

# RESOURCE MANAGEMENT PLAN FOR TZANEEN DAM



**DRAFT REPORT**



**water & sanitation**

Department:  
Water and Sanitation  
REPUBLIC OF SOUTH AFRICA

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- Greater Tzaneen Local Municipality;
- Greater Tzaneen Tourism Association;
- Letaba Water User Association;
- Limpopo Department of Agriculture and Rural Development;
- Limpopo Department of Economic Development, Environment and Tourism;
- Limpopo Department of Education;
- Limpopo Tourism Agency;
- South African Maritime Safety Authority;
- The community members of Tzaneen;
- The Lions Club (Jetty 3); and
- Tzaneen Dam Nature Reserve.

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### Review:

Review Period	Month	Year				
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Annual review	December					
Five year review of RMP	December	2020				



## LIST OF ACRONYMS

<b>BID</b>	Background Information Document
<b>BP</b>	Business Plan
<b>CIWSP</b>	Co-operative Inland Waterways Safety Programme
<b>DAFF</b>	Department of Agriculture, Forestry and Fisheries
<b>DMC</b>	Dam Management Committee
<b>DPW</b>	Department of Public Works
<b>DWA</b>	Department of Water Affairs
<b>DWAF</b>	Department of Water Affairs and forestry
<b>DWS</b>	Department of Water and Sanitation
<b>ECC</b>	Effective Carrying Capacity
<b>ECHOS</b>	Environmental Characteristics Opportunity Spectrum
<b>EMF</b>	Environmental Management Framework
<b>FSL</b>	Full Supply Level
<b>GTEDA</b>	Greater Tzaneen Economic Development Agency
<b>GTLM</b>	Greater Tzaneen Local Municipality
<b>GTTA</b>	Greater Tzaneen Tourism Agency
<b>GWW</b>	Government Waterworks
<b>I&amp;APs</b>	Interested and Affected Parties
<b>IA</b>	Implementing Agency
<b>IDP</b>	Integrated Development Plan
<b>IEE</b>	Integrated Environmental Engineering
<b>IMP</b>	Integrated Management Plan
<b>ISP</b>	Internal Strategic Perspective
<b>KPA</b>	Key Performance Area
<b>LED</b>	Local Economic Development
<b>LEDET</b>	Limpopo Department of Economic Development, Environment and Tourism
<b>LTA</b>	Limpopo Tourism Agency
<b>LWUA</b>	Letaba Water Users Association
<b>MC</b>	Management Capacity
<b>NEMA</b>	National Environmental Management Act
<b>NEMPAA</b>	National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003)
<b>NWA</b>	National Water Act, 1998 (Act No.36 of 1998)
<b>OMC</b>	Operational Management Committee
<b>PCC</b>	Physical Carrying Capacity
<b>PP</b>	Public Participation
<b>PPP</b>	Public Private Partnership
<b>PSC</b>	Project Steering Committee
<b>QDS</b>	Quarter Degree Square
<b>RCC</b>	Real Carrying Capacity
<b>RF</b>	Rotation Factor
<b>RMP</b>	Resource Management Plan
<b>RWU</b>	Recreational Water Use
<b>SAMSA</b>	South African Maritime Safety Authority
<b>SASCOC</b>	South African Sports Confederation and Olympic Committee
<b>SDF</b>	Spatial Development Framework
<b>CATHSSETA</b>	Culture, Arts, Tourism, Hospitality, Sport Sector, Education and Training Authority
<b>TDNR</b>	Tzaneen Dam Nature Reserve
<b>TP</b>	Tourism Potential
<b>UPN</b>	Unique Positioning Number

**WFW** Working for Water  
**WMA** Water Management Area



## EXECUTIVE SUMMARY

The Department of Water and Sanitation (DWS) through the National Water Act, 1998 (Act No. 36 of 1998) is mandated to protect aquatic and associated ecosystems and their biological diversity. The Minister, as the custodian of the nation's water resources must ensure that the Government Waterworks (GWWs) including Tzaneen Dam are protected, used, developed, managed and controlled in a sustainable manner, for the benefit of all. The use and management of the GWWs should be based on integrated Resource Management Plans (RMPs). In an effort to assist the Minister in attaining these objectives and to ensure that access to and use of the dam is equitable, DWS initiated and commissioned the development of RMP for the Tzaneen Dam.

Tzaneen Dam is an earth-fill type of dam which is located in the Great Letaba River, in Tzaneen town under the Greater Tzaneen Local Municipality, within the Mopani District Municipality.

The primary purpose of Tzaneen Dam is to provide farms with water for irrigation and also to provide raw water to the municipality for domestic use.

The secondary use of the dam is recreational use, where people engage in recreational activities such as power boating, canoeing and angling. Other recreational activities which require full contact such as swimming is not allowed at the dam due to the presence of hippopotamuses and crocodiles as they are dangerous.

Tzaneen Dam is owned and operated by the DWS. There are two controlled access areas, which one is at the Lions Club and the other access is at the Tzaneen Dam Nature Reserve (TDNR). Lions Club has a lease agreement with the former Transitional Local Council of Tzaneen now known as Greater Tzaneen Local Municipality (GTLM). According to the lease agreement the Lion's Club is obliged to control, manage and maintain the dam for recreational activities. The Tzaneen Dam Nature Reserve

has an agreement with the Limpopo Department of Economic Development, Environment and Tourism (LEDET) to control, manage, maintain the Tzaneen Dam Nature Reserve and also introduce recreational activities at the dam.

There is no confirmation of agreement between the LEDET, GTLM and DWS in managing the dam for recreational purposes and access.

There is no formal institutional structure at the dam for recreational purpose and as part of the RMP process an institutional structure has been proposed for the dam. This structure will have relevant role players to assist in effective management of the dam. These role players include: Department of Environmental Affairs (DEA) – Working for Water, Department of Transport (DoT), South African Maritime Safety Authority (SAMSA), Cooperative Inland Waterways Safety Programme (CIWSP), National Treasury etc. The success of the development and implementation of the RMP depends on the role players and their level of participation.

The different roles and responsibilities of stakeholders and their relationship towards each other and the steps in the planning procedure are imperative. During the **Planning Phase** a process was established to get into contact with the stakeholders, this included various methods of advertising. During this phase stakeholder engagements were conducted in order to introduce the RMP project to the relevant key stakeholders which comprised of three (3) Governmental tiers (National, Provincial and Local) and interested and affected parties. The **Participation Phase** entailed three (3) important aspects namely:

- Identifying stakeholders through Desktop Study and Site Inspection;
- Informing the stakeholders about the proposed RMP project for the dam through Background Information Documents, Flyers, Newspaper



Adverts, Telephone and Email communication; and

- Meeting the stakeholders through Authorities and Public Meetings.

Feedback is of utmost importance and is directed to and from stakeholders. In this project feedback has been given in a form of minutes of the meetings, follow up emails and telephone communication.

During the Authorities and Public meetings, issues of concerns were addressed and common objectives were identified and a vision for the dam for a period of 20 years was formulated. Some of the issues of concern that were identified include:

- There are individuals who ride their vessels under the influence of alcohol as they put their lives and others in danger.
- There is a rumour that the Lions Club will have a new management which is planning to turn the club into a concert venue. Other people have concerns that it will make a lot of noise as the dam is located in a residential area.
- People are worried that the space for recreational activities is very small as the dam is surrounded by private properties.
- The Tzaneen Dam Nature Reserve facilities are under-utilized and the area is underdeveloped due to lack of funding.
- The presence of hippopotamuses and crocodiles limit some of the recreational activities like swimming in the dam.

The identified issues of concern will assist DWS with the most appropriate approach into ensuring that the issues are addressed during the development and/or implementation of the RMP.

In order to facilitate a planning procedure aimed at the compilation of a RMP, it is essential to clarify the objective to be met by the planning procedure. Stakeholders identified key common objectives and below is,

amongst others, the list of objectives that were identified:

- To maintain the water quality of Tzaneen Dam
- To increase the water capacity of Tzaneen Dam, it will be done through the raising of the dam wall.
- To keep the dam and the surrounding environment free of alien vegetation.
- To conserve and manage the natural environment in and around the dam in a sustainable manner.
- To protect the faunal species against poaching and other illegal activities.
- To promote equitable access and use of the dam by the public.
- To address the needs of the public in an appropriate and equitable manner.
- To promote public safety when accessing and using the dam.
- To review all agreements at the dam.
- To improve the lives of the community through employment opportunities and skills development programmes.
- To establish an appropriate institutional structure which will effectively manage the recreational use of the water resource and the surrounding environment. The appropriate powers and delegations must be clear.

A vision for the dam for a period of 20 years was formulated from the objectives and stands as follows:

***“To uplift the local community through Socio-economic development, poverty alleviation and skills transfer programmes, and introducing environmental awareness to the community which will lead to environmental sustainability”.***

These common goals together with the vision will guide as an initiative aimed at attaining DWS’s vision, mission and objectives.

According to the Constitution of South Africa Act No 106 of 1996, Schedule 5, part B, GTLM has powers to manage local tourism within its area of jurisdiction.

**The Local Tourism Sector** as outlined in the provincial Economic Strategy Analysis, tourism has been identified as a sector having competitive advantage. This reflects strengths, unique characteristics and a potential for growth and development.

Whilst the municipal area has tremendous natural and heritage potential for the development, the performance of the trade sector (wholesale, retail, catering and accommodation) has tended to show slow growth rates. There appears to be general consensus that tourism demand is well below what would be expected from an area with such outstanding natural potential.

## TABLE OF CONTENTS

ACKNOWLEDGEMENTS .....	ii
TITLE AND APPROVAL PAGE .....	iii
AMENDMENTS PAGE .....	iv
LIST OF ACRONYMS.....	v
EXECUTIVE SUMMARY .....	vii
CHAPTER 1: INTRODUCTION .....	1
1.1    BACKGROUND OF TZANEEN DAM .....	1
1.2    BIOPHYSICAL ENVIRONMENT .....	5
1.2.1 GEOLOGY AND SOIL .....	5
1.2.2 TOPOGRAPHY .....	5
1.2.3 CLIMATE .....	8
1.2.4 VEGETATION.....	9
1.2.5 WATER QUALITY .....	9
1.2.6 SURFACE WATER.....	10
1.3    CULTURAL DATA.....	10
1.4    CONSERVATION .....	10
1.5    INSTITUTIONAL STRUCTURE .....	11
1.6    LAND OWNERSHIP .....	11
1.6.1 LAND CLAIMS.....	11
1.6.2 ACCESS AND USE AGREEMENT .....	11
1.7    SAFETY.....	11
1.7.1 SAFETY OF NAVIGATION .....	12
1.7.2 INCIDENT MANAGEMENT.....	12
1.8    USES AND USERS OF THE DAM.....	12
1.8.1 PRIMARY FUNCTIONS .....	12
1.8.2 SECONDARY FUNCTION.....	12
1.8.3 OTHER USES.....	12
1.9    BUILT ENVIRONMENT.....	12
1.9.1 ROADS.....	12
1.9.2 PARK .....	12
1.9.3 BUILDINGS.....	13
1.10    SOCIO-ECONOMIC ENVIRONMENT.....	13
1.10.1 POPULATION DYNAMICS.....	13

1.10.2 EDUCATION LEVEL.....	13
1.10.3 EMPLOYMENT STATUS .....	14
1.10.4 COMMUNITY BENEFICIATION .....	15
CHAPTER 2: LEGISLATIVE AND POLICY FRAMEWORK .....	16
CHAPTER 3: WHAT IS A RMP? .....	20
3.1 DEFINITION OF RMP .....	20
3.2 PURPOSE .....	20
3.3 PROCESS TRIGGERS .....	20
3.4 DEVELOPMENT OF RMP.....	22
3.5 RMP PLANNING STAGES .....	23
3.5.1 DESKTOP STUDY .....	23
3.5.2 SITE INSPECTION .....	23
3.5.3 PUBLIC PARTICIPATION .....	23
3.5.4. PLANNING PARTNERS .....	25
3.6 RMP DATA ANALYSIS.....	26
3.6.1 ENCUMBRANCE SURVEY (PHASE 2) .....	26
3.6.2. OBJECTIVE IDENTIFICATION (PHASE 3) .....	28
3.6.3. INFORMATION GENERATION/ RESEARCH (PHASE 4) .....	30
CHAPTER 4: INTEGRATED MANAGEMENT, ZONING, FINANCIAL & INSTITUTIONAL PLAN .....	36
4.1 INTEGRATED MANAGEMENT PLAN (IMP).....	36
4.1.1 INSTITUTIONAL PLAN .....	37
4.1.2 ZONING PLAN .....	44
4.1.3 STRATEGIC PLAN.....	60
4.1.4 FINANCIAL PLAN .....	65
4.2 WAY FORWARD .....	65
CONCLUSIONS .....	66
REFERENCES .....	67

## LIST OF TABLES

<b>Table 1:</b> Dam profile for Tzaneen Dam .....	2
<b>Table 2:</b> Water Quality Variables .....	9
<b>Table 3:</b> GTLM Income Level .....	14
<b>Table 4:</b> Site Specific Trigger Factors for Tzaneen Dam .....	21
<b>Table 5:</b> Planning Partners and their respective mandate .....	25
<b>Table 6:</b> Summary of Identified Legal Encumbrance .....	27
<b>Table 7:</b> Summary of Identified Biophysical Encumbrances .....	27
<b>Table 8:</b> Summary of Identified Social Encumbrances .....	27
<b>Table 9:</b> Summary of Identified Existing Plans Encumbrances .....	27
<b>Table 10:</b> SWOT Analysis for the dam .....	28
<b>Table 11:</b> Practicability of the Identified Objectives .....	32
<b>Table 12:</b> Existing Agreements .....	39
<b>Table 13:</b> Water Surface Zoning .....	46
<b>Table 14:</b> Shoreline Zoning .....	50
<b>Table 15:</b> Resource Management Strategic Plan .....	61
<b>Table 16:</b> Resource Utilization Strategic Plan .....	62
<b>Table 17:</b> Benefit Flow Strategic Plan .....	64

## LIST OF FIGURES

<b>Figure 1:</b> Locality map for Tzaneen .....	3
<b>Figure 2:</b> Hydrology Map for Tzaneen Dam .....	4
<b>Figure 3:</b> Geology Map for Tzaneen Dam .....	6
<b>Figure 4:</b> Topography Map for Tzaneen Dam .....	7
<b>Figure 5:</b> Average Temperature of Tzaneen .....	8
<b>Figure 6:</b> Average Rainfall for Tzaneen .....	9
<b>Figure 7:</b> Water Level for Tzaneen Dam .....	10
<b>Figure 8:</b> Population Pyramid for GTLM .....	13
<b>Figure 9:</b> Education Level for GTLM .....	14
<b>Figure 10:</b> Employment Status for Ward 14 .....	15
<b>Figure 11:</b> RMP Procedure .....	22
<b>Figure 12:</b> Researched Data .....	31
<b>Figure 13:</b> Integrated Management Plan Structure .....	36
<b>Figure 14:</b> Proposed Dam Management Committee for Tzaneen Dam .....	38
<b>Figure 15:</b> Existing Operations Management Committee .....	41
<b>Figure 16:</b> Proposed Project Steering Committee .....	42
<b>Figure 17:</b> Proposed Water Surface Zoning Map for Tzaneen Dam .....	48
<b>Figure 18:</b> Proposed Shoreline Zoning Map .....	52
<b>Figure 19:</b> Proposed Overall Zoning Map for Tzaneen Dam .....	53
<b>Figure 20:</b> Proposed Overall Zoning Map - Section 1 .....	54
<b>Figure 21:</b> Proposed Overall Zoning Map - Section 2 .....	55
<b>Figure 22:</b> Proposed Overall Zoning Map - Section 3 .....	56
<b>Figure 23:</b> Proposed Overall Zoning Map - Section 4 .....	57
<b>Figure 24:</b> Proposed Overall Zoning Map - Section 5 .....	58

Figure 25: RMP Review Framework..... 65

## LIST OF APPENDICES

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<b>Appendix A</b>	Registered Stakeholder list
<b>Appendix B</b>	Background Information Documents
<b>Appendix C</b>	Newspaper Adverts
<b>Appendix D</b>	Flyers
<b>Appendix E</b>	Email Invitations
<b>Appendix F1 &amp; 2</b>	Attendance Register and Minutes for Authorities meetings
<b>Appendix G1&amp;2</b>	Attendance Register and Minutes for Public meetings
<b>Appendix H1&amp;2</b>	Attendance Register and Minutes for Focused Group meeting

## CHAPTER 1: INTRODUCTION

### 1.1 BACKGROUND OF TZANEEN DAM

Tzaneen Dam (previously known as **Fanie Botha Dam**) is an earth-fill type of dam which impounds the Great Letaba River. The dam is located within the jurisdiction of the Greater Tzaneen Local Municipality (GTLM) under Ward 14, which form part of the Mopani District Municipality in Limpopo Province, South Africa. The dam is situated adjacent to the Tzaneen Dam Nature Reserve (**See Figure 1 for Locality Map**).

