



Chegutu Master Plan

Report of Study

Chegutu Municipality

Civic Centre

Queen Street

P.O.Box 34

Chegutu

Arup Zimbabwe

**REGIONAL, TOWN AND COUNTRY PLANNING ACT, CHAPTER 29:12 REVISED
EDITION 1996**

Certified that this a true copy of the Chegutu Master Plan, prepared in terms of part IV of the Regional, Town and Country Planning Act, Chapter 29:12, Revised edition 1996 and Adopted by the Municipality of Chegutu on its meeting of.....2024.....

Adopted:

On Public Display:

Town Clerk:

Date:

His Worship the Mayor:

Date:

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1 INTRODUCTION

1.1 Background and Overview

The Chegutu Master Plan (herein referred to as the Master Plan) is being prepared to achieve the following:

- Providing an overall strategic planning framework to guide development of the urban and peri-urban areas over the next fifteen to twenty years,
- Provide Land use and transportation guidance for the town,(aspects that will dictate the spatial form of the Municipality, land use mixes, land uses densities and travel/commuting patterns),
- Provide Land banking mechanism for housing and other critical activities
- Indicate the requisite infrastructure needs for the Municipality and the various forms of funding mechanisms, priority and phasing of same :linking these to the planned land uses,
- Institute a monitoring and evaluation mechanism so as to assess the performance of the Master Plan,

Since the granting of municipal status in 1974, Chegutu Town has experienced growth in housing, commerce and industry. At the moment however, the Town has several development issues some of which are detailed below:

- The sheer growth of the City (natural population increase and rural-urban migration) with its impacts on housing and pressure of urban expansion and attendant demand for water , sewer and road infrastructure and social services,
- The economic challenges together with the associated decline in disposable incomes (urban poverty) and the associated challenges of paying for goods and services rendered by the City, ability to save to either purchase or build house etc.,

- The increase in the number of people/households involved in Urban Agriculture as a poverty alleviation/survival strategy,
- Land acquisition and the subsequent resettlements dynamics in and around the City,
- The issue of informality in the economy and pressure on the peri-urban/fringe areas of cities and towns,
- The decline of public transport (conventional buses as travel mode) and the emergence of commuter buses,
- Policy changes as a response to the various challenges by Central Government, Local Authority and the Private/NGO/Civic Society Sector for instance in housing and planning standards, development financing (mortgages and bulk infrastructure financing), Urban Agriculture, land ownership, participation in the economy etc.
- Vision 2030 and NDS1 and the Call to Action by His Excellency , the President of Zimbabwe instructing all Local Planning Authorities to have Master Plans by June 30 2024

The above mentioned developments and policy environments, together with others have impacted on the form and fabric of the Chegutu Municipality like any other cities in Zimbabwe. This has necessitated that a new Master Plan be prepared. This will culminate in the production of a new Master Plan that is sensitive to the challenges currently facing the Municipality and should direct development in the coming decade.

1.1.1 Overview of the Evolution of Chegutu

The town was initially established as a mining town to serve the interests of miners at Bufferfly and Giant mines although it later became a major agricultural hub also serving the interests of white farmers living in the broad hinterland of Chegutu. Agriculture and mining remain the major economic base for Chegutu district.

Archival materials indicate that Chegutu Town (then known as Hartley) was established in 1900 after the discovery of gold in the district by a hunter called Henry Hartley at Butterfly and Giant mines. The town was first established at the mine location but was later moved to its current location along the Mupfure (Umfuli) river in 1902. It was proclaimed a Village Board in 1903 and was upgraded to a Town Management Board in 1942 under the Municipal Act of 1930. The Town Management Board operated until 1974. Chegutu Municipality attained municipal status and became a municipality in 1974 in terms of the 1973 Urban Councils Act (Chapter 214). On proclamation as a municipality it was given control and ownership of two thousand one hundred and thirteen hectares of land called Hartley Township Reserve.

1.1.2 Overview of Planning History of Chegutu

From the time of its establishment in 1902, the Town had not had a statutory plan to guide and manage its development, except for an incomplete scheme, (Hartley Development Plan) prepared in 1972 and Report of Study done by Palmer Associates Town Planning consultants in 1997. Development has mainly been controlled by a series of layout plans.

The complexity of current development/planning activities and the prospects for more intensified urban growth in Chegutu and its immediate surroundings justify the preparation of a forward looking Master Plan to guide development in the next fifteen (15) to twenty (20) years.

1.1.3 Vision of Chegutu Municipality

The vision of Chegutu Municipality is coined as “A prosperous, sustainable, habitable and attractive municipality by 2030”

1.1.4 Mission Statement for Chegutu Municipality

The mission of Chegutu Municipality is to provide quality municipal services and infrastructure.

1.1.5 Structure of the Master Plan

The Master Plan is structured in two parts with this document focusing on the Report of Study:

Part 1: The Report of Study: which identifies current issues/challenges affecting the Chegutu municipality and its immediate surrounding areas

1.2 Study Boundary

At a consultative meeting between the Municipality and Arup, it was agreed that the Study boundary would constitute land within the current Municipality boundary and farms in the immediate vicinity of Chegutu Municipality as shown in Figure 1. The following properties are some of the areas covered in the Study: Ameva. Ameva Extension, Umvovo, Lion Vlei and New March to the West.

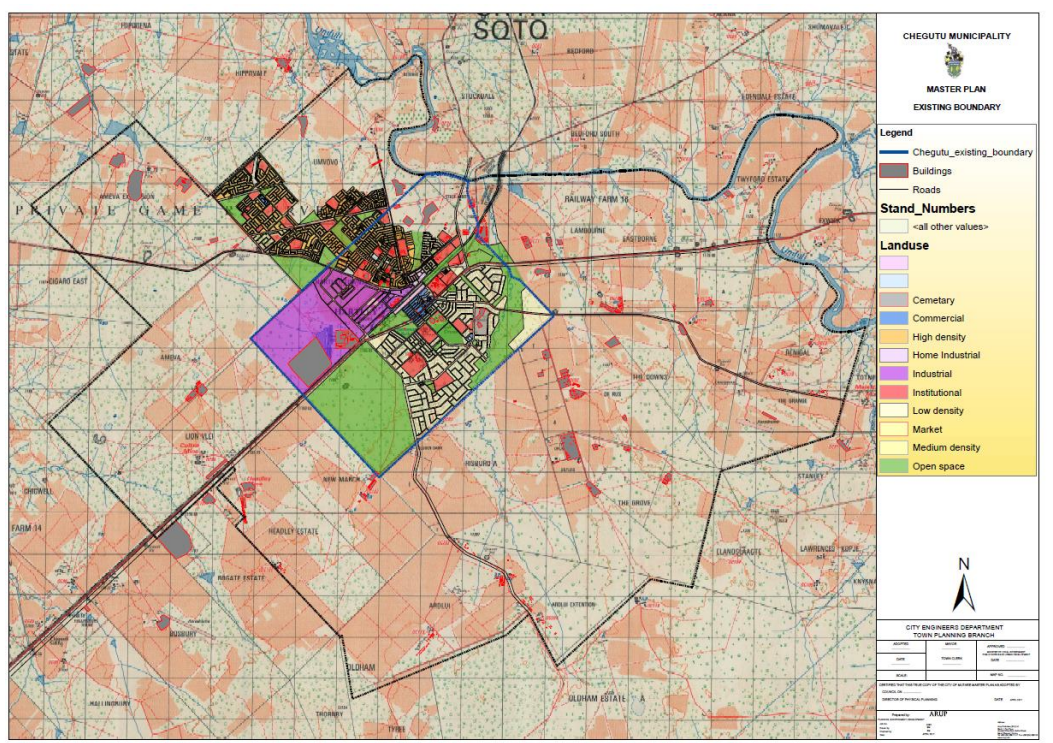


Figure 1: Chegutu Master Plan Study Area

To the east, the following farms are covered in the Study: The Downs, Rengal, the Grange, Risboro, Oldham, Ardlui, Ardlui Extension, Lambourne, Railway Farm and Twyland Estate.

1.3 Location

Chegutu Town is situated in Mashonaland Province and is the third largest urban settlement after the cities of Kadoma and Chinhoyi. The town is located approximately 110km from Harare along the main national road and rail link to Bulawayo. The Plan area is also linked by the Chinhoyi road that further connects with the Chirundu Border Post. Chinhoyi Town, the Provincial Capital is located approximately 93 km north of the plan area, while Kadoma City is approximately some 34 kilometers (km) along the Bulawayo Road.

This places Chegutu in a strategic position in locational and communication terms both nationally and regionally (SADC and East African Community (EAC)) as shown by Figure 2. That unique location needs to be harnessed by the Local Planning Authority as well as various businesses that have national and international interests. The Plan Area is surrounded by commercial farming areas as well as several mines.

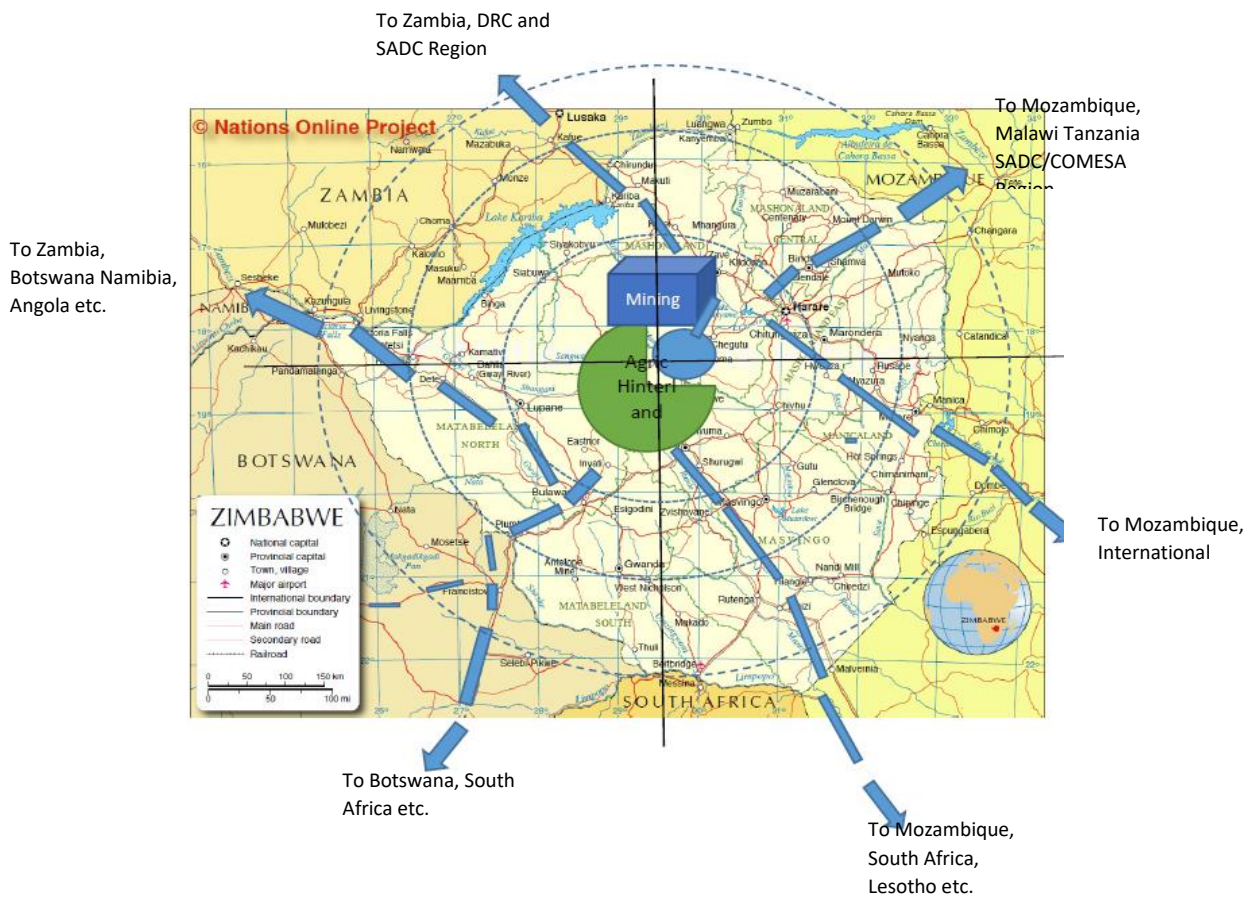


Figure 2: Location of Chegutu in the National and Regional Context

The nearest communal lands (whose District Service Centres are Mubayira and Murombedzi respectively) are Mhondoro to the east and Zvimba to the north.

Turf mining centre to the east is also under the direct influence of Chegutu in terms of provision of goods and services. The above-mentioned centres are major areas of influence of Chegutu and the linkages existing between them are of strategic importance.

1.4 Statutory Provisions for the Master Plan Preparation

The Chegutu Master Plan is being prepared in terms of Part IV (Sections 13 -16) of the Regional, Town and Country Planning Act, Chapter 29:12, Revised Edition 1996 (the Act) as read with RGN 248 of 1976.

The Master Plan has been prepared by Arup Zimbabwe (Pvt) Ltd who are both town planners and engineers in close collaboration with the relevant municipality departments of Chegutu Municipality. As per the provisions of the Act, consultations were made with various government departments in Chegutu, parastatals, private sector firms and households in Chegutu.

1.5 Justification of the Preparation of the Master Plan

The primary purpose of a Master Plan is enshrined in Regional, Town and Country Planning

Act (Chapter 29:12). It also primarily aligns the Municipality's development and service delivery direction to Agenda 2030: Sustainable Development Goals, Vision 2030, Zimbabwe National Human Settlements Policy and the Call to Action blueprint.

The Chegutu Master Plan aims to establish a spatial planning framework that ensures coordinated development within the designated planning area. In this context, the master plan presents policy recommendations for land use planning and development regulation, while also emphasizing the preservation of the natural environment through the sustainable utilization of natural resources. It advocates for economic development that enhances local livelihoods and productivity, alongside infrastructure improvements that bolster the local economic foundation, which primarily relies on agriculture and mining activities. Furthermore, the master plan recognizes the significance of transportation networks in enhancing the productivity of existing land uses

1.6 Summary of Issues

- (1) Chegutu Municipality has a unique regional and national location and is connected well with major infrastructure (roads and rail),
- (2) The municipality is surrounded by a rich agricultural and mining hinterland,
- (3) The Town has not had a statutory planning Framework, since its establishment save for the incomplete Town Planning Scheme of 1974, which is being used for development control purpose. This Plan is not responsive to the development needs of the town.

2 National and Regional Development Context

2.1 National Planning Context

The overarching strategic policy guiding national, regional and local strategic direction is the national Vision 2030 which seeks to the attainment of a **“A prosperous and empowered upper middle income society with job opportunities and a high quality of life for its citizens by 2030.”** The key national priorities outlined in the Vision are:

- Inclusive Economic Growth
- Social development
- Governance
- Cross-Cutting Enablers
- Macro-economic stability and financial reengagement

While Vision 2030 provide government’s policy position, there are no regional spatial plans for Mashonaland West. In the absence of such a spatial planning policy and framework at the national and regional level the relevant framework for purposes of informing planning at the local authority level remains the Regional Town and Country Planning Act Chapter 29:12 and the attendant regulations. The Regional Town and Country Planning Act is an overarching piece of legislation that informs all other State, regional and local planning strategies, policies and approvals.

Six interrelated principles which apply across all local authorities in Zimbabwe underpin and inform the Regional Town and Country Planning Act Chapter 29:12.

- Community: Enable diverse affordable, accessible and safe communities
- Economy: facilitate trade, investment, innovation, employment and community betterment.

- Environment: conserve national assets through sustainable development in particular “conserving and improving the physical environment promoting health, safety, order, amenity, convenience, general welfare as well as efficiency and economy in the process of development”.
- Infrastructure: Ensure infrastructure supports development.
- Governance: build community confidence in development processes and practices.

2.2 Other National Policies Guiding Planning

There are a number of national policies which have application at the local level, and which informs the preparations and application on master plans. These are relevant to Chegutu Municipality as they provide strategic and operational guidelines to the planning of the area.

3 CHAPTER 3: METHODOLOGY

3.1.1 Approach and Methodology

Overall, the plan preparation process was guided by the scientific approach of Survey, Analysis, Plan as shown in Figure 3 and provided for in Part IV of the Regional, Town and Country Planning Act, Chapter 29:12, revised edition 1996.

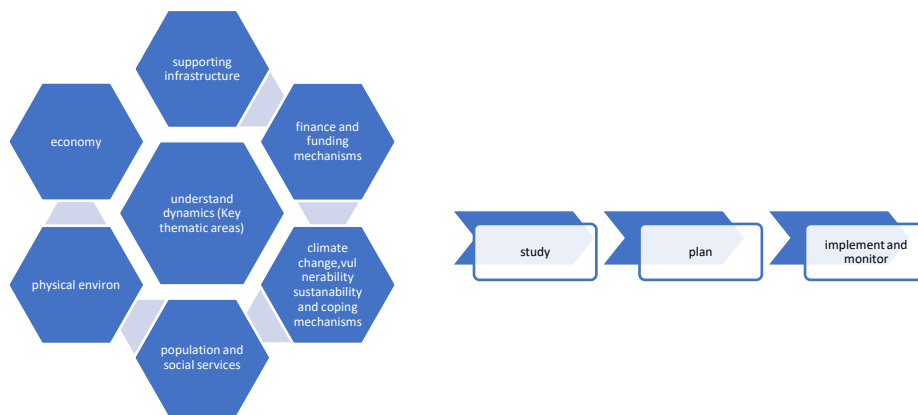


Figure 3: Conceptual framework shaping our approach to the Chegutu Master Plan preparation.

A Mixed Method approach was used. This allowed the researchers to gather data using multiple methods like questionnaires, interviews, focus discussion groups and observation which are quantitative and qualitative. The mixed methods research/approach allows for the opportunity to compensate for inherent weaknesses in different methods, capitalize on inherent method strengths and offset inevitable method biases. The researchers targeted Council officials and employees, Residents Association members, Business Association representatives and residents. The researchers also used observation of the state of infrastructure to aid in the analysis of data. Two stakeholder workshops were held in 2018 to present the master plan initial findings and the comments and recommendations from the proceedings were incorporated into the master plan.

3.1.2 Secondary Data Sources

1. (Palmer associates Pvt Ltd, 1997): **Chegutu Municipality Report of Study 1997**.

This served as a baseline for several thematic areas in the Report of Study

2. Specialist Studies/Reports on various thematic issues

3. Unpublished Official records/data/reports from municipality departments

4. Official records/data from central government departments, newspaper cuttings

5. Specialist Infrastructure Reports (Government of Zimbabwe(GOZ)/Gauff Ingenieure,2014: **Urgent water Supply and Sanitation Rehabilitation Project: Water Supply and Sewerage Medium to Long Term Investment Plan –Chegutu , Volumes 1 and 2**).These documents served as critical baseline source documents and inputs into the water and sewerage infrastructure sections of the Report of study.

3.1.3 Primary Data Sources

1. Field Surveys

(a) Household Socio-Economic Surveys

Structured questionnaires were administered by trained enumerators to interview a 15% sample of all households in all residential areas (high, medium and low density suburbs).Aspects covered included the following:

- Age and gender of household members
- Size of households
- Tenure status
- Economic activities and income sources of households
- The manner in which household members use community and shopping facilities in the town,

(b) The residents' opinion and perception on areas that need general improvement **Industrial and Commercial Surveys**

Structured questionnaires were administered by trained enumerators to interview an 80% sample of all industrial and commercial enterprises in Chegutu.

The survey focused on the following aspects:

- The type of activities being carried out and the scale/size of operations,
- The length of time the enterprise has been in operation
- Plans for expansion/improvement
- Challenges faced

(c) Traffic Counts

Twelve hour traffic counts were made on all main roads and within the town. On the basis of the traffic counts, average daily traffic was computed on the following roads:

- Bulawayo Road
- Chakari Road
- Seigneury Road,
- Chinhoyi Road,
- Town to High Density Areas,
- Town to Industrial Area,
- ZMDC to Chinhoyi

(d) Land Use Inspections/Surveys

- Comprehensive land use surveys were conducted in all properties in the Central Business District (CBD) and covering the use (and in some cases multiple uses) on the property, conditions of the buildings,
- Comprehensive surveys (including socio-economic surveys) were conducted in the farming areas covered in the Study Area. These focused on the type of activities being carried out on the pieces of land, future plans, whether they would like to change to urban type land uses given an opportunity, challenges being faced, linkages with the Chegutu Urban Area (by way of access to shopping, health, educational, worship and entertainment facilities), time and costs involved in accessing such facilities.

(e) GIS Image Processing

GIS software was used to determine site suitability in terms of facilities location (Potential sites for Reservoirs and Waste water Treatment Facilities, delineation of sub catchments in the Study Area and general drainage patterns. The results were verified through site visits (ground truthing)

The data derived and analysed from the various studies are used throughout the Report of Study text.

On the basis of the data gathered, the Study provides detailed sectoral analysis of issues, together with the spatial treatment of same issues and where possible, linkages and cross cutting issues are presented.

