Rehabilitation Unit (NRU): Two cases are handled at the NRU:
  - Children with complicated severe acute malnutrition are managed as inpatients through the use of supplements and other commodities, Formula 75 and 100, and routine drugs.
  - Children with severe acute malnutrition but with medical complications are treated as inpatients until the child is stabilized and complications are treated. When appetite returns, the child is discharged as an outpatient to the OTP.

The CMAM increases coverage by making services accessible to a larger population suffering from severe acute malnutrition. Forty-seven (47%) percent of under-5 children participate in nutritional programmes/CMAM (IHS3 2012).

**Table 89: Facilities offering nutrition support**

Name of Facility (Health Centre)	Nutrition Support
Gawanani	OTP/SFP
Kawinga	OTP
Machinga	OTP
Machinga Hospital	OTP/SFP/NRU
Mangamba	OTP/SFP
Mbonechera	OTP/SFP
Mkwepere	OTP/SFP
Mlomba	OTP
Mpiri	OTP/SFP
Mposa	OTP
Nsanama	OTP/SFP/NRU
Nainunje	OTP
Namandanje	OTP/SFP/NRU
Namanja	OTP/SFP
Nayuchi	OTP/SFP
Ngokwe	OTP/SFP
Ntaja	OTP
Ntholowa	OTP
Nyambi	OTP

Source: Machinga DHO 2017

The district is implementing the Support for Nutrition (SUN) Improvement Component with the objective of ending stunting as well as other forms of malnutrition. The government sectors involved include the health sector, the Community Development Office, the agriculture and education sectors.

Apart from implementing SUN, the education sector is also implementing the School Health and Nutrition Programme (school feeding programme), which is currently being supported by CAMFED in a limited number of schools.

The agriculture sector's food and nutrition section promotes dietary diversification and backyard gardening, and provides trainings and nutrition education to community nutrition groups/CBOs on a number of food and nutrition-related issues:

- Food processing, preparation, utilization, and storage
- Food budgeting
- Nutrition, HIV/AIDS
- Micronutrient deficiency disorders
- Dietary related non-communicable diseases

### 6.2.2 Nutrition Support for HIV/AIDS-Affected People

The agriculture sector and other stakeholders provide a number of trainings to HIV/AIDS-affected people. Most of these trainings are provided at the CBO level, which is comprised mostly of people living with HIV/AIDS. These trainings include linking nutrition to HIV/AIDS regarding the frequency of feeding, choice of foods, food preparation and utilization, and use of herbal remedies for different opportunistic infections. Programs like the FISP deliberately target such vulnerable groups to ensure food and nutrition security. The program also provides a highly nutritious legume package in addition to maize. The Ministry of Health is also championing Nutrition Care and Support Treatment (NCST) programme, which targets adolescents and adults that have nutritional problems from ART, TB, PMTCT, antenatal care, and other related programmes. The programme is being implemented in sixteen (16) health facilities under Machinga DHO: Gawanani, Machinga, Chamba, Mposa, Namanja, Ntholowa, Nainunje, Mlomba, Nsanama, Ntholowa, Mbonechera, Namandanje, Ntaja, Nyambi, Chikweo Health Centres and Machinga District Hospital. Clients assessed as malnourished receive supplementary and therapeutic food.

### 6.2.32% ORT Support for Government Employees

Different sectors are implementing the 2% ORT support differently. Some sectors provide food items, while others provide cash to HIV-positive employees.

Table 90: Number of government staff on nutritional support

Sector	Number of Staff on Nutritional Support	Remarks
Agriculture	9	Each member of staff supported with MK5000 per month
Health	87	Each staff member is supported with MK3, 448 per month

<b>Education</b>	51	Each teacher is provided with MK6, 984 per quarter
<b>Machinga District Council Secretariat</b>	3	Each staff member supported with MK5000 each month

Source: Machinga District Council

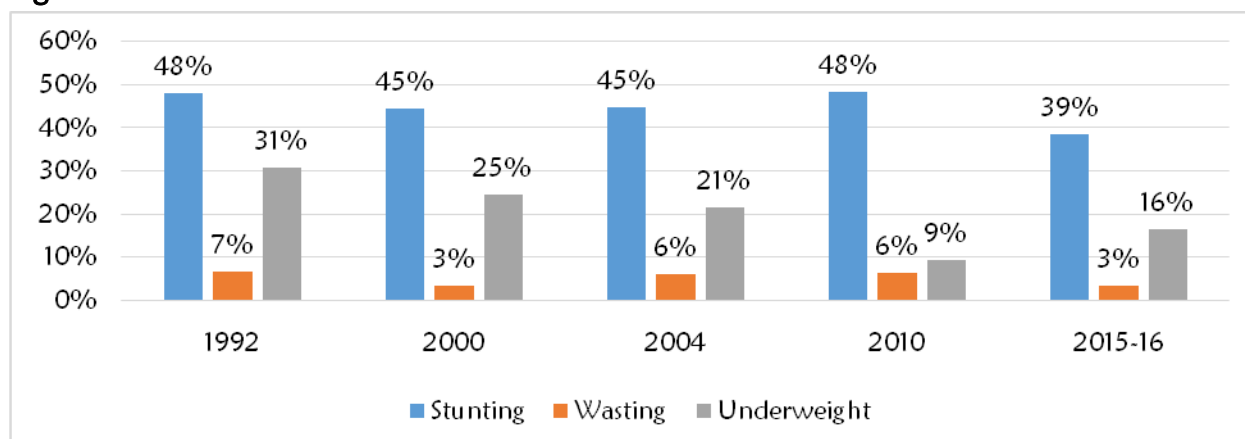
The District Health Office has the greatest number of workers on the nutritional support programme. It is also the sector with the greatest number of staff in the district, most of who are based in rural areas.

#### 6.2.4 Nutrition Data Trends

Machinga District is one of the districts in the country with high under-5 malnutrition prevalence; 38.5% of under-5 children are stunted, 3.4% are wasted, and 16.4% are underweight (MDHS 2015-16).

Despite a number of Government/NGO interventions that have been intensified over the years, the nutrition situation in the district has worsened. The MDHS 2000 reported stunting levels at 44.5%, wasting at 3.3%, and underweight at 24.5%. In 2015/16, stunting was 38.5%, wasting at 3.4%, and underweight at 16.4%, an increase from 9.3% in 2010. Efforts to curb malnutrition still need to be intensified.

Figure 44: Under five malnutrition trends



Source:

NSO Malawi Demographic and Health Survey Reports (1992, 2000, 2004, 2010 and 2015-2016)

This grave situation is attributed to poor hygiene and sanitation practices, poor feeding practices, lack of knowledge of food processing and utilization, and low literacy levels among caregivers. Behaviour change has not yet been successful. The government and its partners, through the Scaling Up Nutrition Movement (SUN) and Support to Nutrition Improvement Component (SNIC), has prioritized the Care Group Model Approach to maximize delivery of nutrition services so as to speed up behaviour change towards the recommended practices to reducing prevalence of malnutrition.

Table 91: Malnourished pregnant and under-five children

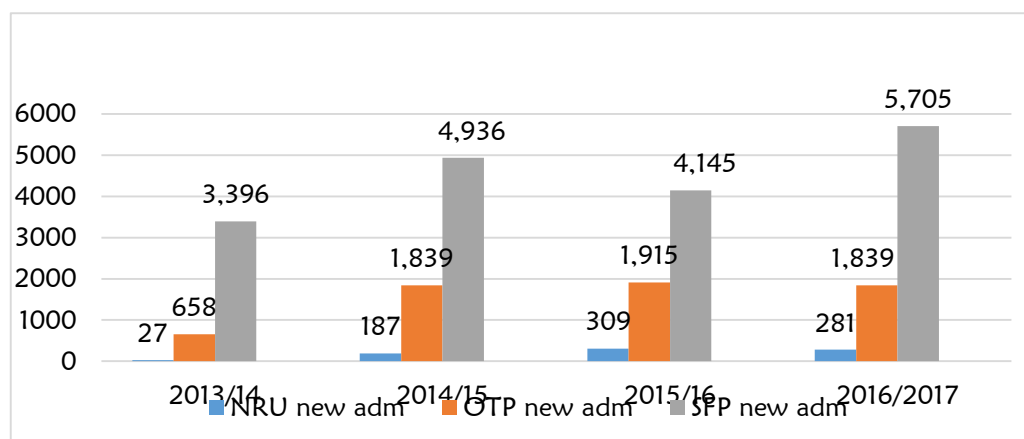
	2014/2015	2015/2016	2016/2017
<b>Total Population</b>	589,709	608,162	627,399
<b>Total Population Under-Five Children</b>	100,251	103,391	106,658
<b>Expected Pregnancies</b>	15,727	21,375	34,336

% of Under-Fives Malnourished	20	21	32.1
% of Pregnant Women Malnourished	36	33	37

Source: Machinga DHO

There has been an increase in malnutrition for under-five children from 20% in 2014/15 to 32.1% in 2016/17, and similarly there has been a slight increase in malnutrition for pregnant women from 36% in 2014/15 to 37% in 2016/17. This data implies that the district needs more support in nutrition-sensitive agriculture that can reduce the malnutrition rates.

**Figure 45: Number of children accessing supplementary and therapeutic foods**



Source: Machinga District Council Nutrition Unit

The food supplies for NRU, OTP, and SFP have been accessed from the 21 health facilities under Machinga District Health Office that are implementing CMAM programme. There has been an increase in the number of under-five children admitted in the three programs under CMAM from 685 children in 2013/14 to 2,120 in 2016/17 and supplementary foods for 3,396 children in 2013/14 to 5,705 in 2016/17. This is a reflection that acute malnutrition (both moderate and severe acute malnutrition) is still an issue in Machinga District. Therefore, there is a need to increase awareness and behavioural change practices through nutrition education using community structures like care group models of proper infant and young child feeding (IYCF) practices and food preparation and utilisation. The increase in number of malnourished children accessing therapeutic and supplementary feeding signals the need to increase food supplies to support the treatment and prevention of acute malnutrition.

### 6.3 Disaster Risk Reduction, Response, Recovery, and Management

Malawi has faced increased incidences of both natural and human-made disasters. Some are a result of global climate-related causes such as desertification and global warming, while others are due to direct human interference with the environment such as agriculture practices and settlement. These disasters have severely affected very vulnerable individuals and communities, such that there has been a marked increase in human settlement displacements and deaths. The Government of Malawi, having realised this a development issue, has deliberately included a section in the MGDS III (6.1.12) that provides a policy guide to inform, prevent, and mitigate the impact of these disasters. The goal of this section of MGDS III is to 'enhance the resilience of the population to socioeconomic and environmental shocks'. This follows the Malawi Government's vision as contained in Vision 2020, page 61, 'Improving Disaster Management'. The government envisages a situation where sufficient food reserves are stock-piled, disaster plans are developed, diet and eating

habits are diversified to avoid over-reliance on one type of food, and communities are empowered to have enough buying power to acquire food supplies during lean periods.

Machinga District faces a number of disasters, both natural and human-made, including floods, drought, strong winds, hailstorms, landslides, earthquakes, pest infestations, and disease outbreaks (cholera). The magnitude, frequency, and impact of disasters have been increasing, in light of climate change, population growth, and environmental degradation. These disasters disrupt people's livelihoods, endanger human and food security, damage infrastructure, and hinder economic growth and development. Disasters also increase the poverty of rural and urban households and erode the ability of the district's economy to invest in the social sectors that are important to reducing poverty.

The impact of disasters on economic growth and poverty in the district is manifested through various types of losses, such as damage to buildings, infrastructure, crops, livestock, and social infrastructure, as well as injury and loss of human life. The district has also experienced isolated incidences of thunderstorms, fires, disease outbreaks, and crop pests, including the January 2015 flood disaster and the widespread drought that hit the district during the 2015-2016 growing season.