Tzaneen Dam is owned and operated by DWS. There is currently no formal institutional structure to manage the dam for recreational activities. The dam was commissioned in 1976 and its primary purpose is to provide water for domestic and agricultural use.

Tzaneen dam falls within B81B Quaternary Catchment within the Luvuvhu/Letaba Water

Management Area (**See Figure 2 for Hydrology Map**).

There is no water transfer into the Great Letaba River sub-area. However, there is a significant water transfer out of the sub-area.

The rising demand of afforestation puts strains on the water resource as these plantations consume large quantities of water. The proposed raising of the dam wall will solve most of the water demand issues as the capacity of the dam will increase.

The catchment as a whole is in water deficit due to the growing demand of water in the area, while users upstream of the dam enjoy a relatively high level of water assurance, the users downstream experience water shortages. Tzaneen Dam has been fully allocated due to the growing demand of agriculture and afforestation practices. Luvuvhu/Letaba WMA (DWAF, 2004). (**See Table 1 below for Tzaneen Dam Profile**).



**Table 1:** Dam profile for Tzaneen Dam

<b>Dam Profile for Tzaneen</b>	
<b>Location</b>	South Africa
<b>Province</b>	Limpopo
<b>District Municipality</b>	Mopani District Municipality
<b>Local Municipality</b>	Greater Tzaneen Local Municipality
<b>Nearest Town</b>	Tzaneen
<b>Completion Year</b>	1976
<b>Co-Ordinates</b>	23°47'39.96"S 30°9'48.26"E
<b>Purpose</b>	Irrigation and Domestic Use
<b>Owner</b>	DWS
<b>WMA</b>	Luvuvhu / Letaba WMA
<b>Quaternary Catchment</b>	B81B
<b>Catchment Area</b>	650.5 km <sup>2</sup>
<b>River</b>	Great Letaba River
<b>Capacity</b>	157 291 000 m <sup>3</sup>
<b>Surface Area (ha)</b>	1 163.6 ha
<b>Wall Height (m)</b>	55 m
<b>Length (m)</b>	1 140 m

Source: Department of Water Affairs (List of registered dams, 2013)

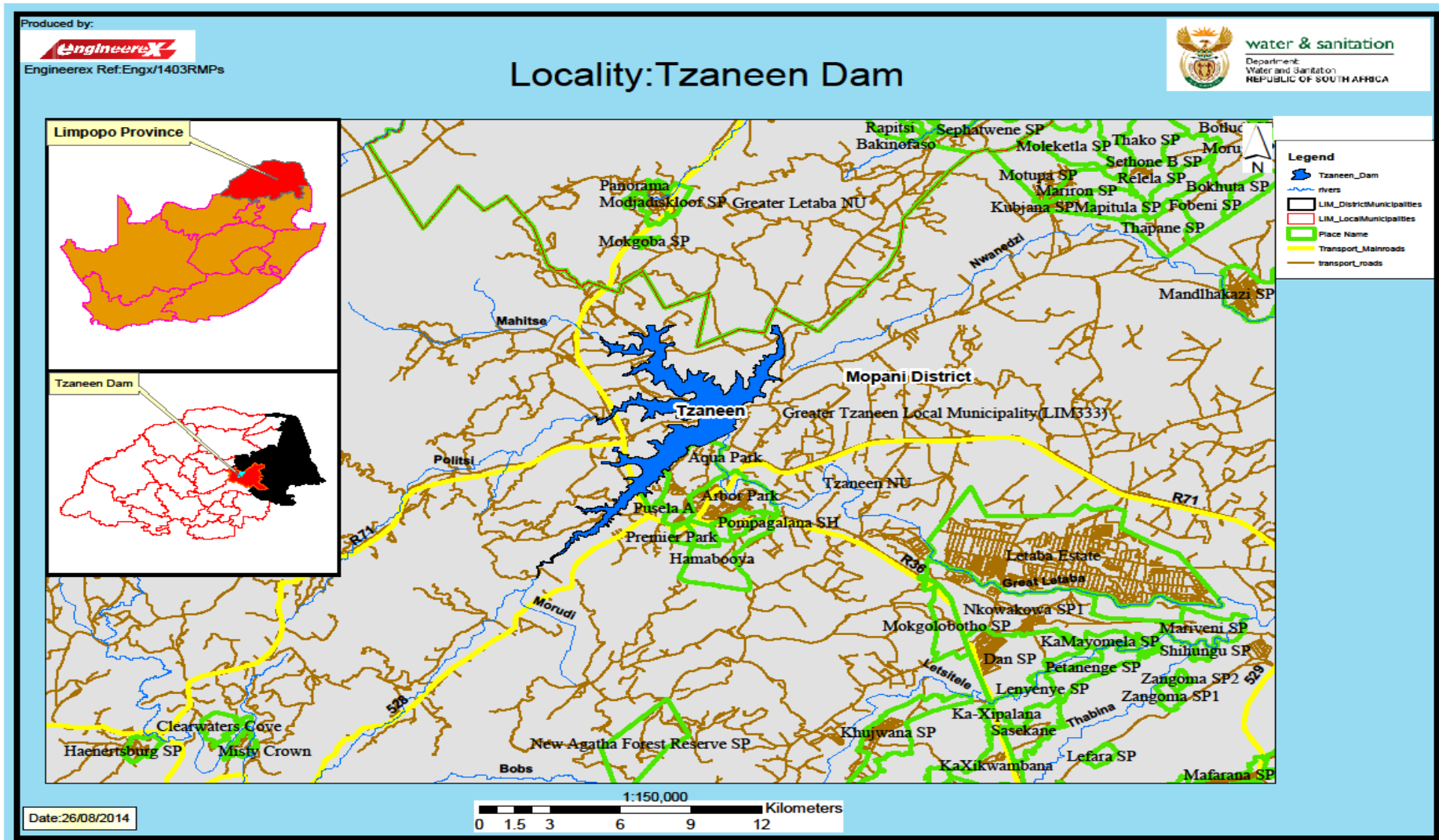


Figure 1: Locality map for Tzaneen

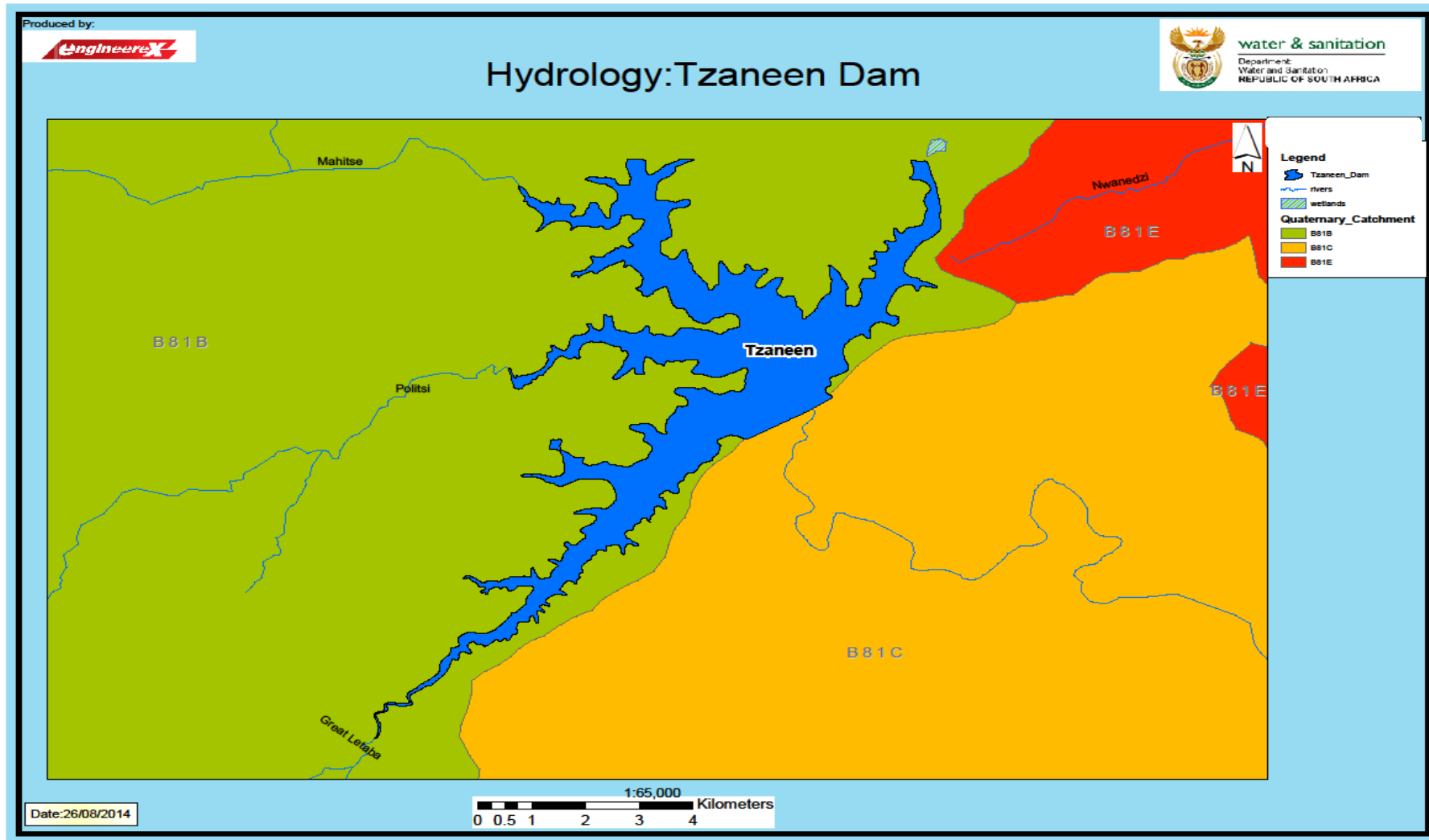


Figure 2: Hydrology Map for Tzaneen Dam

## 1.2 BIOPHYSICAL ENVIRONMENT

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### 1.2.1 GEOLOGY AND SOIL

Tzaneen area is covered by granite, which is felsic, generally equigranular, and relatively light coloured intrusive rock. It comprises some of the oldest known rocks on earth and it is the most abundant basement rock underlying thin sedimentary rock cover in the area. There are also scattered rocks like gneiss which is a rock formed during regional metamorphism. It is generally a coarse-grained granular textured rock which can develop from a wide variety of igneous and sedimentary material and lava (See Figure 3 for Geology Map).

The soil type which is found in and around Tzaneen Dam is red and yellow with low to medium base structure, the soil is freely drained and structureless (Olifants and Letaba Environmental Management Framework, 2009).

### 1.2.2 TOPOGRAPHY

The Tzaneen area is known for its hills and cliffs, such as the Magoebaskloof and Modjadjiskloof areas. The dam falls within the low mountainous Zone with the area surrounding the dam basin as undulated landscape. The topography around the water resource is relatively flat. (See Figure 4 for Topographic Map).