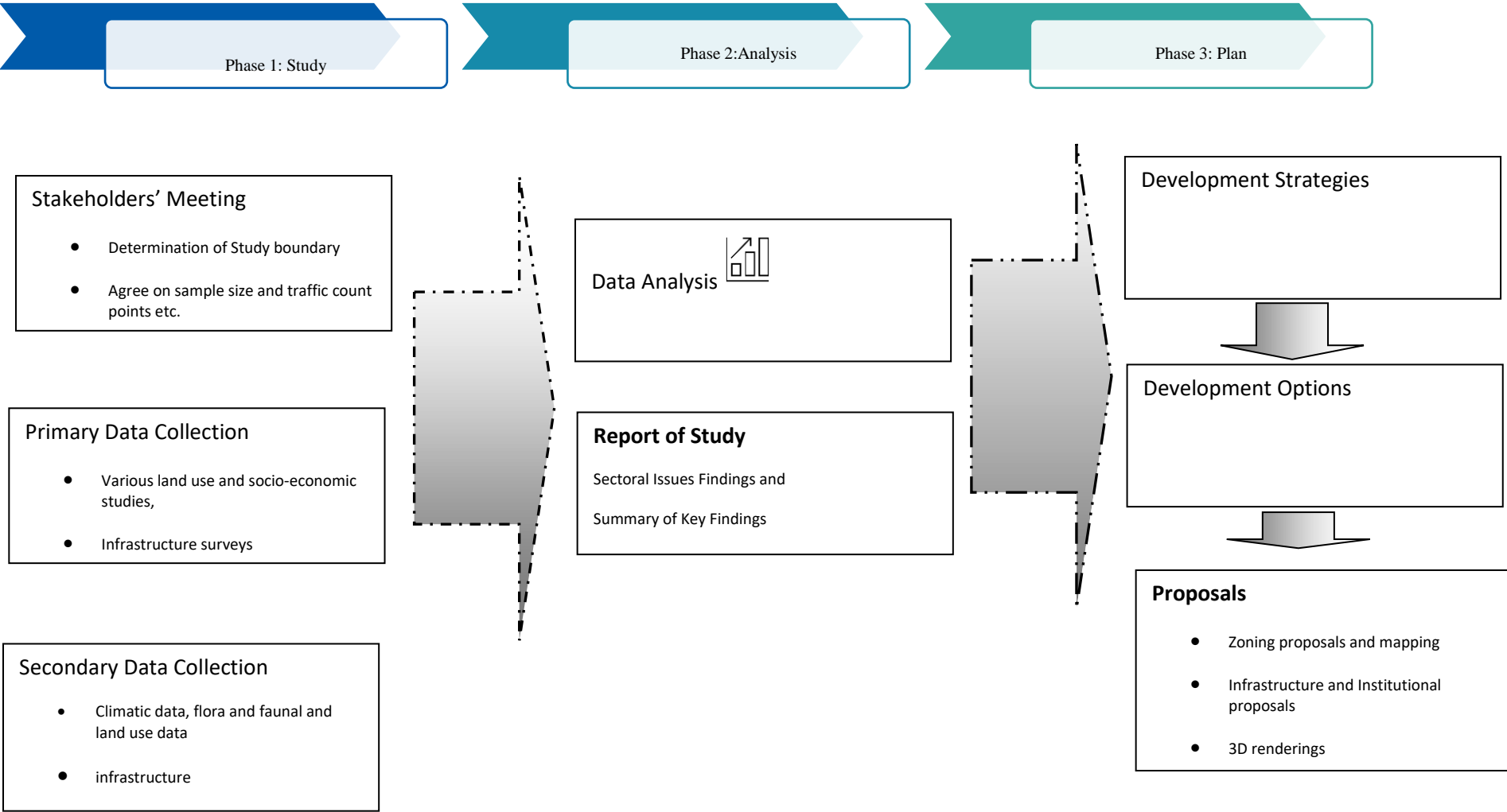
The Written Statement will be structured as follows:

1. Identification of major issues affecting and impaction upon the Planning Area;
2. Setting Goals and Objectives to guide future development;

3. Identification of requisite Strategies for future development;
4. Detailed policy and proposals formulation
5. Prioritization of Areas requiring short term ;medium term and long term interventions,
6. Establishing guidelines on implementation and monitoring of the Master Plan

The whole approach and methodologies employed are summarized in Figure 4.

Figure 4: Summary of Approach and Methodologies



4 PHYSICAL Features, Land Use and land Ownership

4.1 Climate

The Plan Area lies in Agro-Ecological Region IIb which is characterized by intensive farming systems based on crops and livestock. The climate is subtropical, with Annual rainfall in Chegutu averaging 775 millimeters (30.5 in). The town's temperatures range between 27C-31 °C in the hottest month, to 14 °C in the coldest. Figure 5 shows the average temperature and precipitation patterns in Chegutu. Relative humidity is around 74% in the summer months and 45% during winter.

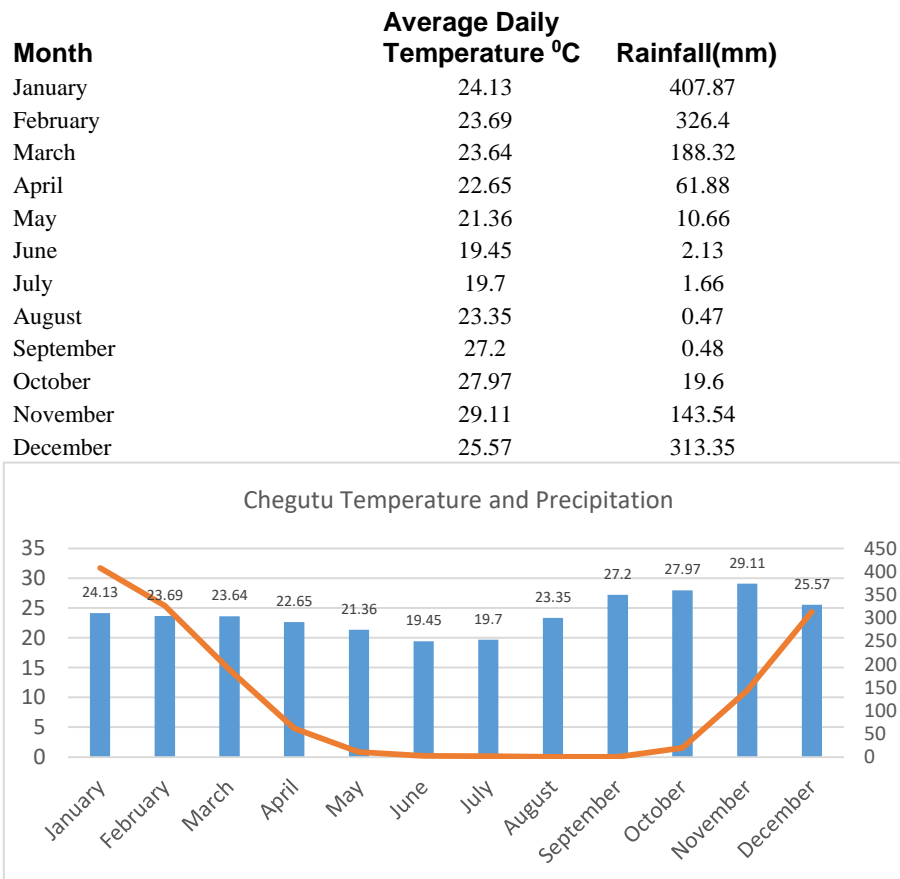


Figure 5: Temperature and Precipitation in Chegutu

The evaporation rate varies between 4 and 8 mm per day in October, with 5.5 mm being the average for the year.

The prevailing wind is from south-east to north-west, this having direct implications on land use proposals and zoning

4.2 Topography

The Study Area lies to the immediate west of the Central Plateau of Zimbabwe, which forms the country's watershed and lies above 1 200 meters above sea level.

The area is generally flat, and is devoid of major natural features (it is not topographically diverse). The average gradient is 1:20 and the area generally slopes from the east, south west to the north east. The Plan area can be developed without major topographical constraints.

4.3 Vegetation

The vegetation in Chegutu has largely been cleared due to several ongoing human activities in the Study area. This is especially so in the high density areas to the north of the town. The situation is slightly different in the low density areas where natural vegetation is still found in residential areas. (See Figure 6).



Figure 6: Vegetation in one of the low density areas in Chegutu

Overall, the natural vegetation, where it still exists is mainly predominantly *mupfuti* (*brachystegia boehmic*), interspersed with *msasa* (*brachystegia*

spiciformis) type. Along the riverine areas patches of acacia trees dominate (See figures 7 and 8) below.

The landscape is also characterized by rolling grasslands with patches of scrub.



Figure 7: Vegetation in outlying areas of Chegutu (farming areas)



Figure 8: Vegetation in the farming areas of Chegutu (in the eastern farming areas).

4.4 Geology and Soils

Geologically, the Plan Area is underlain by formation of basement complexes of old basaltic and andesitic lavas and intrusions now in the form of epidiorites, hornberde schists and other varieties collectively known as greenstones.

Branded ironstones of all ages are commonly found in the whole district. Gold deposits are usually associated with these types of ecological formations rendering the district an important mining area, with gold scattered all over the district operated by both big and small companies. Chegutu district, therefore has a strong economic base in terms of mineral wealth and agricultural production.

Parent rocks such as schists and banded ironstone have given rise to soils which range from reddish brown loams to silty and clayey loams. These contribute to the high yielding agricultural practices in the area.

Generally, the soils do not pose major constraints to development, especially foundations.

4.5 Drainage and Catchment Area

4.5.1 Description of the Study Catchment:

The main river system that drains the Plan Area is the Mupfure River, which forms portions of the northern and eastern boundaries of the Plan Area. Most rivers in Chegutu drain into it.

The river is perennial (except for the drought years in 1992 and 1994 when it dried up, resulting in major water shortages for Chegutu, while the streams are seasonal.

The Mupfure River stretches for about 224 kilometers from at its source up to the confluence with Sanyati River. The catchment area covers 11 866 square kilometers. The source of Mupfure River is located along the central watershed of Zimbabwe in the Chiota Communal Lands and falls within Hydrological Zone C of the Sanyati and Manyame Rivers, and ultimately draining into the Zambezi River.

4.6 Land use and land Ownership

4.6.1 Existing Land Uses

The current Chegutu Municipality Area covers approximately 2864 hectares. A breakdown of current uses is shown below:

Land Use	Total Area (ha)	Developed Area(Ha)	Undeveloped Land (Ha)**
Town Centre (CBD)	23.4	19.7	3.7
Residential	891.62	424.9	466.72*
Industrial	539	262	277
Recreational	43.5	43.5	-
Institutional	131.5	131.5	-
Other (Roads, Railways (etc)	303.7	303.7	-
TOTAL	1932.72	1185.3	747.42
LAND BANKED			

Source: SG 1:50000 Maps and 2016 Land Use Survey

Table 1: Existing land uses in Chegutu

*This land is found in the low/medium density area of Hintonville to the east of Harare-Bulawayo road, portions of which have expansive/volumetric soils that are expensive to develop.

** Development status is further elaborated upon since coverages for developed areas are low.

It is clear that most (over 60%) of the land in Chegutu is developed, with some of the development for the high density areas being developed outside the current municipal boundary as shown in Figure 9. The following aspects though are pertinent:

- (a) There is shortage of land for high density residential development, with new developments now spilling out of the current municipality boundary (mainly in the north western section of the municipality area,
- (b) Vacant Land for medium density development is only now confined to the south of Hintoville, to the east of Bulawayo road,

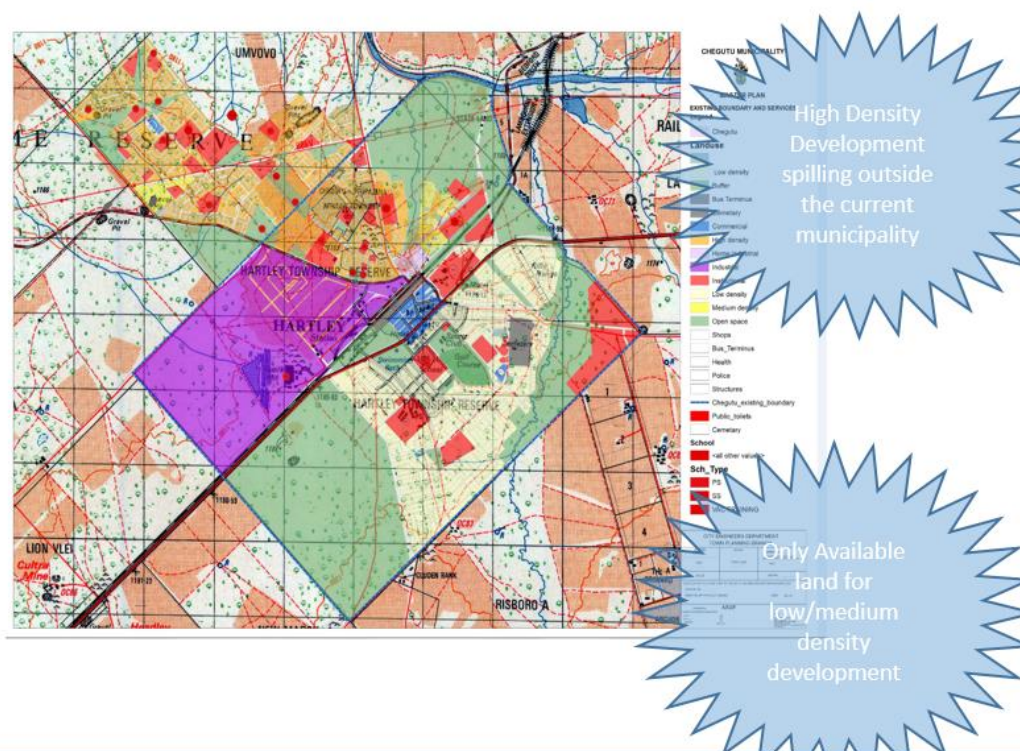


Figure 9: land uses inside and outside Chegutu Municipality Area

- (c) There is some land (92.7ha) for industrial development, mainly in Ward 2 (to the west of Bulawayo Road).
- (d) Land for commercial development is mainly concentrated in the current Central Business District Area (CBD) and several shopping centres in the Residential Areas. In the CBD, although land is generally taken up, actual coverages are low and hence the need for densification to maximize on the utilization of space.



Figure 10: Distribution of Main land Uses in Chegutu Municipality Area

4.6.2 An Assessment of Land Utilization in Chegutu CBD and the Urban Form

Figure 11 shows the current land uses in Chegutu CBD, with commercial activities (retailing and hardware shops) being the major activity. Institutional, financial services and service industrial activities also occupy significant spaces for Chegutu CBD. These activities signify the importance of Chegutu CBD as an administrative and commercial centre for the residents as well as for the farming community for the surrounding areas.,

In terms of space utilization, the building coverages are low, as shown on Figure 8 as well as detailed on **Appendix 1**.

It is quite clear that there is need for more densified development of land in the Chegutu CBD to ensure efficient space and infrastructure utilization.

Summary: Land Uses in Chegutu CBD (2017)

1.Retail	30
2.Financial Services	6
3.Parking	3
4.Public Utility	1
5.Service Industry	13
6.Hardware	18
7.Funeral Services	1
8.Institutional	15
9.PFS	3
10.Hotel	2
11.Residential	5
12.Recreational	4
13.Open Space	7
14.Unfinished Buildings	2
15.Health Institutions	6

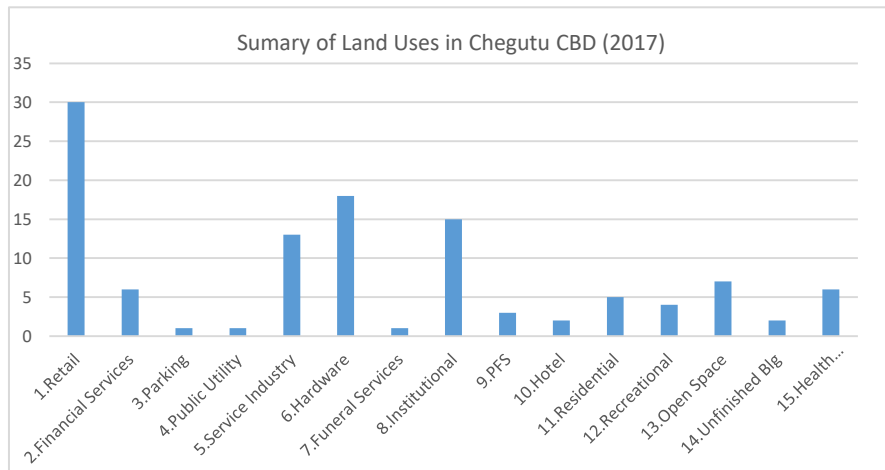


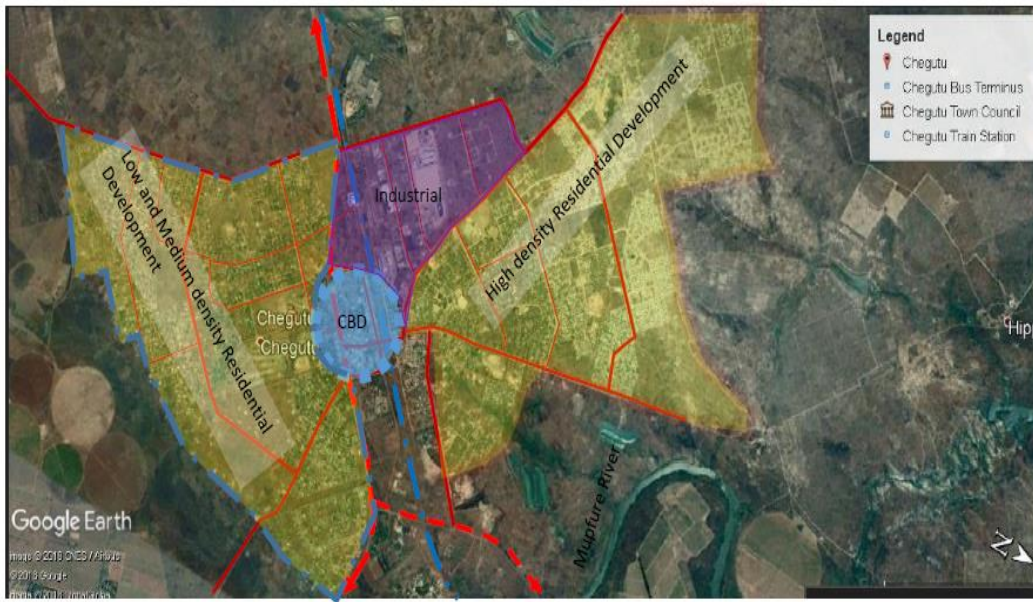
Figure 11: Major Activities in Chegutu CBD

Figure 12: Building Coverages Map for Chegutu CBD



In terms of the urban structure, Chegutu is a Uni-Nodal, with a clearly defined central node (CBD) and residential sectors to the east and west of the CBD, including an industrial sector to the west of the main Bulawayo –Harare road. These sectors are linked to the CBD by several arterial roads/linkages as shown in Figure 8. In terms of local business commuting trips, this implies that most trips originate from residential areas in the morning and terminate in the areas around the CBD/Industrial area in the mornings and the reverse is true for the evening trips.

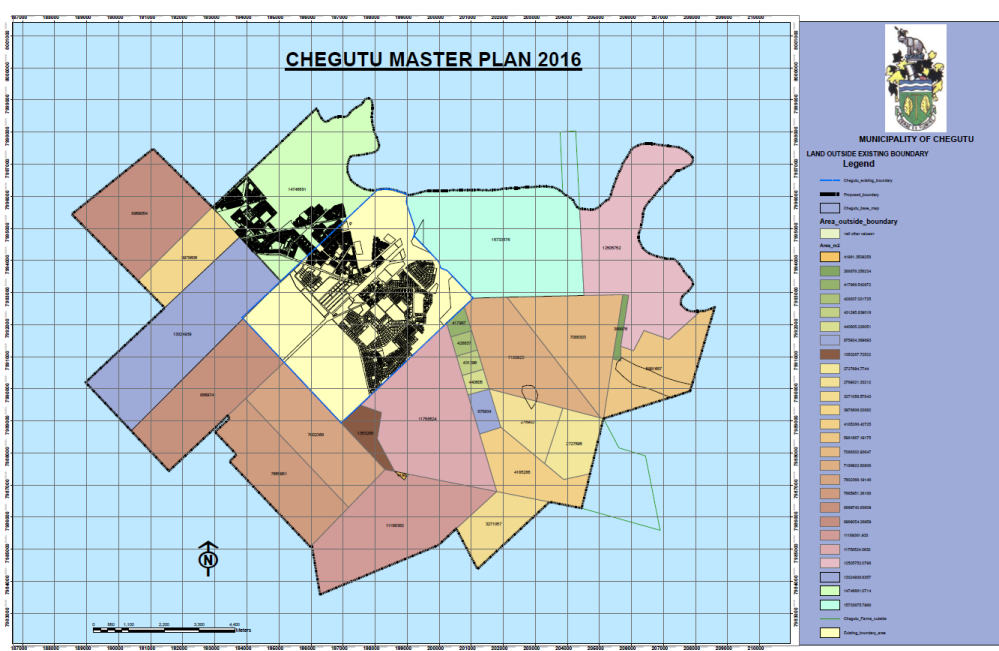
Figure 13: The Urban Structure of Chegutu Town



4.6.1 Land Uses in Areas Adjacent to the Municipality

Land Uses surrounding the municipal area are for largely agricultural purposes as shown in Figure 14 (with intensive farming activities dominating the farms in the eastern area). There are some significant gold and limestone mining activities

Figure 14: Land outside the Municipal Area in Chegutu



In the areas surrounding the Municipality. These have been identified and are shown on Figure 14. It is important to note that the limestone quarry on the southern portion Lambourne farm is currently not operational.