**Table 92: Disaster profile**

Year	Traditional Authority/Senior Chief	Type of Disaster
2016	Nyambi, Kapoloma, Nkoola, Chikweo, Ngokwe, Liwonde, Chiwalo, Sitola, Kapoloma	Strong winds, flash floods, drought
2015	All Traditional Authorities	Floods, strong winds, drought
2014	Nkula, Mposa, Chamba, Kawinga, Nyambi	Strong winds
2013	Kawinga, Nyambi, Nkula, Sitola, Nkoola,	Strong winds
2012	Liwonde, Mponda, Mchinguza, Mposa, Nsanama, Ngokwe, Chikweo, Sitola	Army worms, strong winds, flash floods
2012	Liwonde	Flash floods, strong winds
2011	Ngokwe	Heavy rains, strong winds
2011	Chikweo	Strong winds
2011	Liwonde	Strong winds
2011	Ngokwe	Strong winds

*Source: Machinga District Council Disaster Management Desk Office*

### 6.3.1 Types of Disasters

#### 6.3.1.1 Floods

The district is most affected by floods in TAs Chamba, Sitola, Mposa, Ngokwe, Mlomba, and Chikweo; Senior Chiefs Liwonde and Kawinga; and STA Nsanama. Seventy-five percent of the district's population is at risk each year (Machinga District Disaster Contingency Plan 2016/2017). Overflowing rivers and streams destroys houses and household property, increases susceptibility to water-related diseases, washes away crops, damages public infrastructure like schools and bridges, and even kills.

**Table 93: Areas and rivers affected by floods**

Traditional Authority	Rivers	Period and Duration	GVH Affected
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Traditional Authority	Rivers	Period and Duration	GVH Affected
<b>Chamba</b>	Lingoni, Makungulu	Dec-March	Mitawa, Sululu, Msumbo, Kaluma, Mpita, Puteya, Mtende, Nanda, Kapeta, Mpita, Kaluma
<b>Liwonde</b>	Namandanje, Bilira, Katambasula, Nangondo, Namisangu, Kambewe, Kaombe	Jan-March	Nawanga, Chilala, Limbungwa, Mgun diwa, Simba, Singwa, Ngongondo, Nlinda, Mjamba, Nthundu, Chikuluma, Mangamba, Nkuna, Mwikala
<b>Sitola</b>	Likwenu, Msuluzi, Shire	Jan-March	Kwilasya, Mpotola, Mkolokosa, Kamwendo, Naungu, Kalonjere, Kaudzu, Kaudzu, Chabwera, Mliwo, Chipamba, Magadi, Makaluka
<b>Senior Chief Kawinga</b>	Nkhande, Nkuluwiri, Chinyasa Dambo, Lake Chilwa, Naming'azi, Mpiri, Mikoko	Jan-March	Sowani, Nyenje, Likhonyowa, Mpiranjala, Chilala, Mchinguza, Missi, Nsiwoya, Makwemba, Mbosongwe, Chinguwo, Mcherera, Kalambo, Chiuja, Kawerama, Ntaja, Chibwana, Mnyumwa, Mbanila, Khuzumba, Kankhomba, Mtalika
<b>TA Mposa</b>	Lingoni, Chisani, Domasi, Nabukwi, Chanyungu	Jan-March	Manja, Chilombo, Mbando, Mtamila, Mpheta, Matache, Tandauko, Songolo, Mikunga
<b>TA Ngokwe</b>	Lifune, Chitundu, Kamwanza, Masera, Mayera, Mpembere (Dambo), Lake Chiuta	Jan-March	Chitapa, Dinji, Khungwa, Chidothe, Selemani, Ng'andu, Nteuka, Kwacha, Naawanga, Peheriya, Mpacha
<b>TA Mlomba</b>	Zumulu, Naminga, Nambazi, Nkhande, Lake Chilwa, Kombeni, Sili	Dec-March	Lambulira, Mlomba, Masinde, Chibwana, Saidi, Mataka, Mbawe, Likwakwa, Mkanjia, Mtholowa, Chipojola, Namunde, Mpalume, Chamba, Muhaniwa, Mosha, Maraka, Ntokoma, Mbalaka, Mkanga
<b>STA Nsanama</b>	Mwalasi, Bilira, Nakasanje, Likwenu, Nsambuzi, Mtukusi, Ntulira, Madzianjuchi	Dec-March	Nsanama, Nyama, Chisuwi, Nkhumbwa
<b>TA Chikweo</b>	Lake Chiuta, Namiyanja, Lower Wapansi, Samkhwi	Dec-March	Chipolonga, Mlaluwere, Chikweo, Adamsoni, Nyama, Kalonga, Mkumbira

Source *Machinga District Disaster Contingency Plan 2016/2017*

### 6.3.1.2 Drought and Dry Spells

Machinga District is affected by prolonged drought/dry spells in TAs Sitola, Nkula, Ngokwe, and Chiwallo and Senior Chief Liwonde. A larger percentage of the total population is at risk of drought/dry spell each year (*Machinga District Agriculture Office 2015*) due to land degradation, high dependency on rain-fed agriculture, and inadequate crop diversification. This has caused food insecurity, inadequate availability of pasture, water scarcity, the drying up of Lake Chilwa, and an increased number of cases of waterborne diseases.



### 6.3.1.3 Strong Winds

Strong winds affect all the TAs, but most cases are in Ngokwe, Chikweo, Sitola, Chamba, Mlomba, and Nsanama. The most severe storms occur at the beginning and end of the rainy season, and results in loss of life, property, and crops as well as damage to infrastructure such as school blocks and churches. Deforestation and poorly designed infrastructure increases the likelihood of damage. The magnitude and frequency of storms is increasing each year in the district. Strong winds greatly affect education services, as the roofs of school blocks, teacher's houses, and CBCCs are often damages by the winds.



### 6.3.1.4 Cholera

Cholera particularly affects areas along Lakes Chiuta, Chilwa, and Malombe and the Shire River, including Mchinguza, Kawinga, Mposa, Chamba, Mlomba, Chikweo, Nsanama, and Liwonde. During 2014/2015 rainy season, Machinga was hit by a widespread cholera epidemic, with reports of deaths 799 people.

### 6.3.2 Functionality of Disaster Management Structures

The district has structures known as Civil Protection Committees that manage disaster risk reduction issues at the district, area and village levels. Area Civil Protection Committees are established at the TA level, and Village Civil Protection Committees are established at Group Village Headman level.

**Table 94: Functionality of disaster management structures**

Civil Protection Committee	Number Functional CPCS	Number Non-Functional CPCS	Comments
District Civil Protection Committee	1	0	Most members are active as they know their roles and few not familiar with disaster risk reduction
Area Civil Protection Committees	6	10	In areas where there are NGOs implementing projects, committees are vibrant
Village Civil Protection Committees	42	99	VCPCs are more active where NGOs are implementing activities than in areas with no NGOs

*Source: Machinga District Disaster Management Desk Office*

### 6.3.3 NGOs Implementing Disaster Risk Reduction

Machinga District Council’s efforts in addressing disaster risk reduction issues are complimented by international and local NGOs that implement different projects in different areas.

**Table 95: NGOs implementing disaster risk reduction**

NGO	Project	Impact Area	Donor
Emmanuel International	Njira Project	Kapoloma, Nyambi, Nkoola, Kawinga, Ngokwe, Chikweo	USAID
Malawi Red Cross Society	Improving Food Security and Resilience Project	Liwonde	Netherlands Ministry of Foreign Affairs/Netherlands Red Cross
Machinga District Council	Climate Proofing Project	Mlomba, Chikweo, Nyambi	UNDP

*Source: Machinga District Disaster Management Desk Office*

### 6.3.4 Mechanisms to Reduce Vulnerability to Disasters

In light of the frequency and magnitude of disasters affecting the district, communities are encouraged to reduce their vulnerability. Some of the mechanisms to do this include:

- Small scale irrigation
- Village savings and loans
- Casual labour(Ganyu)
- Small-scale business
- Sale of small ruminants

### 6.3.5 Adaptation to Climate Change

The District Council is promoting adaptive measure to deal with climate change in its communities. Notable measures are:

- Promotion of safe-house construction
- Planting early maturing varieties of crops.
- Use of energy-saving stoves
- Promotion of water-harvesting structures

- Watershed management

### **6.3.6 Challenges Facing the Sector**

- Inadequate funding to carry out activities
- Incapacitated/weak local disaster risk management structures
- Poorly coordinated disaster risk-reduction activities
- Lack of devolution of disaster risk functions to local levels
- Delayed response to disasters
- Few NGOs implementing disaster risk-reduction activities
- Lack of early warning system
- Poorly constructed structures(houses and others)

### 7.0 Infrastructure Development

The Malawi Government has identified that suitable infrastructure is key to the realisation of development in the country. In the Malawi Vision 2020, under the section on ‘Developing Economic Infrastructure’ on page 53, the government of Malawi has clearly outlined its vision on the need for fully functional economic infrastructure, with physical planning, roads, railways, water, and air transport singled out as needing specific attention. In the MGDs III, under section 5.4, the government has highlighted transport and ICT infrastructure as key elements in this national development agenda. The section’s goal talks about ‘developing a safe, affordable, reliable, equitable, and sustainable transport and ICT infrastructure’. Machinga District Council requires similar interventions under this sector.

#### 7.1 Transportation

##### 7.1.1 Road Transport

Road transport is the dominant means of transport. Buses and mini-buses travel between Mangochi and Zomba/Blantyre and between Lilongwe/Balaka and Zomba/Blantyre via Liwonde and Machinga Boma. Buses and mini-buses also operate from both Lilongwe and Blantyre to Nselema via Liwonde daily.

On the Nselema-Liwonde route, buses and mini-buses are complemented by commercial passenger carrier vehicles commonly known as “matola”.<sup>3</sup>Places such as Chikweo, Mangamba, Mposa, Chamba, and Ngokwe have no access to bus or mini-bus services so they depend on matola. People from these areas also rely on non-motorised transport, especially bicycles. Bicycles for hire travel all over the district and are able to go to places that are not accessible by motorised vehicles.

##### 7.1.1.1 Road Network

Machinga District has a network of both sealed and unsealed roads (Table 96).

**Table 96: Classes of Roads**

Class	No. of Roads	Length (km)
Main and Secondary	2	85
Tertiary	8	203
District	7	178.3
Feeder	154	1,074.1
<b>Total</b>	<b>171</b>	<b>1,540.4</b>

*Source: Machinga District Road Sector*

##### 7.1.1.1.1 Main and Secondary Roads

The M3 road passes through Machinga District for 24km from Likwenu Bridge to Liwonde Township. This double-lane road has a sealed carriageway but unsealed shoulders. Routine maintenance is done to patch potholes, fill shoulders, clean culvert lines, and cut grass.

Liwonde–Nselema is a 61km secondary road. The first section of the road from Liwonde to Nachinga is a double-lane sealed road with unsealed shoulders and is maintained regularly. The section of the

<sup>3</sup>A *matola* is a goods vehicle that is turned into a passenger vehicle. This is illegal, but is done because there are no alternative passenger vehicles.

road at Molipa is prone to accidents due to very sharp curves, which is aggravated when sign posts are removed by surrounding communities, who loot vehicles after accidents.

#### 7.1.1.1.2 Tertiary Roads

There are eight tertiary roads in the district that are not sealed or applied with gravel. These roads are graded almost every year, but their condition is poor. The soils are not compacted after grading, so the roads are affected by potholes, corrugations and scouring. Some sections of these roads are not passable during rainy season.