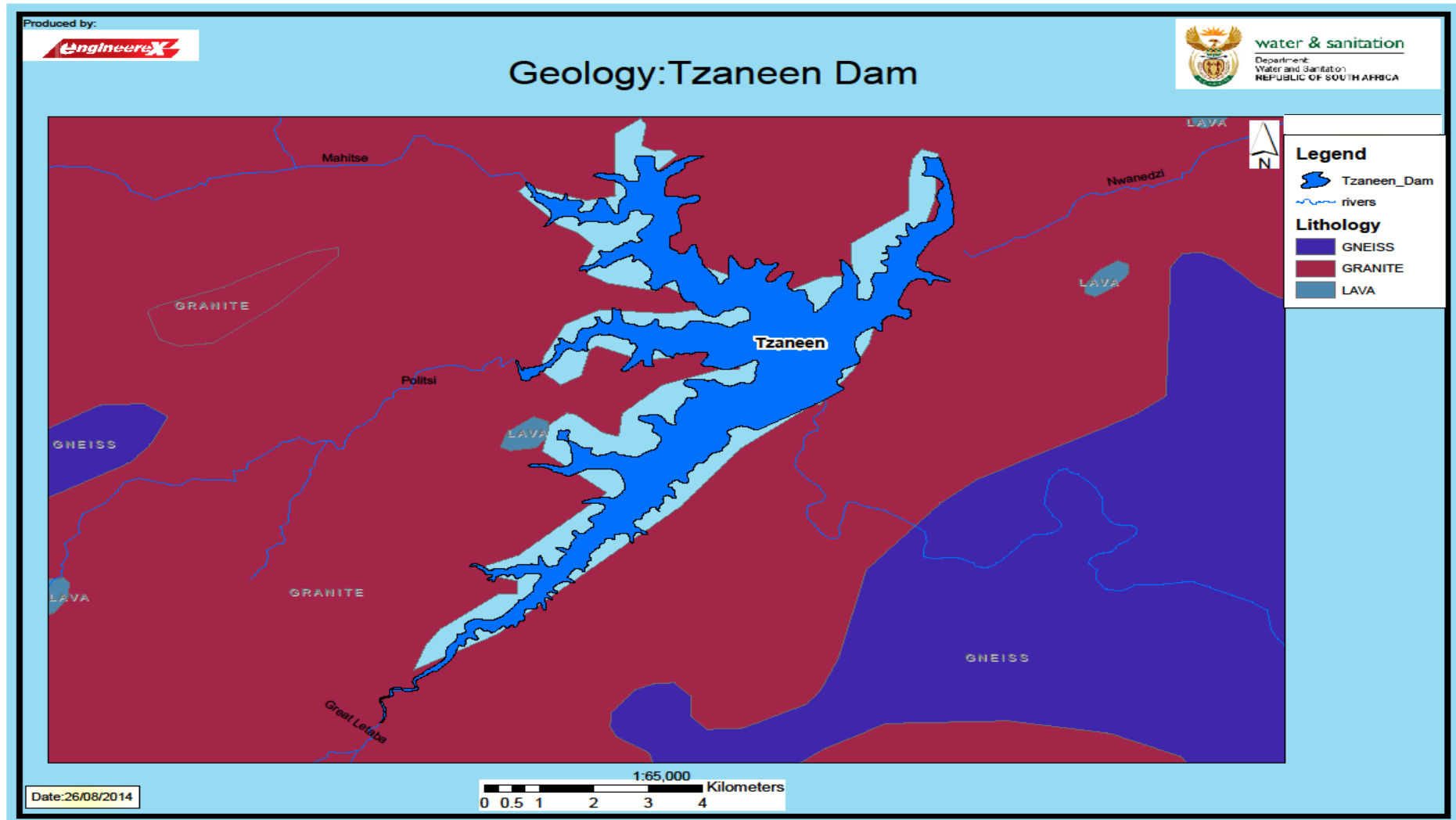


Figure 3: Geology Map for Tzaneen Dam

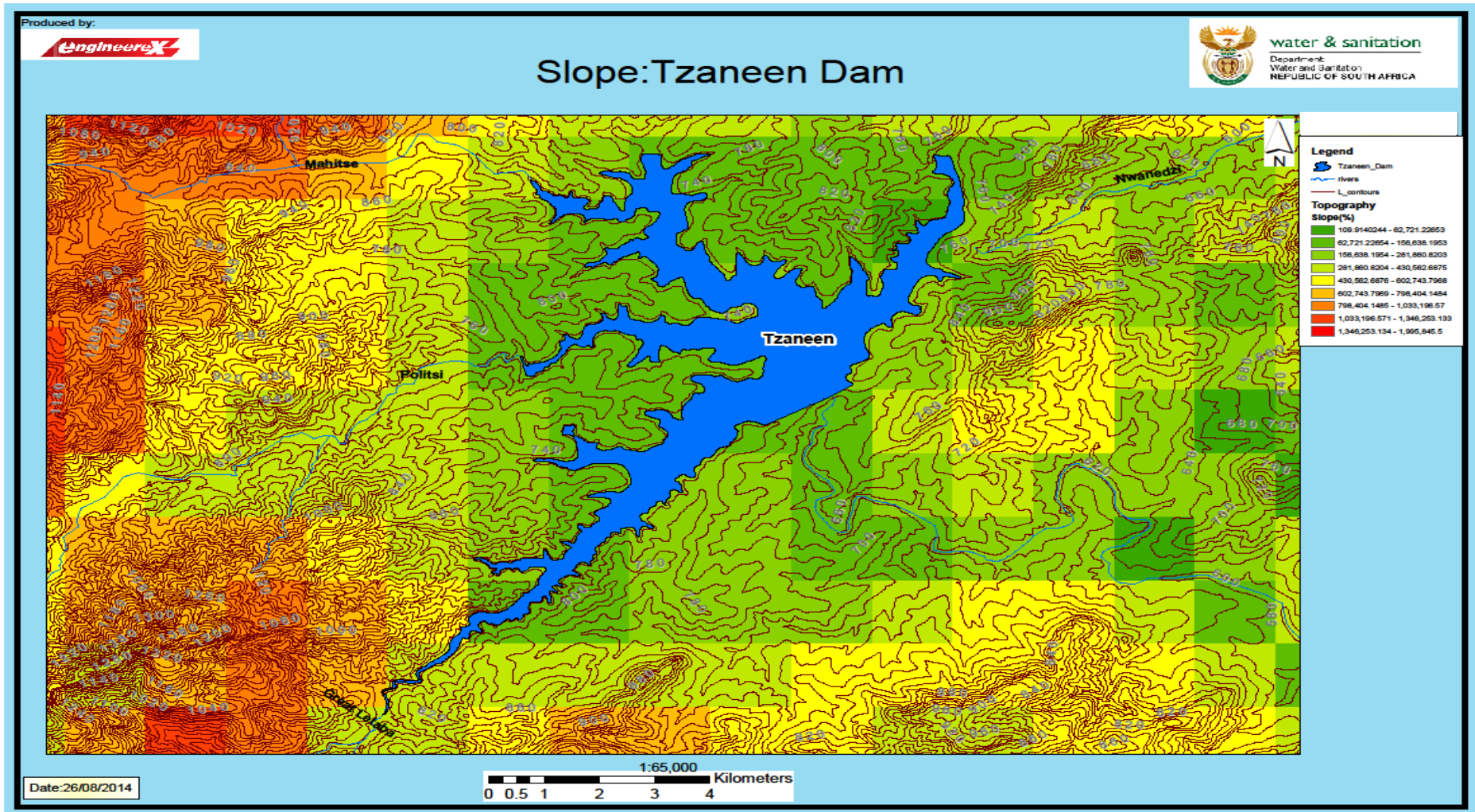
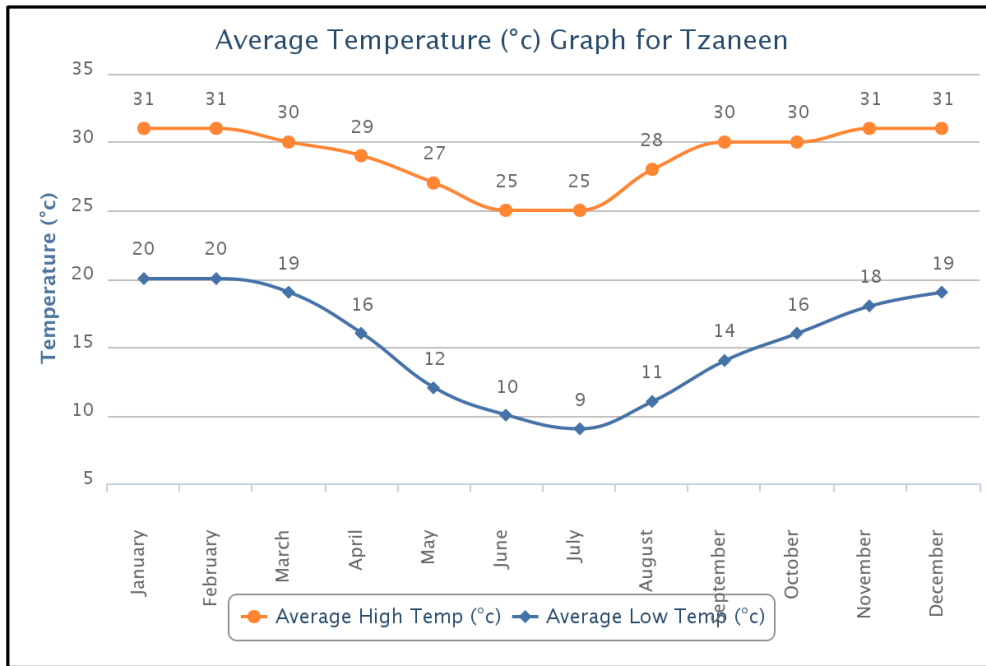


Figure 4: Topography Map for Tzaneen Dam

**1.2.3 CLIMATE**

Tzaneen falls under the summer rainfall region, with an average annual rainfall of 902.49 mm, which is from October to March. The average annual temperature in Tzaneen is 25°C and the warmest months of the year is November to February with an average temperature of 31°C.

The coldest month is July with the average temperature of 9°C and is the lowest average temperature of the whole year. The average temperature vary during the year by 9.4°C. (World Weather Online, 2015), **See Figure 5 for the average temperature in Tzaneen and Figure 6 for the average rainfall in Tzaneen.**



**Figure 5: Average Temperature of Tzaneen**



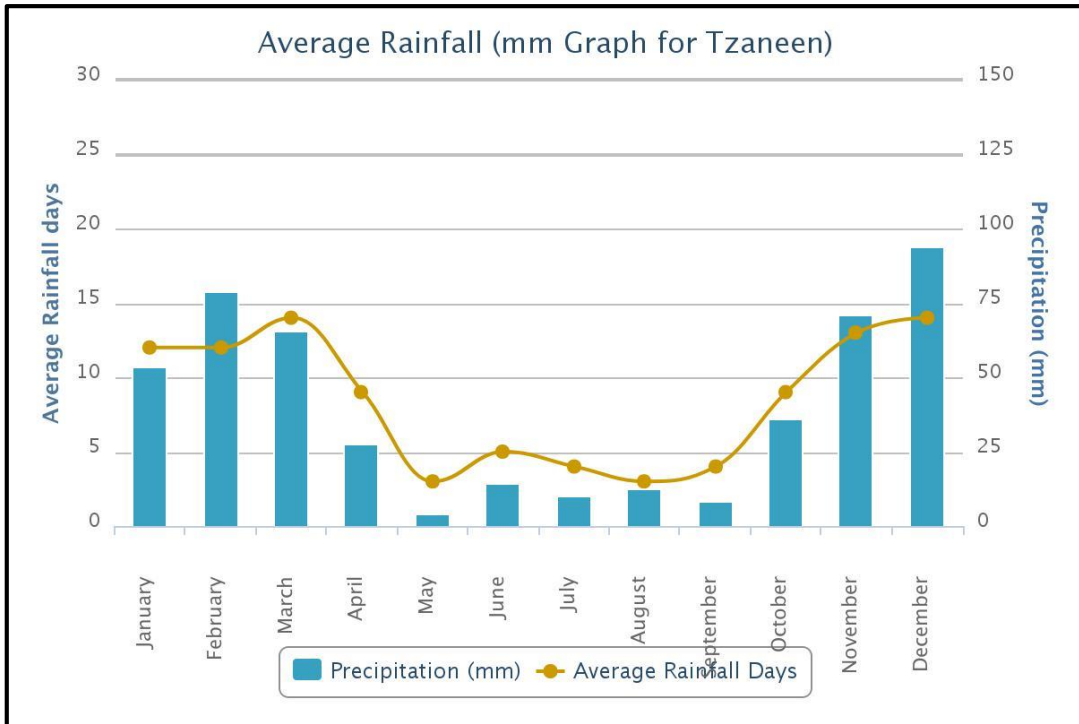


Figure 6: Average Rainfall for Tzaneen

**1.2.4 VEGETATION**

The dam is situated within the Tzaneen Bushveld region which is characterized by deciduous tall open Bushveld (parkland) with a well-developed, tall grass layer, occurring on low to high mountains, with undulating plains mainly at the base and on the lower to middle slopes of the north-eastern escarpment. The most dominant veld type is the Lowveld sour bush, which is one of the inland tropical forest type (Olifants and Letaba Environmental Management Framework, 2009).

**1.2.5 WATER QUALITY**

The water quality at Tzaneen Dam is of excellent quality, well within the Water Quality Guidelines (WQG). The dam is surrounded by residential areas and farms, which poses a threat to the water quality in the dam. **Table: 2** below illustrates the variables which were analysed by DWS, 2011 (National Water Management System) to determine the fitness of water for recreational use:

Table 2: Water Quality Variables

Characteristics	Test Results	Water Target Range(Recreational Use)	Description
pH (pH units)	7.552	6.5-8.5	The pH of water is well within Quality Range and the buffering capacity of the lachrymal fluid of the human eye. Skin, ear and mucous membrane irritation is absent.
Sulphate (mg/l)	1.5	0-200	No health or aesthetic effects can occur
Clarity (Secchi (m)	2.9	3.0	No health or aesthetic effects can occur
Nitrate (mg/l)	0.055	0-6	No health or aesthetic effects can occur
Free and Saline Ammonia (mg/l)	0.002	0-1.0	No health or aesthetic effects can occur

Source: Department of Water and Sanitation (WQMS, 2011)

The pH of the water is within the South African Water Quality guidelines for recreational water use, and also within the buffering capacity of the lachrymal fluids of the human eye.

The SECCHI is 2.9 also within the standards and some users will perceive water as suitable for swimming. Risk of disease transmission by organism associated with particulate matter is very low but cannot be excluded on the basis of clarity or turbidity measures alone. No diverse effects on aesthetic appreciation expected.

**1.2.6 SURFACE WATER**

The dam falls within B81B Quaternary Catchment within the Luvuvhu/ Letaba Water

Management Area. The average water level for 2014 was 101.4 % in the dam. According to DWS surface water home website for state dams (04/2015), Tzaneen Dam water level was moderately low at 75.1%. If the water level is compared to 2014 which was 101.4% at moderately high between October and December and normal between December and March. This shows that the water level is not stable and that it changes every time, depending on the water use and the weather at a particular time.

The water surface area at full supply level is approximately 1 163.6 ha. Tzaneen Dam is very deep and cannot be operated if the water level is 30% or lower.

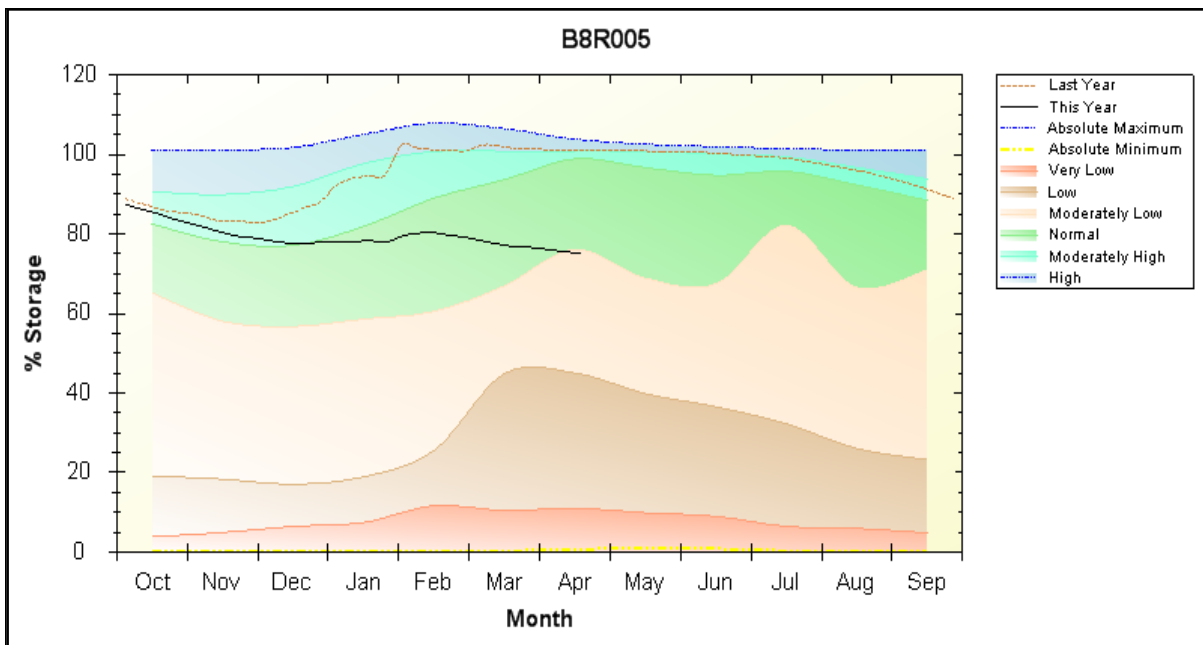


Figure 7: Water Level for Tzaneen Dam

**1.3 CULTURAL DATA**

Nothing of cultural or historical value has been identified around the dam. Although pot fragments, from the last century have been found, no intensive studies on archaeology have been undertaken. Specialist were unable to identify any visible signs that will justify such studies (Zoning Plan for Tzaneen Dam, 1999).

According to South African Heritage Resources Agency (SAHRA) 2015, nothing of cultural or historical value has been recorded in and around the dam. [www.sahra.org.za](http://www.sahra.org.za).

**1.4 CONSERVATION**

The dam is adjacent to the Tzaneen Dam Nature reserve, which is a conservation area. Limpopo Department of Economic Development Environment and Tourism (LEDET) has declared the Tzaneen Dam Nature Reserve (TDNR) as Provincial Park through the agency of the Department, which is Limpopo Tourism Agency.

## 1.5 INSTITUTIONAL STRUCTURE

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There is no formal institutional structure managing the recreational use of the dam. However, DWS is the owner and operator of the dam.

## 1.6 LAND OWNERSHIP

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DWS is the owner of Tzaneen Dam and the purchased boundary. The land adjacent the dam (outside the purchase boundary) is privately owned by farmers and residential estate owners.

### 1.6.1 LAND CLAIMS

There are no land claims which have been lodged against Tzaneen Dam.

### 1.6.2 ACCESS AND USE AGREEMENT

#### 1.6.2.1 LETABA WATER USER ASSOCIATION (LWUA)

The dam falls under the jurisdiction of the LWUA. The association provides funds for the operation and maintenance of these dam by DWS (Seshoka et al, 2004). Tzaneen Dam is located on the Great Letaba River immediately upstream of the town of Tzaneen. There are various water users in the Great Letaba River but the LWUA only comprises of farmers. The municipalities are not part of the LWUA.

The administrative offices of the LWUA are in Tzaneen. The current management is mainly based on the following three activities (Seshoka et al, 2004):

- Monitoring water abstraction;
  - ✚ The LWUA controls and monitors the abstraction of water by its members from the Great Letaba River, with the help of two full-time bailiffs.
- Operating waterworks; and
  - ✚ The LWUA operates the five weirs from which the canals depart.
- Strategically managing the consumption of water for agriculture in the two large dams (Tzaneen and Ebenezer Dams) with DWS;

- ✚ By assessing the consumption of water in the dam and impose restrictions to effectively manage the dam.

#### 1.6.2.2 LIONS CLUB

There is a lease agreement on portion of portion 258 of the Farm 555T, 1.5 ha between the Lions Club and the former transitional Local Council of Tzaneen now known as GTLM. The lease agreement started on the 1<sup>st</sup> of September 2000 and is renewed on a monthly basis.

The club is responsible for controlling the public access, maintaining the Lions Club area and also managing recreational activities at the dam.

Some of the conditions of the lease agreement are as follows:

- No subletting and no other person(s) will be allowed on the Property except the employees of the Lessee without written consent by Board.
- Only for the activities of the Lions Club, and no other use without written consent by Board will be allowed.
- Lessee need to maintain the Property in the term of the lease agreement conditions, and is require to hand over the Property in the same state as received to the Board.
- Property must be kept clean and sanitation must be kept in working order.
- Maintenance of the property is lessee's responsibility.

#### 1.6.2.3 TZANEEN DAM NATURE RESERVE

There is a concession agreement between TDNR and LTA which is an agency of LEDET to manage and control the access through the Nature Reserve and also to maintain the Nature Reserve.

## 1.7 SAFETY

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There are two (2) public access controlled areas at the dam. Other unauthorized accesses are near the dam wall and in some parts of the

dam as the dam is not fenced. The communities use such unauthorized accesses to practice net fishing which is unlawful, poaching of bushbucks and also putting their lives in danger as the dam is a home to crocodiles and hippopotamuses.

There are tree stumps inside the dam and some of them are not visible when the water level is high, these are likely to cause accidents during boating. Public Safety Boards should be erected to make the public aware about the tree stumps.

#### **1.7.1 SAFETY OF NAVIGATION**

There is currently no adequate, standardised and harmonised fixed and floating Aids to Navigation<sup>1</sup> (AtoN) and Demarcation Markers in place.

#### **1.7.2 INCIDENT MANAGEMENT**

There is no specific incident management system in place to ensure that incidents are responded to in a co-ordinated manner.