Table 2 gives a detailed treatment of the activities, approximate sizes (ha) of the respective farms, and general slope and soil characteristics of the farms around the municipality area.

In order to assess the potential for urban development, the following aspects were undertaken: slope analysis and terrain characterization, general soil assessment vegetation assessment and the present activities on the farm.

Critically, the views and aspirations of the current owners were solicited as to whether they would be agreeable to changing the use of their farms/plots for other uses other than the current use. The responses are detailed in this section of the report so as to inform decision making for future development.

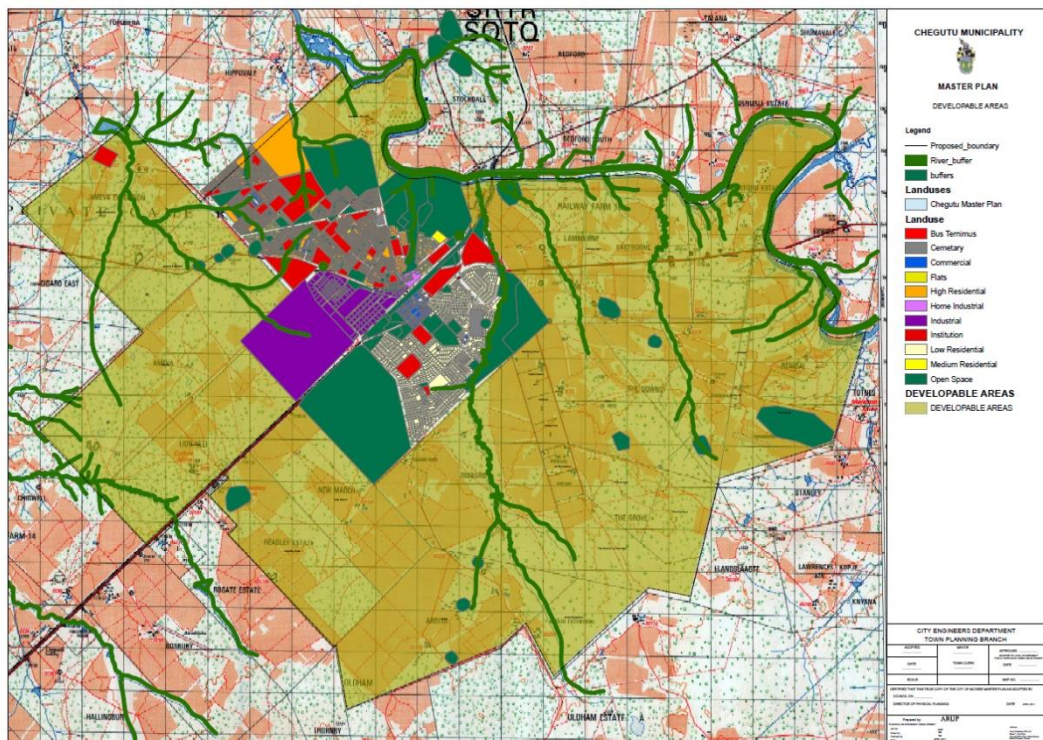


Figure 15: Potentially Developable areas in farms around Chegutu.

On the same basis of assessment, Figure 16 shows the size potentially developable land for other uses apart from agricultural purposes.

Farm_Name	Area_Ha_	Soil_Type	Terrain	Vegetation Type	Farming Activity	Irrigation
Ameva Extension	899	Clay of low plasticity (Black) (Red)	Anthills, Gently sloping			
Unknown (City Council)	398	clay of low plasticity (Red), Gravel with fines(Brown),	Rocks, Anthills		Persence of landfill/dumpsite, borrowpit	
Ameva	1303	Clay of low plasticity (Red)		Uncultivated arable land	Uncultivated arable land, Brick making, Animal Husbandry	
Lion Vlei	886	Clays of High Plasticity (Volumetric Red)	Generally Flat	Orange plantations	Fruit Plantation,	Drip irrigation
Headley State	767	Clay of low plasticity (Red), Silts of low plasticity (Brown Loam)	Generally Flat	Misau, Minimum Tress	Cultivated arable land, small scale mining, Rawtage Primary School	
New March	761	Clay of low plasticity (Red)	Genlty sloping and Flat	woodlot, Acacia, Msasa	Cultivated arable land, Animal Husbandry	Borehole water
Ardlui	1119	Clay of low plasticity (Red)	Gently sloping and Flat	Mulberry Trees	Fruit Plantation, Non-operational Fresh cannery, Operational Olivines Cannery, Cultivated Arable Land	Borehole water
	4					
	7					
Risboro	1305	Clay of low plasticity (Red)	Gently sloping	woodlot	Potential gold claim, cultivated arable land	Pivot
Ardlui Extension	327	Clay of low Plasticity (Red)	Generally Flat, Tail of river	Woodlot	Cultivated Arable Land, Uncultivated Arable land.	
The Groove 2 (Unknown)	419	Clay of low plasticity (Red) on northern side, Clays of high plasticity (Volumetric Black)			cultivated arable land	
The Groove 2	273	Clay of low plasticity (Black) (Red)	Gently sloping		Uncultivated arable land, Horticulture	Borehole water

The Groove	277	Clay of low plasticity (Black) (Red) , Clay of High plasticity (Volumetric Black)	Gently sloping	Mipani, Mitondo		
Anchor-DeRus	88	Clay of low plasticity(Red)	Generally Flat		Cultivated arable land	
Chieza Plot	44	Clay of low plasticity (Black) (Red)	Gently sloping and flat		Cultivated arable land	
Calstock	43				Cultivated arable land	
Thatch-haven	43					
Wedding venue	42		Generally Flat	Exotic trees	wedding venue	
Derus	719	clay of low plasticity (Red)	Genly sloping	Msasa	Uncultivated arable land	Borehole water
The Downs A	709	Clay of low plasticity (Red) (Black)	Gently sloping, Anthills		Cultivated arable land, Horticulture	Borehole water
Graig Var	8	clay with low plasticity	Anthills	open field	Cultivated arable land, horticulture	
Renegal	31	Clay with low plasticity (Red)	Gently sloping		Horticulture	
The Grange	599	clay of low plasticity (Red) (Black)	Gently sloping		Uncultivated arable land	
Twyford Estate	1250	Silts of low plasticity (Brown loam)	Gently sloping	woodlot	Uncultivated arable land, Horticulture	Mupfure river
Railway Farm	1578	clay of low plasticity (Red), silts of low plasticity (Brown Loam)	Generally flat	Orange trees	Fruit plantation, cultivated arable land	
Reserve/ Umvovo	498	Silts of low plasticity (Brown loam)	Gently sloping	Orange trees	Fruit Plantation, Cultivated arable land, crop farming	Pivot

Table 2: General Characterization of Land around Chegutu Municipality

4.6.2 Further Assessment of Activities and Development Aspirations in Farming Areas Around Chegutu Municipality

Figure 17 shows that agricultural activities are the dominant uses for the farms surrounding Chegutu. It is critical to note that these uses range from highly productive family operations to big agro business operations like Olivine. These are mainly found in the eastern portion of the farms, along Bulawayo road and in the areas along the Mupfure River between the road to Chinhoyi and Harare.

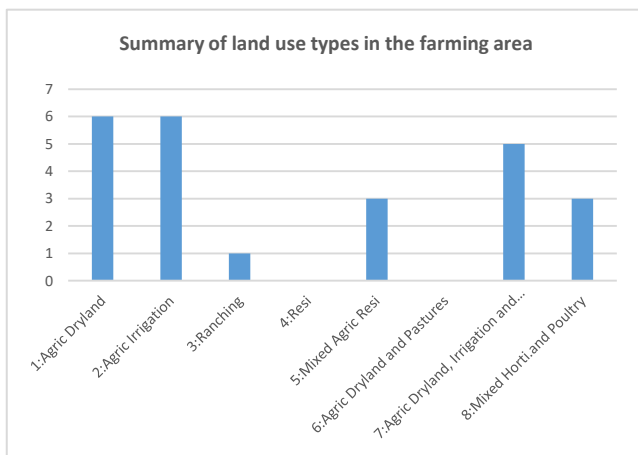
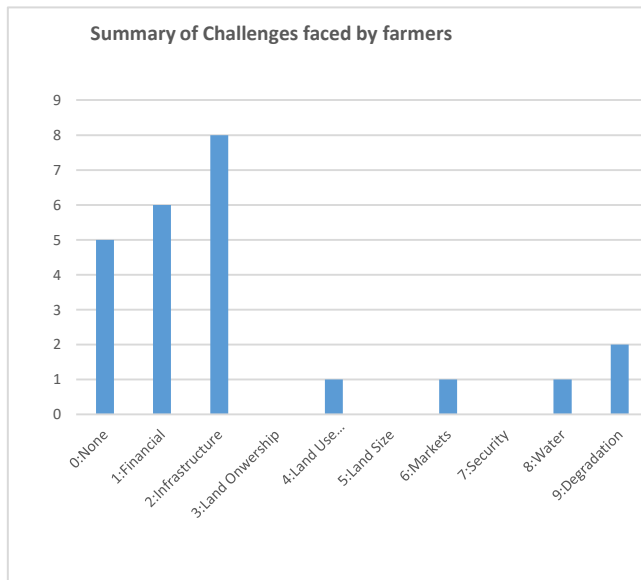


Figure 17: Major Activities on Farms around Chegutu Municipality

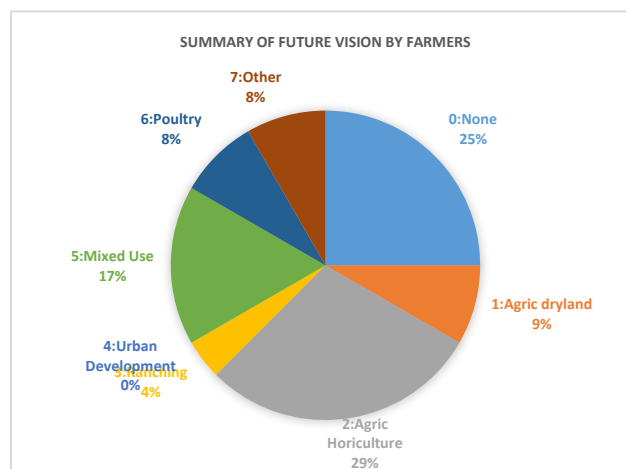
In terms of operational challenges, infrastructure challenges (see Figure 18 below) dominated the concerns raised by land owners and these were mainly related to current operations.

Figure 18: Summary of Constraints faced by farmers/Land Owners



An inquiry was made on the future vision/aspirations of the famers, to determine the preferred land uses/activities for the respective areas. The response seem to favour agro-related activities as the dominant preferred Use as shown in Figure 19 below. The exact nature of agricultural activities varied with some preferring strictly agricultural uses, whilst some preferred value addition to their operations.

Figure 19: Summary of Preferred Future Vision for the Areas Outside Chegutu Municipality



The Land owners were specifically asked on whether they would like to change the land uses in their area. Figures 20 and 21 summarize the findings, with 58% preferring the status quo and few indicating willingness to change to outright urban land uses.

Figure 20: Summary of Residents willingness to change land uses

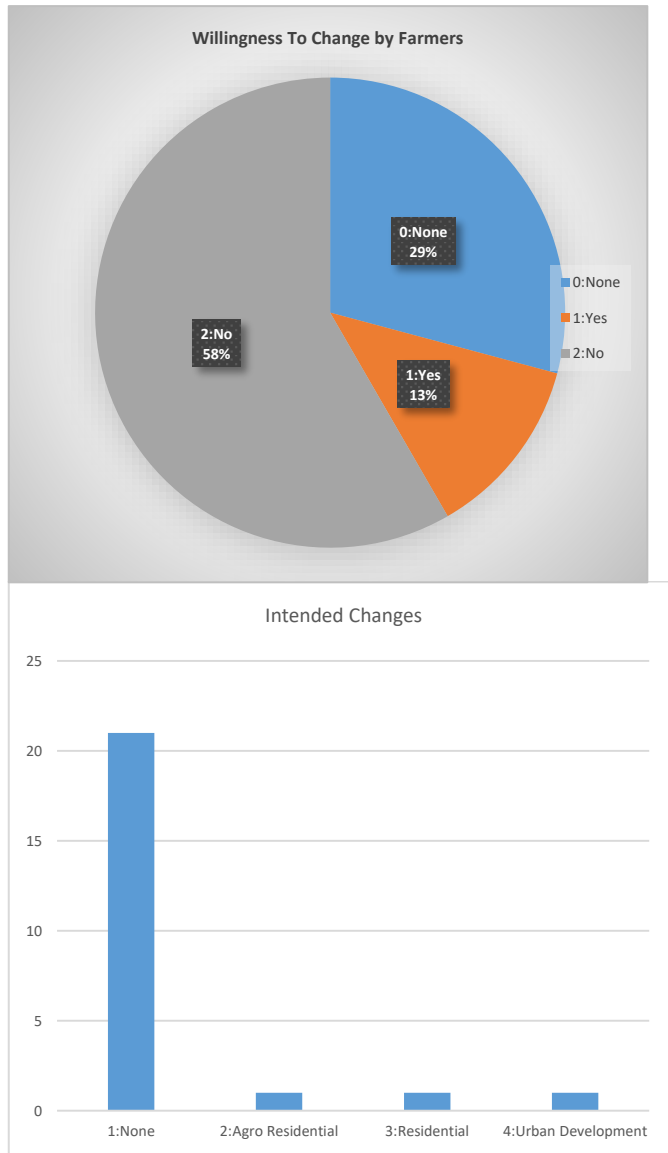


Figure 21: Preferred Use Changes

4.7 Summary of Issues

The following are pertinent issues in Chegutu:

1. Generally the land is developable with few physical constraints,

2. Land for residential development is now limited in the current Municipality Boundary,
3. There is however land available for industrial development and space utilization is low for the CBD;
4. Whilst land outside the Municipality Area is largely developable, owners generally want to maintain the status quo in as far as alternative development is concerned, except for land in the western section of the area which is also adjacent to the expanding high density area.

5 ENVIRONMENTAL ISSUES

5.1 Environmental Issues

An environmental appraisal was undertaken by a specialized environmental team as part of the work to prepare this master plan. The purpose of this chapter is to look at the current operational environmental impacts of the town as well as impacts of future growth. The major impact areas that this report looks into involves the following:

- The Built Environment
- Waste management;
- Illegal sand extraction
- Brick Molding;
- Gold Panning
- Water quality;
- Air quality;
- Biodiversity;
- Land quality, landscape and visual environment;
- Noise; and
- Community and cultural heritage

5.2 The Built Environment

The built environment in Chegutu Town CBD is generally not well developed and lacks aesthetic appeal (See Picture 1). Design of buildings does not offer a coherent and attractive environment in the Town Centre and definitely do not inspire in terms of architectural forms and designs.

Picture 1: Some buildings in the CBD

		
Some buildings along King Street in CBD	Some buildings along King Street in CBD	Some buildings along Queen Street in CBD

In terms of layout, Chegutu town centre follows a grid iron pattern with fairly wide streets

The Town, however lacks a clearly defined focal point and image to make it attractive, with minimum use of street furniture and landscaping to enhance public spaces. The exception is the municipal office area/civic centre (see Picture 2), which is landscaped and whose frontage exudes character. This points to the need to have landscaping activities throughout the town as well as the need control/manage the types of buildings being constructed in the CBD, to make it attractive to shoppers and other users, especially the regional and national traffic/users who ply the Harare-Bulawayo road.

Picture 2: The Civic Centre: An Iconic Building in Chegutu



The Open space in the swimming pool area is largely neglected and evidence points to progressive deterioration of this strategically located facility (See Picture 3).

Picture 3: Aerial View of the Open Space in Chegutu CBD



5.3 Water Quality

Data relating to water quality for Chegutu was obtained from existing data obtained from the municipality. The local authority operates a water treatment plant from which potable water used in the town's residential, industrial and commercial areas is obtained.

5.3.1 Current Status

Potable water quality tests are carried out on the water samples taken at the waterworks. Samples are collected at the following points:

- Raw water inlet into the works
- Filtered water
- Treated water outlet.

No water samples records were available for the distribution network sampling points. It is recommended that with the expansion of the Town more sampling points be established in the distribution network to establish the quality of water being supplied to the residents.

5.4 Wastewater Quality

Treated wastewater samples are collected at the raw sewage inlet and at the treated wastewater outlet and records are kept at the Town Engineer's Department. The treated wastewater quality has improved as evidenced by the move from the Red band to the Yellow band of the EMA SI No 6 (*Effluent and Solid Waste Disposal) Regulations of 2007*. The Environmental issues map attached shows some of the major impacts emanating from the sewage treatment plants. It is recommended that with the expansion of the Town more attention be given to the construction of adequate wastewater treatment facilities. This will prevent overloading of the sewage treatment works which in turn results in poor quality of treated effluent. Currently the treated effluent is discharged into the Mupfure River a practice which should be abandoned with the expansion of the Town.

5.4.1 Current Status

Heroes Pump Station

- This site is a point source pollution site with signs of poor housekeeping
- Sewage screenings were lying around the site posing potential sources of odors and flies
- There were signs of overflow of sewage at the pump station.
- There were complains of odors from the nearby residential areas and the odors could be felt to with 2km radius of the ponds

Chinengundu Ponds

- Showed signs of a stressed maturation ponds
- There is poor housekeeping as evidenced by the sewage screenings lying dry on the sides of the grit channel

Kaguvi Phase 2 Ponds

- Management at this set of Ponds is reasonable compared to all the Ponds in Chegutu
- Sewage overflow is allowed to seep into the ground posing a risk to underground water pollution
- Screenings are buried at the site

Kaguvi Phase 3 Pump station

- The overall management of the site is good.
- There is need to improve handling of sewage screenings as handling facilities are not in place.
- There is need to improve personal Protective equipment at all the sites visited

5.4.2 Wastewater Quality Results

Management Measures for both water and Wastewater Quality

- There is need to develop a proper Water and Wastewater management and monitoring Plan for the Chegutu Town
- Chegutu should also prepare a local Environmental Management Plan (LEAP) in accordance with the requirements of the Environmental management Agency Act 2003 Chapter 20:27 Section 95.
- Wastewater facilities should be designed to handle adequate sewage without overloading the treatment works in view of the proposed expansion

5.5 Air Quality

This section describes the current situation with regards to air quality in the town of Chegutu. It is based on physical observations made during site visits since actual air quality expertise sampling equipment are not readily available locally. This section also describes possible measures that can be put in place to enable Chegutu to manage air quality overall.

5.5.1 Current Status

Observations made around the town indicate that the air quality in the town is generally good. Although there are several activities and sources of potential air quality degradation in the town, they are not at a significant level to be a cause for concern (See Picture 4)

The Bulawayo road passes through the center of Chegutu's CBD and carries high volumes of traffic at peak periods. Exhaust fumes during peak periods result in localized deterioration of air quality to affect people with shops and offices along that section of the town.

Picture 4: A section of the busy Harare -Bulawayo road)



**Note the evidence of exhaust fumes behind the trucks

In residential areas air quality is also fairly good but is sometimes impacted on by dust which is generated mainly from roads. It has been observed that approximately 80% of the roads in the town are unsurfaced and therefore generate dust when used by vehicles.

There are also negligible impacts on local air quality emanating from sources such as waste dumps and sewerage treatment ponds.

5.5.2 Management Measures

In light of the above assessment it is anticipated that the effects of future development on local air quality can be managed by:

- Diverting through-traffic from the town's CBD by creating a by-pass. The by-pass will allow for through traffic to go past the town quicker thereby reducing the concentration of emissions by vehicles.
- Future developments should consider surfacing roads in order to reduce dust generated from traffic movements.
- It is also important to consider landscaping around developments and providing greenbelts in the town to act as a sink for emissions
- Points may need to be set up to regularly monitor the air quality situation in the town. This will enable the town to determine the levels and sources of pollutant emissions in the town in the form of oxides of nitrogen (NO_x), carbon monoxide (CO), hydrocarbons, sulphur dioxide (SO₂) and particulate matter (PM₁₀).

5.6 Waste Management

Waste management practices in the town of Chegutu are similar to those of most towns in Zimbabwe. Domestic waste is mostly collected at homes by means of plastic bins provided for by the local authority. The waste is then routinely

collected from each homes by municipal dump trucks for onward disposal at designated dump sites.

However of late it has been noted that like most local authorities the Chegutu Municipality of Chegutu also faces challenges in providing the waste collection and disposal service with consistency. This has led to residents haphazardly dumping waste in open spaces nearby settlements.

According to the 2015 Service Level Bench Marking of Chegutu the total Waste collected had a weight load of 596 tonnes per month. Commercial waste having 120 tonnes per month, Institutional waste such as schools 10 tonnes per month and other areas 50 tonnes per month.

Total Properties with collection	9196
Those collected twice a week	206
Properties collected once a week	92
Total number of properties with some form of collection	9494
Properties with no collection (due to no activity)	257

Transportation of material using dumper trailers however not appropriate type of transport.

5.6.1 Current Status

The Ameva Dump Site

It should also be noted there is a challenge with the current waste disposal sites that are more of dumps than planned sites. The following aspects were noted during the study:-

- Site covered after 3-4 months of dumping due to financial constraints.
- This presents difficulties in managing nuisances such as odors, flies, disease, vermin and fires.