#### 7.1.1.1.3 District Roads

There are seven district roads connecting villages and trading centres. These roads are graded almost every year but have potholes, corrugations, and scouring. Spot gravelling was done to three of these roads in 2014 and these included Ntaja-Nayuchi and Namwera T/Off-Mposa.

#### 7.1.1.1.4 Feeder Roads

Feeder roads form the bulk of road network in the district. These roads have been constructed under Safety Net Programs of the Local Development Fund, Rural Infrastructure Development Program and Ministry of Transport and Public Works by hand using hoes and without compaction. Most of these feeder roads are in poor condition and are not passable during rainy season. They are not maintained regularly, except those under Rural Infrastructure Development Program.

#### 7.1.1.2 Road Structures

Structures for sealed roads including bridges and culvert lines are functional and need only occasional maintenance.

#### 7.1.1.3 Equipment

**Table 27: Basic equipments for road construction and maintenance**

Type	Make	Condition
Tractor		Runner But need new tyres and battery
Tractor		Runner – New
Lorry	Tata	Non Runner
Compactor	Bomac	New
Motorcycle	Yamaha	Runner
Motorcycle	Yamaha	Runner

*Source: Machinga District Road Sector*

Graders are hired from NCIC and are kept at Ntaja premises.

#### 7.1.2 Water Transport

Water transportation is mostly used by tourists to visit tourist attractions along the Shire River. Tourists hire boats from either Hippo View Lodge or Mvuu Camp.

#### 7.1.3 Rail Transport

The district is accessible by rail via the Nacala Corridor railway line that runs from Balaka via Liwonde to Nayuchi into Mozambique. This railway plays a crucial role in transportation of both goods and passengers with companies and individuals ferrying goods to and from Mozambique and within Malawi. Currently there is a project to expand and rehabilitate the railway lines, which will increase its potential as one of the reliable modes of transport.

### 7.1.4 Air Transport

One airstrip is available within Liwonde National Park for chartered light aircrafts serving tourists.

## 7.2 Communication

The Ministry of Information and Communication Technology (MoICT) is mandated to ensure that the country has access to quality information and communication technology service.

### 7.2.1 Postal Services

Postal services are inadequate in Machinga. People from populated areas such as TAs Chamba, Mlomba, Liwonde, Nyambi, Kawinga, and Ngokwe must often walk long distances to access postal services and other electronic cash transactions. There should be one stop centres capable of providing efficiency in postal and courier services.

**Table 28: Location and grade of postal facilities**

TA	Grade	Postal Agency
Chamba		
Mposa		Mposa
Sitola	D	Machinga
	C	Liwonde
Mlomba		
Nsanama	E	Mwalasi
Liwonde		Masanje
	C	Ntaja
Kawinga		Mikoko
		Mpiri
Nkoola		
Chiwalo		
Kapoloma	D	Nselema
Nyambi		
Chikweo	E	Chikweo
Ngokwe		

*Source: Machinga District Road Sector*

### 7.2.2 Telephone Services

Telecommunication in Machinga District is largely through ground lines, cell phones, and wireless messages. Malawi Telecommunications Limited is the sole provider of ground lines through its exchange stations.

The challenge with ground line communication has been the non-functionality of the system in most areas, aggravated by vandalism of telephone cables and other accessories. Many people in the district therefore use cell phones, which are functional and convenient.

**Table 99: Malawi Telecommunications services**

Station	Telephone Lines Available	Telephone Lines Used	Public Phones
Machinga	120	80	1
Liwonde	650	550	4
Mwalasi	79	79	0
Ntaja	500	219	0
Nselema	78	78	0

Source: MTL - Machinga

### 7.2.3 Cellular Network

Cellular networks have largely improved telecommunication in the district. There are four networks available in the district, with Airtel and Telecom Networks Limited dominating the waves.

**Table 100: Coverage of Cellular Networks**

Network	Area of Coverage by Trading Center
Airtel	Machinga Boma, Liwonde Town, Nsanama, Ntaja, Nselema, Chikweo
TNM	Machinga Boma, Liwonde Town, Nsanama, Ntaja, Ngokwe
MTL	Machinga Boma, Liwonde Town
Access	Liwonde Town

Source: Airtel, TNM, MTL and Access

### 7.2.4 Radio Network and Listenership

The district is fully covered in terms of radio listenership. Each TA is served by at least one radio station such as Malawi Broadcasting Corporation Radio 1 and 2, or Zodiak. The following radio stations also enjoy listenership in some parts of the district: Radio Maria, Radio Islam, Yoneco FM, Joy FM, MIJ FM, Chanco Community Radio, Blantyre Synod Radio, Transworld Radio, Ufulu FM, Galaxy FM, and Capital Radio.

In a bid to enhance citizen participation, different organisations have facilitated formation of radio listening clubs in some parts of the district.

Table 101: Number of radio listening clubs

Organisation	Nyambi	Ngokwe	Chikweo	Chamba	Nkula	Kawinga	Chiwalo
YONECO	5	5					
PSI			4	4			4
CDT			5	2	5		5
Blantyre SYNOD			2				
Story Workshop						5	

Source: Machinga DCDO

### 7.2.5 TV Networks and Viewership

Some parts of Machinga District have access to MBC TV like Liwonde Township and Machinga Boma while some residents of Ntaja can view Luntha TV. Residents of Liwonde Town and Machinga Boma, have access to pay TV such as Multichoice.

## 7.2.6 Publications

Machinga District receives commercial publications such as *Daily Times* and *The Nation* and weekly publications such as *Weekend Times*, *Saturday Nation*, *Sunday Times*, and *Sunday Nation*. These reach major trading centers of Liwonde and Ntaja. *Fuko*, published by the Nation Publication, and *Boma Lathu* by Ministry of Information and Communication Technology, is also distributed in some areas like Liwonde and Machinga Boma.

## 7.2.7 Media Houses Representation in Machinga

The Ministry of Information and Communication Technology has a Malawi News Agency resident reporter in the district, while the *Nation* and *Times* share a correspondent. Zodiac Broadcasting Station has a non-residential reporter based at Balaka who covers Machinga, Balaka, and Ntcheu. Most events coverage is done by reporters from either Zomba or Blantyre. MBC TV reporters are based in Mangochi and are responsible for eastern region districts of Zomba, Mangochi, Balaka, Machinga, and part of Ntcheu.

## 7.2.8 Internet Services

There is internet service in the district, especially in the major trading centres of Machinga, Liwonde, and Ntaja. The district also benefited from MACRA's Regional Telecommunication Infrastructure Project, which established tele centres at Machinga Teacher Development Center to provide online services to people around the boma.

**Table 102: Intended constituency-level Telecentre with One Stop Center**

Name	Constituency	Status
Liwonde Telecentre	Machinga Likwenu	Under construction
Nselema Telecentre	Machinga North East	Under construction
Mbenjere Telecentre	Machinga Central	Under construction

*Source: Machinga District Council*

**Table 103: Other internet service providers**

Name	Location	Status
Machinga TDC	Machinga Boma	Commercial/Business Center
Hippo View Lodge	Liwonde Township	Commercial/Business Center
Shire Lodge	Liwonde Township	Commercial/Business Center
Ngoms Lodge	Liwonde Township	Commercial/Business Center
Concept Lodge	Liwonde Township	Commercial/Business Center
Log Computer Services	Liwonde Township	Commercial Internet Bureau

*Source: Machinga District Council*

## 7.3 Energy

The major source of energy in Machinga is hydropower from Electricity Supply Corporation of Malawi (ESCOM). However, due to the erratic supply of ESCOM's power, many people use solar power as an alternative source of energy. Currently, only 17% of the district uses ESCOM, leaving out 83% without power.

The main source of hydropower is from the Nkula line, which is 66,000 kilovolts (360 megawatts) to Liwonde Main Substation in Machinga.



The main substation at Liwonde also redistributes electricity to parts of Ntaja, Mselema, and Namwera in Mangochi. The current power is able to meet the demand for consumers, and ESCOM is able to support consumers even during peak periods i.e. morning from 5.30 to 7.00a.m., midday from 11.00 to 12.00 noon and evening from 5.30 to 7.00 p.m.

### **6.6.2 Potential Power Generation Sites**

From 2018 January, all generating plants will be manned by EGENCO as established by a parliamentary act, and ESCOM shall buy power to redistribute to customers. The government is also still in the process of establishing an electricity link to Mozambique through a World Bank project; this connection is expected to be complete by 2021.

### **6.6.3 Other Sources of Energy**

At the moment, the majority of the households (94.4%) continue to use wood, paraffin, etc, as fuel sources.

## **7.4 Housing**

Machinga District is among those benefiting from the Malawi Decent and Affordable Housing Subsidy Program (DAHSP), which is implemented in two forms: as a grant and as a loan. Grants target those vulnerable individuals that cannot manage to construct a decent house on their own. The government will build them houses, for which they will not pay anything.

Loans are for those households/individuals that can pay within a specified period. Beneficiaries are identified at constituency level, 80 per constituency including 5 vulnerable individuals. Machinga District has 7 constituencies, which means 560 beneficiaries are identified and targeted. The program started in the 2014/2015 financial year in Machinga District, where the 560 beneficiaries were selected. Among the 560 beneficiaries, 82 did not receive cement, iron sheets, ridges, and timbers. Currently, about 225 beneficiaries have completed their houses. However, since 2014/15, assistance in the form of houses for the vulnerable has not yet begun.

The program is continuing with 2016/2017 financial year where 560 beneficiaries have been identified and are being supplied with building materials. Identification of 2017/2018 beneficiaries is also in progress. Those beneficiaries from the list of 560 who were initially identified but had not benefitted in the 2014/2015, are now getting the intended supplies.

### **7.4.1 Challenges**

The program suffers from:

- Poor quality materials
- Unreliable delivery of materials
- Political interference

### 8.0 Governance

Coming from a background of 30 years of single-party rule, Malawi realized the need to change its political and social dynamics. An immediate area to focus on after democratic pluralism was 'governance'. The Malawi Government's goal is outlined in Vision 2020 under 'Good Governance', which is one of the biggest sections in document, covering pages 33 to 39. MGDS III section 3.5 highlights the need to provide an enabling environment for making good decisions and therefore about the 'best possible process for making those decisions'.

#### 8.1 Security Services

The main security service provider in Machinga is the Malawi Police Service. Although there is proliferation of private, security firms providing services to various businesses and individuals. However, while these private firms play a part in security in Machinga especially in urban centres their coverage is small and insignificant and therefore the focus of this part is on the Malawi Police Services.

##### 8.1.1 Police Formations

Machinga has one Police Station at Machinga Boma, four Police Posts at Ntaja, Nselema, Nayuchi, and Liwonde, and four Police Units at Ngokwe, Chikweo, Mangamba, and Mposa. Machinga also has three permanent police check points at Liwonde, Nsanama, and Machinga.

###### 8.1.1.1 Distribution of Police Formations per TA/STAs

Policing in Machinga is divided into various policing areas, as follows:

1. Machinga Policing Area: Covers the areas of TAs Sitola, Nkula, and part of Chamba.
2. Ntaja Policing Area: Covers the areas of Paramount Chief Kawinga and Part of Liwonde, and TAs Mlomba, Nsanama, and Nkoola.
3. Nayuchi Policing Area: Covers the areas of STA Mchinguza along the Malawi/Mozambique boarder.
4. Liwonde Policing Area: Covers the areas of TAs Sitola and Liwonde Township.
5. Nselema Policing Area: Covers the areas of Senior Chief Nyambi, TAs Chiwalo, and Kapoloma, and STA Salle.
6. Ngokwe Policing Area: Covers the area of TA Ngokwe.
7. Mangamba Policing Area: Covers part of Senior TA Liwonde.
8. Chikweo Policing Area: Covers the area of TAs Chikweo and Nkoola.
9. Mposa Policing area: Covers areas around TA Mposa and Lake Chilwa.