### **1.8 USES AND USERS OF THE DAM**

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#### **1.8.1 PRIMARY FUNCTIONS**

##### **1.8.1.1 DOMESTIC USE**

The primary purpose of the dam is to supply raw water to the GTLM for domestic use.

##### **1.8.1.2 AGRICULTURE USE**

The other primary purpose of the dam is to provide water to the farmers for irrigation purposes. There is a growing demand of water for agricultural use in the Tzaneen area, for example, irrigation of various vegetables such as tomatoes and variety of sub-tropical fruits including nuts, bananas, avocados, mangoes and citrus fruits like oranges and lemons.

#### **1.8.2 SECONDARY FUNCTION**

##### **1.8.2.1 RECREATION USE**

Recreation and tourism in the Tzaneen area is very high. Lions Club is currently offering the following recreational activities: Boating, angling (large-mouth bass angling), bird watching, and it offers picnic sites and basketball court as well to the community.

The Tzaneen Dam Nature Reserve offers a place for picnics, caravan Park, camping and other activities include boating, angling and bird watching.

##### **1.8.3 OTHER USES**

###### **1.8.3.1 AFFORESTATION**

There are commercial timber plantations (Blue Gums Trees) adjacent to the river which feeds to the dam. Such plantations consume large quantities of water which may negatively affect the capacity of the dam.

###### **1.8.3.2 RESIDENTIAL ESTATE**

Tzaneen Dam is located in Tzaneen town near suburbs such as Avis Park, Aqua Park Premier, Park Medi Park and Arbor Park. Some of these suburbs are adjacent to the dam and they have a scenic view of the dam.

### **1.9 BUILT ENVIRONMENT**

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#### **1.9.1 ROADS**

All the access roads to the dam for recreational use are in a good condition, thus making the dam easily accessible for recreational use. The roads which can be used to access the dam are R71 from Polokwane and R36 from Giyani.

#### **1.9.2 PARK**

Within the Nature Reserve there is a picnic site where people can relax, braai and watch birds. There is also a launching site for vessels. Lions Club also offers a nice picnic site, boat slip way for boat launching and a basketball court.

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<sup>1</sup> A maritime Aid to Navigation (AtoN) is defined by the international Association of Marine Aids to Navigation and Lighthouse Authorities (IALA) as "A device or system external to

vessels that is designed and operated to enhance the safe and efficient navigation of vessels and/or vessel traffic"

**1.9.3 BUILDINGS**

Within the Lions Club and the Tzaneen Dam Nature Reserve there are functional ablution facilities for users.

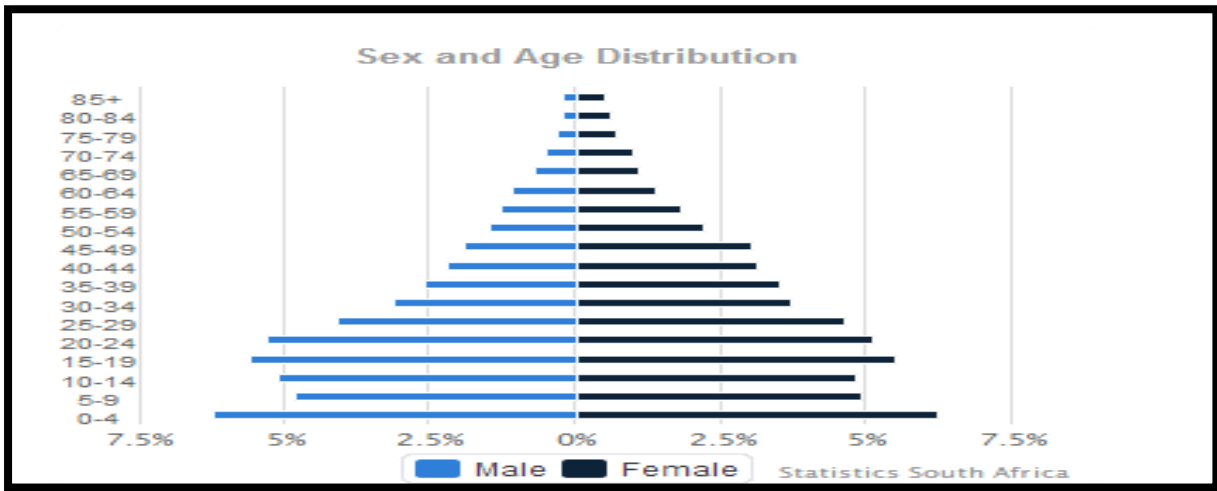
**1.10 SOCIO-ECONOMIC ENVIRONMENT**

The population dynamics of the study area, education level, employment status as well as language status of people living in the area. Population dynamics and other languages are represented by a small minority. Furthermore, the population in GTLM is 96% and only 4% constitute of Ward 14. The dominate population group in Ward 14 is black Africans

individuals, followed by white people and then Indian or Asians.

**1.10.1 POPULATION DYNAMICS**

According to Statistics South Africa, 2011, GTLM has increased its population from 375 588 to 390 092 (an increase of 14 504) comprising of 181 558 males and 208 536 females. Females still outnumber males as they comprise 53% of the population (54% during Census 2001). Young people between the ages of 14 – 35 constitute 40% (156 900) of the total population of the municipality. Illustrated below by **Figure 8** is the population pyramid that shows sex and age of the area.

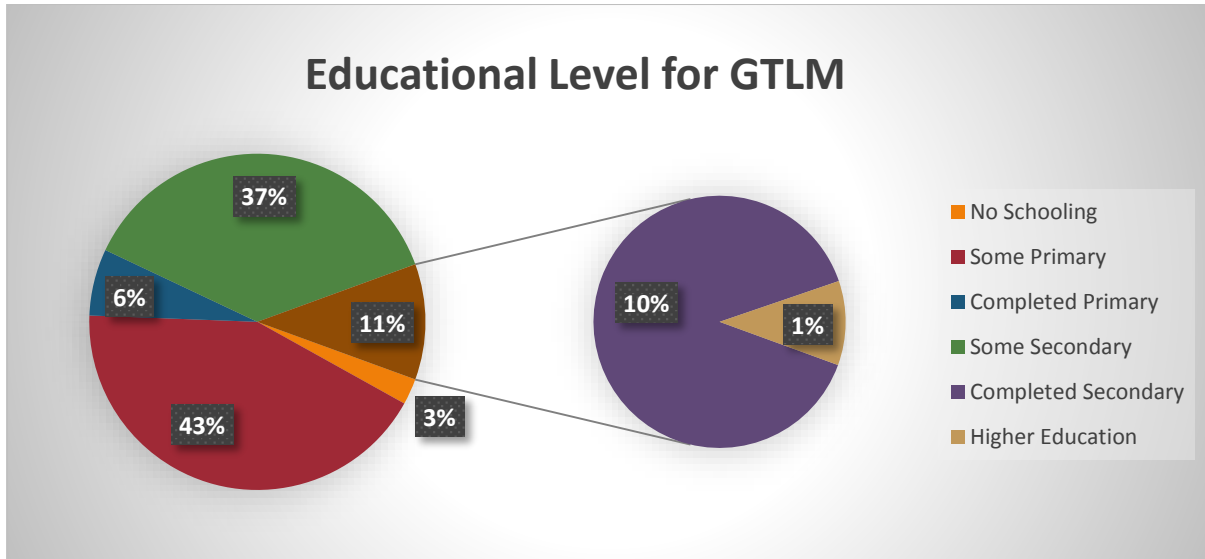


**Figure 8:** Population Pyramid for GTLM

The population is mostly blacks (± 96% according to the 2011 Census), with the minority consisting of whites (3%), Indians / Asians (0.4%) and Coloured (0.2%). The most widely spoken first language is Sepedi (46%), followed by Xitsonga (40.7%), Afrikaans (3%) and English (2%). The other seven (7) official languages and other languages are represented by a small minority. Furthermore, Ward 14 in which Tzaneen Dam is located constitute 4% of the population in Greater Tzaneen Local Municipality. The dominating population group in Ward 14 is black Africans individuals, followed by white people and then Indian or Asians.

**1.10.2 EDUCATION LEVEL**

According to Census 2011, there is a decline of education after Grade 12 or standard 10 within the municipality. Access to higher education remains a challenge not only locally, but nationally as well. It also shows the same trend within Ward 14 as it also forms part of the GTLM as a whole. Approximately 43% of people within the municipality did not complete their primary education while only 0.1% have went further to attend tertiary education See **Figure 9** below:



**Figure 9:** Education Level for GTLM

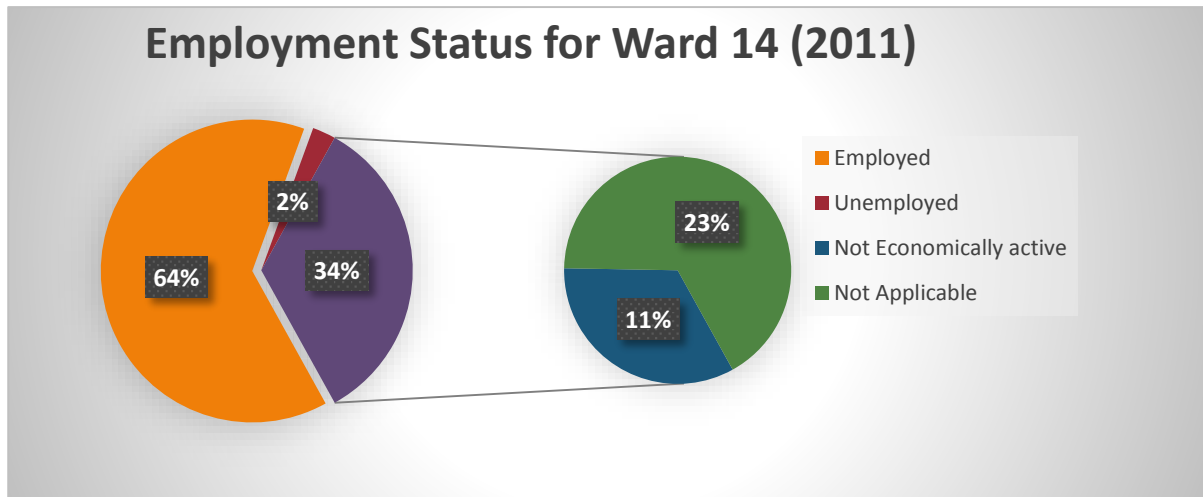
### 1.10.3 EMPLOYMENT STATUS

According to Statistics SA Census 2011, the employment status of GTLM does not show an impressive situation, 160 254 individuals who makes a total of 41% in the GTLM do not have any source of income, while the rest of the

community do have a source of income. 45% of them earn an income which is below the minimum living level, that is R31 200 per annum or lower than R2 600 per month as defined by statistics SA. **See Table 3 and Figure 10.**

**Table 3:** GTLM Income Level

Individual monthly Income	Total
No income	160 254
R1-R400	105 823
R401-R800	15 004
R801-R1600	56 634
R1601-R3200	15 148
R3 201-R6400	8 057
R6 401-R12 800	7 793
R12 801-R25 600	5 779
R25 601-R51 200	1 507
R51 201-102 400	367



**Figure 10:** Employment Status for Ward 14

#### 1.10.4 COMMUNITY BENEFICIATION

It is DWS's belief that communities which host water resources should share in the benefits emanating from the utilization of the resource for recreational purposes by ensuring that these communities have both physical access to the resource, as well as access to the water-based recreation economy.

When developing a RMP for Tzaneen Dam, community beneficiation is one of the key factors which were considered. The community will benefit in terms of the following:

- By having equitable access and use of the dam.
- By promoting public safety when accessing the dam through controlled access and appointing a personnel to oversee that the public is safe when engaging in recreational activities.
- By giving priority to the community when there are employment opportunities and skills development programs.
- By appointing an Implementing Agency (IA) to manage the recreational activities, this will lead to upgrading of recreational facilities at the dam.
- By promoting public private partnerships which will benefit the community and also the economy of Tzaneen.



## CHAPTER 2: LEGISLATIVE AND POLICY FRAMEWORK

According to DWAF (2006), utilizing water, and in certain instances the state land surrounding water resources, must comply with relevant legislation and policies. A legal survey illustrated that within the South African context, ensuring compliance with relevant legislation is pivotal to the attainment of sustainability. This includes relevant Acts, regulations and planning frameworks such as:

- I. **Conservation of Agricultural Resource Act, 1983 (Act No. 43 of 1983):** Regulation 7 and 8 deals with the protection of wetlands and water courses, while regulations 15 and 16 deals with alien invasive plant species and bush encroachment.
- II. **Consideration on Institutional Arrangement for Managing Use of Water for Recreational Purposes (2005):** This paper outline some of the institutional issues at a local level and makes recommendations about the conditions under which different institution management arrangements may be considered.
- III. **General Public Participation Guidelines (2002):** Public participation refers to ongoing interaction between role players and all Stakeholders that is aimed at improving decision making during planning, design, implementation and evaluation of all project within the state, this includes the proposed development of the RMP.
- IV. **Guidelines for Compilation of Zoning Plans for Government Waterworks (1999):** The policy is a framework policy designed to establish the objectives and principles regarding the recreational water use of government waterworks as well as the various tools for policy implementation.
- V. **Limpopo Environmental Management Act, 2003 (Act No.7 of 2003):** The aim of this Act is to manage and protect environment as well as to secure ecologically sustainable development and responsible use of natural resources in the province.
- VI. **Merchant Shipping (National Small Vessel Safety) Regulations, 2007:** The Department of Transport has promulgated these to regulate small vessel regarding aspects such as classification, vessel safety requirements, certification regarding aspects such as classification, authorisation, enforcement, etc. It also provides for the provision of an Enforcement Officer who can go aboard a vessel and search it and take possession of any intoxicating drugs or liquor. The enforcement Officer may also request that the identification Document, Skipper's Licenses etc. be produced. The officer may also direct movement of small Vessel where necessary.
- VII. **Methodology for Carrying Capacity Assessment for the Use of Water for Recreational Purposes (2006):** The carrying capacity of a water resource represents the maximum level of visitor/recreational use and related infrastructure that the water resource and surrounding area can accommodate, without diminishing user satisfaction or adverse impacts upon the local or host community, the economy and culture of the area.
- VIII. **National Environmental Management Act, 1998 (Act No. 107 of 1998):** The principles underpinning environmental management contained in the National Environmental Management Act (NEMA), must be taken into account by any organ of state in the exercise of any power that may impact on the environment.

- IX. National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004):** The aim of this Act is to provide for the management of the South Africa’s biodiversity with NEMA’s framework.
- X. National Environmental Management: Protected Area Act, 2003 (Act No. 57 of 2003):** The aim of this Act provide for the protection and conservation of ecologically viable areas, which are representative of South Africa’s Biodiversity, as well as natural landscapes and seascapes.
- XI. National Environmental Management: Protected Areas Amendment Act, 2009 (Act No.15 of 2009):** The aim of this Act provide for the protection and conservation of ecologically viable areas, which are representative of South Africa’s Biodiversity, as well as natural landscapes and seascapes.
- XII. National Treasury PPP Toolkit for Tourism (2005):** This toolkit is to assist the process of development of tourism-based businesses on state-owned land. The Toolkit should make it easier for institutions and the private sector to enter into tourism related partnerships on state property managed by national and provincial government institutions.
- XIII. National Treasury Public Private Partnership (PPP) Toolkit for Tourism, (2005):** This toolkit assists the process of development of tourism-based businesses on State-owned Land. The Toolkit make it easier for Institutions and the Private Sector to enter into tourism related partnerships on State Property managed by National and Provincial Government Institutions.
- XIV. National Water Act, 1998 (Act No.36 of 1998):** This Act recognizes that water is a scarce resource; it is a natural resource that belongs to all of South Africans. “The Minister, as the custodian of the nation’s water resources must ensure that GWWs are protected, used, developed, managed and controlled in a sustainable and appropriate manner, for the benefit of all and in accordance with its constitutional mandate”.
- XV. Operational Policy Document on using water for Recreational Purposes (2004):** This policy is the main guideline in support of the RMP process with regards to the basic principles, policies, strategies and actions for regulating the use of water for recreational purposes.
- XVI. Resource Management Plans: Compilation Guidelines (DWAf RWU GP2, 2006):** It directs and guides the development of RMPs by providing insight into the purpose and objectives of these plans, the procedure for its compilation and structure of such documents.
- XVII. Resource Management Plans: Zoning Protocol: DWAf RWU GP2, 2006):** Environmental Characteristics Opportunity Spectrum (ECHOS) is a new comprehensive planning technique to establish zones through the layering and processing information. Recently piloted, this protocol may become applicable during the course of this RMP.
- XVIII. The Constitution of the Republic of South Africa, 1996 (Act No. 108 of 1996), Section 24:** It provides that, everyone has a right to an environment that is not harmful to their health or well-being.
- XIX. The Regulations in Respect of Government Dams and Surrounding State-owned land, No. R654 of 1964:** This regulation regulate the use and access to the GWWs.
- XX. South African Maritime Safety Authority Act, 1998 (Act 5 of 1998)**

One of SAMSA's three legislative mandates is "to ensure safety of life and property at sea". The Act enables SAMSA to administer and execute the relevant maritime legislation.