- Access to dump sites is not controlled thereby leading to the risk of injury to people who scavenge at the dumps.
- Sorting of waste is not done prior to disposal thereby posing another challenge in waste management.
- No boreholes on the site to monitor ground water pollution

Management Measures

Following an evaluation of the current practices with regards to waste management the following measures may be considered for future growth:

- There is need to put in place an integrated waste management policy for the town which is premised on the principles of the waste management hierarchy of :-
 - Minimize/reuse
 - Recovery
 - Recycle
 - Treatment and disposal
- Endeavour to improve the waste management service for the town by being consistent
- Provision of adequate waste management infrastructure i.e. bins/skips and properly designed landfills

5.7 Illegal Sand Extraction

Two key factors drive the need for sand extraction: the current trend of urbanization and the current economic situation. Most people in and around Chegutu are not employed. They earn a living out of Sand extraction. The most affected area is at Ameva Farm close to the current dump site. Most of the san is

being used for construction purposes. Quantities of soils taken sofa could not be ascertained

The infrastructure and construction boom in Chegutu is very likely to persist. According to Global Construction 2025, emerging construction markets will see growth of 3 to 6% per year. The demand for sand extraction will also rise accordingly.

5.8 Brick Moulding

The basic material used for brick is naturally occurring clay. Several sites for informal brick making were observed in Ameva and pose a danger to the environment (deforestation and gully formation) since the activity seems not regulated.

Picture 5: Sand abstraction for brick moulding in Ameva



Picture 6: Informal Moulding Process in Ameva



Picture 7: Firing of Bricks



5.8.1 Environmental Issues from the Informal Brick Moulding Process

In spite of the social and economic importance of this industry hardly any studies have been reported in Chegutu regarding the nature and pollution load faced by brick workers. The problem is compounded by the fact that the pits are surrounded by shack dwellings that houses these Brick Moulders and their families. Generally the following were observed:

- Dust concentration in and around the brick kilns is very high. This dust is injurious to the respiratory health of workers and residents living in the vicinity of brick kilns. The high silica in soil denotes that silica related dust diseases may be also prevalent in the population.
- There is a risk of waterborne diseases as the only source of water identified was that available in the disused pits. This water serves for both domestic and industrial uses.
- Traditional techniques used in brick moulding are thermally inefficient and cause air pollution which contributes to the urban pollution.
- The poor quality of coal results in air pollution and particulate matter. The fuel efficiency also depends on a number of factors such as kiln design and height.
- The soot from the Kilns also damages the inhabitants of the area, plants and trees growing in the vicinity. The Kilns are not able to disperse the pollutants efficiently. As a result the vegetation in the area show stress and stunted growth
- Pollutants due to incomplete combustion of coal are known to adversely affect climate, crops, vegetation properties fertility of soil and the health of workers.
- The quarrying of clay in and around the urban fringe areas not only results in visual degradation of land but also causes a risk to people falling into these dangerous pits.

- An adverse health effect due to thermal stress in the working subjects especially in hot summer months is a distinct possibility.

5.9 Gold Panning

Chegutu is located along the mineral-rich Great Dyke of Zimbabwe. The town is surrounded by once-productive farms with fertile soils and high rainfall patterns. Therefore, two factors (prime agricultural land and minerals) have a bearing on how the local population reacted or rather dealt with loss of jobs following the collapse of productive sectors of the Zimbabwean economy. These factors presented people with constraints as well as opportunities to start their own mining activities. Unfortunately most of the people resorted to gold panning on the farms around Chegutu Farming area. Some panners (commonly known as Makorokoza) specialize in alluvial gold mining, but the majority have mine claims on certain farms around. Cases of illegally prospecting and exploration for gold on private and state land are common practice. Being a sensitive activity, it was not possible to quantify the exact extent of the activity in the area. However we noted the following

- In 2010 the Chegutu Gold rush was reported when a belt of Gold was discovered around the Hintonville suburb in Chegutu. The gold rush was effectively dealt with, resulting in low environmental impacts in the city.

5.10 Biodiversity

Chegutu is a fairly old town that has gone through several developments since its inception. Biodiversity has also gone through modifications as a result of construction and other developments in the town.

Onsite observations have shown that within the CBD, industrial and residential areas the natural vegetation has since been replaced by exotic vegetation. There is a general lack of conservation areas such as parks or gardens in which natural vegetation species could have been preserved. Natural vegetation is also absent on the outskirts of the town owing to deforestation by locals for the purposes of

firewood or creating farming plots. Vegetation has also been lost to illegal pit sand extraction activities around at the periphery of the town.

In terms of fauna, there is not much to refer to as the town is dominated mostly by buildings, roads and associated urban infrastructure which is not suitable to provide habitats. This is an inevitable situation which is consistent with built up areas.

There are however several species of birds which have adjusted to living within the developed areas such as the common pigeon (*Columba livia*) and the common house sparrow (*Passer domesticus* (l)).

Following an evaluation of the current status of biodiversity for the town of Chegutu, the following measures for future growth can be taken into consideration:

- Make provision for the creation of parks, gardens and outdoor spaces where biodiversity conservation can take place.
- Adopt the “Greening the City” concept which encourages the introduction of as much vegetation in and around the town’s spaces.

5.11 Land quality, Landscape and Visual Environment

The landscape quality and visual environment of the planning area was observed by making physical checks around the town’s periphery and open spaces. The objective was to check for signs of general degradation of the landscape and any impingement on the aesthetics of the town.

Current Status

The landscape in the CBD, residential, industrial areas and open spaces was found to be in a fairly good state. The location of Chegutu is generally flat and this has made management of the landscape easy. Most areas do not show signs of land degradation as a result of natural processes or human activities.

There are however incidences of sand abstraction on the outskirts of the town that have left open pits. These may render the land unusable for any other purpose unless otherwise rehabilitated which is a costly exercise.

5.12 Noise

The current Noise levels measurements in the residential areas is within the limits stipulated by the WHO standards.

Types of Noise identified are:

- Noise neighbours
- Pubs and Clubs
- Road traffic noise
- Construction sites

Chegutu council can regulate noise from the above sources using by- laws set by Council.

5.13 Community and cultural heritage

The implications of future development for cultural heritage have been evaluated as part of the environmental appraisal for the project. A baseline survey was undertaken to establish the heritage or cultural features of interest in the town. This was complemented by a desktop study of the cultural heritage of the town.

Current Status

Chegutu does not have much in terms of buildings, structures or sites of cultural or heritage significance. While there may be colonial buildings in the town none have been listed or protected in terms of the country's heritage legislation.

Culturally Chegutu is a multi-ethnic town which is composed of people from different backgrounds. This is against the background that the town drew people to come and work in the once thriving farms and mines on the fringes of the town.

There are therefore no dominant cultural practices as these depend on the origin of a person.

5.14 Summary of Issues (Identification of Hotspots)

The following issues are worthy noting for Chegutu:

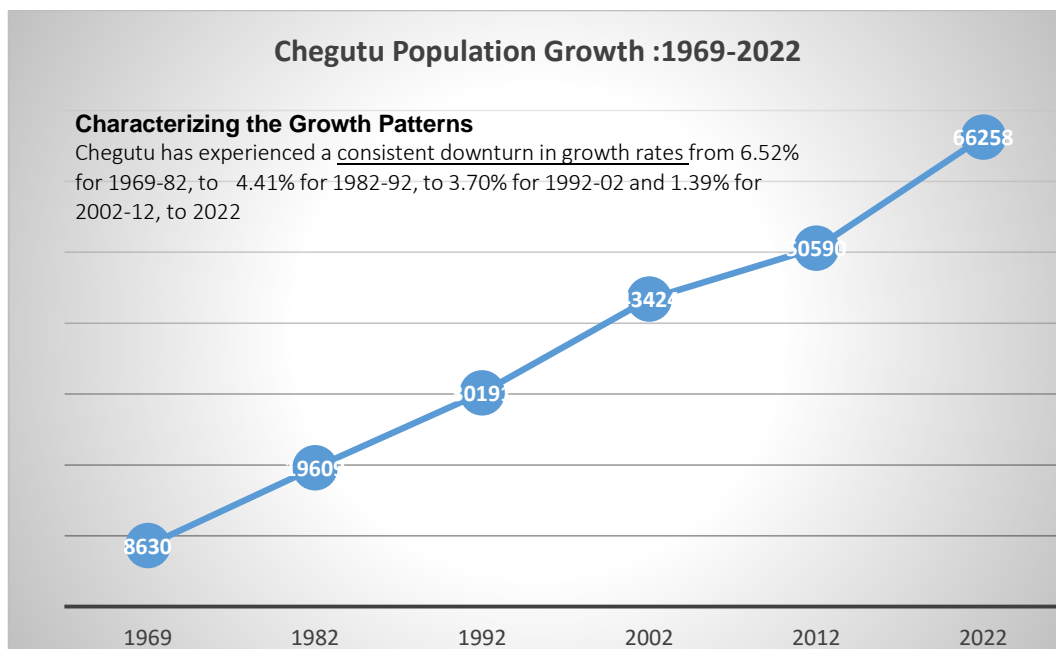
1. There is need to control the built environment and have architecturally appealing structures in the CBD,
2. There is need to consciously green the City and control sand extraction, deforestation and illegal dumping,
3. There is need to equip the waste Management department in Chegutu to enable it to perform its mandate
4. Despite it being an economic activity, there is need to control brick molding in the areas around Chegutu

6 POPULATION AND EMPLOYMENT

6.1 Growth and Size

The 1982 population census recorded 19,621 inhabitants, rising to 30,122 by 1992. The population was estimated at 36,000 in 2002. [CSO] By 2012 it had grown to 50,590 inhabitants. It is critical to note that, whilst the population grew within the stipulated period, the growth rates have been on the decline as shown in Figure 22 below.

Figure 22: Population Growth in Chegutu Municipality since 1969



6.2 Population Distribution By Sex ,Household size , Crude Birth and Death Rates and natural Increase

Table 3 below shows the population distribution pattern by sex for Chegutu in comparison to other urban centres and rural district Councils in Mashonaland West province. It is important to note that there are more females (52.6%) than males in Chegutu (47.4%)

Table 4 shows the crude birth and death and natural increase rates for Chegutu in comparison with other places in Mashonaland West Province .It is important to note that Chegutu has one of the highest natural increase rates (2.5%) in the province, compared to Chegutu Rural which has the lowest natural increase rates (1.9%)

Table 3 show that on the average, the typical household in Chegutu has around 4 people.

Table 3: Population Distribution by Sex in Chegutu 2022

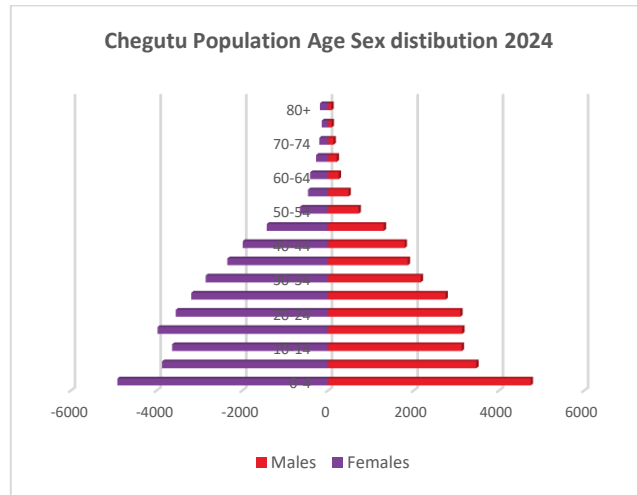
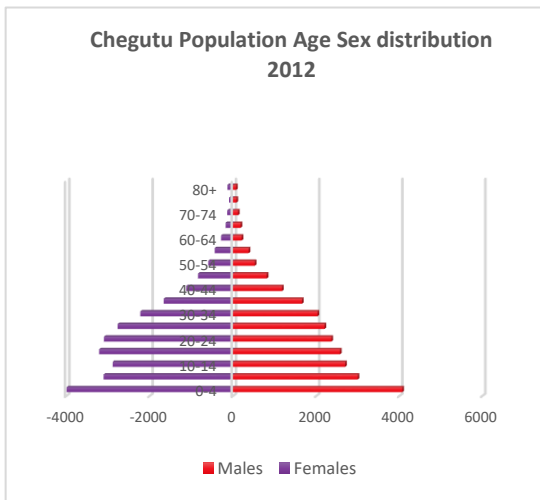
Ward	Population			Total Households	Ave Household Size
	Males	Females	Total		
1	585	503	1088	341	3.2
2	1365	1525	2890	765	3.8
3	3034	3632	6666	1756	3.8
4	1871	2116	3987	1005	4
5	854	845	1699	454	3.7
6	1918	2095	4013	1040	3.9
7	2114	2275	4389	1114	3.9
8	1805	1927	3732	934	4
9	1609	1756	3365	865	3.9
10	2059	2311	4370	1156	3.8
11	3475	4014	7489	2093	3.6
12	10687	11883	22570	5832	3.9
Total	31376	34882	66258	17355	3.8

Source :CSO

Figures 23 and 24 show the population structure for Chegutu (2014 and 2024). In essence, Chegutu has a youthful population , a few elderly people (implying high birth rates and high death rates (See Table). The youthful population implies more demand for schools, employment opportunities and related services.

Figure 23: Population structure 2014

Figure 24: Population Structure 2024



Source: CSO

Table 4: Crude Birth, and Death rates and Natural Increase Rates for Chegutu compared to other centres in Mashonaland Province

District	Crude Birth Rate (per 1000)	Crude Death Rate (per 1000)	Rate of Natural Increase (percent)
Chegutu Rural	30.2	11.6	1.9
Hurungwe	34.8	11.6	2.3
MhondoroNgezi	33.2	10.6	2.3
Kariba Rural	34.2	9.8	2.4
Makonde	34.8	10.7	2.4
Zvimba	34.2	11.1	2.3
Sanyati	36.0	11.2	2.5
Chinhoyi	34.4	8.5	2.6
Kadoma	34.3	9.8	2.4
Chegutu	36.1	10.6	2.5
Kariba	33.6	8.8	2.5
Norton	31.3	7.1	2.4
Karoi	37.3	9.4	2.8
Total	34.0	10.7	2.3

Source: CSO

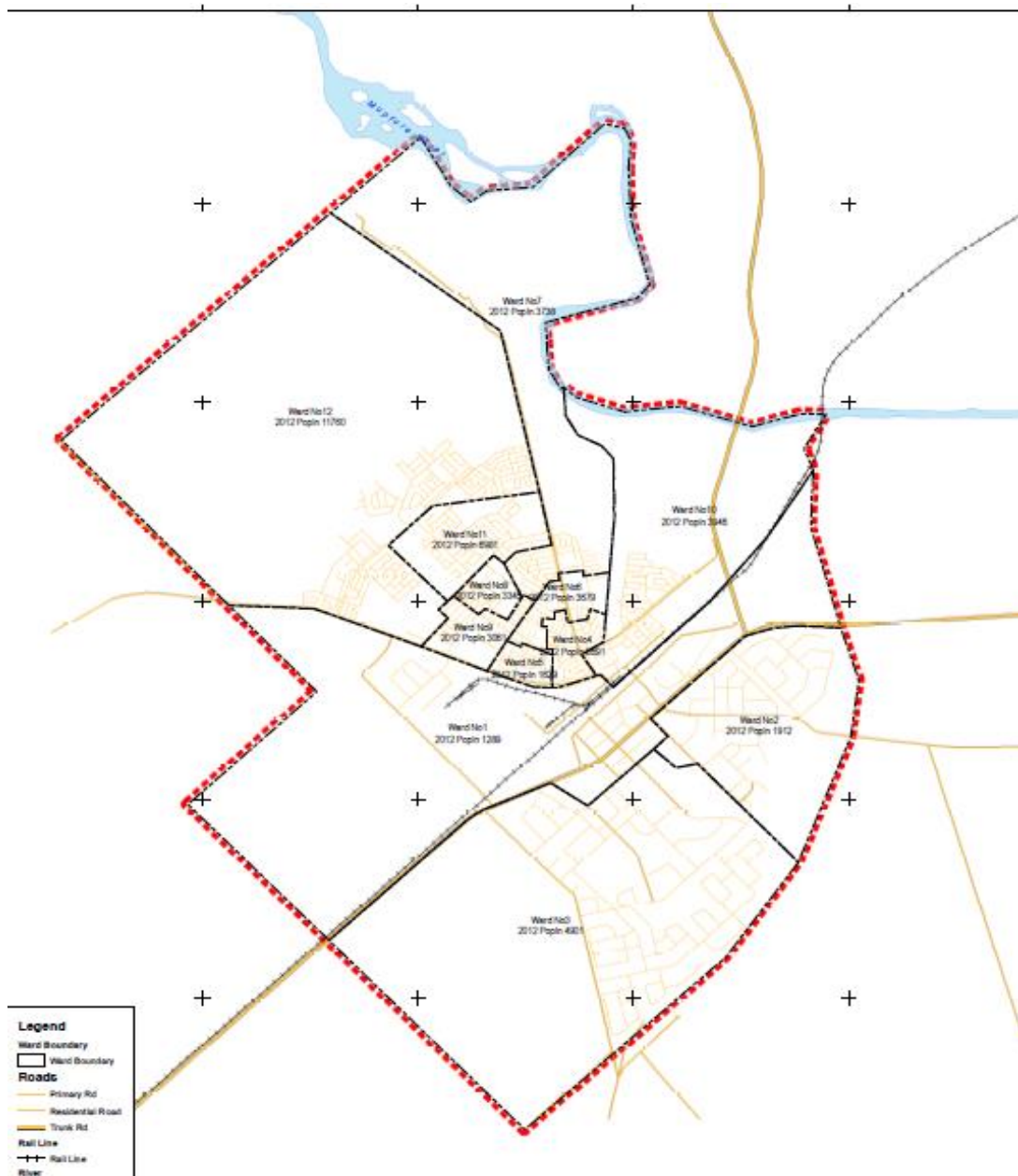
Table 5: Population distribution by Households and Household size

District	Population	Average Household Size	Total	% Total
Chegutu Rural	150373	4.2	35701	10.3
Hurungwe	324210	4.6	70049	20.3
MhondoroNgezi	100622	4.3	23451	6.8
Kariba Rural	40923	4.3	9526	2.8
Makonde	151707	4.6	32747	9.5
Zvimba	261518	4.2	62764	18.2
Sanyati	112798	4.5	25152	7.3
Chinhoyi	75588	4	18673	5.4
Kadoma	91729	3.9	23336	6.8
Chegutu	66258	3.9	12801	3.7
Kariba	25892	3.8	6880	2
Norton	67427	4	16649	4.8
Karoi	28321	3.8	7494	2.2
Total	1481643	4.3	345223	100

6.3 Population Distribution

The majority of the population in Chegutu resides in the western part of the municipal areas (mainly the high density) areas as shown on Figure 25. This has implications on infrastructure demand as well as demand for social services like health and educational facilities.

Figure 25: Population Distribution by Wards in Chegutu



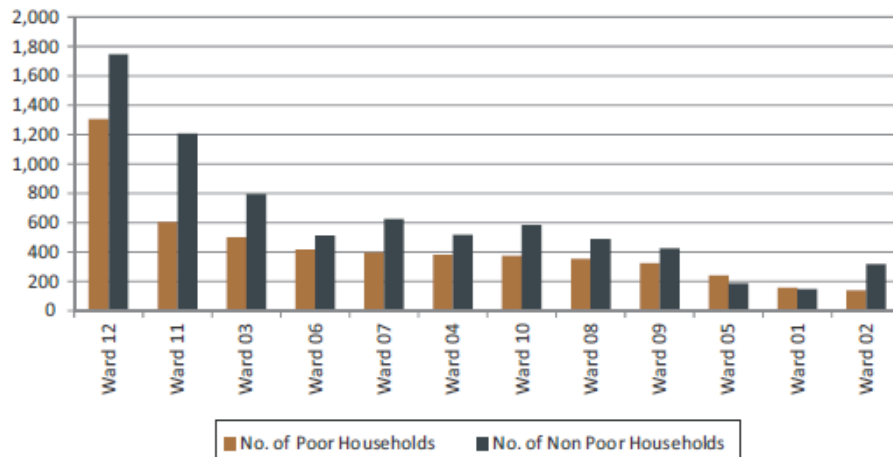
Source: Gauff Ingenieure

6.4 Welfare and Incidence of Poverty among Chegutu Population

An effort was made to characterise the welfare of Chegutu population using the Zimbabwe Poverty Atlas (2015). The metric used to define poverty combines, Income Consumption and Expenditure and can be used to assess the general welfare of population in a given area. Figures 24 and 25 summarise the key

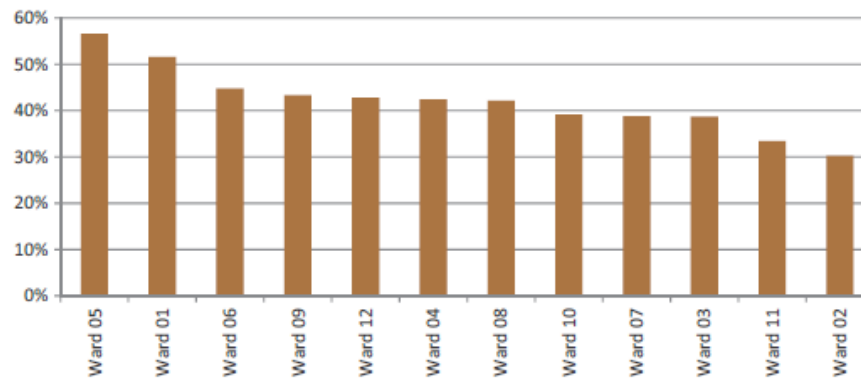
aspects of spatial incidence of poverty by wards. Ward 5 had the highest poverty prevalence (57%), whilst ward 2 had the lowest prevalence of 30%.