The above zoning of the district covers more than 90% of the district. Though all the major zones of the district are covered with security services, access to these services is still a major challenge since each police formation covers an average radius of 10 to 15 km.

##### 8.1.2 Number of Police Personnel

As of July 2017, the number of police personnel in Machinga was at 234 for the civilian population of 647,401 (NSO 2008). This means that the police to resident ratio is 1: 2,767, much higher than

the recommended ratio of 1:500. This gap is too big to effectively offer security services to the communities. Community policing is a strategy that is helping bridge the gap.

### 8.1.3 Status of Community-Based Policing

Under the Malawi Police Service Reform Program, the Police Service nationwide has introduced community-based policing, which involves using members of the public to help protect their areas. All Police Formations in Machinga District engage communities around them in the Community Policing Schemes and host Community-Policing Forums. Community policing is playing a vital role in combating crime in the district; almost 90% of perpetrators in cases each month were arrested by or with the help of the community policing members.

- The district has a station executive committee.
- All the 16 TAs have a community police forum.
- 254 group village headmen have Crime Preventive Panels in the areas.
- 390 village headmen have Crime Preventing Committees in their areas.
- Liwonde Township and other busy trading centres have their Neighbourhood Watch Schemes in place.
- Chingale, Nsanama, Ntaja, Nselema, Mbanila, Chingale, and Mpilisi trading centres have Business Watch Schemes in place.
- The Youth Outreach and School Involvement Programme has 53 Youth Crime Prevention clubs in place.
- Lakeshore and Riverbank Community Safety and Security Task Team level.
- District team on child protection.

### 8.1.4 Victim Support Units

The Victims Support Unit is one of the schemes under the police reform programme. The units are essentially there to help victims of domestic violence or other conflicts of a domestic nature such as child protection and property grabbing, not necessarily bordering on a criminal nature. Machinga Police Station, and Ntaja, Nselema, Nayuchi and Liwonde Police posts currently operate Victim Support Units with adequately trained personnel in handling victims. With assistance from UNICEF and the Department of Community Development, such units have spread to all the 16 TAs in the district.

**Table 104: Victims assisted by a Victim Support Unit in 2016**

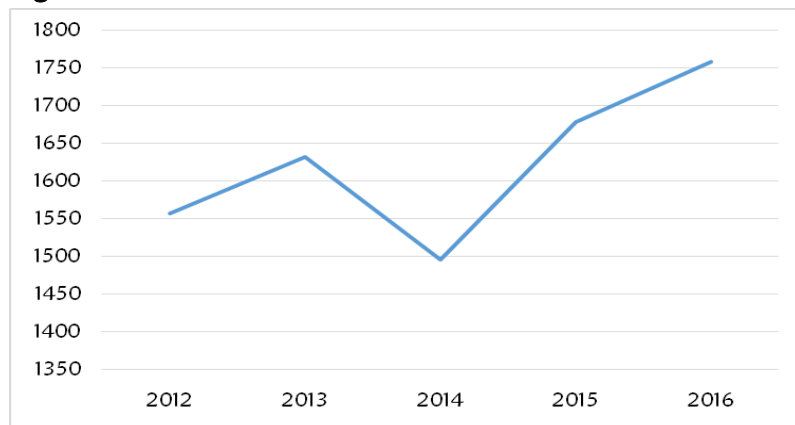
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Total
<b>Physical Abuse</b>	2	4	1	7	3	17	11	15	12	11	28	<b>111</b>
<b>Sexual Abuse</b>	1	14	3	6	9	3	4	9	6	5	28	<b>64</b>
<b>Economical Abuse</b>	7	5	1	1	4	13	6	3	14	6	1	<b>61</b>
<b>Emotional Abuse</b>	22	20	6	17	13	17	35	19	21	13	37	<b>220</b>
<b>Total</b>	<b>32</b>	<b>43</b>	<b>11</b>	<b>31</b>	<b>29</b>	<b>50</b>	<b>34</b>	<b>46</b>	<b>53</b>	<b>35</b>	<b>92</b>	<b>456</b>

*Source: Home Affairs – Machinga Police Station*

### 8.1.5 Crime Levels

The district's crime rate is generally on the increase. Mposa, Liwonde Township, Nsanama, Ntaja, and Nselema have been the crime hotspots in the district. General theft and defilement offences in particular have been on the increase.

**Figure 46: Crime rate**



*Source: Machinga Criminal Record Database*

The district has introduced a number of interventions to reduce crime rate. With support from Catholic Commission for Justice and Peace (CCJP) Lilongwe Diocese, the district is running a Primary Justice project – Justice for the Vulnerable Groups, which brings awareness to the communities on gender-based violence and enlightens people on where they can seek justice as well as building the capacity of village tribunals on case handling.

### **8.1.6 Challenges**

- Limited resources
- Misconception of community-based policing concept by both members of the community and police officers
- Low participation in safety and security issues by some communities
- Resistance to change by some communities and police officers
- Untrained community policing structures
- Recurrence of the abduction of people living with albinism

### **8.1.7 Prison**

Machinga District does not have a prison where offenders in the district can be referred for reformation. Most offenders in the district are referred to Domasi Prison in Zomba District, a second-class maximum security prison that opened in 1991. The prison was constructed to house 300 inmates but currently holds more than 350 inmates, most of whom are men.

Machinga District's lack of a prison makes it difficult to expedite cases due to the costs of transporting remandees to and from Domasi Prison, which is about 25 km from Machinga Magistrate Court.

## **8.2 Developmental Issues**

### **8.2.1 High Illiteracy Levels**

High illiteracy levels (between 40 and 49%) are due to high dropout rates, inadequate educational facilities (classrooms, teacher's houses, sanitary facilities, school libraries, recreational facilities etc.), high pupil to teacher ratios, and inadequate teaching and learning materials.

### **8.2.2 High Population Growth**

The district's population is growing at a rate of 2.9%, higher than the national 2.8%. This growth rate is attributed to the district fertility rate of 6.1 children per woman (the national rate is 5.2). The

underlining causes of this high fertility rate are low uptake of contraceptives, early marriages, and teen pregnancies.

### **8.2.3 Inadequate Health Services**

The district is failing to provide adequate health services to its residents due to high population growth and inadequate:

- health facilities;
- number of health personnel;
- WASH facilities in health facilities; and
- Number of ambulance vehicles or bicycles for HSAs.

Additionally, the high illiteracy levels in Machinga contribute to the low uptake of health education messages.

### **8.2.4 Food Insecurity**

In Machinga District, most farming households run out of food from their own production by November each year. The major causes of the food insecurity among farming households are:

- Low food production levels.
- Low livestock production and animal malnutrition.
- Poor soil fertility and pest and disease incidences.
- Low uptake of improved and modern agricultural technologies.
- Only 1,572 hectares out of a possible 12, 500 hectares are being irrigated.
- High mortality rate of young stocks, poor feeding practices, poor grazing land, poor housing, livestock pests and diseases, and improper breeding practices.
- Unsustainable farming practices such as mono-cropping and cultivation of marginal lands.
- A high extension worker to farmer ratio of 1:2,938 (the recommended ratio is 1:800).
- Low fish production from Lake Chilwa and Chiuta due to overfishing, illegal fishing, sedimentation, and climate change.

### **8.2.5 Environmental Degradation**

This is due to inadequate forest services and unsustainable utilization of natural resources by the communities. Of paramount concern is the increasing rate of encroachment in the protected forest reserves, particularly at Chaone and Chilima.

### **8.2.6 Other Issues**

Additional issues include:

- Acute malnutrition
- Limited accessibility to potable water and sanitation services
- Poor transport and communication facilities
- Low disposable income at household level
- Limited access to justice by the vulnerable
- Inadequate support to vulnerable women and children
- Weak local government decentralized institutions
- Low participation of youth in development programmes

### NATIONAL DEVELOPMENT POLICIES

#### Malawi Vision 2020

Malawi Vision 2020 is the country's official long-term development plan, from which medium- and short-term development strategies and plans are developed. The development of the Vision 2020, which was officially published in 1998, followed 10-year Development Plans (DEVPO) that were used after Malawi attained Independence in 1964.

Vision 2020 has nine Strategic Challenges:

1. Good governance
2. Sustainable economic growth and development
3. Vibrant culture
4. Economic infrastructure
5. Social sector development
6. Science and technology-led development
7. Fair and equitable distribution of income and wealth
8. Food security
9. Sustainable natural resource and environmental management

#### The Malawi Growth and Development Strategy (MGDS) III

The aims of the MGDS III are to build a productive, competitive, and resilient nation by consolidating the achievements of MGDS I and MGDS II. The MGDS III has singled out six national priority areas that will spur socioeconomic development of this country. Agriculture and climate change management will contribute to national food security status, nutrition enhancement, environmental management, agro-processing and value addition, and manufacturing and trade. Education and skill development will promote industry, trade, technology adoption, increased productivity, and improved levels of employment. Energy, industry, and tourism development will increase employment, productivity, exports, and net trade. Transport and ICT infrastructure will augment agri-business, private sector growth, education and health service provision, tourism development, and global partnerships, as well as security enhancement. Lastly effective implementation of health and population as a priority area will enhance productivity among the labour force, reduce the disease burden, reduce unemployment and gender inequality, and enhance land-use planning and human settlements to optimize ecosystem services to support key sectors such as energy, health, agriculture, and tourism.

In line with the above MGDS III aspirations, the Machinga Socio-Economic Profile has likewise, looked at gaps and achievements made in similar thematic areas where stepping stones and increased interventions should be made.

## 1. The Sustainable Development Goals (SDGs)

The **Sustainable Development Goals (SDGs)** are a collection of 17 global goals set by the United Nations. The broad goals are interrelated though each has its own targets to achieve. The total number of targets is 169. The SDGs cover a broad range of social and economic development issues. These include poverty, hunger, health, education, climate change, gender equality, water, sanitation, energy, environment and social justice. The SDGs are also known as "Transforming our World: the 2030 Agenda for Sustainable Development" or **2030 Agenda** in short. The goals were developed to replace the Millennium Development Goals (MDGs) which ended in 2015. Unlike the MDGs, the SDG framework does not distinguish between "developed" and "developing" nations. Instead, the goals apply to all countries. The Malawi Government, in general and Machinga District Council, in particular, has taken deliberate cognizance of the minimum requirements of the SDGs, for its development programmes and projects.

- Goal 1: No Poverty
- Goal 2: Zero Hunger
- Goal 3: Good Health and Well-Being for people
- Goal 4: Quality Education
- Goal 5: Gender Equality
- Goal 6: Clean Water and Sanitation
- Goal 7: Affordable and Clean Energy
- Goal 8: Decent Work and Economic Growth
- Goal 9: Industry, Innovation and Infrastructure
- Goal 10: Reduced Inequalities
- Goal 11: Sustainable Cities and Communities
- Goal 12: Responsible Consumption and Production
- Goal 13: Climate Action
- Goal 14: Life Below Water
- Goal 15: Life on Land
- Goal 16: Peace, Justice and Strong Institutions
- Goal 17: Partnerships for the Goals

## 2. Decentralization Policy and Local Governance

Decentralization of political and administrative authority to district level represents a paramount priority of the Malawi Government, as outlined in the National Decentralization Policy. The policy in Malawi was approved by cabinet in 1998 and was backed by the Local Government Act. The form of decentralization implemented in Malawi is referred to as "devolution." The Decentralization Policy aims at:

- Devolving administrative and political authority to the districts
- Integrating governmental agencies at the district and local level into one administrative unit through the process of institutional integration, manpower absorption, composite budgeting and provision of funds for the decentralized services
- Diverting the centre of implementation responsibilities and transfers to the districts
- Assigning functions and responsibilities to the various levels of government

- Promoting popular participation in governance and development of the districts through actively involving the ordinary people in designing, implementing, monitoring and evaluating their socio-economic interventions in the rural areas.