The RMP process also takes cognizance of the following Legislation, Policies and Plans:

- Communal Land Rights Act, 2004 (Act No.11 of 2004).
- Development Facilitation Act, 1995 (Act No. 67 of 1995).
- Disaster Management Act, 2002 (Act No. 57 of 2002).
- Draft Limpopo Spatial Planning and Land Use Management Bill (2012).
- Environmental Conservation Act, 1989 (Act No, 73 of 1989).
- Intergovernmental Relations Framework Act, 2005 (Act No.13 of 2005).
- Land Administration Act, 1995 (Act No. 2 of 1995).
- Limpopo Conservation Plan v2 (2013).
- Limpopo Environmental Management Act, 2003 (Act No. 7 of 2003).
- Limpopo Development Plan (2014)
- Limpopo Growth and Development Strategy (2005)
- Limpopo Province: Provincial Land Use Legislature Reform (2011)
- Local Government: Municipal Systems Act, 2000 (Act No. 32 of 2000).
- Sustainable Development Goals (2015)
- National Development Plan (Vision for 2030).
- National Heritage Resources Act, 1999 (No. 25 of 1999)
- National Treasury Regulations and Public Private Partnership (PPP) Toolkit for Tourism, December 2005.
- National Veld and Forest Fire Act, 1998 (Act No. 101 of 1998)
- Occupation Health and Safety Act, 1993 (Act No. 85 of 1993).
- Public Finance Management Act, 1999 (Act No. 1 of 1999).
- Restitution of Land Rights Act, 1994 (Act No. 22 of 1994).

- Safety at Sports and Recreational Events Act, 2010 (Act No. 2 of 2010).
- SAMSA Act, 1998 (Act No. 5 of 1998).
- State Land Disposal Act, 1961 (Act No. 48 of 1961).
- The Constitution of South Africa, 1996 (Act No.108 of 1996).
- Tourism Act, 1993 (Act No. 72 of 1993).
- Safety of Navigation:  
In addition to its common law responsibility, DWS is, in terms of the requirements described in the National Water Act, Act No 36 of 1998, amongst others, responsible for the safety of Government's waterways and watercourses, including its dams. DWS, its delegated public sector partner, or a delegated water management institution, has therefore the responsibility to provide the required fixed and/or floating AtoN for general navigation. In addition to the DWS, Local Accountable AtoN Parties (LAAP) and other Bodies providing access to Government waterways and watercourses have a responsibility to ensure that the required fixed and/or floating AtoN are provided after obtaining the necessary support from DWS and thereafter the permission by SAMSA. In order to demarcate specific zones/areas, standardised demarcation markers are to be used in conjunction with the relevant AtoN.
- SAMSA Marine Notices and its Directive on the Standardisation of fixed and floating AtoN and Demarcation Markers on all navigable Inland Waterways in the Republic of South Africa.
- The Cooperative Inland Waterways Safety Programme (CIWSP)  
The Cooperative Inland Waterways Safety Programme (CIWSP) project is a partnership between multiple government entities and between the government and the community.

The aim is to enhance the development of a best practice model to ensure a safe and structured inland maritime environment and culture, whilst protecting the country's precious water resources.

Not only do these Acts, Regulations and Frameworks guide specific decisions and actions, they also provide the framework for monitoring performance and compliance, and provide guidelines regarding contravention, offences and penalties. This list is not complete and other legislations could be applicable.

## CHAPTER 3: WHAT IS A RMP?

### 3.1 DEFINITION OF RMP

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The RMP is a plan which aims to manage the utilization of a water resource and the surrounding state land in ways which promote community participation and beneficiation, environmental conservation and to unlock socio-economic potential of the water resource for recreational use. Recreational use includes activities ranging from leisure, sport to culture and religion. Although recreational use does not involve consumption of water, it is still a major water use and needs to be managed effectively with minimal environmental impacts and to ensure communities have access to water based economy.

### 3.2 PURPOSE

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The main aim of RMPs is to attain the objectives underlying sustainability and to compile functional, workable sustainable access and utilization plans for water resources. Without approved management plans related to the utilization of the water resource in place, it makes it difficult for informed decisions to be made, necessitating a precautionary approach to access, utilization and development of the water resource.

One of the components of the RMP process is to implement an Institutional Plan for effective management of GWWs. The focus on the

Institutional Plan is accompanied by a Zoning Plan which is influenced by current and potential recreational uses. The RMP also outlines the Strategic Plan for all the identified objectives for the dam by addressing the following questions: What, Why, How and Who in relation to access, utilization as well as development of the GWWs and also the implementation of the RMP. In addition a Financial Plan is incorporated into the BP and provides guidance on funding requirements and funding options to implement the potential recreational activities at the dam.

### 3.3 PROCESS TRIGGERS

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Triggers are factors that have encouraged DWS to initiate and commission the development of RMPs.

A number of generic factors have been identified by DWS for the development of RMPs, however, the Process Facilitator identified site specific trigger factors, as illustrated in **Table 4**:

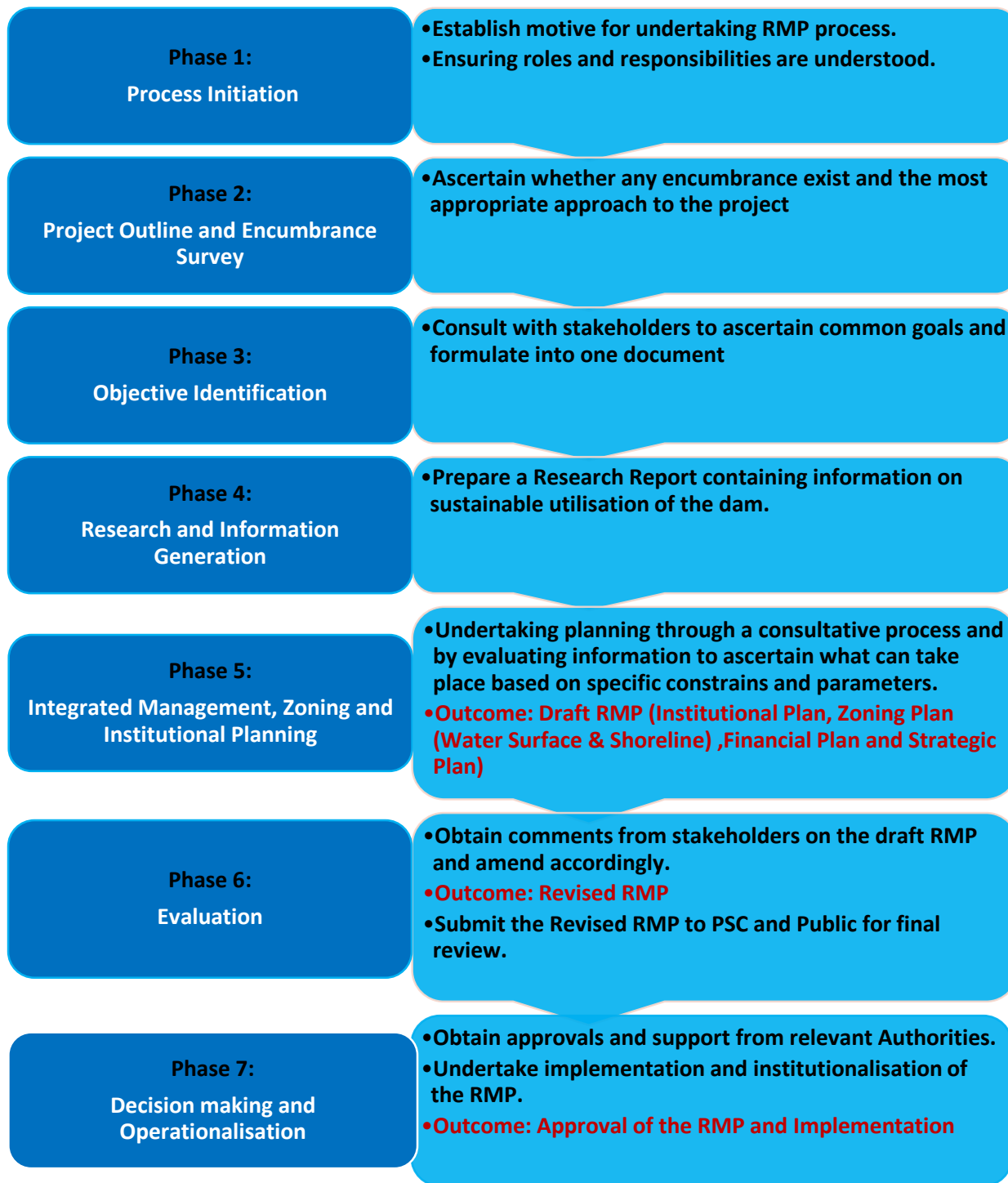
## TZANEEN DAM DRAFT RESOURCE MANAGEMENT PLAN

**Table 4:** Site Specific Trigger Factors for Tzaneen Dam

Trigger Factors	Description
<b>Resource Management</b>	<p><b><u>Water quality</u></b></p> <ul style="list-style-type: none"> <li>Tzaneen Dam is surrounded by farms which might pose a threat to the water quality of the dam through agricultural runoff, if it is not monitored timeously.</li> </ul> <p><b><u>Water quantity</u></b></p> <ul style="list-style-type: none"> <li>It is alleged that the amount of water abstracted from the dam by some of the adjacent farmers is not recorded as per the Water Use Licence recommendations.</li> <li>It is also alleged that there are unauthorised water pumps installed in the dam and they are abstracting water without authorisation.</li> </ul> <p><b><u>Alien vegetation</u></b></p> <ul style="list-style-type: none"> <li>There are commercial timber plantations (Blue Gums Trees) adjacent to the river which feeds to the dam. Such plantations consume large quantities of water which may negatively affect the capacity of the dam.</li> </ul>
<b>Recreational Industry Involvement</b>	<p><b><u>Public safety</u></b></p> <ul style="list-style-type: none"> <li>There were drowning incidents in the past years which should be prevented going forward as Public safety is the main priority when developing a RMP for the dam.</li> </ul> <p><b><u>Unlawful activities within the dam</u></b></p> <ul style="list-style-type: none"> <li>It is alleged that community members are practising net fishing which is not sustainable and may deplete fish species in the water resource.</li> <li>It is also alleged that there is poaching of bushbucks at the Nature Reserve.</li> </ul>
<b>Community Participation and Beneficiation</b>	<p><b><u>Public Private Partnership</u></b></p> <ul style="list-style-type: none"> <li>Tzaneen dam is a potential tourist attraction area which in turn can unlock the economic potential of the dam through establishment of effective PPPs.</li> </ul>
<b>Public Policy</b>	<p><b><u>Local Planning Initiatives</u></b></p> <ul style="list-style-type: none"> <li>The Greater Tzaneen Local Municipality is interested in getting involved in the recreational activities at the dam. The dam has also been included in the IDP for the municipality. The dam can be a tourist attraction centre if developed and utilised to its full potential.</li> </ul>

### 3.4 DEVELOPMENT OF RMP

The RMP will be developed in accordance with the RMP guideline procedure (RWU GP2, 2006) as illustrated in **Figure 11** below:



**Figure 11:** RMP Procedure



### 3.5 RMP PLANNING STAGES

#### 3.5.1 DESKTOP STUDY

The study was conducted with the aim to acquire an understanding and the background of the dam. An extensive research was done by reviewing all the data that is available and accessible. This included the review of the Integrated Development Plan (IDP), Environmental Management Framework (EMF), and Spatial Development Framework (SDF) for Greater Tzaneen Local Municipality and Preliminary Design of the Raising of Tzaneen Dam. The study provided information about the background of the dam, primary functions, water user and current recreational activities.

#### 3.5.2 SITE INSPECTION

A site inspection was conducted on the 11<sup>th</sup> of June 2014 to gather baseline information using a checklist questionnaire. The site inspection was undertaken with DWS officials (DWS IEE, Northern Operations, Water control officer and the dam operator). The dam wall, Lions Club and the Tzaneen Dam Nature Reserve were visited as part of the information gathering process.

#### 3.5.3 PUBLIC PARTICIPATION

In order to complete the RMP, it is essential that the information obtained from for **Phase 2 (Encumbrance Survey)**, **Phase 3 (Objective Identification)** and **Phase 4 (Information Gathering and Research)** is utilised as planning input. A Public Participation was conducted in order to acquire information for **Phase 2, phase 3 and phase 4** from Stakeholders.

The public participation for this project was formulated to include the following objectives:

- The identification of role players;
- Introduce the RMP project to role players and inform them about their roles and responsibilities;
- To engage the Stakeholders (Authorities and I&APs) in the planning process;

- The answering of questions and noting of concerns;
- The identification of important issues, problems, conflicts and alternatives;
- Identification of the Overall vision of the Tzaneen Dam;
- The elimination of false expectations and preconceptions; and
- The creation of awareness amongst users.

DWAF's Guidelines for Public Participation (2001) outlines three (3) broad phases for public participation namely the Planning, Participation and Exit phase. Summarized below are the aspects of each phase and the approach for this project.

#### 3.5.3.1 PLANNING PHASE

Planning phase entails three (3) important aspects namely:

- Decision analysis;
- Participation planning; and
- Implementation planning.

During the **Planning Phase** a process was established to get into contact with I&APs. This included various methods of advertising. During this phase a Stakeholder engagement was conducted for Tzaneen Dam to introduce the RMP project to the relevant key Stakeholders which comprised of three (3) Governmental tiers (National, Provincial and Local) and I&APs.

##### 3.5.3.1.1. THE ROLE PLAYERS

The RMP process recognizes that different roles and responsibilities of the Stakeholders and their relationship towards each other and the steps in the planning procedure are imperative in the successful development of the RMP. It is also important that proper consultation with the public is done in order to produce a credible RMP. The success of this RMP is dependent on the level of involvement by the various Stakeholders. Numerous Stakeholders were identified and invited to participate in an open and consultative process. **(See attached registered Stakeholder list in Appendix A).**



The following is a list of registered Stakeholders who are either interested or affected in the project:

- Agri Letaba (Adjacent farmers);
- Business Chambers;
- Department of Environmental Affairs: Working For Water;
- Department of Land Affairs;
- Department of Transport;
- Greater Tzaneen Economic Development Agency;
- Greater Tzaneen Local Municipality;
- Greater Tzaneen Tourism Agency;
- Letaba Water User Association;
- Limpopo Department of Economic Development, Environment and Tourism;
- Limpopo Department of Agriculture and Rural Development;
- Limpopo Tourism Agency;
- Lions Club (Jetty3);
- Local Communities;
- Mopani District Municipality;
- National Department of Public Works;
- South African Maritime Safety Authority; and
- Tzaneen Dam Nature Reserve.

The distinctly different roles and responsibilities of the stakeholders, their relationship towards each other and the steps in the planning procedure are imperative in the successful compilation of a RMP.

### **3.5.3.2 PARTICIPATION PHASE**

The **Participation Phase** entails three (3) important aspects:

- Informing Stakeholders – explained briefly under **3.5.3.4 (Advertising Process)**
- Meeting the Stakeholders – explained briefly under **3.5.3.5.2 - 3.5.3.5.4 Authorities meeting, Public meeting and Focused Group meeting.**
- Feedback – it is of utmost importance that feedback is directed to and from Stakeholders. In this project feedback thus far has been given in a form of minutes of the meetings and follow up emails.

### **3.5.3.3 EXIT PHASE**

The **Exit Phase** entails two (2) important aspects namely:

- Ensuring that all challenges, objectives and vision of the dam have been identified and documented.
- Officially ending the public participation process for the development of a RMP.

During this Phase, a draft RMP and a draft BP will be presented to the Stakeholders so that they can comment and give inputs.

### **3.5.3.4. THE ADVERTISING PROCESS**

#### **3.5.3.4.1. COMPILATION AND DISTRIBUTION OF BACKGROUND INFORMATION DOCUMENT (BID)**

The purpose of this document was to provide Stakeholders (Authorities and I&APs) with the background information about the proposed RMP project and to introduce the processes to be followed in developing the RMP plan. The BID also aimed at informing Authorities and I&APs on how to fully participate in the process and encouraged active attendance in Stakeholder engagement meetings.