Figure 26: Chegutu Municipality (Number of poor and Non Poor Households by Ward)



Source: GOZ ZNSA

Figure 27: Chegutu Municipality (Poverty Incidence by ward)



Source: GOZ ZNSA

6.5 Employment

In the past, development in Chegutu has been driven by the establishment of Textile industries (David Whitehead being the largest employer in Chegutu)

(Chegutu Master Plan Report of Study 1997), the operations of Agro processing industries like Olivine/Unilever and the discovery and establishment of platinum mining operations at Hartley Platinum Mine in Makwiro.

Other mining activities like Platinum mining at Ngezi and several gold mines around Chegutu continue to influence growth and demand for goods and services in Chegutu. These developments have also influenced population growth and movement into Chegutu, with the reports of Household surveys (Chegutu Master Plan Report of Study 1997) indicating that 30.8% people moved into Chegutu after 1990, compared to 23.8% who migrated to the town between 1980 and 1989.

With the introduction of Economic Structural Adjustments Programmes in the mid-90s, several companies scaled down their operations or closed down, leading to high levels of unemployment in the formal sector, the emergence of Small Scale Enterprises (SMEs) and low disposable incomes among the resident population.

From the studies carried out during the current master plan preparation process, the following sectors were established as the major formal employment sectors in Chegutu:

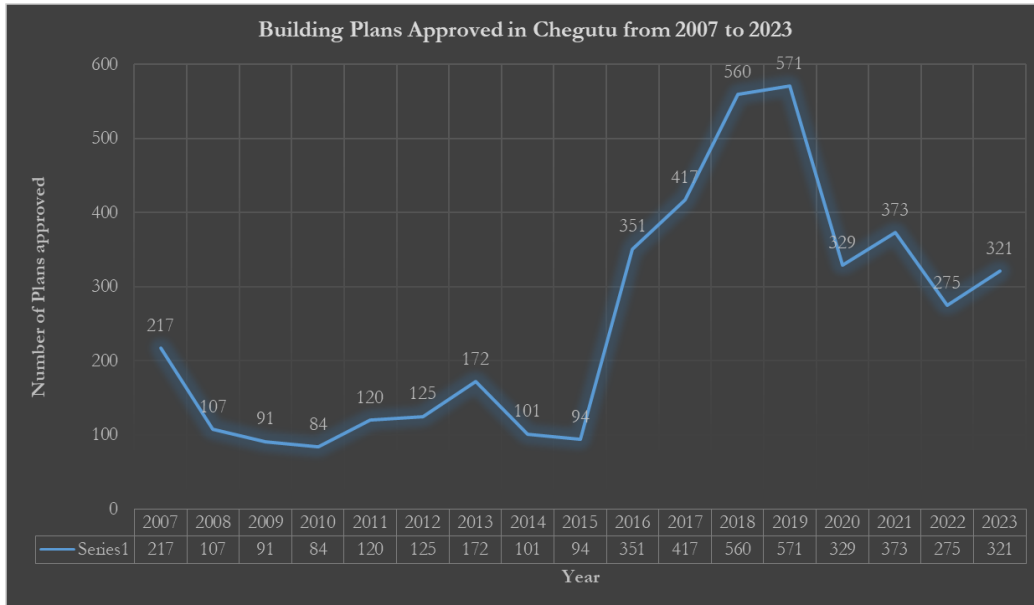
- Central Government and the Municipality,
- The commercial sector
- Service industry
- ZIMPLATS

6.6 General Development Issues

In order to assess the development dynamics in Chegutu, an assessment was made into the development trends in the real estate sector, it being a key indicator of the vibrancy of the sectoral activities. Specifically the study examined the number of building plans approved by Council as a key indicator and Figure

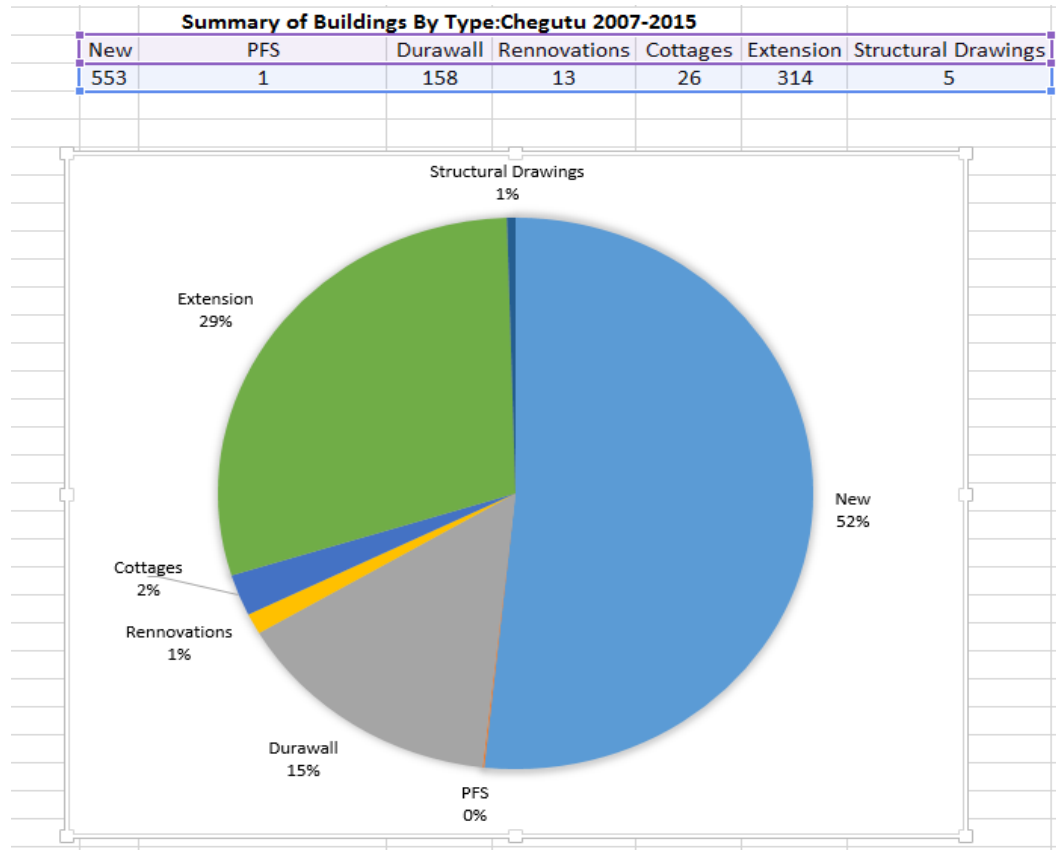
28 summarizes the key findings. Generally there has been a decline in the number of plans approved by Council.

Figure 28: Building Plan Approvals in Chegutu 2007-2015



An effort was made to characterize the type of building plans approved in order to ascertain the real type of activity in the real estate sector in Chegutu. Figure 29 shows that new buildings (residential) constitute the majority (52%), with residential extensions (29%) and durawalls (15%) being prominent as well.

Figure 29: Summary of Building Plan Types approved in Chegutu 2007-2015



4.7 Summary of Issues

The following aspects are worthy noting under this section;

1. Population in Chegutu is growing but at a reduced rate
2. Generally disposable incomes are low (50% of households earning <\$400,00per month) and incidence of poverty is higher among the households in the high density areas,
3. The public and Council sector currently dominates employment in the formal sector with retailing and service industry and SMEs being a major source of employment as well,
4. Generally there has been a decline in investment in the real estate sector, with much activity being confined to residential development

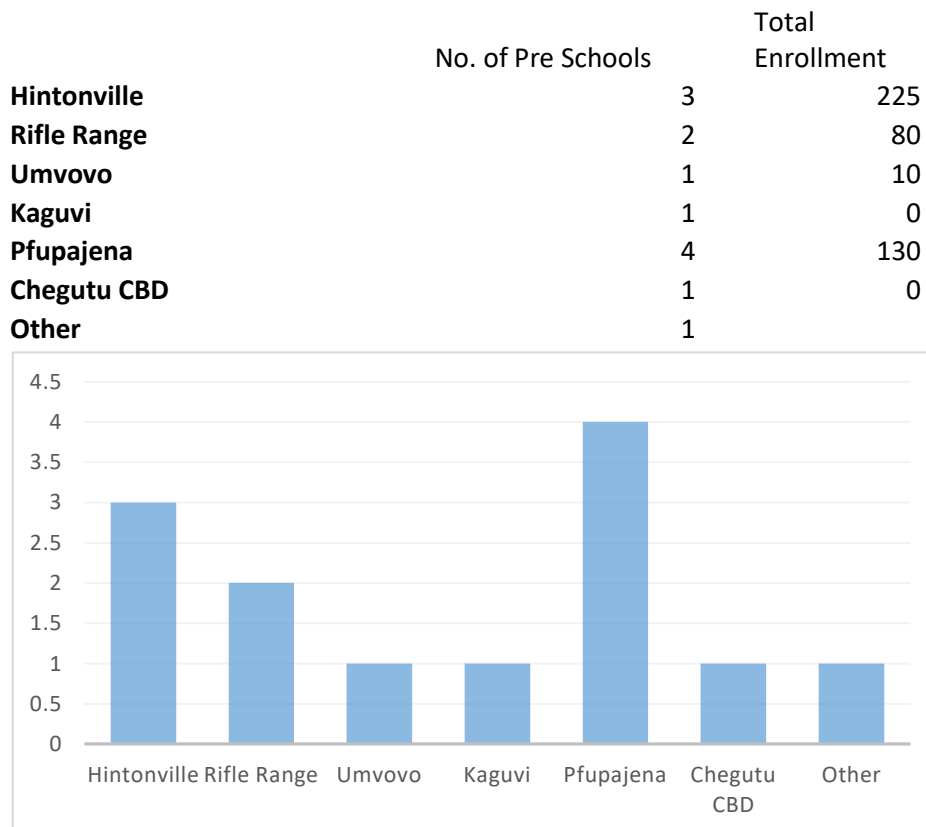
7 SOCIAL SERVICES

7.1 Educational Facilities

7.1.1 Preschools

The study established 13 preschool facilities whose distribution is shown on 30 figure below

Figure 30: Preschool facilities in Chegutu



7.1.2 Primary and Secondary Schools

There are nine primary schools in Chegutu: David Whitehead Primary School, Hartley Number 1 School, Chinengundu Primary School, Chegutu Primary School, Kaguvi Primary School, Pfupajena Primary School, Our Lady of Sorrow Primary School, Hartely 2 Primary School, and St Francis Primary School; and four secondary schools offering up to advanced level: St Francis High School, Pfupajena High School, Adventist High School, and Chegutu High School.

Most of the schools are government owned. The local municipality owns 2 primary schools; 3 schools are owned by the Catholic Church, St Francis Primary and Secondary owned by the Archdiocese of Harare and Our Lady owned by the Catholic nuns of the order Our Lady of Sorrow. The Methodist Church in Zimbabwe owns one primary school, Chegutu Primary; and the Seventh-day Adventist Church owns one secondary school. There are also a number of privately owned colleges offering primary and secondary education but some are registered and some are yet to be registered.

Figures 31 and 32 show enrolment scenarios for both primary and secondary schools in Chegutu in 2016

Figure 31: Primary School enrolment in Chegutu (2016)

Grade 1		Grade 2		Grade 3		Grade 4		Grade 5		Grade 6		Grade 7	
Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
716	662	641	633	582	593	584	545	602	629	605	664	595	645

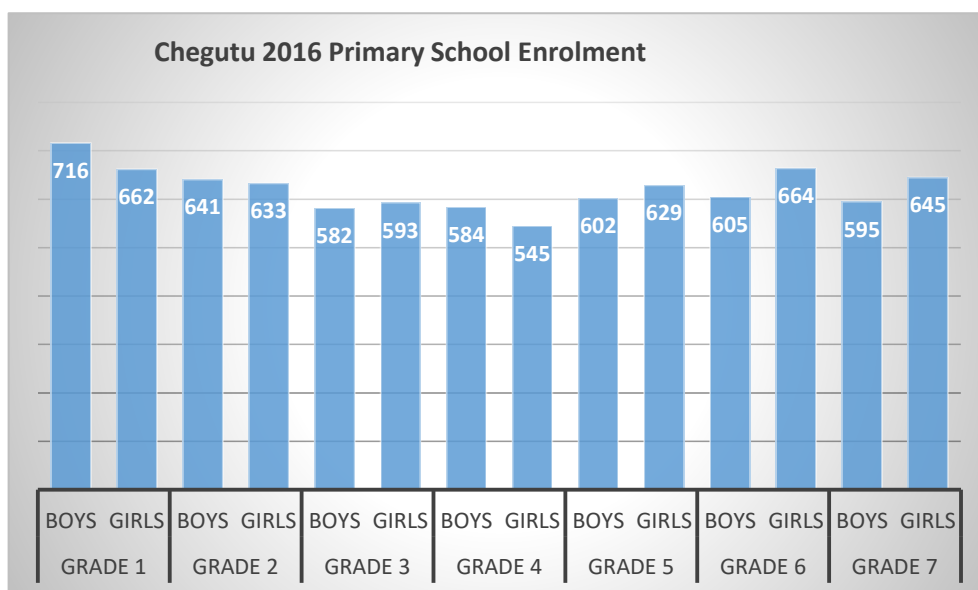
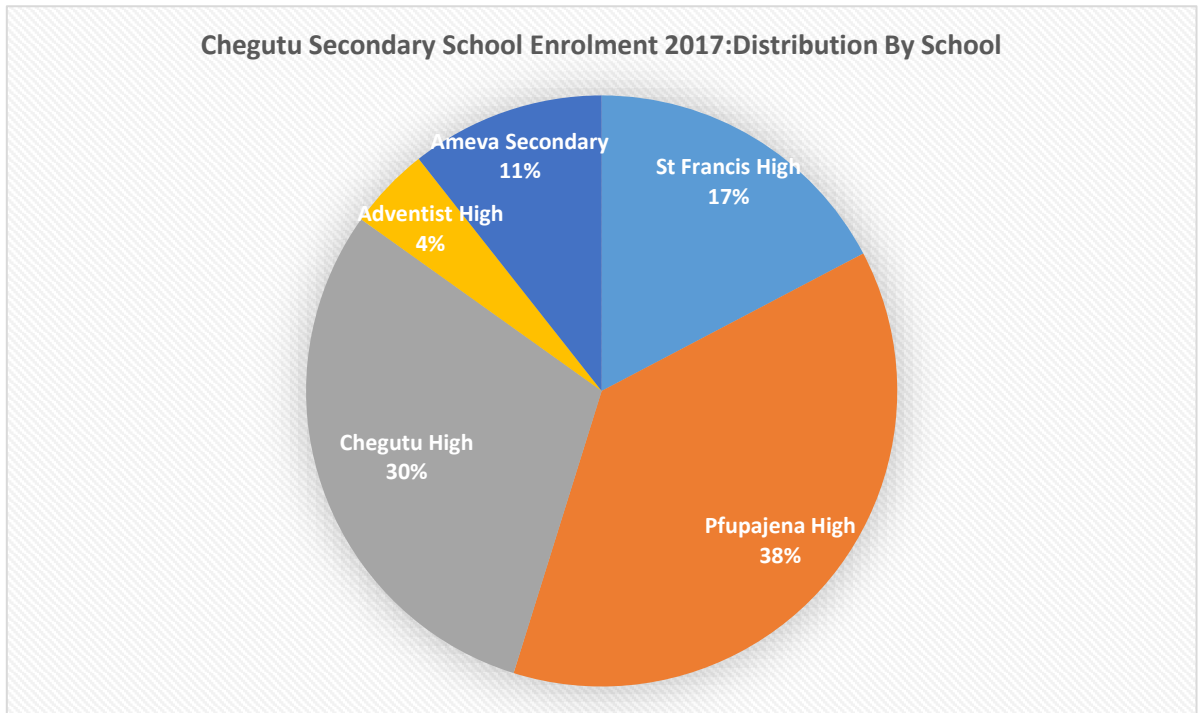


Figure 32: Secondary School Enrolment in Chegutu 2016

Enrolment Summary 2016 Chegutu Secondary Schools

St Francis High	Pfupajena High	Chegutu High	Adventist High	Ameva Secondary
767	1663	1332	200	471



7.2 Distribution of Schools in Chegutu

Map shows the spatial distribution of school facilities in Chegutu, with most of them being located in the western side of the main Harare-Bulawayo road, mainly in the high density areas

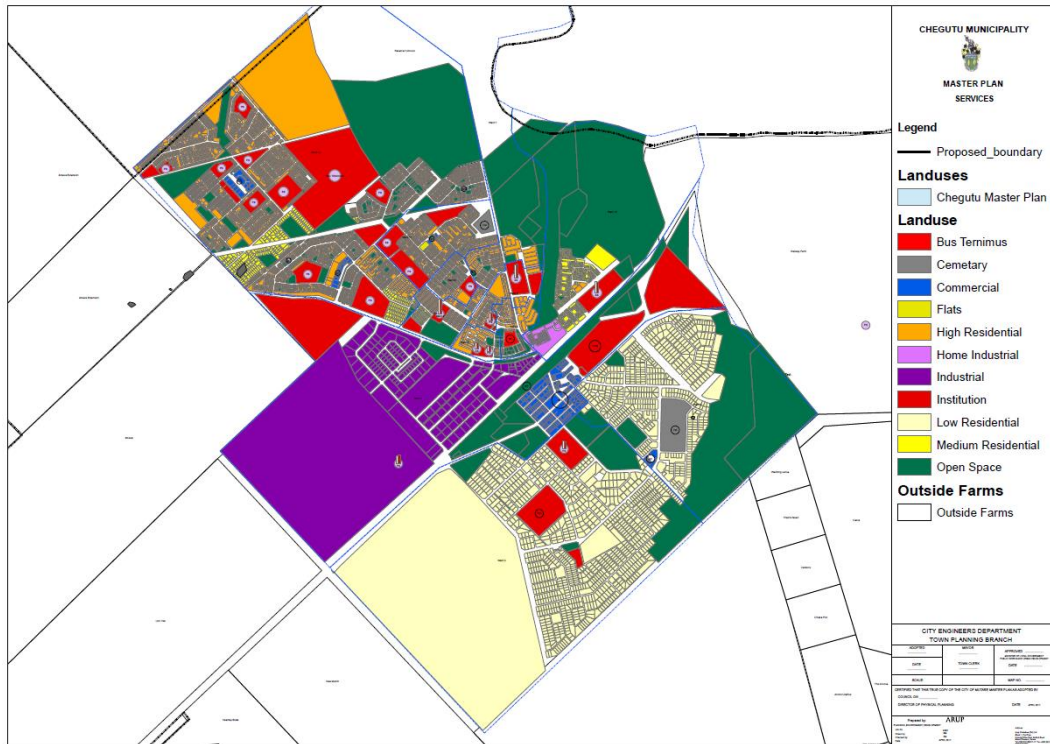


Figure 33: Schools Distribution in Chegutu

7.3 Access to Education Facilities by Farming Area Communities

Figures 34-37 show the popular school destinations of students in the rural areas surrounding Chegutu and the travelling distances to access such facilities and the mode of transport.

Figure 34: Primary school Destinations for students in the peri-urban areas in Chegutu

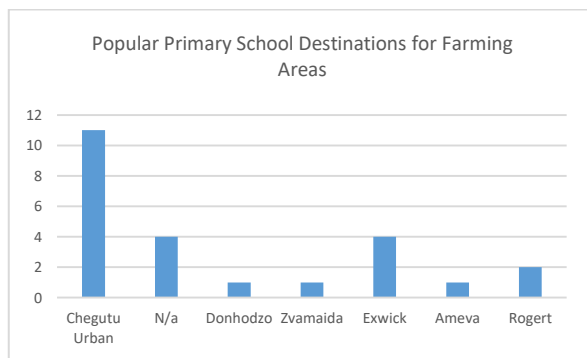
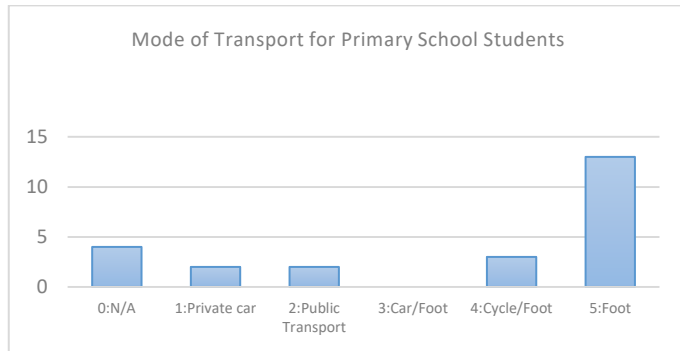


Figure 35: Mode of transport for students in peri-urban areas (Primary schools)



The average distance travelled for by Primary School students in the farming area to the nearest school is 4.1 km.