The District Council emphasizes that implementation of the DDP will promote the decentralization process and further guide the government in its efforts to achieve sustainable poverty reduction through socio-economic and political empowerment of the poor.



Machinga District Council underwent a rigorous search for development needs among its various strata of the community. Significantly, most secondary data was obtained from Village Action Planning (VAP) process, District Executive Committee consultations, contributions and input from the District Multi-stakeholder Conference and NGOs and CSOs. Priorities were ranked as follows, as major constraints to district development in Machinga;

### **1. Prioritized District Issues and Constraints**

1. High illiteracy levels
2. food insecurity
3. poor roads network/ inaccessible roads
4. low economic empowerment
5. lack of safe and portable water
6. High environmental degradation
7. insufficient recreation facilities
8. long distance to access health services
9. high unemployment among the youths
10. high death rate
11. insecurity
12. high mortality rate

## 2. DDPF Matrix (Issues, Causes, Development Objectives, Immediate Objectives, and Strategies)

DEVELOPMENT ISSUE 1: HIGH ILLITERACY					
		Baseline :	National Average:	District Target:	
ISSUE/PROBLEM	CAUSES	DEVELOPMENT OBJECTIVES	IMMEDIATE OBJECTIVES	STRATEGIES	PROGRAM/PROJECTS
High Illiteracy		To increase literacy rate			
	High dropout rate		To reduce the dropout rate	Conduct community sensitisation on early child marriages	Community sensitization
				Develop capacity for teachers in special needs education	Capacity building
				Implement Early Grade Reading Assessment (EGRA) programme	EGRA programme
	Low primary survival rate		To improve primary survival rate	Provide social safety nets for needy learners	SCTP/Bursary Provision
	Large class size		To reduce pupil classroom ratio	Construct classrooms	Infrastructure development

				Maintenance of classrooms	Infrastructure development
				Construct disability friendly facilities	Infrastructure development
	High pupil toilet ratio		To reduce pupil: toilet ratio	Construction toilets and girl's change rooms	Infrastructure development
	High teacher house ratio		To reduce teacher: house ratio	Construct and rehabilitate teachers houses	Infrastructure development
	High teacher pupil ratio		To reduce pupil qualified teacher ratio	Train, recruit and deploy primary school teachers including special needs teachers	Capacity building and teacher deployment
	Inadequate teacher motivation		To improve teacher motivation	Provide Continuous Professional Development to primary school teachers	Capacity building
				Conduct in-service training for primary school teachers	Capacity building
				Electrification of teacher houses	House electrification
	Inadequate stock of TLM in primary schools		To increase availability of Teaching and Learning Materials (TLM) for normal and special needs learners	Supply TLMs for normal and special need learners in primary schools	TLM provision

	Low access to basic health services in primary schools		To improve access to basic health services that meet girls' and boys' needs in all primary schools	Train selected teachers in basic healthcare	Capacity building
	Low coverage of school feeding in primary schools and ECD centres		To increase number of schools and ECDs on feeding program	Promote school feeding programmes	School feeding programme
				Establish home-grown school feeding model in all public primary schools	School feeding programme
	Non-functionality of governance and management structures in primary schools		To improve % of functional governance and management structures	Train PTAs, SMCs	Capacity building
	Low adult literacy		To improve adult literacy rate	Training of adult literacy instructors	Capacity Building
				Establish adult literacy classes	Functional literacy programme
				Construction of adult literacy infrastructure	Infrastructure development
	Low enrolment in adult literacy classes.		To Increase enrolment of learners in adult literacy classes	Conduct community sensitization on adult literacy education and enrolment of male learners	Community sensitization

	Low access to Early Childhood Development (ECD)		Increase number of ECD/CBCC centres constructed	Construct and renovate ECD/CBCC centres	Early Child Development
			Increase proportion of children accessing ECD education	Provide sanitation facilities in CBCCs	Early Child Development
				Scale-up the targeted feeding program	Early Child Development
				Train ECD instructors, care givers and parenting educators	Early Child Development
				Undertake community sensitization campaigns on ECD and parenting	Early Child Development
				Support poor families in provision of alternative livelihood	Early Child Development
				Provide and distribute TLM for ECD/CBCC centres	Early Child Development
				Promote access to children's corners	Early Child Development
				Train caregivers, parents and committees on care for children with HIV and AIDS	Early Child Development

**DEVELOPMENT ISSUE 2: LOW ECONOMIC EMPOWERMENT.**

**Baseline : 73.7%    National Average: 50%    District Target: 65%**

<b>STRATEGIC ISSUE</b>	<b>CAUSES</b>	<b>DEVELOPMENT OBJECTIVE</b>	<b>IMMEDIATE OBJECTIVE</b>	<b>STRATEGIES</b>	<b>PROJECTS/PROGRAMMES.</b>
High incidences of poverty		To reduce incidences of poverty			
	High Unemployment rate		To reduce unemployment rate	Promote provision of loans and start-up capital to farmers groups and MSME	Savings and investment
				Establish village savings and loans groups	Savings and investment
				Promote skills development and mentoring of MSMEs.	Savings and investment
				Support savings group members in income generating activities	Savings and investment
				Link rural women and youth to financial services and agricultural credit	Savings and investment
	Youth unemployment		To increase employment opportunities among the productive youth age group	Establish and strengthen formal and Informal vocational training centres	Youth economic empowerment
				Promote establishment of youth clubs and youth	Youth economic empowerment

				centres	
				Promotion of youth friendly health services	Youth economic empowerment
	Lack of entrepreneurial and business management skills		To increase number of groups with entrepreneurial and business management skills	Training groups in entrepreneurial and business management skills ( farmers' organization , youth clubs, cooperatives, associations and cooperatives)	Capacity building
	Poor agriculture market systems		To increase number of farmer organisations/business groups linked to reliable markets from 5 groups to 30 by 2022	Conduct district trade and agricultural fairs.	Market penetration.
				Construct local produce markets	Market penetration.
				Facilitate establishment of structured markets	Market penetration.
				Facilitate formation and registration of farmer organisations (cooperatives and associations.)	Market penetration.
	Low levels of value addition		Increase levels of value addition in the district	Provision of value addition equipment to farmer organisation.	Integrated value chain development project.

				Promote construction of processing units	Integrated value chain development project
				Training farmers in value addition, food processing, quality control, record keeping.	Capacity building
	Low access to business development support services		Increase access to business development support services by 70% by the year 2022.	Construction of a business support unit.	Business development support services project.
				Establish BDS incubators and “centres of business excellence	Business development support services project
				Develop District Local Enterprise Development Strategy	Business development support services project



<b>ISSUE NO 3: FOOD INSECURITY:</b>					
<b>Baseline : 6 months</b>		<b>National Average: 6 months</b>		<b>District Target: 9 months</b>	
<b>STRATEGIC ISSUE</b>	<b>CAUSES</b>	<b>DEVELOPMENT OBJECTIVE</b>	<b>IMMEDIATE OBJECTIVE</b>	<b>STRATEGIES</b>	<b>PROJECTS/PROGRAMMES</b>
Food insecurity		Increase food secure months from 6 to 9 months by 2022			
	Low crop yield		To increase % of food secure households	Train farmers on recommended crop varieties for specific areas and Good Agricultural Practices (GAP).	Capacity building
				Establishment of on farm demonstrations and Farmer Field Schools	Farmer Field Schools
	Small area under sustainable land management		To increase area under sustainable land management	Promote catchment area protection and appropriate farming practices.	Land and water management
	Small area under soil fertility improvement technologies		To increase area under soil fertility improvement technologies	Promote Soil Fertility Improvement technologies (conservation agriculture, agro forestry, organic and inorganic fertilizers, etc)	Soil fertility improvement project.
	Low proportion of farm households which use recommended agricultural technologies		To increase proportion of farm households which use recommended agricultural technologies	Promoting crop diversification	Crop diversification
				Establishing model villages and Agriculture Information Resource Centres	Agriculture information management

				Promoting farmer to farmer, farmer - research field days; agriculture fairs and shows; staff and farmer field tours; demonstrations	
	Low access to farm inputs		To increase access to farm inputs (seeds and fertilizers) markets	Establishment of village seed banks for seed multiplication.	Seed multiplication
	Insufficient coverage of agricultural extension services		To reduce staff farmer ratio	Increasing extension staffing levels/service providers.	Agriculture extension strengthening
				Train lead farmers	Extension and advisory service strengthening
				Construction and rehabilitation of staff houses	Extension and advisory service strengthening
				Conduct trainings including refresher trainings for extension officers	Extension and advisory service strengthening
	Crop damage by pests and diseases		To reduce crop area damaged by pests and diseases	Training of staff and farmers on pests and disease management	Pest control and management project.
				Procurement and distribution of pesticides	Pest control and management project.
	Loss of stored crop		To reduce post-harvest losses	Promote availability of storage structures and materials for post-harvest handling	Post- harvest management
				Build capacity of staff and farmers in post-harvest management	Post- harvest management
	Low value addition of raw materials		To promote agricultural value addition and agro-processing	Conduct intensive finance literacy and agribusiness training,	Value addition and agro-processing
				Train smallholder farmers in managing value chains and	Value addition and agro-processing

				enterprise management.	
	Food wastage		To reduce food wastage from 25% to 15% by 2022	Training farming households in Food budgeting, Meal planning and preparation.	Nutrition Education project.
	Low livestock production		To increase livestock production and productivity	Building capacity of extension staff and lead farmers in crop and livestock diversification	Livestock diversification.
				Train lead farmers on livestock diversification.	Livestock diversification
				Sensitization and strengthening of farmer groups to own and manage drug boxes	Livestock diversification
				Rehabilitation and management of 6 dip tanks.	Livestock diversification
	Poor fisheries management and development	To promote sustainable fisheries management and commercial aquaculture development	Reduce fishing effort	Promotion of alternative business (IGA) for fish farmers	Fisheries Management
				Construct fishponds.	Fisheries Management
				Develop integrated fish farming schemes.	Fisheries Management
			Reduce the impacts of climate change on fishers and fish farmers	Promotion of integrated Agriculture Aquaculture initiatives (IAA).	Fisheries Management
				Promote Climate smart fish farming practices.	Fisheries Management
			Enhance compliance to fisheries regulation	Enforce fishing regulations.	Fisheries Management

			Reduce fish post-harvest losses	Facilitate development of appropriate infrastructure for fish handling and processing.	Fisheries Management
				Establishing landing and marketing facilities for fish	Fisheries Management
	In adequate Institutional capacity for fisheries management		Increase number of fisheries governance structures	Establish and revamp local fisheries management committees	Fisheries Management
	Small area under irrigation		To increase area under irrigation	Rehabilitate irrigation schemes and small earth dams	Irrigation development
				Identify areas with irrigation potential	Irrigation development
				Construct small, medium and large scale irrigation schemes	Irrigation development
				Provide support infrastructure for irrigation schemes.	Irrigation development
				Establish and train Water Users Associations (WUA) and cooperatives	Irrigation development
				Establishing rain and ground water harvesting systems	Irrigation development
				Facilitate management of water catchment areas	Irrigation development
				Promote water-harvesting technologies.	Irrigation development
				Training of staff and farmers in scheme management	Capacity building