In addition the BID also provided Authorities with the opportunity to raise issues of concern and inform any other organizations that might be interested in the project. **(See Attached Appendix B).**

#### **3.5.3.4.2. NEWSPAPER ADVERT**

Newspaper advert regarding the RMP project was advertised on Letaba Herald Newspaper. The notice was published on the 25th of July 2014 on Page 18 of the paper and on Bulletin Newspaper, on the 16th of January 2015 on page 11. These adverts were both published in English. **(See attached Appendix C).**

#### **3.5.3.4.3. FLYERS COMPILATION AND DISTRIBUTION**

The flyers were compiled and distributed on the 17<sup>th</sup> of July 2014, and on the 16th of January 2015. The flyers entailed a brief description of the RMP for the dam, meeting date, time, venue and the relevant contact details. **(See attached Appendix D).**

**3.5.3.5. DIRECT COMMUNICATION**

**3.5.3.5.1. EMAILS**

Meeting invitations were sent out to authorities and I&APs notifying them about the scheduled consultative meetings. The invitations entailed the BID, meeting venue and time. The email notification were sent out on the 16<sup>th</sup> of July 2014 and on the 19<sup>th</sup> of December 2014. **(See Attached Appendix E).**

**3.5.3.5.2. AUTHORITIES MEETING**

The initial Authorities Meeting was held on the 29<sup>th</sup> of July 2014 at Minitzani Hall **(See the attached Appendix F1 for minutes of the meeting and the attendance register).**

Due to the poor attendance of the initial authorities meeting, a follow-up authorities meeting was scheduled for the 29<sup>th</sup> of January 2015 at Minitzani Hall in order to accommodate authorities who were not present at the initial meeting **(See the attached Appendix F2 for minutes of the meeting and the attendance register).**

**3.5.3.5.3. PUBLIC MEETING**

The initial public meeting was held on the 29<sup>th</sup> of July 2014 at Minitzani Hall **(See Appendix G1 for minutes of the meeting and the attendance register).**

Due to poor attendance on initial public meeting, a follow-up meeting was held on the 29<sup>th</sup> of January 2015, at Minitzani Hall. **(See Appendix G2 for minutes of the meeting and the attendance register)** but the attendance for the second meeting was even poorer than the initially meeting. The stakeholders database was comprehensive and all stakeholders were notified of the meeting accordingly.

**3.5.3.5.4 FOCUSED GROUP MEETING**

The main objective of the focused group meeting was to introduce the RMP to all the

business people who are either interested or affected by the plan, these included land owners, clubs (Lions Club) and the Tzaneen Dam Nature Reserve. The meeting was held on the 29<sup>th</sup> of January 2015, at Minitzani Hall. However, the attendance was poor. **See Appendix H for minutes of the meeting and the attendance register).**

A platform was also given to I&APs to identify issues of concern, objectives and the overall vision of the dam in a period of 20 years. This exercise was done following the SWOT analysis. I&APs were also informed on future engagements.

According to DWAF (2006), In order to ensure the effective addressing of the project, as well as the National Water Act, it is essential to ascertain whether any encumbrances exist which could influence the project and determine what information would be required to allow effective decision making regarding the RMP.

**3.5.4. PLANNING PARTNERS**

RMPs are developed through a process of cooperative governance and stakeholder participation. The distinctly different roles and responsibilities of the stakeholders, and their relationship towards each other and the steps in the planning procedure are imperative in the success of compilation of the RMP.

According to DWAF (2006), Planning Partners refers to relevant Government Departments that are custodians of assets and resources within the GWWs. The RMP provides for coordination between different governments and agencies to ensure that not only the objectives of DWS are attained, but also the objectives of other relevant Government Departments are attained. Such Departments includes among others the following:

**Table 5:** Planning Partners and their respective mandate

Department/ Implementing Agency	Mandate
Mopani District Municipality / Greater Tzaneen Local Municipality	The dam is within the jurisdiction of the municipality and is mandated to provide bulk water services.

## TZANEEN DAM DRAFT RESOURCE MANAGEMENT PLAN

Department/ Implementing Agency	Mandate
Department of Environmental Affairs (DEA)	Responsible for Biodiversity Management within the dam including Invasive Alien Species.
Department of Public Works (DPW)	Responsible for decision regarding access, use and development of other government land.
Department of Transport (DoT)	Responsible for legislation, policy and regulations for all transportation in South Africa, including shipping and other transport by water or sea also inland waterways.
National Treasury	The use of State assets is governed by National Treasury Regulations, requiring DWS to plan concessions in compliance or association with National Treasury, guided by the Tourism Public Private Partnership (PPP) Toolkit of 2005.
Limpopo Department of Economic Development Environment and Tourism (LEDET)	Responsible for biodiversity management including invasive alien species.
South Africa Maritime Safety Authority (SAMSA)	To ensure safety of vessels and that the skippers are compliant to the regulations.
Department of Rural Development and Land Reform (DRDLR)	As part of the RMP process the Department will assist in terms of Land Claims/Ownership issues.
Cooperate Inland Waterways Safety Programme (CIWSP)	The Cooperative Inland Waterways Safety Programme (CIWSP) project is a partnership between multiple government entities and between the government and the community. The aim is to enhance the development of a best practice model to ensure a safe and structured inland maritime environment and culture, whilst protecting the country's precious water resources.

### 3.6 RMP DATA ANALYSIS

#### 3.6.1 ENCUMBRANCE SURVEY (PHASE 2)

The purpose of the Encumbrance Survey (Phase 2) is to investigate/ascertain whether any encumbrances exist around the dam and other factors that may influence the development and implementation of the RMP. It also identifies the information that is required for effective decision-making regarding the RMP (DWAF, 2006).

##### 3.6.1.1 IDENTIFIED ENCUMBRANCES

The identified encumbrances will assist DWS to identify hindrances and other factors that may influence the development and implementation of the RMP. The identified encumbrances are broken down into Legal, Biophysical, Social and Existing Plans:

**Table 6 and 9 below** outlines the summary of limitations that might affect the development or implementation of the RMP for the dam.

## TZANEEN DAM DRAFT RESOURCE MANAGEMENT PLAN

**Table 6:** Summary of Identified Legal Encumbrance

Item	Encumbrance	Description
Agreements	Yes	<ul style="list-style-type: none"> <li>There is no confirmation of agreement between DWS and the two institutions (LEDET and GTLM) in managing the dam for recreational purposes and access.</li> </ul>

**Table 7:** Summary of Identified Biophysical Encumbrances

Item	Encumbrance	Description
Vegetation	Yes	<ul style="list-style-type: none"> <li>There are commercial timber plantations for Blue gums adjacent to the river which feeds the dam, these plantations consume large quantities of water which is supposed to going to the dam.</li> <li>The alien plant species which are scattered around the water resource consume large quantities of water. If they are not removed at an earlier stage, it will become expensive to remove them at a later stage as they spread quickly.</li> </ul>
Fauna	Yes	<ul style="list-style-type: none"> <li>The presence of hippopotamuses and crocodiles restrict some of the recreational activities to be practiced at the dam. Activity such as swimming is not allowed at the dam.</li> <li>The presence of Vervet monkeys in the nature reserve makes it uncomfortable for people to leave their belongings unattended when engaging in recreational activities.</li> <li>There are snakes at the nature reserve, big visible signs must be put out to make the tourists aware and to be careful when engaging in recreational activities at the dam.</li> </ul>
Geology and Soil	Yes	<ul style="list-style-type: none"> <li>Due to the restricted soil depth, excessive drainage, high erosion, construction of large structures will be costly.</li> </ul>
Topography	Yes	<ul style="list-style-type: none"> <li>The mountainous nature and undulating slopes of the area, will restrict some of the structures to be built due to cost implications, as they will need to be leveled before construction.</li> <li>The mountainous nature and undulating slopes of the area, will result to soil erosion due to surface run-off in heavy rainfall seasons.</li> </ul>

**Table 8:** Summary of Identified Social Encumbrances

Item	Encumbrance	Description
Tourism	Yes	<ul style="list-style-type: none"> <li>The dam basin is under developed and also underutilised, making difficult for tourists and also local people to fully utilize the dam to its potential.</li> <li>There is no formal institutional structure for the dam for recreational purposes.</li> <li>There is lack of marketing when it comes to recreational activities that the dam can offer.</li> </ul>

**Table 9:** Summary of Identified Existing Plans Encumbrances

Item	Encumbrance	Description
Existing Plans	Yes	<ul style="list-style-type: none"> <li>The Zonal Plan which was approved in 1999 for the dam is outdated and requires updating in terms of the RMP zoning plan guideline.</li> </ul>

Upon identifying the encumbrances, objectives needed to be identified in order to facilitate a planning procedure aimed at the compilation of a RMP. It is essential to clarify objectives to be met by the planning procedure (DWAf 2006).

**3.6.2. OBJECTIVE IDENTIFICATION (PHASE 3)**

Objectives were identified by all the stakeholders in order to ascertain common goals. These objectives address the following questions:

- What do we want?
- How are we going to achieve this?
- Who will be involved?
- By when would we like to achieve our goals?
- Why would we want to achieve our goals?

Prior to conducting the SWOT Analysis, these were the issues of concern that were raised in stakeholder engagement meetings, the issues are addressed as follows:

- There is a concern of individuals who ride their vessels under the influence

of intoxicating drinks as they put their lives and those of others in danger

- There is a rumour of that the Jetty 3 will have a new management which is planning to turn the club into a concert venue. Other people have concerns that it will make a lot of noise as the dam is located in a residential area.
- People are worried that the space for recreational activities is very small as the dam is surrounded by private property, there is no enough space for recreational activities.
- The Tzaneen Dam Nature Reserve facilities are under-utilized and the area is underdeveloped due to lack of funding.

**3.6.2.1. SWOT ANALYSIS APPROACH**

The stakeholders came up with the strengths, weaknesses, opportunities and threats of the dam during the stakeholder consultation meetings, **see Table 10 below** for the SWOT Analysis.

**Table 10:** SWOT Analysis for the dam

Strengths	Weaknesses
<ul style="list-style-type: none"> <li>• Tzaneen Dam has good water quality.</li> <li>• Tzaneen Dam is a good water supplier for various communities in the Tzaneen area.</li> <li>• The location of the dam makes it easily accessible as it is located in town.</li> <li>• The raising of the dam wall will increase water security in and around Tzaneen area.</li> </ul>	<ul style="list-style-type: none"> <li>• There is lack of infrastructure for recreational activities at the Tzaneen Dam Nature Reserve.</li> <li>• There is lack of marketing for the dam in the tourism industry.</li> <li>• There is no proper management structure to effectively manage the dam for recreational use.</li> </ul>
Opportunities	Threats
<ul style="list-style-type: none"> <li>• There are social and youth development opportunities through awareness.</li> <li>• There should be skills development through learnerships to the young people who resides in and around Tzaneen.</li> <li>• There are opportunities for small scale fisheries activities to address malnutrition, food insecurity and poverty in the rural villages.</li> <li>• There should be business development for the tourism sector.</li> <li>• There should be opportunities for water sports for entertainment.</li> </ul>	<ul style="list-style-type: none"> <li>• There are unauthorised access to the dam, which leads to unauthorised activities such as net fishing and crimes like mugging.</li> <li>• There is poaching of Bushbucks at the nature reserve which threatens their existence.</li> <li>• It is alleged that there are people which are ploughing upstream of the dam, next to the bridge, removing natural vegetation and the fertilisers runoff leading to the water resource.</li> <li>• There are commercial timber plantations for Blue gums adjacent to the river which feeds the dam, these plantations consume large quantities of water which is supposed to going to the dam putting stress in the water resource.</li> </ul>

## TZANEEN DAM DRAFT RESOURCE MANAGEMENT PLAN

- |  |   |
|--|---|
| <ul style="list-style-type: none"><li>• There are opportunities for community empowerment in the implementation of the RMP for the dam.</li><li>• There is an opportunity to review all the access agreements.</li><li>• There is an opportunity to market the dam properly to attract tourists and also investors at the dam.</li></ul> | <ul style="list-style-type: none"><li>• There is a threat for water pollution from oil released during boating as there are no officials to check the vessels before launching in the water at the nature reserve site.</li><li>• It is alleged that there is a chicken farm which throws chicken remains into the dam which might pollute the water resource if not stopped.</li><li>• The presence of Hippopotamuses and crocodiles pose a threat to the users of the dam.</li><li>• The presence of tree stumps in the dam causes danger to people's lives especially when the water level is high, as some are not visible when boating. The area with the tree stumps must be marked to alert the dam users.</li></ul> |
|--|---|

The set common key objectives were derived from the SWOT Analysis for the dam and have been categorized into three (3) Key Performance Areas (KPA) as illustrated below:

**KPA 1: RESOURCE MANAGEMENT**

- To maintain the water quality of Tzaneen Dam
- To increase the water capacity of Tzaneen Dam, through the raising of the dam wall.
- To keep the dam and the surrounding environment free of Alien Vegetation.
- To conserve and manage the natural environment in and around the dam in a sustainable manner.
- To protect the faunal species against poaching and other unauthorized activities.

**KPA 2: UTILISATION**

- To promote equitable access and use of the dam by the public.
- To address the needs of the public in an appropriate and equitable manner.
- To promote public safety when accessing the dam.
- To introduce swimming as an activity at the dam for visitors.

**KPA 3: BENEFIT FLOW**

- To review all agreements at the dam.
- To improve the lives of the community through employment opportunities and skills development programs.
- To establish an appropriate institutional structure which will effectively manage the recreational use of the water resource and the surrounding environment at the dam. The appropriate powers and delegations must be clear.

Action projects required to achieve these objectives are provided in detail in Section 4.1.4 (The Strategic Plan). A vision for the dam in a period of 20 years was formulated from the key common objectives identified by the stakeholders.

**3.6.2.2. VISION**

The vision for the dam in a period of 20 years has been formulated and stands as follows:

***“To uplift the local community through Socio-economic development, poverty alleviation and skills transfer programmes, and introducing environmental awareness to the community which will lead to environmental sustainability”.***

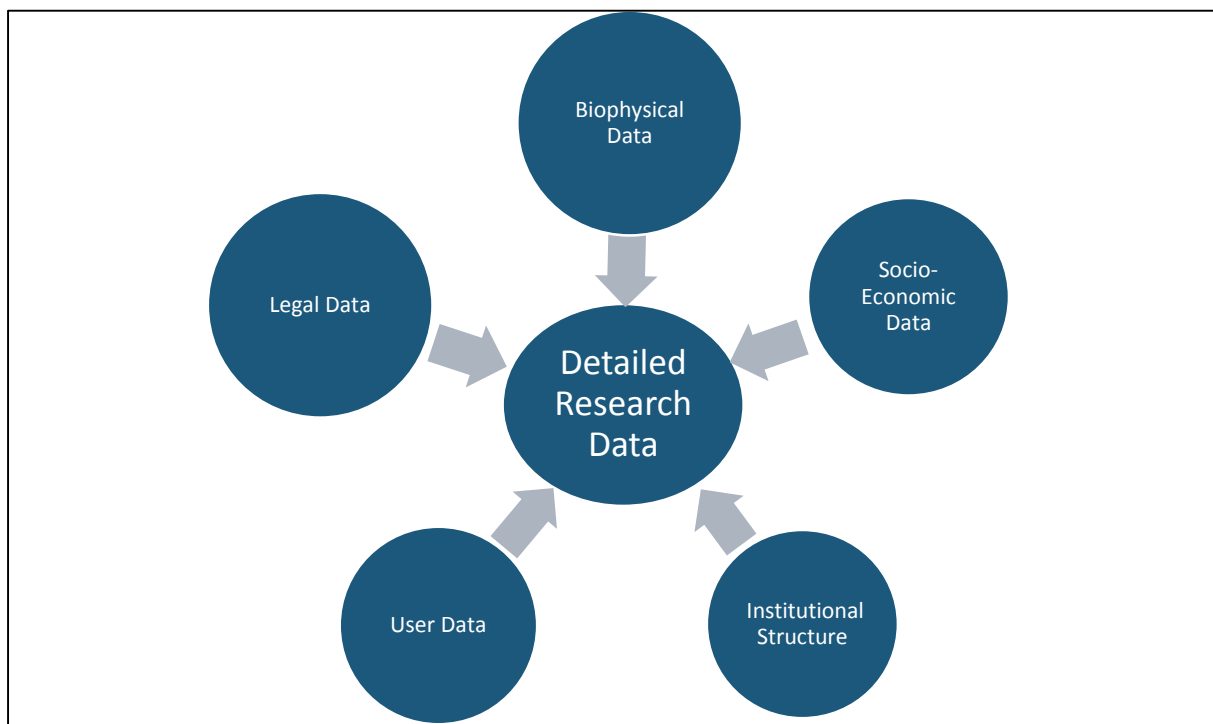
After setting both the dam’s specific objectives, a research was conducted in order to provide relevant information to decision – makers regarding the sustainable utilisation of the water resource and where applicable the State Land.