Figure 36: Popular secondary schools for students in peri-urban areas

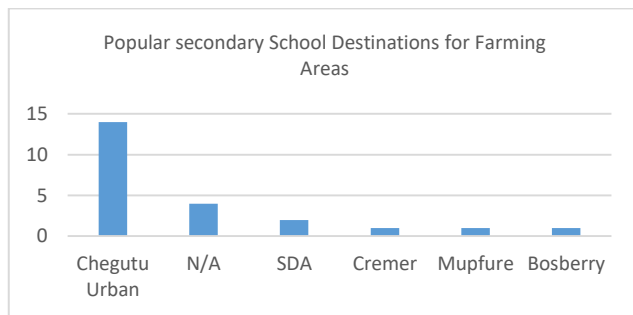
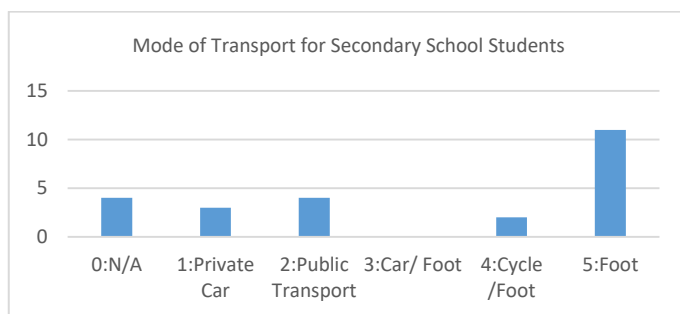


Figure 37: The mode of transport for secondary school students in peri-urban Chegutu



The average distance travelled by secondary school students to the nearest school is about 4 km.

7.4 Health Services

Table 6 summarizes the number of health facilities as well as related facilities in Chegutu.

Table 6: Health and related facilities in Chegutu

INSTITUTION	Owner	Area
Clinic	Council	1 Pfupajena
Clinic	Council	1 Heroes
Cemetery	Council	1 Kaguvi Phase 1
Cemetery	Council	1 Rifle Range Ext
Public Toilets	Council	1 Town Centre
Public Toilets	Council	2 Town Terminus
Public Toilets	Council	1 Chegutu
Public Toilets	Council	1 OK_TM Rank
Chegutu Hospital	Government	1 Town Area

7.5 The Importance of Proper Health facilities in Chegutu

Cholera outbreak in 2008 and 2009 claimed 248 lives and 700 cholera cases were recorded in Chegutu town. In 2012, 280 cases of typhoid were recorded, while in 2013, 60 cases of typhoid and one case of cholera were recorded (Chegutu Hospital Health Information Office, 2009). In 2018 cases of cholera occurred again in Chegutu thus confirming the importance of proper health services and facilities in the town.

Pictures ...confirm case of cholera outbreak as reported in Chegutu in 2018

Picture 8: Attending to Cholera Cases at Chinengundu Clinic 2018



An official of Doctors Without Borders (DWB) works at a cholera command center at Chinengundu Clinic in Chegutu town, 100 km west of Harare, capital of Zimbabwe, on Jan. 22, 2018. Zimbabwe is on high alert following a cholera outbreak in Chegutu town that has killed four people and 32 other cases reported, Health and Child Care Minister David Parirenyatwa said on Monday. (Xinhua/Shawn Jusa)

Picture 9: Training nurses on how to treat cholera at Chinengundu Clinic 2018



Nurses are trained the basics of how to treat cholera at a cholera command center at Chinengundu Clinic in Chegutu town, 100 km west of Harare, capital of Zimbabwe, on Jan. 22, 2018. Zimbabwe is on high alert following a cholera outbreak in Chegutu town that has killed four people and 32 other cases reported, Health and Child Care Minister David Parirenyatwa said on



A worker washes his hands at a cholera command center at Chinengundu Clinic in Chegutu town, 100 km west of Harare, capital of Zimbabwe, on Jan. 22, 2018. Zimbabwe is on high alert following a cholera outbreak in Chegutu town that has killed four people and 32 other cases reported. Health and Child Care Minister David Parirenyabwa said on Monday. (Xinhua/Shan)

7.1 Other Community Facilities

In terms social amenities specifically community halls, fire and emergency services station, recreational parks and sports grounds, Chegutu has a huge deficit. While other areas have sites earmarked for social amenities, there development and maintenance of such facilities is still very low.

There is only 1 community hall in Chegutu, an old high density suburb for the town with none in the CBD which would function as a multipurpose auditorium. Furthermore there are no community centres where various groups can gather for different activities. The existing municipal library at Pfupajena is non-functional and was at one point converted to other uses due to underutilization as a result of its location and limited resources. . Provision of vocational training and youth empowerment centres is also on the lower sides with sites yet to be developed.

Chegutu is vested with various sporting talents but lacks the infrastructure for same as the available sports and recreation, community sports grounds and multipurpose courts cannot save the entire population. There are two main sports fields. One being Chegutu Pfupajena stadium being prepared for Premier Soccer League games. The other is ground two on the same site which is on a dire state. The multipurpose court that were there at some point near Pfupajena Stadium are now non-existent due to deterioration. Provision has been made for a swimming bath and recreational park within the CBD along Queen street. This site has been desolate for long due to limited investment in the

area. However, Chegutu Municipality is making frantic efforts to resuscitate the site and make it a world class park with children play centres and other relaxation facilities.

Chegutu Municipality also has a fully functional fire and emergency services station which is servicing the town and its surrounding areas. The fire station is relatively equipped with machinery which has been recently acquired which include a fire tender and ambulances.

Generally, regarding commercial, health, recreation, education and community development facilities and services the residents of the municipality are not well serviced in both public and private facilities. The current facilities are inadequate for current population and the anticipated population growth in most areas. The key areas that anticipate an increase in facilities is in the area of child care, primary and secondary education, healthcare, social housing and recreation. There will be a need to consider opportunities to encourage both a diversity of housing and innovation in the supply of housing to cater for the special needs of the disadvantaged. Monitoring the population projections in the residential areas will ensure the growth in facilities anticipates the growth in population. The following facilities are currently offered in the Municipality. The table shows the number of facilities currently available and the number that will be required to service the population in 2034. The Municipality, on a regular basis, should undertake an assessment of the provision of community services, for a projected population base, against recognised town planning standards.

Table 7 Community facilities in Chegutu Municipality

Facility	Desired Ratio provision	Current provision	Desired	Gap
Activity Centres		2019	2034	2034
District Centre	1:25000-50000 persons	2	3	1
Neighborhood /Local Shopping Centre	1:3500-6000 persons	9	15	6
Social Housing				

Special groups/disabled/ Ageing	10%	2.5%	10%	6.5%
Nursing Home	55 beds : 1000 of 70+ years			
Health facilities				
Hospital	1.6 beds:1000 persons			
Health and medical centres	1:3000	9	30	21
Care facilities				
Aged People's homes	1:2000 70+ years	1	1	0
Community Care	1:10000-20000	0	5	5
Family Care	1:80000	0	1	1
Child care centres	300 places:1000 (0-4 years)	0		
Education				
Kindergarten	1:4000-6000	0	15	15
ECD	1:4000-6000	14	15	1
Primary Schools	1:1500-1800 households	9	16	7
Secondary Schools	1:4-5 primary schools	4	8	4
Recreation				
Youth centre	1:10000-20000	0	6	6
Community hall	1:10000-20000	1	6	5
Aquatic Centre	1:80000	0	1	1

Recreational Parks	1:10000	1	6	5
Other facilities				
Fire and rescue service	1:50000	1	1	0
Police station	1:55000	2	3	1
Ambulance station	1:100000	0	1	1
Civil Protection agency	1: local authority	1	1	0
Library	1:20000	1	6	5

7.1 Gender and People Living with Disabilities

Chegutu Municipality is alive to the issues of gender, people living with disabilities and climate change. Chegutu Municipality intends to take up the challenge to make our town responsive to the needs and priorities of women and men, girls and boys. To show this commitment, a Gender focal person has been appointed to deal with issues relating to gender and people living with disabilities. On the one hand, urban planning assumptions about communities and how people interact with cities to a large extent do not take into account existing evidence showing that women and men use urban services, access urban environments, and are impacted upon by cities differently. As a result, urban planning policies and programmes have been found wanting in tackling the needs of women and girls in most cases. The Master Plan endeavours to unpack the link between urban planning, poverty reduction, economic empowerment of women, and ending violence against women. Chegutu Municipality Master plan therefore attempts to increase awareness of gender issues in urban planning theory and practice. It is a contribution towards bridging the gender gap in urban planning policies, programmes, tools, guidelines and approaches.

7.2 Summary of Issues

1. Due to expansion of residential development in Chegutu, there is need for additional primary and secondary schools especially in the high density areas,

2. Students in the farming areas travel long distances on foot to access educational facilities

3. There is evidence of stress on health facilities in Chegutu and hence need for functional and well equipped clinics in the town

8 INFRASTRUCTURE

8.1 Introduction and Background

Table 7 below shows the general land use in the town is domestic, institutional, commercial and industrial. There are 12 wards in CTC with the population estimated to be 66 258 people.

Table 8: Chegutu Town Property Breakdown per Suburb/Area 2023 (Source Chegutu Town Council, 2016)

Name of area	Total	High Density Stands	Medium Density Stands	Low Density Stands	Commercial Stands	Industrial Stands	Institutional Stands
Chegutu	1262	1237	0	0	13	0	12
Pfupajena	1506	1485			12		9
Chinengundu (ZMDC/HEROES)	1178	1136			18	8	16
Kaguvi (Umvovo/DRC/FORIT/MATAKA)	4014	3947			37	12	18
Town (CBD/Hintonville/Hartely Hills)	1537	0		1329	180		28
Riffle Range	161	0		161			
Durawall	164	0				163	1
Industry	62	0				61	1
Industrial Ext	30	0				30	
Total	9914	7805	0	1490	260	274	85

Table 9: Population by Ward (Source –Central Statics Office, 2022)

Ward	Area Coverage (m²)	Population
1	8,670,175.13	1, 088
2	2,745,891.61	2,890
3	8,754,350.25	6,666
4	284,067.32	3,987
5	191,316.57	1,699
6	357,466.24	4,013
7	5,056,614.94	4,389
8	233,129.35	3,732
9	404,762.08	3,365
10	3,572,421.82	4,370
11	914,368.22	7,489
12	10,876,451.95	22,570
Total	42,061,015.49	66,258

8.2 Infrastructure Investigated

2016. The investigation of Water and sanitation infrastructure was investigated over the period 19 to 24 September 2016.

8.2.1 Water Infrastructure

The aspects of water infrastructure investigated are listed below:

1. Raw water abstraction points
2. Water Treatment Facilities
3. Bulk Water Supply
4. Potable Water Reservoirs (Storage)
5. Water Reticulation – As built drawings.

8.2.2 Sewerage Infrastructure

The aspects of sewerage infrastructure investigated are listed below:

1. Sewerage Reticulation – As built drawings
2. Sewer Pump Stations
3. Sewer Treatment Plants

8.3 Method of Study

8.3.1 Desk study of previous reports

1. Volume 1 : Investment Plan Report - Chegutu, (Gauff Ingenieure, World Bank, 2014)
2. Volume 2 : Investment Plan Report - Chegutu, (Gauff Ingenieure, World Bank, 2014)

3. 2015 SLB Questionnaires, Chegutu - 2016 Reviews 08 September 16, SLB Supporting Information Template, (Chegutu Town Council, 2016)
4. Technical manuals and guidelines for infrastructure projects - Water Reticulation Treatment Storage Manual 4, (Swedish Association of Local Authorities, SALA, 1990)
5. Guidelines for human settlement planning and design, (CSIR, 2000)
6. As-built AutoCAD Drawing water and sewer reticulation layouts (received from CTC on 22 September 2016)

8.3.2 Site investigations

ARUP conducted reconnaissance visits to the neighbouring farms during the period 19 to 24 September 2016, and data pertaining to soil type, land use, terrain and accessibility to water and sanitation facilities was collected. A summary of the information collected is attached in Appendix B

Similarly Arup visited the existing water and sanitation infrastructure (with the exception of reticulations) to determine the current state of operation. This is discussed in the next chapters.

After site investigations were completed, the data obtained was compiled using Geographic Information Systems (GIS) and analysed.

8.3.3 Geographic Information System

The Arup engineers modelled the existing infrastructure as captured in their site visit in ArcGIS. Other data from the sources discussed in section 1.3 above was geo-referenced to analyse the existing infrastructure.

ArcGIS was used to determine possible sites for water storage reservoirs and for sewage treatment works by first identifying catchments and then secondly analysing the drainage patterns.

9 Existing Water Infrastructure

9.1 Raw Water Abstraction

CTC has two raw water abstraction plants namely Dziva and Mupfure. Both plants abstract raw water from Mupfure River, a perennial water source.

The Arup team visited both the raw water abstraction plant sites along Mupfure River, but they were not able to gain access into the facilities as the water bailiffs were not available onsite at the time of the site visit. Therefore the figures employed for analysis are from the reports availed.

9.1.1 Mupfure Raw Water Abstraction Plant

Mupfure raw water abstraction plant was non-operational at the time of site visit and is reportedly currently out of use.

The plant abstracts raw water off a weir along Mupfure River, approximately 4 km from Chegutu. This raw water abstraction plant is downstream of Dziva raw water abstraction plant

Two AC pipelines diameter 300mm and 225mm deliver raw water to Chegutu Water Treatment Plant (WTP).



Picture 10: Mupfure Raw Water Abstraction Plant

9.1.2 Dziva “Dam” Raw Water Abstraction Plant

Dziva dam raw water abstraction point is located along Mupfure River some 15km from Chegutu town. The raw water is pumped via a 750mm diameter AC pipe and stored in Clifton dam an off-river storage dam with capacity of 11,000MI.

From the dam, the raw water gravitates via 500mm steel pipe to a pumping station located approx. 1km from the dam, from where it is pumped to Chegutu Water Treatment Plant via a 500mm diameter GRP pipe.

No raw water measuring equipment was observed. Similarly, no readings were available. Volume 2: Investment Plan Report (2013) reports that ultra-sonic flow meters are installed but none are functional.

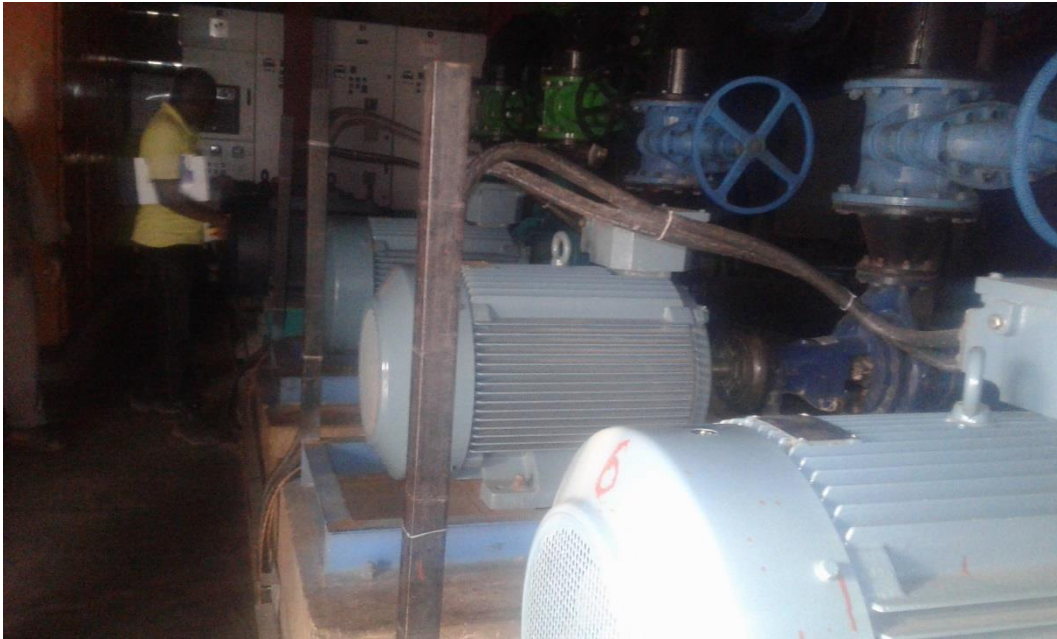
The pump station at Clifton is operating below its design capacity although it was reported by the bailiff present that recent upgrades had been made.



Picture 11: *Clifton Dam*



Picture 12: *Clifton Pump station*



Picture 13: Clifton Pump room

Table 10: Current State of Infrastructure (Vol 2: Investment Plan Report – Chegutu 2013)

Name	Detail	Design Capacity (m ³ /hr)	Comment
Dziva Raw Water Abstraction	Operational. Raw water supplied to Clifton dam	2,880	Pump station operated by ZINWA, approx. 15 km from Chegutu
Mupfure Raw Water Abstraction	Non-Operational due to reportedly inferior water quality	500	No flow meter. Approx. 4 km from Chegutu

9.2 Water Treatment Plant

The schematic flowchart below highlights the treatment process occurring at the Chegutu treatment plant.

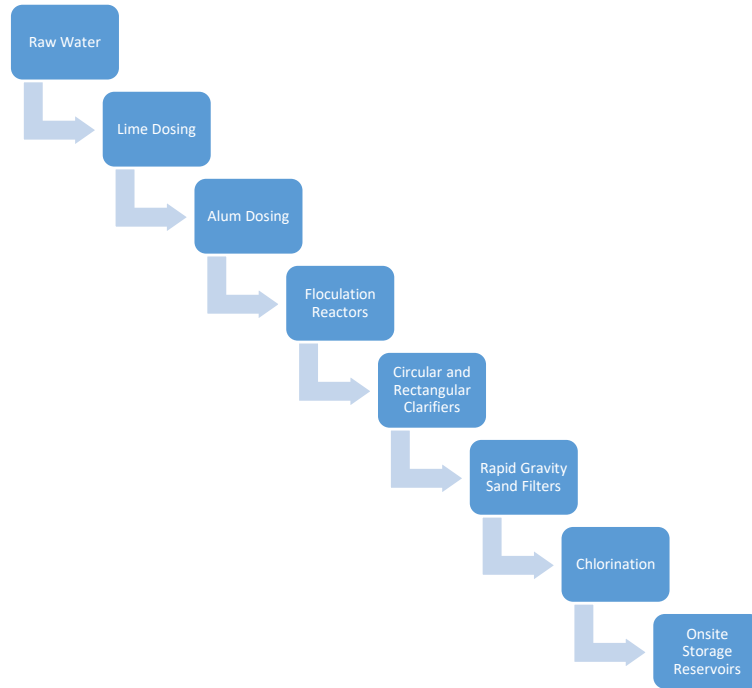


Figure 38: Chegutu Treatment Plant Flow Chart

The treatment plant is reported to be operating below its nominal design capacity of 12,000m³/d. The tables below outlines the various existing infrastructure component of Chegutu WTP.



Picture 14: *WTP Circular Clarifiers*



Picture 15: *Sand filters needing sand replenishment*

Table 11: Chegutu Water Treatment Plant

Item	Design	Existing	Comment
Capacity	12,000m ³ /d	8,000m ³ /d	Current production below design capacity, refer Table 6
Lime dosing house	Not Determined	None	Water pH values reported to be within acceptable recommended limits, however equipment not operational, damaged.
Alum dosing house	3,000l	1500l	Fibre glass tanks of equal capacity. However only one is operational currently

Table 12: Chegutu Treatment Plant Components

Item	Detail	Comment
Lime dosing house	Non-functional, mechanical hopper machine was old and removed.	Water pH values reported to be within acceptable recommended limits
Alum dosing house	2 X fibre glass tank	Fibre glass tanks of equal capacity. However only one is operational currently
Flocculation reactors	4 No	

Rectangular Clarifiers (Sedimentation) tanks	2 No	Upward flow sludge blanket
Circular Clarifiers (Sedimentation) tanks	6 No.	Upward flow sludge blanket. Decanting asbestos troughs worn out
Rapid gravity sand filters	6 No	Status of lower gravel layer requires investigation. Sand blanket requires to be replenished
Potable water storage reservoirs	2 ground reservoirs	General maintenance required around these



Picture 16: Sand collection from sand filters

The existing Chegutu WTP is not meeting the current water demand as per Arup calculation (see the next chapter). The treatment plant requires upgrading at the current water demand figures.

9.3 Water Distribution

9.3.1 Existing Water Demand

To determine the water requirements of the major consumers, recorded consumption figures from the World Bank report of 2013 were assessed. This figure was compared with the billed quantity from SLB report figures provided by Chegutu Town.

For the purposes of analysis, the reported potable water figures produced and consumed in 2013, 2014 and 2015 were studied. Average annual daily water demand (AADWD) was also estimated using “Technical manuals and guidelines for Infrastructure Projects SALA Manual 4, 1990”.

Notably the transmission losses were reported to be 40% in 2013 (Vol 1: Investment Plan Report – Chegutu, 2014) however the SLB report of 2016 records losses of 25% for the year 2015. These losses need to be reduced as recommended to reduce the Gross average annual daily water demand (GAADWD).

Table 13 shows water demands by category. 2013 figures were adopted from Vol: 1 - Investment Plan Report, 2014. The AADWD figures for domestic consumption for the Arup estimate were projected based on the number of stands obtained from the SLB report. The non-domestic demand was assessed to be the same as the 2013 demand due to the lack of growth in recent years in the economic sector.

The Vol 1 report does not give a breakdown of the domestic water demand of 16,756m³/d. However the SLB report gives the number of stands in 2105 as 9295 (7805 high density stands and 1490 low density stands). In trying to estimate the

2016 water demand, Arup assumed an area of 300m² for high density areas with a consumption of 850l/stand/day and an area of 2000m² for low density with a consumption of 2000l/stand/day (as recommended in the Technical Manuals and Guidelines for Infrastructure Projects – SALA MANUAL 4, 1990,)

There is a significant increase in assessed water demand between the 2013 Vol 1 assessment and Arup’s 2016 assessment appears to emanate from mainly domestic consumption. This was based on number of stands within Chegutu.