	<b>of defilement</b>		<b>incidences of defilement cases from 66 cases in 2017 to 0 cases by 2022</b>	<b>probation work</b>	
				Conduct awareness to communities in child and gender related laws	Awareness meetings
	Limited awareness on child rights		Enforcing legislation against harmful practices against children	Promote awareness of children's rights	Awareness campaigns
	Child labour and trafficking		To reduce proportion and number of children aged 5-17 years engaged in child labour	Conduct workplace inspections	Child labour reduction
				Promote sensitisation campaigns against child labour	Child labour reduction
			To increase number of children rescued from child trafficking	Establish community action groups and awareness campaigns against child trafficking	Awareness campaigns

**DEVELOPMENT ISSUE NO 4: HIGH VULNERABILITY OF CHILDREN, WOMEN, PEOPLE WITH DISABILITIES AND THE ELDERLY**

**Baseline: 19      National Average:      District Target: 10**

<b>CAUSES</b>	<b>DEVELOPMENT OBJECTIVES</b>	<b>IMMEDIATE OBJECTIVES</b>	<b>STRATEGIES</b>	<b>PROGRAMS/ PROJECTS</b>
<b>Physical and emotional violence</b>	<b>Reduce the prevalence of violence</b>	<b>Reduce the physical and emotional violence</b>	<b>Train district level structures (DTWGC, DGTWG, AEC) on gender and rights issues</b>	<b>Social Protection and economic empowerment Project</b>
			<b>Community awareness on human rights and GBV</b>	<b>Social Protection and economic empowerment Project</b>
<b>Low access of disabled and other vulnerable children to health, education and social services</b>		<b>Increase access to health education and other social services from 10 % to 50%</b>	<b>Provision of economic support to vulnerable households</b>	<b>Social Protection and economic empowerment Project</b>
			<b>Promote inclusion of children headed households with disability into safe net programmes</b>	<b>Social Protection and economic empowerment Project</b>
<b>Poor economic status of the elderly headed households and child headed households</b>		<b>Increase number of households who are self-reliant</b>	<b>Provision of school grants and bursaries to needy students</b>	<b>Education sponsorship</b>
			<b>Promoting livestock pass on programs</b>	<b>Pass-on programme</b>
<b>Unregistered children at birth</b>	<b>Register all births</b>	<b>Increase % of children issued with birth certificates</b>	<b>Conduct community sensitization and awareness on birth registration.</b>	<b>Awareness and orientation</b>
			<b>Registering all children through utilization of national information management systems</b>	<b>National Birth Registration Exercise.</b>

<b>Inadequate social protection programs</b>	<b>Increase number of the ultra-poor and labour constrained households on social protection programs</b>	<b>Increase registration of vulnerable persons into social protection programmes</b>	<b>Increase the number of beneficiaries under social protection programmes</b>	<b>.Social Protection Programmes</b>
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<b>DEVELOPMENT ISSUE NO 4: HIGH VULNERABILITY OF CHILDREN, WOMEN, PEOPLE WITH DISABILITIES AND THE ELDERLY</b>				
Baseline: 19      National Average:      District Target: 10				
<b>CAUSES</b>	<b>DEVELOPMENT OBJECTIVES</b>	<b>IMMEDIATE OBJECTIVES</b>	<b>STRATEGIES</b>	<b>PROGRAMS/ PROJECTS</b>
<b>Physical and emotional violence</b>	<b>Reduce the prevalence of violence</b>	<b>Reduce the physical and emotional violence</b>	<b>Train district level structures (DTWGC, DGTWG, AEC) on gender and rights issues</b>	<b>Social Protection and economic empowerment Project</b>
			<b>Community awareness on human rights and GBV</b>	<b>Social Protection and economic empowerment Project</b>
<b>Low access of disabled and other vulnerable children to health, education and social services</b>		<b>Increase access to health education and other social services from 10 % to 50%</b>	<b>Provision of economic support to vulnerable households</b>	<b>Social Protection and economic empowerment Project</b>
			<b>Promote inclusion of children headed households with disability into safe net programmes</b>	<b>Social Protection and economic empowerment Project</b>
<b>Poor economic status of the elderly headed households and child headed households</b>		<b>Increase number of households who are self-reliant</b>	<b>Provision of school grants and bursaries to needy students</b>	<b>Education sponsorship</b>

			<b>Promoting livestock pass on programs</b>	<b>Pass-on programme</b>
<b>Unregistered children at birth</b>	<b>Register all births</b>	<b>Increase % of children issued with birth certificates</b>	<b>Conduct community sensitization and awareness on birth registration.</b>	<b>Awareness and orientation</b>
			<b>Registering all children through utilization of national information management systems</b>	<b>National Birth Registration Exercise.</b>
<b>Inadequate social protection programs</b>	<b>Increase number of the ultra-poor and labour constrained households on social protection programs</b>	<b>Increase registration of vulnerable persons into social protection programmes</b>	<b>Increase the number of beneficiaries under social protection programmes</b>	<b>Social Protection Programmes</b>

**DEVELOPMENT ISSUE NO 5: ENVIRONMENTAL DEGRADATION AND CLIMATE CHANGE:**

Baseline:                      National Average:                      District Target:

<b>ISSUE/ PROBLEM</b>	<b>CAUSES</b>	<b>DEVELOPMENT OBJECTIVES</b>	<b>IMMEDIATE OBJECTIVES</b>	<b>STRATEGIES</b>	<b>PROGRAMMES / PROJECTS</b>
<b>Environmental degradation and Climate Change</b>		<b>To reduce environmental degradation</b>			
	<b>Poor and improper waste management</b>		<b>To improve waste management practices by 2022</b> <ul style="list-style-type: none"> <li>• <b>Market</b></li> <li>• <b>Schools</b></li> <li>• <b>Hospitals</b></li> <li>• <b>Town</b></li> <li>• <b>Dumping site.</b></li> </ul>	<b>Improve solid and liquid waste management systems</b>	<b>Pollution control and waste management</b>



	<b>Lack of enforcement of legislation on ENRM</b>		<b>To enforce legislation on ENRM</b>	<b>Develop and implement by-laws</b>	<b>Pollution control and waste management</b>
				<b>Conduct community awareness campaigns and sensitization meetings</b>	<b>Pollution control and waste management</b>
				<b>Conduct inspection of potentially polluted sites.</b>	<b>Pollution control and waste management</b>
				<b>Conduct review of ESIA reports/audits/ Environmental and Social Management Plans (ESMPs)</b>	<b>Pollution control and waste management</b>
				<b>Monitor implementation of approved ESMPs</b>	<b>Pollution control and waste management</b>
	<b>Poor sewer system in Liwonde</b>		<b>To upgrade the Liwonde sewer system</b>	<b>Maintenance and rehabilitation of the sewer system</b>	<b>Pollution control and waste management</b>
				<b>Collect and dispose all solid wastes in designated dumping sites</b>	<b>Pollution control and waste management</b>
				<b>Establish solid waste dumping site</b>	<b>Pollution control and waste management</b>
	<b>Inadequate environmental education and awareness</b>		<b>To promote environmental education and awareness</b>	<b>Promote sensitization on environmental management</b>	<b>Environmental education and awareness</b>
				<b>Prepare District State of Environment and Outlook Reports.</b>	<b>Environmental education and awareness</b>

	<b>Increased siltation of rivers and other water courses</b>		<b>To reduce siltation of rivers and waters courses</b>	<b>Promote afforestation activities</b>	<b>Integrated Catchment Management and Conservation</b>
				<b>Protect river bank conservation</b>	<b>Integrated Catchment Management and Conservation</b>
				<b>Conduct awareness campaigns</b>	<b>Integrated Catchment Management and Conservation</b>
	<b>Low participation of communities in forest resource management</b>		<b>To increase number of communities participating in forest resource management from 7% to 20% by 2022</b>	<b>Intensify mentorship and supervision in all VNRMCs</b>	<b>Community based natural resource management</b>
	<b>Small area under forest and catchment management interventions</b>		<b>To increase area under forest and catchment management interventions</b>	<b>Promote community engagement in forest resource management: Raising of seedlings Planting of trees Catchment management</b>	<b>Community based natural resource management</b>
				<b>Facilitate establishment of community forests</b>	<b>Community based natural resource management</b>
				<b>Public awareness and advocacy campaigns</b>	<b>Community based natural resource management</b>
				<b>Integrate environment and climate change into Village action plans</b>	<b>Community based natural resource management</b>
	<b>Wanton cutting down of trees.</b>		<b>To reduce wanton cutting down of trees</b>	<b>Promote the use of alternative sources of energy</b>	<b>Improved sustainable forest management and renewable energy</b>

			<b>To increase number of households using energy efficient stoves</b>	<b>Promote use of energy efficient cooking stoves</b>	<b>Improved sustainable forest management and renewable energy</b>
			<b>To increase area under forest regeneration</b>	<b>Strengthening enforcement of bylaws</b>	<b>Improved sustainable forest management and renewable energy</b>
	<b>Poor agricultural practices in catchment areas and river banks</b>		<b>To promote good agricultural practices in catchment areas and along river banks from current</b>	<b>Provision of technical support for river and stream bank restoration</b>	<b>Community landscape restoration project.</b>
	<b>Lack of vibrant early warning systems</b>		<b>To enhance disaster preparedness for effective response</b>	<b>Establish effective early warning systems to assess and monitor risks and disasters</b>	<b>Enhanced disaster preparedness.</b>
	<b>Poor construction of infrastructure due to unsafe house construction guidelines</b>		<b>To increase resilience of communities through investing in safe housing construction</b>	<b>Promote use of safe house construction guidelines</b>	<b>Safe house construction</b>
				<b>Sensitize communities on safer house construction</b>	<b>Safe house construction</b>
	<b>Lack of capacity of disaster risk management structures</b>		<b>To strengthen disaster risk management governance at all levels</b>	<b>Train DRM coordination structures at district and local level</b>	<b>Capacity building</b>
	<b>Reduced community resilience to disasters</b>		<b>To increase % of vulnerable people with reduced resilience to disasters</b>	Implement disaster risk reduction interventions in disaster prone areas	<b>Safe net programmes</b>

DEVELOPMENT ISSUE NO 6: INEFFECTIVE MANAGEMENT OF URBAN PLANNING AND DEVELOPMENT

Baseline: National Average: District Target:

ISSUE/ PROBLEM	CAUSES	DEVELOPMENT OBJECTIVES	IMMEDIATE OBJECTIVES	STRATEGIES	PROGRAMMES / PROJECTS
<b>Ineffective management of urban planning and development</b>	<b>Poor land use planning and management</b>		<b>To improve urban and rural land use planning and management</b>	<b>Enforce adherence to physical development plans, planning guidelines and standards,</b>	<b>Land use planning and management programme</b>
				<b>Enforce land use policy</b>	<b>Land use planning and management programme</b>
			<b>To register land parcels</b>	<b>Allocate serviced plots</b>	<b>Land use planning and management programme</b>
	<b>Poor urban development and economic growth</b>		<b>To improve sustainable urban development and economic growth</b>	<b>Construct community stadium</b>	<b>Sustainable land management and economic development</b>
				<b>To formulate urban structure plan</b>	<b>Produce urban structure plan</b>
			<b>To register district land</b>	<b>Generate computerized land records, systems and processes</b>	<b>Sustainable land management and economic development</b>
				<b>Build capacity in land administration and management at all levels</b>	<b>Sustainable land management and development</b>
				<b>Upgrade informal settlement in semi-urban areas</b>	<b>Sustainable land management and development</b>

				<b>Conduct awareness campaigns on urban development, land related laws, legislation and emerging issues.</b>	<b>Sustainable land management and development</b>
	<b>Poor road network</b>		<b>To improve the road network in Liwonde township</b>	<b>Construct and upgrade the road network in Liwonde</b>	<b>Road network upgrading</b>