**3.6.3. INFORMATION GENERATION/ RESEARCH (PHASE 4)**

The aim of undertaking the research process was to collect the relevant data about the dam to serve as decision-making guideline tool. The report will serve as a decision-making guideline tool, guided by the objectives set for the dam and any limitations due to encumbrances.

The report documents the following data as illustrated in **Figure 12** below.





**Figure 12:** Researched Data

The findings of the research data have been described briefly in the **background of the dam**. The main component of the research was to identify the dam tourism development potential and also to evaluate the practicability/feasibility of the potential objectives identified.

### 3.6.3.1. TOURISM DEVELOPMENT POTENTIAL

Tzaneen is situated in the foothills of the impressive Wolkberg (Cloud Mountain). A must see for all tourists as it is a gem of a tourist and holiday destination. It is also known as the cleanest town in Limpopo Province and as a subtropical paradise with indigenous and exotic plants and forms the heart of the Valley of the Olifants region.

It is the second largest town in the Limpopo province of South Africa and is seen as the 'capital' of the lovely Letaba District, which is more than 2 000 square kilometres of tropical and subtropical farming in the Letsitele River Valley, a real tourist destination with a variety of available accommodation in Limpopo, such as Bed and Breakfast, guest houses, lodges, game farms and backpackers. ([www.ultraquickhost.com](http://www.ultraquickhost.com)).

According to the Constitution of South Africa Act No 106 of 1996, Schedule 5, part B, GTLM has powers to manage local tourism within its area of jurisdiction.

**The Local Tourism Sector** as outlined in the provincial Economic Strategy Analysis, tourism has been identified as a sector having competitive advantage. This reflects strengths, unique characteristics and a potential for growth and development. Whilst the municipal area has tremendous natural and heritage potential for the development, the performance of the trade sector (wholesale, retail, catering and accommodation) has tended to show slow growth rates. There appears to be general consensus that tourism demand is well below what would be expected from an area with such outstanding natural potential.

The revised tourism strategy, 2007 also featured in the GTLM Final Approved IDP, 2014-2015 is based on the following broad opportunities which falls under Tourism Development and promotion:

- Agri-tourism opportunities;
- Adventure and sports tourism opportunities;
- Nature-based tourism opportunities;



- Cultural heritage tourism opportunities;
- Events and routes opportunities; and
- General-organizational and marketing requirements.

The following opportunities have been identified in the Revised Tourism Development Framework, GTLM Final Approved IDP, 2014 -2015:

- Revive interest in Agri-tourism and farm visit;
- Runnymede community garden tours;
- Backpacker chalets in Haenertsburg;
- Adventure tourism camp at Tours Dam;
- Training Centre for culture, nature and adventure guides;
- Tourism facilities at Tzaneen Dam;
- Expanded day-visitor facilities at Tzaneen Dam Nature Reserve;
- Haenertsburg Grasslands declared a site of Natural importance;
- Active involvement of tourism operators in the Tourism Development Agencies;
- Acceptable tourism branding for the GTLM destination;
- A marketing and a strategic marketing alliance at regional or district level;
- The introduction of Tourism Awareness programmes at local schools;
- More effective liaison with neighbouring destinations;

- Determine the value of Tzaneen Museum; and
- Officially approaching the DWS to create tourism zoning plans around each dams and permit appropriate water-based activities on the dams.

Below are some of the factors which were taken into consideration by the GTEDA, on their feasibility study which was done in 2009:

- To turn Tzaneen Dam into a major tourist attraction.
- The Property owners around the dam should be brought and form a committee, the committee of which would be brought together to determine the process of developing the area (zoning for properties where necessary).
- Resource development plan.
- The unused property on Lions Club side (which is currently a potential for crime spot) and a land portion being donated to the Greater Tzaneen community, should be considered for development of the multi-use sports complex which will provide various types of sporting activities.

**3.6.3.1.1. FEASIBILITY FOR POTENTIAL OBJECTIVES**

**Table 11** below illustrates the probability of the objectives identified by the Stakeholders in Public Participation Meetings.

**Table 11:** Practicability of the Identified Objectives

Resource Management		
Objective	Status Quo	Practicability
<ul style="list-style-type: none"> <li>• To maintain the water quality of Tzaneen Dam.</li> </ul>	<ul style="list-style-type: none"> <li>• The water in the dam is of good quality and is in compliance to the DWS Standards for Recreational Water Use.</li> <li>• Tzaneen Dam is surrounded by farms which poses a threat of water pollution through uncontrolled agricultural runoff.</li> </ul>	<ul style="list-style-type: none"> <li>• Water quality management lies within multiple institutions as well as on the dam users themselves, as such cooperation between all Stakeholders will ensure the possibility of maintaining the high water quality standard of the dam.</li> <li>• Enforcements of all relevant Legislation (e.g. NWA and</li> </ul>

## TZANEEN DAM DRAFT RESOURCE MANAGEMENT PLAN

	<ul style="list-style-type: none"> <li>• There should be a safety personnel to check the worthiness of the vessels before launching into the water and also check for oil spills which might contaminate the water.</li> </ul>	<p>NEMA) at the dam can always keep the dam's water quality in good conditions.</p> <ul style="list-style-type: none"> <li>• The use of wash bays can assist to prevent the spread of Aquatic Alien Invasive species.</li> <li>• The safety personnel/ Skipper must inspect the boat for water worthiness before launching into the water.</li> </ul>
<ul style="list-style-type: none"> <li>• To increase the storage capacity of the Tzaneen dam.</li> </ul>	<ul style="list-style-type: none"> <li>• The water within Tzaneen Dam has been fully allocated due to the growing demand of agriculture and afforestation in the area.</li> <li>• The Local Communities are installing unauthorized water pumps into the dam and take water without permits / authorization.</li> <li>• The raising of the dam wall project has been approved by Department of Environmental Affairs and it will be facilitated by DWS: NWRI.</li> <li>• The raising of the dam wall will increase water security in the area.</li> </ul>	<ul style="list-style-type: none"> <li>• It is practical through the raising of the dam wall as it will not require acquisition of additional land because the design's flood level remains within the existing purchased land. DEA: Environmental Authorization, 2011.</li> <li>• The Zoning Plan should be updated as part of the RMP process and should incorporate the new full supply level of the dam.</li> </ul>
<ul style="list-style-type: none"> <li>• To have the dam and the surrounding environment free of Alien Vegetation in order to support the proposed recreational activities.</li> </ul>	<ul style="list-style-type: none"> <li>• WFW programme is currently not eradicating alien plants at Tzaneen Dam.</li> <li>• There is no proper control and inspection of the vessels before they launch into the dam, which poses a threat of spread of aquatic alien invasive weeds.</li> </ul>	<ul style="list-style-type: none"> <li>• It is practical through the WFW programme and compliance of all users to all the relevant Legislations, Regulations and dam rules, this will assist to minimize the Alien Invasive plants at the dam.</li> <li>• The establishment of wash bays will assist in preventing the spread of Aquatic Alien Invasive plants at the dam.</li> </ul>
<ul style="list-style-type: none"> <li>• To conserve and manage the natural environment in and around the dam in a sustainable manner.</li> </ul>	<ul style="list-style-type: none"> <li>• Portion of the dam is adjacent to the Tzaneen Dam Nature Reserve.</li> <li>• The Nature Reserve has been declared as a provincial park.</li> </ul>	<ul style="list-style-type: none"> <li>• By implementing an effective institutional structure it will help in conservation and management of the natural environment in and around the dam.</li> <li>• The IMP should be established as it aims to guide conservation and preservation of the Nature Reserves.</li> </ul>

## TZANEEN DAM DRAFT RESOURCE MANAGEMENT PLAN

<ul style="list-style-type: none"> <li>To protect the faunal species against poaching and other unauthorized activities.</li> </ul>	<ul style="list-style-type: none"> <li>There are practices of poaching and unauthorized fishing currently taking place at the dam. Such practices can result in population decrease and possible extinction of the fauna species.</li> <li>The dam is not fenced, making it vulnerable to unauthorized practices like net fishing and poaching of bushbucks.</li> </ul>	<ul style="list-style-type: none"> <li>There should be a safety plan put in place to monitor the activities that are occurring at the dam.</li> <li>The IMP should be established as it will document approaches on how to combat the unauthorized activities within the nature reserve.</li> <li>There is a need for DAFF and LEDET to join forces to alleviate the high level of fish poaching.</li> </ul>
Utilization		
Objectives	Status Quo	Practicability
<ul style="list-style-type: none"> <li>To promote equitable access and use of the dam by the public.</li> </ul>	<ul style="list-style-type: none"> <li>The entrance fees for both the Nature Reserve and the Boat Club are reasonable at R5 per child and R10 adults. This makes it affordable for everyone who wants to engage in recreational activities.</li> </ul>	<ul style="list-style-type: none"> <li>The dam rules relating to dam access, safety measures, speed limit applicable to the dam and the time in which the dam will be open to the public should be established in terms of DWAF Regulation R654.</li> </ul>
<ul style="list-style-type: none"> <li>To improve the existing recreational facilities within Tzaneen Dam Nature Reserve.</li> </ul>	<ul style="list-style-type: none"> <li>The existing recreational facilities are in a state of despair and need renovations.</li> <li>The roads within the nature reserve are in a bad condition, and during the rainy seasons, it becomes difficult to access the recreational facilities.</li> </ul>	<ul style="list-style-type: none"> <li>The institutional structure will ensure that the Nature Reserve is developed and utilised to its maximum potential, as it serves as tourist attraction.</li> <li>The BP will assist in identifying the marketing strategies and funding mechanism to improve the current recreational structures.</li> </ul>
<ul style="list-style-type: none"> <li>To introduce swimming as an activity at the dam.</li> </ul>	<ul style="list-style-type: none"> <li>Currently there is no swimming activities taking place, as the dam is a home to a population of crocodiles and hippopotamuses. Hippopotamuses are dangerous animals that attack human in water and on land without apparent provocation.</li> </ul>	<ul style="list-style-type: none"> <li>It is practical through the establishment of swimming pools.</li> <li>The swimming pool will require life guards for the safety of the community and tourists. Local community members can be trained to be life guards.</li> </ul>
<ul style="list-style-type: none"> <li>Introduction of small scale fishery at the dam.</li> </ul>	<ul style="list-style-type: none"> <li>Currently there are unauthorized fishing at the dam, where people use nets to harvest the fish.</li> <li>Tzaneen Dam is big enough to accommodate this project.</li> <li>Small-scale fisheries will make an important contribution to nutrition, food security, sustainable</li> </ul>	<ul style="list-style-type: none"> <li>Preserve the core habitats for nesting, resting, feeding and breeding of fish within the inlets.</li> <li>Management Authority must develop a communication signage in order to effectively inform different angling groups about the dam fishing rules.</li> </ul>

## TZANEEN DAM DRAFT RESOURCE MANAGEMENT PLAN

	<p>livelihoods and poverty alleviation to the local community.</p>	<ul style="list-style-type: none"> <li>• DAFF to issue fishing licenses.</li> <li>• Appoint Safety Officers that will monitor compliance of the dam fishing rules.</li> </ul>
Benefit Flow		
Objectives	Status Quo	Practicability
<ul style="list-style-type: none"> <li>• To uplift the local communities through community empowerment and skills development programs.</li> <li>• To establish youth training programs for cultural, heritage and tourism sectors.</li> </ul>	<ul style="list-style-type: none"> <li>• The DWS: Area Office appoints personnel on a contract basis to clear the weed growing on the dam wall.</li> <li>• Lions Club and the Nature Reserve appoints members of local communities as gate keepers and ground men to clean the facilities in these places.</li> <li>• Currently there are no skills development programs in place which are linked to the utilization of the dam.</li> </ul>	<ul style="list-style-type: none"> <li>• Establishment of functional institutional structure that should have enough power to ensure that the Local Communities are benefitting from the economic benefits emanating from the dam use and development.</li> <li>• The BP will detail how the previously disadvantaged communities can benefit from recreational opportunities.</li> </ul>
<ul style="list-style-type: none"> <li>• To establish an appropriate institutional structure, this will assist in effectively managing the recreational use of the dam and the surrounding environment.</li> </ul>	<ul style="list-style-type: none"> <li>• There is no formal institutional structure in place for recreational use.</li> </ul>	<ul style="list-style-type: none"> <li>• As per the RMP process, a functional institutional structure will be established which will effectively manage the recreational utilization of the dam and the surrounding environment.</li> </ul>
<ul style="list-style-type: none"> <li>• To promote Tzaneen Dam to become a major tourist attraction.</li> </ul>	<ul style="list-style-type: none"> <li>• There is lack of marketing strategies regarding tourism attraction for the dam.</li> </ul>	<ul style="list-style-type: none"> <li>• The proposed institutional structure must work together with the local economic development agency and the municipality to market the dam.</li> <li>• The BP will assist in identifying marketing strategies and funding mechanisms that can assist the local communities to invest in the recreational industry at the dam, which will enhance the economic growth of the area.</li> </ul>

## CHAPTER 4: INTEGRATED MANAGEMENT, ZONING, FINANCIAL & INSTITUTIONAL PLAN

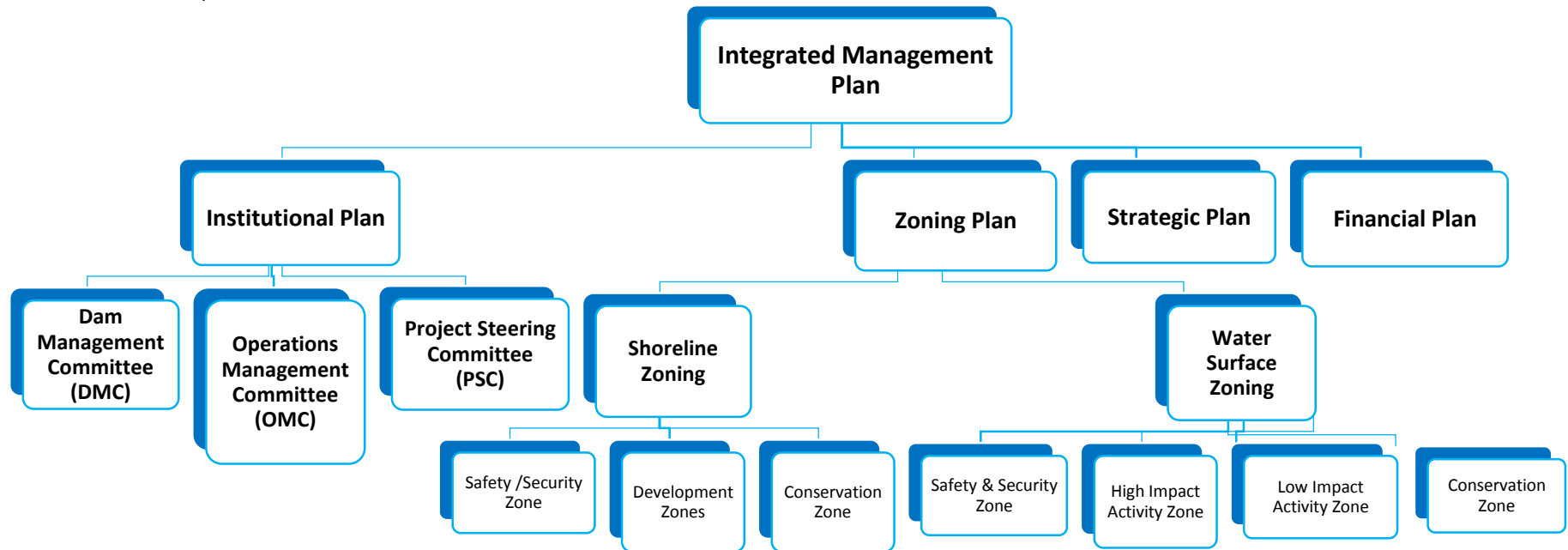
### 4.1 INTEGRATED MANAGEMENT PLAN (IMP)

The purpose of this phase is to evaluate the information obtained from previous stages to ascertain what could be achieved based on specific constraints and parameters of the various input factors such as biophysical, cultural and socio-economic, current institutional and needs of the dam users. The integrated management plan will take into account the following:

- Biophysical, Cultural and Socio-economic and User needs constraints;

- Development potential and requirements;
- Site planning and Zonation;
- Programmes and Plans that will unlock the potential of the water resource; and
- Institution options and legal aspects required to create these programmes and plans.