Table 13: Existing Chegutu Potable Water Demand Summary

Parameter	Unit	2013 (Vol 1: Investment Plan)	Arup Estimate, 2016
Domestic Consumption	m ³ /d	5,904	9,614
Institutional Consumption	m ³ /d	886	886
Commercial Consumption	m ³ /d	648	648
Industrial Consumption	m ³ /d	605	605
Average Annual Daily Water Demand (AADWD)	m³/d	8,043	11,753
Reticulation Loss Factor, LFr	%	40%	25%
Water Losses	m ³ /d	3,217	2,938
Peak Factor		1.25	1.25
Gross Annual Daily Water Demand (GAADWD)	m³/d	14,075	18,364

9.3.2 Potable Water Produced and Consumed

Table 14: Potable Water Produced and Billed (Consumed)

Parameter	Unit	2014 (SLB Report)	2015 (SLB Report)
Portable Water Produced (WTP)	m ³ /d	6,643	7,431
Ground Water Produced (borehole, wells)	m ³ /d	244	984
Other Sources Produced (bulk deliveries)	m ³ /d	640	1,195
Total		7,527	9,610
Reported Reticulation and Transmission Losses	m ³ /d	2,470	2,805
Potable Water Consumed/Billed (Metered)	m ³ /d	4,123	4,576

9.3.3 Bulk Water Storage

For the purpose of this report, it has been determined that Chegutu WTP provides potable water to four water distribution zones. These have been determined from the location of reservoir against water reticulation in conjunction with Vol 1 Investment Plan Report (2013). For the purpose of this report, distribution zone 3 was not considered as it is for Suri-Suri air base. There are also another distribution area that taps directly from the pumping mains which deliver to storage in distribution zone 1 and 2 sites.

The combined storage of Chakari and ZRP reservoirs is 22,000m³. This is composed of 20,000m³ ground level reservoirs and 2 x 1,000m³ elevated reservoirs (refer to table below).

For urban areas the “Technical manuals and guidelines for Infrastructure Projects Manual 4, 1990” recommends;

- i. 48hr AADWD storage for ground level reservoirs where the feed into reservoir is via a pumping main
- ii. 36hr AADWD storage where trunk main is supplying the reservoirs is by gravity

Based on 2016 Arup estimate figures, there is additional requirement of approx. 0.9day storage.

Therefore the existing potable water storage reservoirs do not have capacity to store the current water demand. The capacity needs to be upgraded to meet the current water demands.

Table 15: Potable Water Reservoirs

Existing Distribution Zone	Reservoir	Capacity	Wards Currently Served
1	Chakari Ground Reservoir	10,000m ³	4,5,8,9
	Chakari Elevated Reservoir	(1,000m ³)	4,5,8,9
2	ZRP Ground Reservoir	10,000m ³	1,2,3,11,12

	ZRP Ground Elevated Reservoir	(1,000 m ³)	1,2,3
3	Suri-Suri Airbase	(1,000 m ³)	Airbase
4	Direct Connections into Existing Pumping Mains	-	10,1,6,7, Elvingtone Mine
Total		23,000 m³	Approx. 50,000 pple

9.3.4 Regularity of Water Supply

Table 16: Hours of Potable Water Supply per Day (Adapted from Vol 2: Investment Plan Report, 2014)

Supply Areas	Average Supply (hr/day)
Rifle Range	11
CBD	11
Chegutu Low Density	7
Hintonville (50% don't receive water at all)	4
Pfupajena (30% don't receive water at all)	6
Chegutu High Density	8

Umvovo Phase 3/DRC (30% don't receive water at all)	4
Umvovo Phase 1 and Phase 2	7
Suri Suri Airbase	11

Nonetheless, the SLB report of 2016 reports that generally all areas are supplied with water for 4hrs per day.

9.4 Wastewater Treatment Plants and Pumping Main

Table 17: Wastewater Treatment Plants (Volume 1: Investment Plan Report - Chegutu, 2013)

Plant Name	Type	Catchment Area	Inlet Elevation	Design Capacity (m ³ /day)	Comment
Kaguvi Phase 1 and 2	WSP	Kaguvi 1 and 2	1169	3,000	Ponds have dull green colour with reeds growing.
Kaguvi Phase 3	WSP	Industrial, Kaguvi 3	1179	3,000	Ponds have dull green colour with reeds growing.
Chinengundu	WSP	CBD, ZMDC	1174	5,000	Ponds have dull green colour with reeds growing.
Total				11,000	SLB report of 2016 reports that the total combined capacity of ponds is 10,000m³/d

No sewage inflow measurements were available at the time of site visits therefore for the analysis of existing treatment works, a return factor of 85% was applied to the measured water demand in order to estimate sewage flows. Similarly the water consumed/billed volumes employed were for 2015 as reported in SLB report of 2016. The table below provides comparisons of the amount of sewage inflow reported (SLB Chegutu report 2015) vs estimated water consumed since there are no actual readings.

Table 18: Sewage Inflow to Wastewater Treatment Plants

Year	Water Consumed from Municipal supply, boreholes and deliveries (m³/d)	Return Factor (%)	Sewage Inflow, Calculated (m³/d)	Sewage Inflow, Reported (m³/d)	Source of Information
2014 (SLB)	5,007	85	4,256	6,904	SLB 2014 (Chegutu)
2015 (SLB)	6,755	85	5,741	6,877	SLB 2015 (Chegutu)

Table 18 above reveals that the reported sewage inflow volumes are greater than the actual water consumed as reported by the SLB which is an anomaly, possibly caused by ground or rainwater water infiltration into the sewers. Another explanation might be stands with illegal water connections which are not metered, but which discharge effluent back into the sewers.

Also, although the total sewage inflow calculated is much lower than design wastewater treatment capacity implying additional capacity, observations from onsite revealed otherwise. The Chinengundu and Kaguvi Phase 1 and 2 waste stabilisation ponds appear to be operating at full capacity. Reeds were thriving in

some ponds with grit channels in poor state as well. These waste stabilisation ponds appear to be in need of de-sludging and maintenance.

Therefore it was determined that there is no capacity in the combined existing wastewater treatment plants.

By applying an 85% sewage return on the Arup water demand estimates for 2016 (Table 18), the sewage inflow estimates are calculated as 12,488m³/d. The estimated inflow is greater than the combined design capacity for the sewer ponds.



Picture 17: ZMDC pumping station



Picture 18: Sewage overflow at ZMDC pump station



Picture 19: Grit collection at ZMDC sewage ponds grit channel.



Picture 20: ZMDC sewage ponds

Picture 21: Sewage overflow at Kaguvi 1&2 pump station



Picture 22: *Overgrown weeds at Kaguvi 1&2 sewage ponds*



Picture 23: *Weeds growth in Kaguvi 3 sewage ponds*



9.5 Discussion of Existing Infrastructure

9.5.1 Raw Water Abstraction

1. Mupfure abstraction plant is non-operational

2. Dziva abstraction point has capacity of 2,880m³/hr and supplies Clifton dam, an off river raw water storage reservoir, with capacity of 11,000MI.
3. This is sufficient capacity for existing demands.
4. The quality of raw water abstracted at Dziva dam was reported (Vol 2: Investment Plan, 2014) to be of superior quality during rainy season to that of the Mupfure raw water abstraction plant.

9.5.2 Water Treatment Plant (WTP)

1. The WTP currently produces 8,000m³/day instead of its nominal design capacity of 12,000m³/day.
2. The combined consumption (domestic, institutional, industrial and commercial) was approx. 8,043m³/day in 2013 before factoring losses and peak factor.
3. The WTP is failing to produce adequate supply for the 2013 demand of 14,075m³/day or the 2016 Arup estimated water demand of 18,364m³/day
4. Table 9 highlights areas under rationing and the hours water is available. However the SLB (2016) report communicates that on average water is available for 4hrs per day. It is reported that there are other water sources such as boreholes and wells to augment supply from Chegutu WTP.
5. No records were available to give raw water delivery and potable water supply by Chegutu WTP.

9.5.3 Potable Water Reservoirs

1. Current combined water reservoir capacity is 22,000m³. The current water daily demand is approximately 18,364m³/day (Arup estimation).

2. This translates to approximately 1.1 day storage (using Arup GAADWD) which is less than the recommended 2 day storage.

9.5.4 Water Reticulation

1. Although a number of efforts have been made to improve the water reticulation, the current state of the reticulation is such that as much as 40% (as reported in Vol 1: Investment Plan Report, 2013) of the potable water is lost due to conveyancing losses.
2. The existing As-built water reticulation layout was in the process of being updated by CTC to capture recent works to the layout.

9.5.5 Sewerage reticulation

1. Most sewerage pipes are reported to be AC pipe material and older than 50yrs. These are currently in a poor state in the older suburbs.

9.5.6 Wastewater Treatment Plants

1. There are no influent measurements being taken which is poor practice as there is no information about the ponds.
2. There is limited maintenance and required daily activities such as raking the screens appears to be occurring only intermittently based on site visit observations.
3. There appears to be no full time attendance at some of the wastewater treatment plants, notably Chinengundu WWTP and the sewage pump station feeding to Chinengundu.
4. Heroes ponds were not inspected these are report by the CTC to have been decommissioned.
5. All the ponds appeared dull in colour and appear full, with reeds growing within them.

6. The Chinengundo grit channels were all in a poor state. At Kaguvi Phase 1 and 2 there was evidence of maintenance occurring, although this was limited.
7. It is unknown when last the ponds were de-sludged. It appears the existing capacity may be less than the design capacity currently. However if water reticulation losses are minimised, sewage inflow will increase.

9.6 Roads

9.6.1 Primary Distributors

The key primary roads passing through the Municipality are:

- Harare- Bulawayo Road
- Chegutu – Chinhoyi Road
- Chegutu-Mubayira Road
- Chegutu –Chakari Road
- Chegutu – Bayhorse Road

These are the key national roads linking Chegutu and the rest of the country as well as its hinterland. The Harare -Bulawayo and Chegutu-Chinhoyi roads are in excellent condition and well maintained. Chegutu-Chakari and Chegutu-Mubayira are in a poor state of repair outside the Municipal boundary and appear to receive less priority in terms of maintenance. The responsibility for their maintenance is with the Department of Roads under Ministry of Transport and Infrastructural Development.

9.6.2 Secondary Distributors

- Hippo Pools Road
- Cattle Trail Road
- Kaguvi Drive
- Robert Mugabe Drive
- Concession Hill Road

A large section of the secondary distributor network is gravel and earth roads with small sections of Hippo Pools road and Concession hill road being surfaced. The secondary road network is generally in a poor state of repair needing significant upgrading to improve trafficability and rideability.

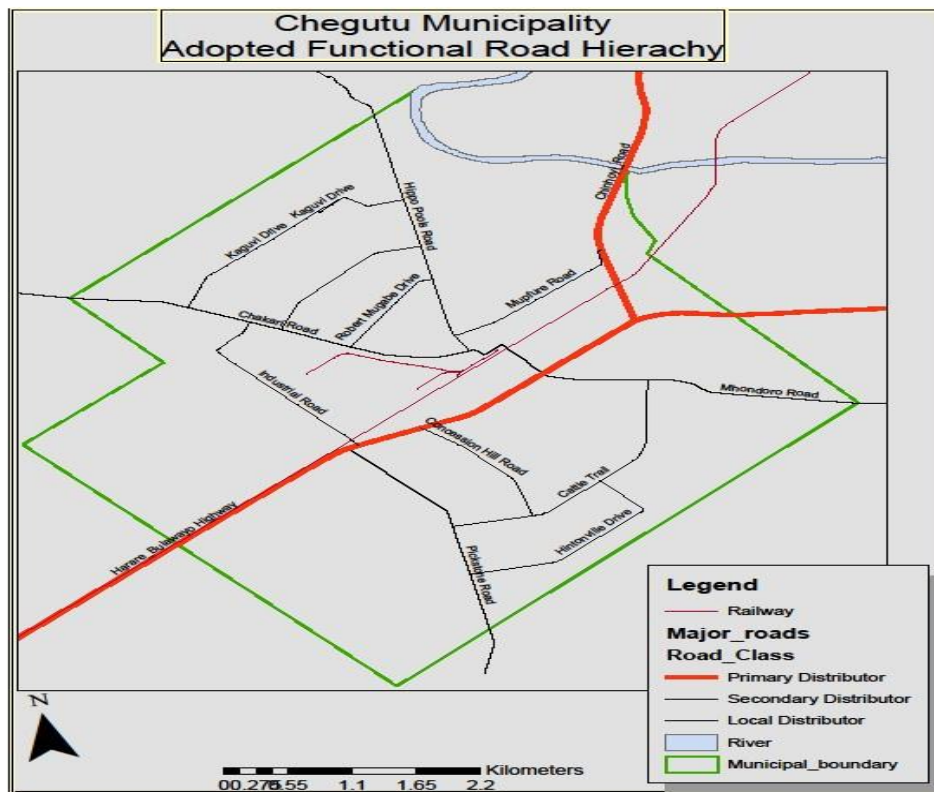
9.6.3 Local Street Network

The local street network is mostly consists of gravel and earth roads within the residential suburbs. The surfaced street network is found in the Town Centre and in Rifle Range suburb although the condition is poor due to low-maintenance.

9.6.4 . Size of Road Network

Overall the Municipality has 160km total road network. 40 km of the network is surfaced roads and the remainder 120 km is gravel and earth roads. Most of the network 65% is in a poor state of repair and requires upgrading and rehabilitation works.

Figure 39: Chegutu Municipality Functional Road Hierarchy Map



9.6.5 Public Transport System

Chegutu Town does not have an established public transport system. The majority of people walk or cycle to work while a significant proportion depends on pirate taxis for travel to work. The behaviour of pirate taxi drivers particularly in the town centre is a serious cause for concern given the observed congestion and unruly behaviour exhibited at the TM and OK

supermarkets. However, there has been a trend towards commuter omnibuses establishing in the Town. The Municipality urgently requires a public transport strategy to bring decency and order in the public transport sector in Chegutu. The public transport problem is compounded by lack of public transport facilities especially in town centre. Designated commuter omnibus ranks are required throughout the municipal area.

9.6.6 Termini Location and Sizes

There are two main bus termini in Chegutu, one is located in the Town Centre along Station Street and another one is in the high density suburbs of Chegutu adjacent the beerhall. The town centre terminus is used mainly by long distance buses while the Chegutu terminus is used by local and district buses, that is, those that ply Mhondoro, Zvimba and Chakari routes. In terms of capacity the latter terminus is able to cope with the number of buses (average of 10 per day), which is usually busy during public and school holidays. Hence it is underutilized.

The town terminus of approximately 0.5 hectares in size is located on the road reserve and therefore is occupying temporary site. The terminus is the busiest with an average of 100 long distance bus entries per day. The terminus also comprises of an area reserved for taxis and some local/district based buses as well as an informal market place used by hawkers of vegetables and other wares. This has also become a popular place for the rural folks where they sell their produce, in addition to locals who trade prepared food to travellers. There is also a block of toilets.

There are proposals by the Municipality to relocate the bus terminus to a site in the along the main Harare – Kadoma Road.

9.6.7 Railways

Consultation with the NRZ showed that the present station area is occupying 19, 8 hectares of land. Present facilities include an administration and storage block, waiting area and cattle pen A network of services siding of varying lengths serving the industrial area (mainly to the north of the main railway line) also exists. These services sidings vary in length from the shorter (1-2km), serving mainly the Grain Marketing Board and medium (2 – 5km) serving Parogate. In terms of rail services, the National Railways of Zimbabwe (NRZ) is struggling to offer services as a result of the difficult economic climate. The NRZ noted that the re – introduction of the daylight passenger train between Harare and Bulawayo was being impeded by viability issues and resource requirements. Overall however the existing rail facilities appear to have sufficient capacity to cope with the future growth of the town.

9.6.8 Airport

The Municipality is currently not connected to air transport as a result of lack of Airport facilities. It is important to note that in the peri-urban area there are four disused aerodromes sites which used to be operational but have been closed for unknown reasons. Evaluation of these sites indicates that two of the sites at The Grange Farm and at Bosbury farm could be revived. The Municipality will need to partner with DDF and the Civil Aviation Authority of Zimbabwe (CAAZ) in the development of air transport facilities connecting the municipality with the rest of the world.

Summary of Issues

Rapid assessments of some of the roads were carried out and noted the following:

- The surfaced roads showed distress in the form of excessive cracking, local deformation, edge breaks as well as the formation of potholes, whilst some of them were in total disrepair and would have to be completely re-constructed (depending on the findings from a detailed assessment)
- Some of the surfaced roads appeared to have been constructed too narrow and may need to be widened
- In most instances the road markings on the surfaced road were no longer visible, whilst the directional and road signage was very limited and not to the SADC standards. This was of particular concern with regard to speed humps and junctions/rises with blind spots
- Some of the gravel roads were in disrepair and will have to be completely reconstructed
- There is insufficient overall drainage and block drainage was particularly noted as needing attention.

9.7 Telecommunication Infrastructure and Information Technology Centres

Telecommunications network and infrastructure connect residents of Chegutu to the rest of the world. Telecom companies and mobile network providers who have established infrastructure in Chegutu include Econet, Netone, Liquid, Telecel and Telone. Generally, all areas in Chegutu town are have network coverage although the bandwidth is relatively low. Provision of information technology centres is relatively very low with no designated centres for such purposes. Considering that majority now have acces to information on their mobile phones, there is need to rethink the model to ensure that all people have access to digital information.

There is therefore scope for new entries especially for companies such as Starlink and other service providers.

9.8 Power and Energy Infrastructure

Chegutu Municipality relies on energy from both renewable and non-renewable sources. The main source of power for Chegutu residents is electricity with over 70% of all properties connected to the national ZETDC grid. Efforts have been made by the local authority to harness renewable energy through the establishment of a solar farm which is still at the preliminary stages. Use of firewood and Liquid Petroleum gas is also very prevalent in Chegutu due to sever power cuts. LP Gas companies such as Prosperous Gas, Classic Gas and Zuva among other retail suppliers have established sites in Chegutu.

9.9 Summary of Key Issues

Infrastructure	Recommendation
1. Raw Water Abstraction	i. Mupfure raw water abstraction point may require refurbishment to act as a stand-by source. It will also be a

	<p>more affordable source for obtain raw water during the non-rainy season.</p> <p>ii. Raw water abstraction volume records and maintenance records need to be captured</p>
2. Water Treatment Plant	<p>i. There is need to rehabilitate and repair the existing plant to increase production to the design capacity of 12,000m³/day.</p> <p>ii. The WTP requires upgrading/extending to produce adequate potable water to meet Chegutu town's existing daily water demand of 18,364m³/day</p> <p>iii. Records of raw water delivered to WTP and potable water produced by WTP need to be recorded. Similarly, maintenance records need to be captured.</p>
3. Potable Water Reservoirs	<p>i. The combined potable water storage within ZRP and Chakari reservoirs translates to 1.1 day's storage. This is inadequate according to recommended guidelines.</p> <p>ii. Additional storage of approximately 16,500m³/day has to be established to provide 2 day's storage preferably at current locations.</p>
4. Water Reticulation	<p>i. In order to mitigate reticulation losses, incorrect billing and other problems, the reticulation's efficiency will need to be improved. This can be achieved by;</p> <ul style="list-style-type: none"> • Installing new PVC pipes • Installing new water meters, gate valves and other fittings. • Attending to pipe leakages

	<ul style="list-style-type: none"> • Mapping out problem areas on a map and attending to them. <p>ii. This may also be a strategy which makes the Chegutu treatment plant supply adequate potable water</p>
5. Sewerage reticulation	i. Replace all AC pipes with PVC pipes.
6. Wastewater Treatment Plant	<p>i. The WWTP should be fenced to restrict access.</p> <p>ii. Routine maintenance should be conducted</p> <p>iii. All grit channels and measurement equipment to be repaired</p> <p>iv. Sewage inflows to be recorded</p> <p>v. There is need upgrade the existing WWTP since the estimated sewage inflow of 12,488m³/d surpasses the total design capacity of ponds of 11,000m³/d</p>
7. Roads	<p>i. Some surfaced roads showed distress in the form of excessive cracking, local deformation, edge breaks as well as the formation of potholes,</p> <p>ii. Some of the surfaced roads appeared to have been constructed too narrow,</p> <p>iii. Most instances the road markings on the surfaced road were no longer visible</p>
8. Telecommunications and Information Technology Centre	<p>i. All areas within the Chegutu urban boundaries have access to mobile network.</p> <p>ii. Services providers in the town include Econet, Netone, Liquid, Telecel and Telone</p>

<p>9. Energy and Power Infrastructure</p>	<ul style="list-style-type: none"><li data-bbox="625 248 1503 344">i. Electricity covers around 70% of the properties in Chegutu area.<li data-bbox="625 383 1503 479">ii. There are plans to develop renewable in form of a solar farm.
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10 GOVERNANCE, FINANCE AND ADMINISTRATION

10.1 Governance

Council Structure

Chegutu Municipality is a local authority run by 12 elected Councillors representing 12 wards. The Councillors elect from among themselves the Mayor, Deputy Mayor and Chairpersons of Committees. Council Committees include