<b>DEVELOPMENT ISSUE 7: POOR TRANSPORT AND COMMUNICATION NETWORKS</b>					
Baseline:		National Average:		District Target:	
<b>ISSUE/PROBLEM</b>	<b>CAUSES</b>	<b>DEVELOPMENT OBJECTIVE</b>	<b>IMMEDIATE OBJECTIVE</b>	<b>STRATEGIES</b>	<b>PROGRAMME/ PROJECT</b>
<b>Poor transport communication network</b>	<b>No established community radio stations/TV broadcasters</b>	<b>To increase access to information and communication services</b>	<b>Increase access to community radio stations / TV broadcasters</b>	<b>Establishment of community radio stations/TV broadcasters</b>	<b>ICT development</b>
	<b>Low cellular network coverage</b>		<b>To increase network coverage</b>	<b>Lobby service providers to increase coverage</b>	<b>ICT development</b>
	<b>Lack of online systems for information sharing at community level</b>		<b>Increase access to online systems</b>	<b>Establishment of on-line information centres</b>	<b>ICT development</b>
	<b>Lack of ICT multipurpose information centres</b>		<b>To increase ICT centres</b>	<b>Construction of ICT multipurpose information centres</b>	<b>ICT development</b>
				<b>Provision of communication equipment</b>	<b>ICT development</b>
				<b>Establish one stop centre facilities</b>	<b>ICT development</b>
	<b>Lack of tele centres</b>			<b>Establish tele-centres</b>	<b>ICT development</b>

	<b>Poor GWAN</b>			<b>Increase and enhance Government Wide Area Network (GWAN)</b>	<b>ICT development</b>
	<b>Poor Transport Network</b>	<b>To promote all weather roads</b>	<b>To increase length of access roads constructed, rehabilitated and maintained from</b>	<b>Construct village access roads</b>	<b>Road construction, maintenance and rehabilitation</b>
				<b>Construct and rehabilitate bridges</b>	<b>Road construction, maintenance and rehabilitation</b>
				<b>Construct and rehabilitate district and secondary roads</b>	<b>Road construction, maintenance and rehabilitation</b>
				<b>Replace timber deck bridges with concrete bridges</b>	<b>Road construction, maintenance and rehabilitation</b>

DEVELOPMENT ISSUES 8: POOR YOUTH DEVELOPMENT.

Baseline: 20

National Average:

District Target:

ISSUE/ PROBLEM	CAUSES	DEVELOPMENT OBJECTIVES	IMMEDIATE OBJECTIVES	STRATEGIES	PROGRAMMES / PROJECTS
<b>Poor youth development</b>		<b>To increase percentage of youth participation in economic activities from 20% to 60 % by 2022</b>			
	<b>Inadequate youth facilities</b>		<b>To increase the number of youth facilities</b>	<b>Construct youth centre</b>	<b>Infrastructure development</b>
				<b>Construct youth recreation centres</b>	
			<b>Increase number of students enrolled in community colleges</b>	<b>Establish community colleges</b>	<b>Infrastructure development</b>
	<b>Poor access to credit facilities</b>		<b>To increase access to affordable credit facilities for youth.</b>	<b>Organize youth in cooperatives and clusters</b>	<b>Economic empowerment</b>
				<b>Establish income generating activities for the organized youth groups</b>	<b>Economic empowerment</b>
				<b>Train youth in financial literacy</b>	<b>Economic empowerment</b>
	<b>Lack of employment among the youth</b>	<b>To increase number of youth in employment sector</b>	<b>To create job opportunities for the youth.</b>	<b>Train youth groups in life skills</b>	<b>Job creation</b>



				Promote sports among in and out of school youth	Job creation
				Strengthen behaviour change interventions.	Job creation
				Strengthen services and treatment of substance abuse	Job creation
	Low primary school and secondary completion rate		To increase school completion rate for boys and girls	Provide bursaries for needy learners.	Bursaries
				Strengthen school clubs to address SRHR issues	SRHR
				Increase investment in economic empowerment programs.	Economic empowerment
				Expand coverage of youth friendly reproductive health services.	YFRHS
	Low participation of youth in development activities		Increasing youth participation in development initiatives	Establish and strengthen youth development centres	Youth participation and involvement
				Conduct training in technical, vocational, entrepreneurial and business management skills	Youth participation and involvement
				Facilitate formation and training of youth cooperatives	Youth participation and involvement

DEVELOPMENT ISSUE 9: LIMITED ACCESS TO POTABLE WATER AND IMPROVED SANITATION PRACTICES

Baseline: 68%

National Average:

District Target: 80%

ISSUE/ PROBLEM	CAUSES	DEVELOPMENT OBJECTIVES	IMMEDIATE OBJECTIVES	STRATEGIES	PROGRAMMES / PROJECTS
<b>Limited access to potable water and improved sanitation practices</b>		<b>To increase access to safe water coverage from 68% to 80% by 2022</b>			
	<b>Low access to improved water supply</b> <b>Poor management of water points</b>		<b>To improve management of water points</b>	<b>Construct 500 new boreholes</b>	<b>Borehole construction</b>
				<b>Install and rehabilitate piped water supply</b>	<b>Piped water installation and rehabilitation</b>
				<b>Rehabilitate 4 Gravity Fed Supply systems</b>	<b>GFS rehabilitation</b>
				<b>Develop and rehabilitate other types of water infrastructure</b>	<b>Water infrastructure development</b>
		<b>To increase water functionality rate from</b>		<b>Maintain and rehabilitate boreholes</b>	<b>Borehole maintenance and rehabilitation</b>

				<b>Rehabilitate/maintain all non-functional water points</b>	<b>Water point rehabilitation</b>
	<b>Inability of communities to properly develop and manage catchment areas</b>	<b>To enhance sustainable management of water catchment areas</b>	<b>To promote empowerment of local communities to properly develop and manage catchment areas.</b>	<b>Establish and train WUAs in catchment management</b>	<b>Capacity development</b>
				<b>Conduct community sensitization on the catchment management</b>	<b>Community sensitization</b>
				<b>Undertake t catchment protection initiatives</b>	<b>Catchment management</b>
	<b>Inadequate access to hand pump spare parts</b>		<b>To improve access to spare parts for all water supply technologies</b>	<b>Sensitize distributors and local shop owners within strategic trading centres for all water supply technologies</b>	<b>Sensitization campaigns</b>
	<b>Poor management of rural water supply facilities</b>	<b>To enhance integrated water resource management</b>	<b>Promoting community-based management of rural water supply facilities</b>	<b>Train WUAs</b>	<b>Capacity building</b>
				<b>Establish revolving funds for maintenance purposes-WPCs and WUAs</b>	<b>Maintenance Fund Establishment</b>
				<b>Train Water Point Committees (WPCs) in CBM I &amp; II</b>	<b>Capacity building</b>
			<b>Institutionalize practical Operations and Maintenance (O&amp;M)</b>	<b>Train community structures in O&amp;M</b>	<b>Capacity building</b>

	<b>Theft /vandalism of hand pump parts</b>		<b>To reduce cases of vandalism/theft of water supply infrastructures</b>	<b>Integrate community policing structures into CBM trainings</b>	<b>Stakeholder integration</b>
<b>Poor hygienic and sanitation practices</b>	<b>Poor adoption of sanitation and hygiene practices at individual and household level</b>	<b>To increase % of households with improved hygienic and sanitation practices</b>	<b>To promote use of improved and accessible sanitation and hygiene facilities</b>	<b>Conduct awareness campaigns on the importance of constructing and using sanitation facilities</b>	<b>Community sensitization</b>
				<b>Implement CLTS</b>	<b>CLTS</b>
	<b>Poor sanitation and hygiene practices in primary schools</b>		<b>To promote good hygienic practices and sanitation</b>	<b>Implement SLTS</b>	<b>SLTS</b>
				<b>Promote use of hand washing facilities</b>	<b>SLTS</b>
	<b>Poor disposal of both liquid and solid waste</b>		<b>To promote use of improved sanitation facilities.</b>	<b>Promote use of VIPs</b>	<b>Improved sanitation management</b>
				<b>Conduct awareness campaigns on sanitation and general hygiene.</b>	<b>Community sensitization</b>
			<b>To improve management and disposal of both liquid and solid waste.</b>	<b>Improve refuse collection</b>	<b>Waste management</b>
				<b>Promote use of refuse bins and dumping sites</b>	<b>Waste management</b>

**DEVELOPMENT ISSUE NO 10: INSECURITY.**

Baseline: 23.2%

National Average:

District target: 16%

ISSUE/ PROBLEM	CAUSES	DEVELOPMENT OBJECTIVES	IMMEDIATE OBJECTIVES	STRATEGIES	PROGRAMMES / PROJECTS
<b>Insecurity</b>		<b>To reduce crime rate from 23.2 % to 16% by 2022</b>			
	<b>Low participation and involvement of community in security matters</b>		<b>To enhance community integration and participation in promoting crime free environment</b>	<b>Conduct awareness campaigns/ public anti-violence campaigns</b>	<b>Security promotion</b>
				<b>Strengthen community policing structures</b>	<b>Security promotion</b>
				<b>Provide security equipment to the community members e.g. whistles, jackets, bicycles, reflectors</b>	<b>Security promotion</b>
	<b>Low police population ratio</b>		<b>Increase police population ratio</b>	<b>Increase police visibility in crime prone areas</b>	<b>Security promotion</b>
			<b>Increase % of people issued with national IDs</b>	<b>Issue national IDs</b>	<b>Security promotion</b>
	<b>Inadequate police infrastructure</b>		<b>To increase number of police infrastructure</b>	<b>Establish and construct police units and posts</b>	<b>Infrastructure development</b>
				<b>Establish police listening unit</b>	<b>Infrastructure development</b>
				<b>Construct and rehabilitate offices and staff houses.</b>	<b>Infrastructure development</b>

				<b>Provide police institutions with modern equipment. e.g. Public Order Equipment, forensic equipment, intelligence collection equipment, crime detection equipment</b>	<b>Equipment provision</b>
	<b>Cross border crime</b>		<b>To reduce cross boarder crime from 10% to 6%</b>	<b>Establishment of permanent border post</b>	<b>Border post establishment</b>
	<b>Cultural beliefs and customs</b>		<b>To reduce cases involving killing, exhuming and abduction of people with albinism from 5% to 0%</b>	<b>Mobilize communities into action groups against abuse and exploitation of persons with albinism</b>	<b>Community awareness</b>

**DEVELOPMENT ISSUE NO 11: HIGH MALNUTRITION**

**Baseline: 38.5      National Average:      District Target 18.2%**

**Baseline: 3.4      National Average:      District Target: 2%**

**Baseline: 16.4      National Average:      District Target: 8%**

ISSUE/ PROBLEM	CAUSES	DEVELOPMENT OBJECTIVES	IMMEDIATE OBJECTIVES	STRATEGIES	PROGRAMMES / PROJECTS
<b>High Malnutrition</b>		<b>To reduce malnutrition of under five children from 38.5% stunting, 3.4% wasting and 16.4% underweight to 18%,2% and 8% respectively by 2022</b>			
	<b>Poor knowledge on food utilization and nutrition</b>		<b>To reduce incidences stunting, underweight , wasting and anaemia for under-five children</b>	<b>Promote mass screening campaigns</b>	<b>Management of common nutrition disorders</b>
				<b>Provide treatment of moderate and severe nutrition</b>	<b>Management of common nutrition disorders</b>
				<b>Train front line workers on dietary diversification..</b>	<b>Management of common nutrition disorders</b>
				<b>Train caregiver committees, parents and field workers in nutritional values.</b>	<b>Management of common nutrition disorders</b>
				<b>Promote consumption of high nutritive value and diversified diets</b>	<b>Management of common nutrition disorders</b>