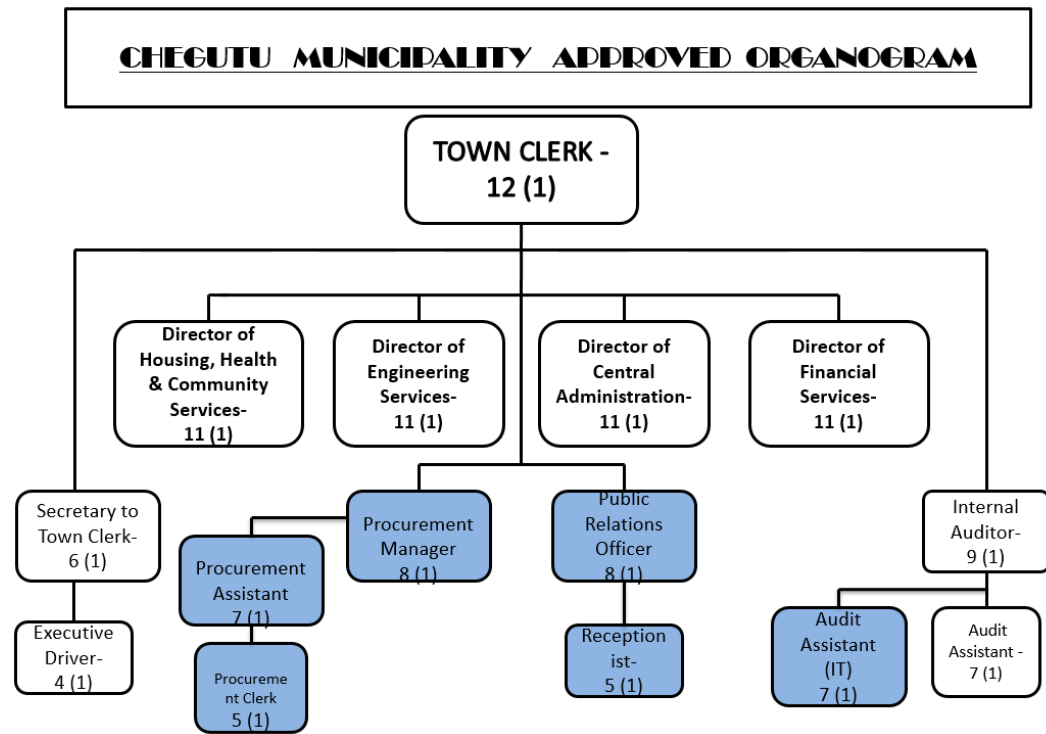
- Finance and Investment Promotion Committee;
- Corporate Services and Human Capital Development Committee;
- Environmental Management Committee;
- Housing, Health and Community Service Committee,
- Audit Committee

The role of the District Development Coordinator (DDC) is also recognized by the Chegutu Municipality

Council Structure (Executive)

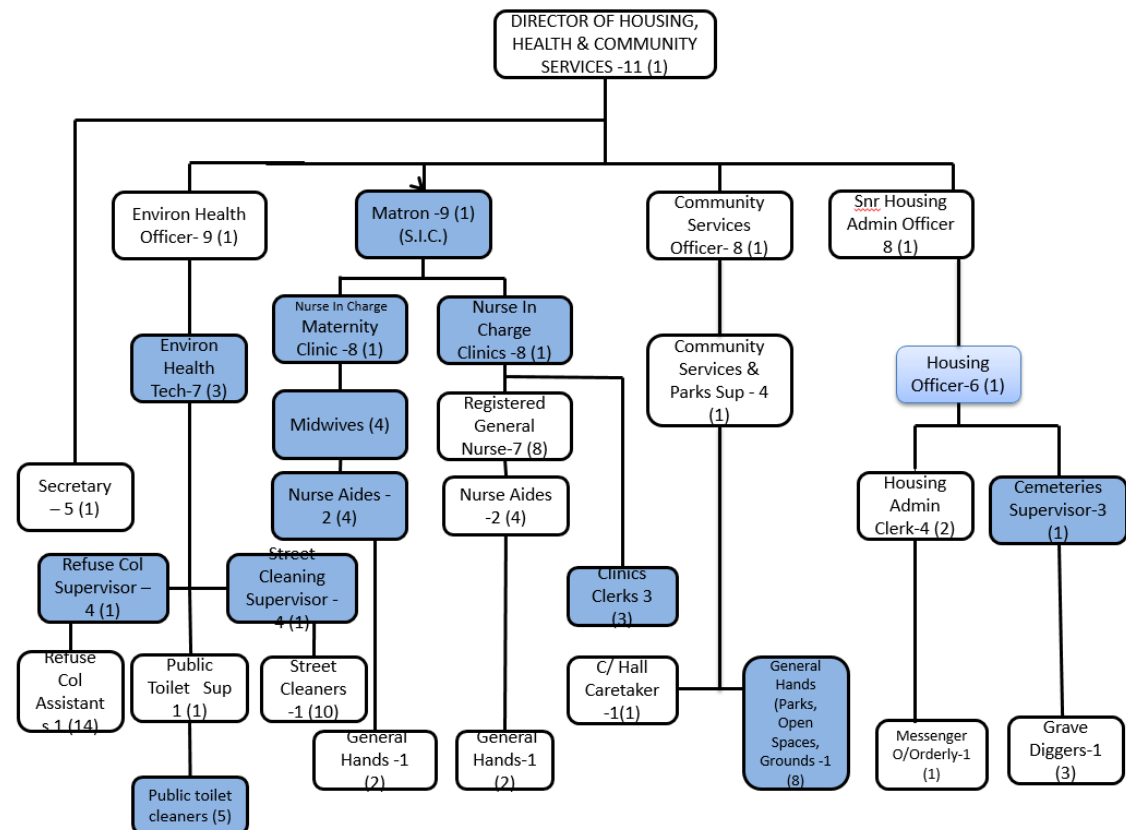
The Accounting Officer who runs Council operations is the Town Clerk who executes his duties with the assistance of Directors. Chegutu Municipality has a total establishment 385 employee consisting of 5 senior manager (3 available and 2 vacant), 19 middle managers (15 available and 5 vacant), 77 supervisory manager (71 available and 6 vacant) and 284 operational staff.

Chegutu Municipality has 5 departments which are shown on the organogram below



Council Departments and Core Functions

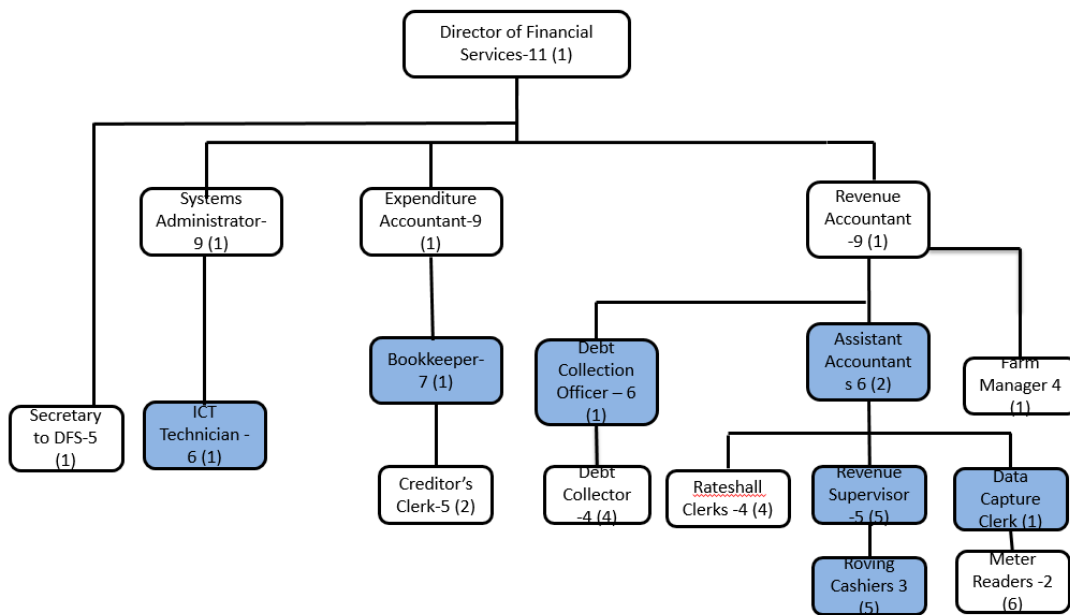
Housing, Health and Community Services



Core functions of the Housing Department are:

- Housing Administration and Development
- Community Services and Social Welfare
- Health Services
- Environmental Health Management
- Solid Waste Management
- Education Services
- Cemeteries Management
- Parks and Recreation

Department of Financial Services

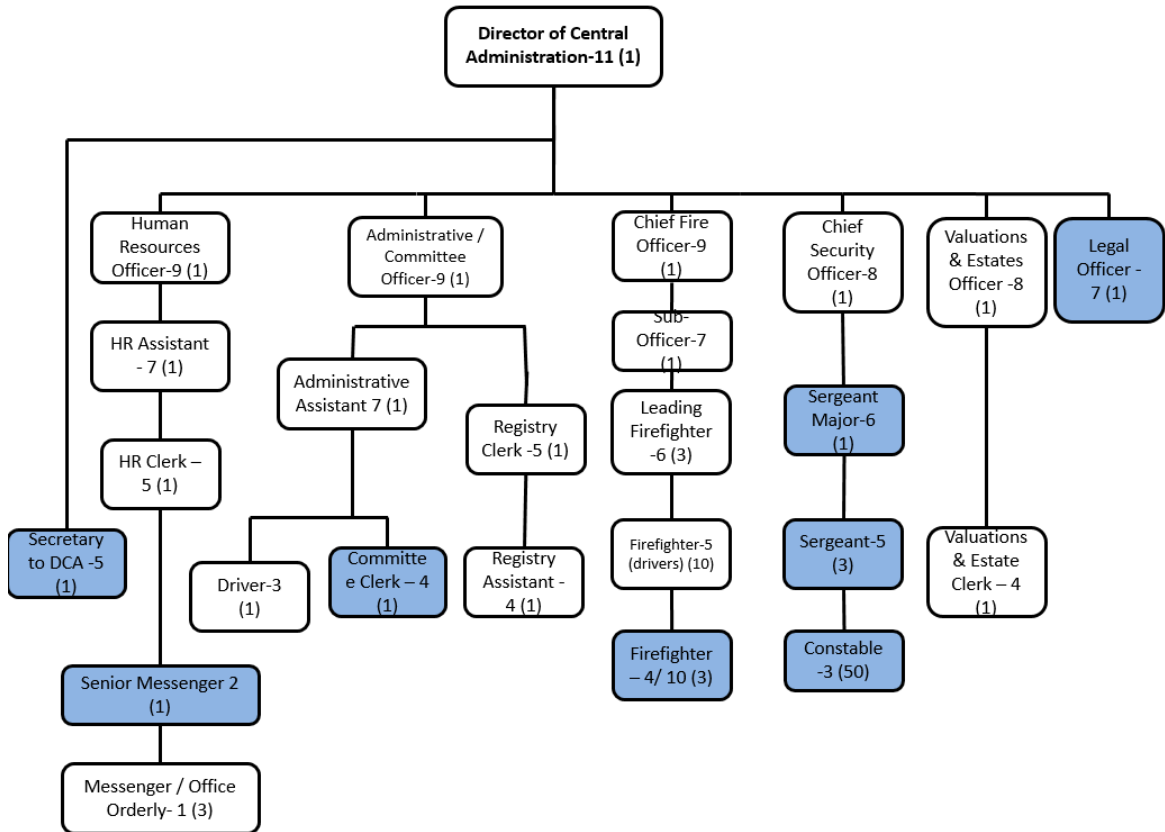


The core functions of the Financial Services Department are:

- Budget Formulation and Management
- Revenue Collection/mobilisation
- Expenditure Management
- ICT Support services

- Financial Advisory Services
- Financial reporting

Central Administration/ Chamber Secretary

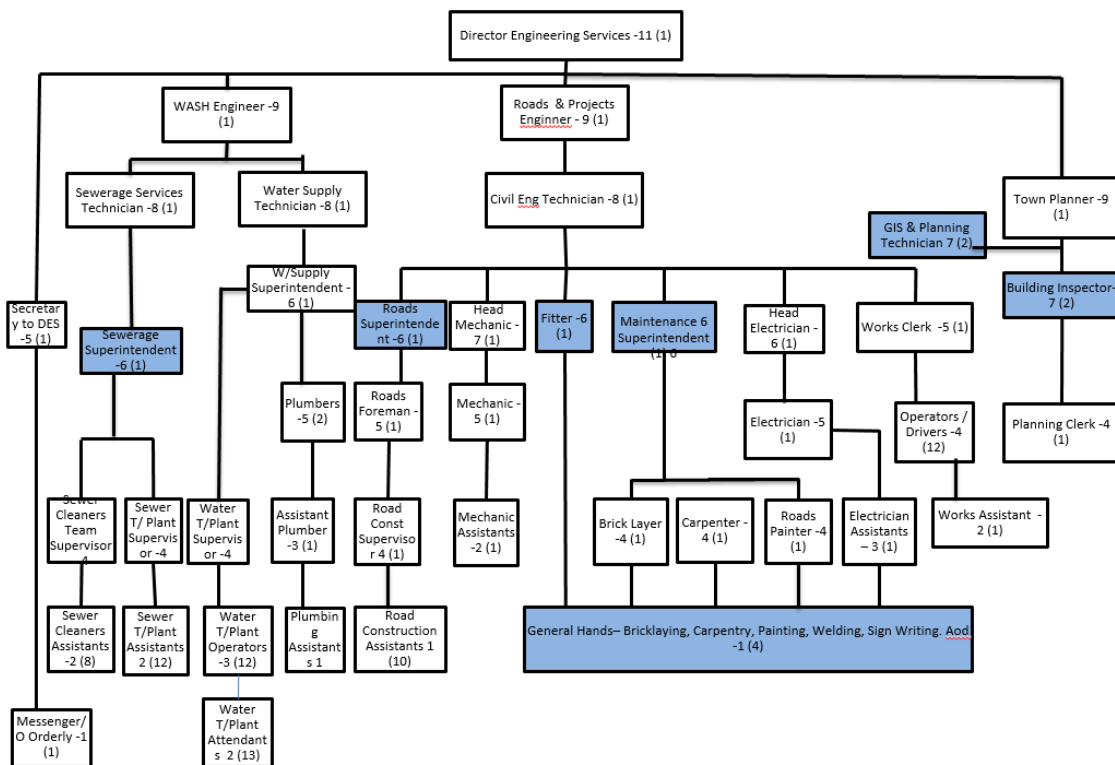


The core functions of the Central Administration department are:

- By-laws and regulations
- Property valuation and assessment.
- Human Capital development.
- SHEQ
- Gender Equality
- Loss control and risk management
- Security Services
- Compliance and enforcement

- Legal Services
- Emergency Services
- Corporate Services
- Stores Management

Director of Engineering Services



The core functions of the Engineering department are:

- Water Supply Management
- Waste water Management
- Roads Infrastructure Management
- Electrical Repairs and Public Lighting
- Building/Construction
- Vehicles, Plant and Equipment Maintenance.
- Town Planning and Development Control.

- Traffic Management and road safety.
- Conservation an environmental management.
- Construction Works management (projects)

10.2 Administration and Human Capital Capacitation Issues

In response to the "call to action" initiated by the President to uphold uncompromising service delivery, local authorities have been mandated to establish fully-fledged planning departments to ensure competent urban planning. This department is to include key roles such as Director of Spatial Planning, Planning Officer, Building Inspector, GIS Technician, Planning Technician and Land Survey Technicians. Chegutu municipality is making strides towards forming such a department, with the inclusion of essential positions like GIS Technician and Planning Technician in the organizational structure. Furthermore, the mandate was to capacitate local authorities with equipment in order to undertake their day to day operations efficiently.

In response to a government directive, all local authorities are now required to utilize Enterprise Resource Planning (ERPs) such as Promun and Local Authorities Digital Systems (LAD). These customized Enterprise Resource Planning (ERP) include applications that allow for digitizing of council operations in order to enhance operations and efficiency. It emphasizes the integration of all local authority operations into a single automated system. Comprehensive training has been provided to every council employee to ensure the effective utilization of LADS for improved daily operations.

10.3 Plant and Equipment

The Municipality possesses a significant collection of machinery and tools essential for the construction and upkeep of fundamental infrastructure. This equipment is operated by the engineering department and is utilized for the development and maintenance of roadways as well as WASH (Water, Sanitation, and Hygiene) infrastructure. Despite having a substantial inventory of infrastructure resources, a primary obstacle to enhancing productivity and efficiency is the frequent occurrence of equipment malfunctions.

It is important to highlight that the Municipality lacks sufficient machinery for road construction, including excavators, graders, bulldozers, bitumen emulsion sprayers, and water bowsers. Acquiring these essential pieces of equipment would represent a significant advancement towards achieving self-sufficiency. The equipment is provided below:

STATUS OF EQUIPMENT FOR MUNICIPALITY OF CHEGUTU

<u>ITEM</u>	VEHICLE/EQUIPMENT	CONDITION
1	TOYOTA HILUX D4D	On breakdown
2	NISSAN NP 300 WASH	working
3	NISSAN NP 300 ROADS	On breakdown
4	NISSAN HONEY SUCKER	Obsolete
5	MOTORISED WATER BOWSER UD	Working
6	TOWED BOWSER	working
7	TIPPER UD 85	working
8	TIPPER UD 85	On breakdown
9	TIPPER HOWO	Working
10	TOWED GRADER	working
11	MOTORISED CAT 140K GRADER	On breakdown
12	TAR BABY BITUMAN DISTRIBUTER	Need replacement
13	PLATE COMPACTOR 1	Working
14	PLATE COMPACTOR 2	Working
15	PEDESTRIAN ROLLER	On breakdown
16	MOTORISED PNEUMATIC ROLLER	working
17	SHANTUI SD15 BULLDOZER	On breakdown
18	JCB TLB	working
19	VOTE TLB	On breakdown

20	VIBRATORY STEEL ROLLER	On breakdown
21	TRACTOR MF 440 #2	working
22	TRACTOR MF 440 #3	working
23	TRACTOR TAFE #4	working
24	TRACTOR MF 440 XTRA #5	On breakdown
25	TRACTOR NEW HOLLAND #6	working
26	TRACTOR OHN DEERE #7	working
27	TRACTOR TAFE 4WD #8	working
28	TRACTOR NEW HOLLAND #9	On breakdown
29	TRACTOR TAFE 1015	On breakdown
30	GRASS CUTTER FALCON 1	On breakdown
31	GRASS CUTTER FALCON 2	On breakdown
32	SLASHER BIMAC	On breakdown

EQUIPMENT REQUIRED TO ATTAIN SELF-SUSTAINABILITY

<u>ITEM</u>	<u>VEHICLE/EQUIPMENT</u>	<u>PURPOSE</u>
1	EXCAVATOR	Gravel hauling and drain excavations
2	2 TIPPER TRUCKS (20m3)	Gravel hauling
3	GRADER	Grading and re-gravelling
4	BULLDOZER	Road opening and land clearance
5	BITUMEN EMULSION SPRAYER	Spraying bitumen emulsion
6	10000L WATERBOWSER	Road reconstruction

10.4 Financing Council Operations

The primary role of local authorities is service delivery and it is achieved through capital investment into infrastructure, utilities and services. Bulk infrastructure is the backbone of any municipality's growth and service delivery. For the Municipality of Chegutu, key infrastructure includes roads, sewer networks, potable water supply network and waste management systems. Project covering key infrastructure are generally capital intensive and Chegutu Municipality utilizes multiple funding sources to support their budget. The role of sectoral ministries and government departments and agencies is also recognized and acknowledged in supporting service delivery infrastructure provision. **Internal**

Funding sources

Service Charges and special development levies

Internal funding sources such as service charges are the most traditional methods that funds infrastructure development for most local authorities, Chegutu Municipality included. Service charges shall continue to have a contribution towards funding earmarked for infrastructure maintenance and development. Special development levies shall also be proposed from time to time to cater for special development needs that arise as the master plan is being implemented.

External Funding Sources

Government Grants

Government grants in the form of devolution funds and other project-specific interventions such as the Emergency Road Rehabilitation Programme (ERRP 2) and Nhimbe shall also contribute to the greater funding scheme for all capital projects in the master plan.

Devolution Funds

One of the most important sources of funding for Chegutu Municipality is the Devolution Fund, a financial resource allocated by the central government to local authorities under Zimbabwe's devolution policy. These funds enable local governments to prioritize and implement development projects in line with their specific needs. Devolution funds are also available as a grant from central government to support the

development of capital projects in Chegutu. Social services such as schools and maintenance of basic infrastructure such as roads, water and sewer networks shall also derive funding from devolution funds.

Special Loans

Chegutu Municipality is empowered through the Urban Council's Act to make use of available loan facilities from banking institutions or financiers of infrastructure development. Capital intensive project such as development of new potable water and waste water treatment plants shall be financed through these mechanisms with the approval from the line ministry.

Public Private Partnership

Chegutu shall make use of private sector investment for infrastructure development through PPPs, reducing the burden on public resources and accelerating project implementation.

The role of Sector Ministries and Development Partners in funding Development

Development partners play a crucial role in funding infrastructure development, particularly in times of emergencies or disasters where financial resources are often limited. Such development partners usually provide project specific funding to address issues that require urgent attention. Partners through the Ministry of Health and Child Care shall also be part of the funding sources who will provide technical and financial support for projects that directly impact public health, particularly sanitation and water supply infrastructure. The Ministry of Transport and Infrastructure Development also plays a key role in infrastructure development. Other key arms of government that Council intend to partner with on developmental issues include but are not limited to ZINWA, ZESA and EMA.