				<b>Strengthen implementation of community based management of acute malnutrition , support and treatment</b>	<b>Management of common nutrition disorders</b>
	<b>Low % of children exclusively breastfed</b>		<b>To increase % of children 0-5 months exclusively breastfed</b>	<b>Promote optimal breastfeeding and appropriate complementary feeding</b>	<b>Management of common nutrition disorders</b>
				<b>Provide micronutrient supplementation</b>	<b>Management of common nutrition disorders</b>
	<b>High incidences of women in the productive age who are malnourished and anaemic</b>		<b>To reduce incidences of anaemia and malnutrition among women of reproductive age 15–49 years</b>	<b>Conduct sensitization and awareness campaigns on need for dietary diversification for pregnant and lactating mothers</b>	<b>Management of common nutrition disorders</b>
				<b>Promote consumption of a variety of foods with an emphasis on common indigenous foods</b>	<b>Management of common nutrition disorders</b>
	<b>Low income</b>				
	<b>Inadequate access to food</b>				



DEVELOPMENT ISSUE NO. 12 : HIGH MORTALITY AND MORBIDITY

Baseline:

National Average:

District Target:

HIGH MORTALITY IN MACHINGA: CURRENT 8.6 PER 1000 .NATIONAL..... TO 5 PER 1,000

STRATEGIC ISSUE	CAUSES	DEVELOPMENT OBJECTIVE	IMMEDIATE OBJECTIVE	• STRATEGIES	PROJECTS/PROGRAMMES.
<b>High mortality and morbidity</b>		<b>Reduce Crude Death Rate from 8.63 to 5.00 by 2022.</b>			
	<b>Low access to health services due Long distances to health facilities, poor roads, health workers shortages and inadequate health workers.</b>		<b>Increase access to health facilities within the recommended 7 Km</b>	<b>Increase number of health facilities</b>	<b>Health facilities construction and upgrading project.</b>
				<b>Upgrading of health centre to a rural hospital.</b>	<b>Health facilities construction and upgrading project.</b>
			<b>Increase staffing levels from 60% to 85%</b>	<b>Recruitment of additional health workers</b>	<b>Health workers recruitment and retention project.</b>
				<b>Construction of additional staff houses in health centres (increased retention)</b>	<b>Health workers recruitment and retention project.</b>
				<b>Electrification of 7 rural health facilities.</b>	<b>Health workers recruitment and retention project.</b>
			<b>Increase the % of patients referred in time (within 12hours)</b>	<b>Improve road access to health facilities</b>	<b>Enhanced health referral systems project.</b>

				<b>Procurement of ambulances for rural health facilities.</b>	<b>Enhanced health referral systems project.</b>
	<b>High HIV/AIDS prevalence (14 %)</b>		<b>Increase uptake of HTS services</b>	<b>Expand ART infrastructure</b>	<b>HIV &amp; AIDS Prevention And Management</b>
				<b>Improve HTS and ART service provision</b>	<b>HIV &amp; AIDS Prevention And Management</b>
				<b>Improve access to HIV preventive services</b>	<b>HIV &amp; AIDS Prevention And Management</b>
				<b>Train HTS/ART providers</b>	<b>HIV &amp; AIDS Prevention And Management</b>
				<b>Scale up Voluntary Medical Male Circumcision scale up..</b>	<b>HIV &amp; AIDS Prevention And Management</b>
				<b>Female and male condom distribution.</b>	<b>HIV &amp; AIDS Prevention And Management</b>
				<b>Provision of ART to over 90% of the eligible population.</b>	<b>HIV &amp; AIDS Prevention And Management</b>
				<b>Community awareness campaigns</b>	<b>HIV &amp; AIDS Prevention And Management</b>
				<b>Strengthen referral systems such that all HIV positive clients are enrolled on ART</b>	<b>HIV &amp; AIDS Prevention And Management</b>
				<b>Train health workers in HIV and HTC clinics in gender and human rights</b>	<b>HIV &amp; AIDS Prevention And Management</b>
				<b>Train volunteers in home-based care</b>	<b>HIV &amp; AIDS Prevention And Management</b>
				<b>Conduct HTC campaigns and sensitization meetings.</b>	<b>HIV &amp; AIDS Prevention And Management</b>
				<b>Conduct STI screening and treatment within Youth Friendly Health Services (YFHS) for youth 10 – 24 years in age</b>	<b>HIV &amp; AIDS Prevention And Management</b>

	<b>Inadequate access to maternal health services</b>	<b>Reduce Maternal Mortality Rate</b>	<b>Increase access to antenatal services and family planning</b>	<b>Raise community awareness and participation on safe delivery</b>	<b>Maternal Health improvement project.</b>
			<b>Increase the % of skilled deliveries</b>	<b>Increase number of maternity Units</b>	<b>Maternal Health improvement project.</b>
				<b>Intensify static and outreach clinics</b>	<b>Maternal Health improvement project.</b>
				<b>Training of community mother groups</b>	<b>Maternal Health improvement project.</b>
				<b>Antenatal and family planning services provision</b>	<b>Maternal Health improvement project.</b>
	<b>Inadequate access to child health services</b>	<b>To reduce IMR, NMR and U5MR</b>		<b>Scale-up extended programs of immunization</b>	<b>Child health Improvement project</b>
				<b>Strengthen the delivery of community health services</b>	<b>Child health Improvement project</b>
				<b>Strengthen the prevention management and control of common conditions and illnesses</b>	<b>Child health Improvement project</b>
				<b>Improve health care infrastructure at all levels.</b>	<b>Under five clinics construction project</b>
	<b>High diarrhoea and cholera prevalence</b>	<b>Increase access to safe water and sanitation from 68% and 64% to 80 % and 85% respectively.</b>		<b>Chlorine provision</b>	<b>Water and sanitation improvement project.</b>
				<b>ODF status attainment in all Traditional Authorities</b>	<b>Water and sanitation improvement project.</b>
				<b>Surveillance trips to Lake Chilwa</b>	<b>Water and sanitation improvement project.</b>
				<b>Cholera vaccination campaigns in Lake</b>	<b>Water and sanitation improvement project.</b>

				<b>Chilwa</b>	
				<b>WASH Infrastructure construction in all health facilities</b>	<b>Water and sanitation improvement project.</b>
	<b>High prevalence of malaria in the community (40% of OPD attendance)</b>	<b>To reduce malaria incidence ratio</b>	<b>Increase the % of households sleeping under LLTNs</b>	<b>Free LLITNs distribution</b>	<b>Malaria prevention and management project.</b>
				<b>Conduct awareness campaigns on the importance and use of LLINs</b>	<b>Malaria prevention and management project</b>
			<b>Raise the % of children accessing malaria treatment within 24 hrs</b>	<b>Outreach clinic construction</b>	<b>Malaria prevention and management project.</b>
				<b>malaria case management training</b>	<b>Malaria prevention and management project.</b>
				<b>Drugs and rapid test kits procurement</b>	<b>Malaria prevention and management project.</b>
	<b>Sexually transmitted diseases and early pregnancies among the Youth</b>		<b>Reduce early pregnancies and prevalence among the youth</b>	<b>Improve Youth Friendly Health Services</b>	<b>Youth friendly health services improvement project.</b>
				<b>Training of YFHS providers</b>	<b>Youth friendly health services improvement project.</b>
	<b>Increase in Non-Communicable Diseases</b>		<b>Increase awareness detection and treatment of Non Communicable Diseases</b>	<b>NCDs Training for health workers.</b>	<b>None communicable disease reduction project.</b>
				<b>Mass screening campaigns in the community</b>	<b>None communicable disease reduction project.</b>
				<b>Expand infrastructure for NCDs management.</b>	<b>None communicable disease reduction project.</b>

## Annex 1

### List of NGOs and CSOs working in Machinga – Updated June, 2018

Program/intervention Area	Location (TA)	Contact Person & Position	Mobile No.	Email Address & website
Health, Environment & Livelihood, Human Rights & Governance	Sitola, Nkula Nyambi, Nsanama	Chipiliro Phiri (Executive Director)	+265888753077	chipiliro@developmentconceptmw.org
Youth Empowerment & Child Rights	TA Liwonde	Mphatso Mtembenuzeni (District Coordinator)	+265998430474	mtawali@gmail.com
Education, Human Rights and Governance	TA Ngokwe	Stonard Madice (Programme Manager)	+265999308687	stonard.madise@actionaid.org
Health and Environment		Catherine Chisuse	+265888856524 +265999261072	cchisuse@me.goal.ie
	All Tas	Victor Macheso (Clubs Coordinator)	+265884016712	vicmacheso17@gmail.com
Environmental and Natural Resources Management	Mlomba, Nkula and Sitola	Hawlkings Chiwaya (Program Coordinator)	+265881956292 +265999816687	programsgreenlinemovement@gmail.com
Health (SRHR, HIV AND Family Planning)	All Tas	G. Chilimira (District Manager)	+265884624545	gchilimira@gmail.com
Integrated Child protection and livelihood. Njira Project (Food Security project) FISH ( Fisheries Integration of Society and habitants	TAs- Nyambi, Kapoloma, Chiwalo, Liwonde, Nsanama, Sitola and Nkula, Kapoloma, Nkoola, Ngokwe, Chikweo and Paramount Kawinga	Mr. Symon Maseko	+2658881181875	symonmas@gmail.com
Education, Health	TAs Chamba & Mposa	Loyce Mkuzi	+265888982620	loyce_mkuzi@wvi.org
Agriculture	TA Chamba, Mposa and Mlomba			
Health	All TAs	Thandiwe Kamanga (Team Leader)	0992961589	tkamanga@onsehealth.org
Child Rights and Care	TA Sitola	Willard		
Health, Human Rights, ECD and Environment	Sitola & Nsanama	Raquin Mlewa (Ag Executive Director)	0999656213	salick549@gmail.com
Health, Human Rights,	All TAS	Chikondi Mlozi (District Manager)	0888558560	chiccomlozi@gmail.com
Advocacy and Lobbying	All Tas	Rodgers Kampira (Field Officer)		rdgerskampira@gmail.com
integrated health & HIV Prevention, women Development, Youth and Child Protection	All Tas	Agness Matumba	0999454345	matumbaagie@gmail.com
Environmental and Natural Resources Management				

Education in Primary Schools and Secondary	All TAS	Martin Phiri (Project Manager)	0992559505	martin.phiri@savethechildren.org
HIV/AIDS	All Tas	Joseph Sakala (M&E Officer)	0999292363	josephs@jhuccpmw.org
Education	Liwonde	Victoria Chiphaka		vicchiphaka@gmail.com
Health, Education	Tas Kawinga and Liwonde	Belinda Chimombo (District Manager)	0999858508	belinda_chimombo@yahoo.com
Environmental and Natural Resources Management	TA Nsanama	Yasin Chitsonga (Executive Director)		yasinichitsonga@gmail.com
Women's Rights	All TAs	Beatrice Chisuse (District Chairperson)	0884465052	bchisuse2@gmail.com
Health (SRHR targeting the youth)	Nsanama	Innocent Chikwakwa	+265884256458	chikwakwainnocent@gmail.com
Education	All TAs	Fanny Mkwinda		funnymkwinda@gmail.com
Health and Education		Chifuniro Moir (Executive Director)	+265999680994	nanesmachinga@gmail.com
Health, Youth Development, Education, Human Rights	Chiwalo, Mchinguza	Lamecks Kiyale (Executive Director)	+265999226558	
Disaster Response and Preparedness, Health, Education	All TAS			
SRHR, HIV & AIDS, Human Rights, Gender & Governance, Environment	TAS Chikweo, Ngokwenand Nkoola	Mphatso Kapito (Executive Director)	+265888513340	mphatsokapito1990@gmail.com