The Integrated Management Plan (IMP) is further broken down into four (4) main plans as illustrated by **Figure 13** below:



**Figure 13:** Integrated Management Plan Structure

#### 4.1.1 INSTITUTIONAL PLAN

The Institutional Plan provides a framework for the institutional arrangements at the dam. The proposed management systems includes three (3) committees namely; a Dam Management Committee (DMC), Operations Management Committee (OMC) and a RMP National Project Steering Committee (PSC). The appointed management authorities by DWS at the dams, will also form part of the institutional structure.

##### 4.1.1.1. Dam Management Committee (DMC)

The Dam Management Committee (DMC) is responsible for the day to day operations at the dam and includes all relevant Stakeholders. The DMC is involved in the management of the UPN system as part of CIWSP piloted through CPSI initiative safety programmes.

One of the main functions of the DMC is to assist the IA with the management of the dam for recreational purposes and to assess commercial opportunities at the dam. As such, an agenda item related to the Strategic Plan for commercialization is required. In addition, changes in water quality, developments in the area, status of Aquatic Invasive Species and education and information programmes should be discussed. The DMC should meet every three months.

The functions of the DMC include the following (amongst others):

- Seeking resolution for general management issues;
- Monitoring the practical implementation of the RMP;
- Monitoring overall performance in terms of achieving the Management Objectives and implementing the associated actions;
- Overseeing the implementation of the Business Plans;
- Reviewing the feedback received from I&APs;
- Operational management of recreational activities such as ensuring the floating AtoN and demarcation markers are in place and setting times for use of the dam (no recreational activities can take place between sunset and sunrise);
- Conveying the Management Objectives and decisions pertaining to the dam to the relevant stakeholders;
- Management of the Unique Positioning Number (UPN) System as part of the CIWSP.

The DMC includes the following representatives as illustrated by **Figure 14**:



**Figure 14:** Proposed Dam Management Committee for Tzaneen Dam

If deemed necessary and it is approved by the DMC, management committees may be established around specific issues, such as community empowerment and safety.

The PSC and DMC will have a number of management tools which will enable proper management of the dam in line with legislative requirements.

**4.1.1.1.1 Management Tools**

**Terms of Reference**

The DMC will be guided by Terms of Reference (ToR) regarding roles and responsibilities. ToR are not required for the **PSC and OMC** as this are existing reporting structures. The ToR provide guidance on the following management aspects:

- Roles and Responsibility of Chairperson.
- Roles and Responsibilities of Members.
- Minutes and attendance requirements.
- Reporting requirements.
- Management of agreements.
- Management of access objectives.
- Management of development targets.
- Management of Water quality monitoring.
- Management of the Control of Aquatic Invasive Species.
- Management of Development Pressure.
- Management of UPN system and wash bays.
- Management of AtoN and Demarcation Markers.

**Agreements**

One of the main management tool available is the use of agreements to ensure proper use of the dam in line with the RMP vision and objectives. Although agreements with some recreational clubs exist (refer to **Table 12** below), there is no overarching agreement to manage recreational use at the dam.

**Table 12:** Existing Agreements

<b>Holder</b>	<b>Property/ies</b>
Greater Tzaneen Local Municipality and Lions Club	portion of portion 258 of the Farm 555T, 1.5 ha
Limpopo Tourism Agency and Mrs Mathonsi	Tzaneen Dam Nature Reserve

All the existing agreements would be review within the 12 months of the RMP being approved. This is to ensure that the agreements are aligned with the objectives of the RMP.

**Agreements between DWS and Implementing Agency**

GTLM will be appointed as an Implementing Agency (IA) for the RMP of Tzaneen Dam. GTLM and DWS will sign a Memorandum of Agreement (MOA), which is a legal binding document which will outline the roles and responsibilities and conditions to be followed by both parties in terms of managing the water resource for recreational use. GTLM can involve GTEDA as it is an agency for the municipality to implement the RMP for Tzaneen Dam.

**The minimum requirements of an IA include the following:**

- An implementing agency can be a government entity or a non-government organization.
- Must have the best interest of a water resource and the community at large.
- Must be willing to work with the Department and other users of the water resource.

The IA is appointed to manage commercial and recreational use of the dam. This would include the following:

- Management of Recreational Clubs.
- Management of Public Access Area.
- Management of Wash Bay and UPN System.
- Management of Community Skills and Training Programmes.
- Management of commercial activities (in line with Treasury Requirements).
- Management of AtoN and Demarcation Markers.

Regardless, all agreements should be in line with the RMP requirements and relevant Legislations and Regulations.



**Recreational Use Agreements**

Recreational Clubs must enter into an agreement with the IA who will be responsible for the surface water and shoreline management of the dam. All recreational use at the dam must be through an appropriate Legal Framework. However, all agreements must be approved in writing by DWS and the IA. Recreational Use Agreements must be developed in line with the conditions stipulated in the agreement between DWS and the IA. All agreements must be finalised within twelve (12) months of the RMP being gazetted.

**Safety of Navigation Agreements**

In addition to its common law responsibility, DWS is, in terms of the requirements described in the National Water Act, 1998 (Act 36 of 1998), amongst others, responsible for the safety of GWWs and watercourses, including its dams. DWS, its delegated public sector partner, or a delegated water management institution, has therefore the responsibility to provide the required fixed and/or floating Aids to Navigation (AtoN)<sup>2</sup> for general navigation.

Agreements between SAMSA and DWS/other relevant Parties/Bodies are to be concluded to allow them to:

- Exhibit the relevant AtoN.
- Establish or deploy the relevant fixed and/or floating AtoN.

**Access Agreements**

All surface water and shoreline access must be formalised. The conditions for such access must be written into the agreement. All illegal practices must be addressed. Appropriate action must be taken to ensure that all parties comply with the requirements of the RMP.

All adjacent landowners and clubs must be made aware that access to the surface water as well as shoreline should only be through authorised access points. Accessing the surface water through unauthorised access points is an illegal activity unless they enter into a formal

agreement with DWS (or AI). Further, a formal agreement with DWS (or AI) will be required for all adjacent landowners and recreational clubs that have direct access to the water surface of the dam through constructed slipways, natural slipways or jetties for angling and/or launching of vessels.

The wash bay must be built on State Property as part of the CIWSP. A formal agreement is necessary between the IA or DMC and DEA on the management and maintenance of the facility.

**Event Applications**

The dam is used for competitive angling events. All events must be managed through an event application process. While the application may be made to the IA/DWS and the DMC must approve the application. These applications must follow a specific template and will include the following:

- Number of participants.
- Emergency Response Plan.
- Advertising and branding (will need to be in line with DWS communication requirements).
- Access points to be used.

Furthermore, all Events must meet the requirements of the Safety at Sports and Recreation Act, 2010 (Act No 2 of 2010).

**National Affiliations**

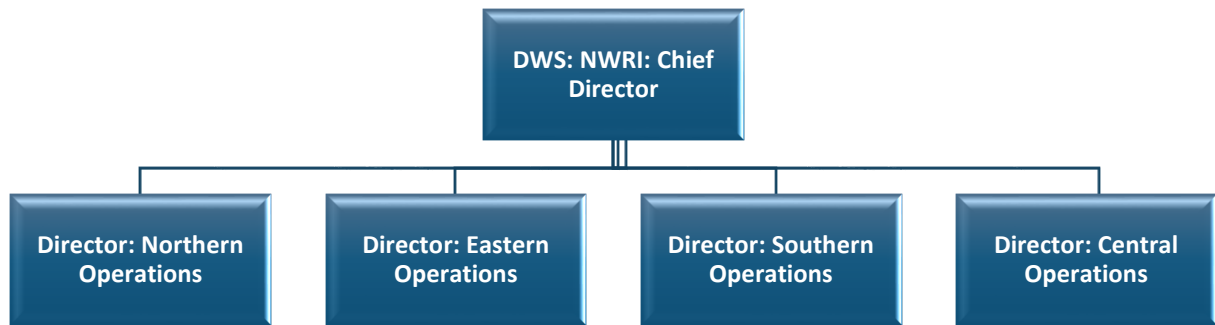
All recreational clubs should be affiliated to a SASCOC affiliated organisation. The development targets set by the National Organisations must be met.

**4.1.1.2. OPERATIONS MANAGEMENT COMMITTEE (OMC)**

There is an existing OMC within the NWRI which comprises of all directors of four (4) operations (Northern, Southern, Eastern and Central) and is chaired by the Chief Director of Operational Infrastructure within NWRI as illustrated by **Figure 15** below:

common types of such aids include lighthouses, buoys, fog signals and day beacons.

<sup>2</sup> AtoN refers to any sort of marker which aids the traveler in navigation; the term is most commonly used to refer to nautical or aviation travel,



**Figure 15:** Existing Operations Management Committee

The DMC will attend PSC meetings and provide the OMC with feedback with regards to issues discussed pertaining the RMP.

**4.1.1.3. PROJECT STEERING COMMITTEE (PSC)**

A Project Steering Committee (PSC) is formed by DWS. The PSC is responsible for assisting the project team in the detail planning of the RMP and also ensuring that the needs and expectations of the sector they represent are incorporated in the RMP. The PSC will also be responsible for liaison with the individual members of the specific sector they represent.

The PSC comprises of representatives from National Government Departments and their agencies. The primary purpose of the committee is to provide guidance on recreational water use in terms of their respective mandates as well as to ensure continuous support by different government sectors provided with aim of achieving sustainable utilization of the dam for recreational purposes.

**Figure 16** illustrates a typical example of Governmental Departments that will form part of the PSC:



Figure 16: Proposed Project Steering Committee

**The respective mandates of the Governmental Departments that will form part of the PSC are explained below:**

- **Department of Water and Sanitation:**

DWS is the official custodian of nation's water resources in South Africa. DWS is also responsible for the establishment and operation of Government Waterworks (as per National Water Act, 1998 (Act No.36 of 1996). This includes management of dam safety and operation and management of dams.

- **Department of Environmental Affairs:**

The Department is responsible for biodiversity management within the dam including the control of Alien Invasive Species.

- **Department of Public Works:**

The Department is the custodian and manager of all Government's fixed assets. DPW has the power to regulate and control the use of State Land adjacent to the water resource. In this regard, lease agreements or permits will be required from the Department as some of the recreational activities will overlap into the State Land, e.g. trail hiking.

- **National Treasury:**

The National Treasury promotes government's economic policy framework; to coordinate macroeconomic policy and intergovernmental financial relations; to manage the budget preparation process; to facilitate the Division of Revenue Act, which provides for an equitable distribution of nationally raised revenue between national, provincial and local government; and to monitor the implementation of provincial budgets.

National Treasury offers a toolkit that assists the process of development of tourism-based businesses on State-Owned Land. The Toolkit should make it easier for institutions and the private sector to enter into tourism related partnerships on state property managed by national and provincial government institutions.

- **Department of Transport**

The Department is responsible for legislation, policy and regulations for all transportation in

South Africa, including shipping and other transport by water or sea, including inland waterways.

- **Department of Sports and Recreation:**

The Department is responsible for the development of sports and recreation nationally.

- **South African Maritime Safety Authority (SAMSA):**

Administers and executes maritime related legislation and regulations, including the National Small Vessel Safety Regulations and ensures standardisation, harmonisation and compliance of all marine AtoN in South African waters.

- **Department of Rural Development and Land Reform:**

The Department is mandated to develop rural areas throughout South Africa, and to achieve this the Department developed the Comprehensive Rural Development Programme (CRDP) to tackle issues such as underdevelopment, hunger, poverty, joblessness, lack of basic services and other social ills which have become synonymous with rural areas and redistributing 30% of the country's agricultural land. As part of the RMP process the Department will assist in terms of Land Claims/Ownership issues.

- **South African Sports Confederation and Olympic Committee (SASCOC):**

Ensures that athletes are supported and delivered to all multi-coded events.

- **South African Police Services (SAPS):**

As part of the RMP process the Water Wing division will form part of the UPN's response team. They will assist in terms of life threatening emergencies that might occur at the dam.

- **Department of Tourism:**

The Department makes provision for the promotion of tourism to and in the Republic and for the further regulation of the tourism industry, measures aimed at the maintenance

and enhancement of the standards of facilities and services hired out or made available to tourists; and the co-ordination and rationalization, as far as practicable, of the activities of persons who are active in the tourism industry.

- **Department of Agriculture, Forestry and Fisheries:**

DAFF is tasked with management of the developments and sustainable use of marine and coastal resources; maximizing the economic potential of the fisheries sector; and protecting the integrity and quality of the country's marine and coastal ecosystems. The department is now introducing aquaculture farming at GWWs.

- **The Culture, Arts, Tourism, Hospitality, Sport Sector, Education and Training Authority (CATHSETA)**

The mandate of this authority is to contribute to developing and raising skills in the tourism, hospitality and sport economic sectors. In the RMP process, this authority will assist in assisting communities to equip themselves in becoming active in the tourism sector.

- **Department of Human Settlement:**

The Department is mandated to build functioning communities and respond to the national dynamics/challenges by drafting a human settlements strategy which aims at creating sustainable human settlements and improving the quality of household life.

- **Cooperate Inland Waterways Safety Programme (CIWSP):**

The Cooperative Inland Waterways Safety Programme (CIWSP) project is a partnership between multiple government entities and between the government and the community. The aim is to enhance the development of a best practice model to ensure a safe and structured inland maritime environment and culture, whilst protecting the country's precious water resources.

#### 4.1.2 ZONING PLAN

Zoning of the dam refers to the generation of site specific structure plans for Government Waterworks as well as the subsequent implementation thereof (DWAF 1992). According to the Guidelines for the (Compilation of Zoning Plans for GWWs, DWAF, 1999), DWS embarked on the zoning of State dams in response to incidents that include amongst others:

- Requests received from members of the public and public institutions to develop on State Land within the expropriation/servitude line of dams as well as on private land adjacent to the dams, but with access across State Land for the utilisation of the waterfront and the water surface;
- Unauthorised developments on and/or associated disorderly use of the State Land and the water surface, resulting in resource degradation and risk to life and the structure itself; and
- Conflict between users and/or uses, often due to unfair acquisition of or domination of the amenity.

According to DWAF RMP Guideline RWU GP2 (2006), a site specific master planning and zoning which describes a framework for the allocation of zones, needs to be undertaken based on the results of the Encumbrance Survey and basic Research regarding the Bio-physical, Socio-economic environment as well as the objectives set by the Stakeholders in Phase 3. The proposed Zonal Plan will integrate conservation, recreation and development whilst not compromising the primary functions of the dam.

There is an old Zoning map for Tzaneen Dam that was compiled by then the Department of Water Affairs and Forestry (DWAF, 1999). The existing Zoning Map has been updated as part of the RMP process. The Zonal Map is demarcated separately for the Water Surface, the Shoreline Zones and then the final zoning Plan of Tzaneen Dam.

#### 4.1.2.1 WATER SURFACE ZONES

Water Surface Zones provide guidance on what activities are allowed on the water surface. The Water Surface for Tzaneen Dam is zoned as follows:

##### **Water Surface Security Zone**

This is an area where the dam wall is situated. The security zone has a minimum horizontal distance of 100m from the dam wall towards the dam, which is upstream of the dam wall. Access to this zone is only for DWS for maintenance purposes.

**Activities:** No public activities are allowed in this zone.

##### **Water Surface Conservation Zone**

These areas, which are situated at the inlets of the dam, are ecologically sensitive and are environmental reserve that serve as filters for the purpose of water purification. No public activities are allowed in this zone, in order to allow for undisturbed fish and bird breeding habitats and to limit pollution potential. These areas should be demarcated by demarcation markers and floating AtoN. Strict management and control of these areas are necessary, especially with regards to unauthorised net fishing

**Activities:** No public activities are allowed.

##### **Water Surface Low Impact Activity Zone**

The purpose of this zone is to provide a buffer between High Impact Activity Zones and Conservation Zones i.e. activities associated with little or no wake e.g. boat angling, canoeing, sailing, etc. Launching and mooring of vessels should take place only from identified waterfront zones.

**Activities:** Low Impact Activity Zone allows for low intensity activities i.e. activities associated with no or little wakes, such as boat angling and sailing.

##### **Water Surface High Impact Activity Zone**

This zone is located where the dam is at its deepest and is also close to the dam wall. It is associated with high speed, wake and noise activities.

**Activities:** Activities such as power boating, can occur on this zone.

See **Table 13** below for the Water surface Zoning and **Figure 17** for the proposed Water Surface Zoning Map.

The water surface zoning colour coding mean the following as per the Zoning Map:

Color	Zone Description
Red	Safety and Security Zone
Green	Conservation Zone
Sky Blue	Low Impact Activity Zone
Blue	High Impact Activity Zone

**Table 13:** Water Surface Zoning

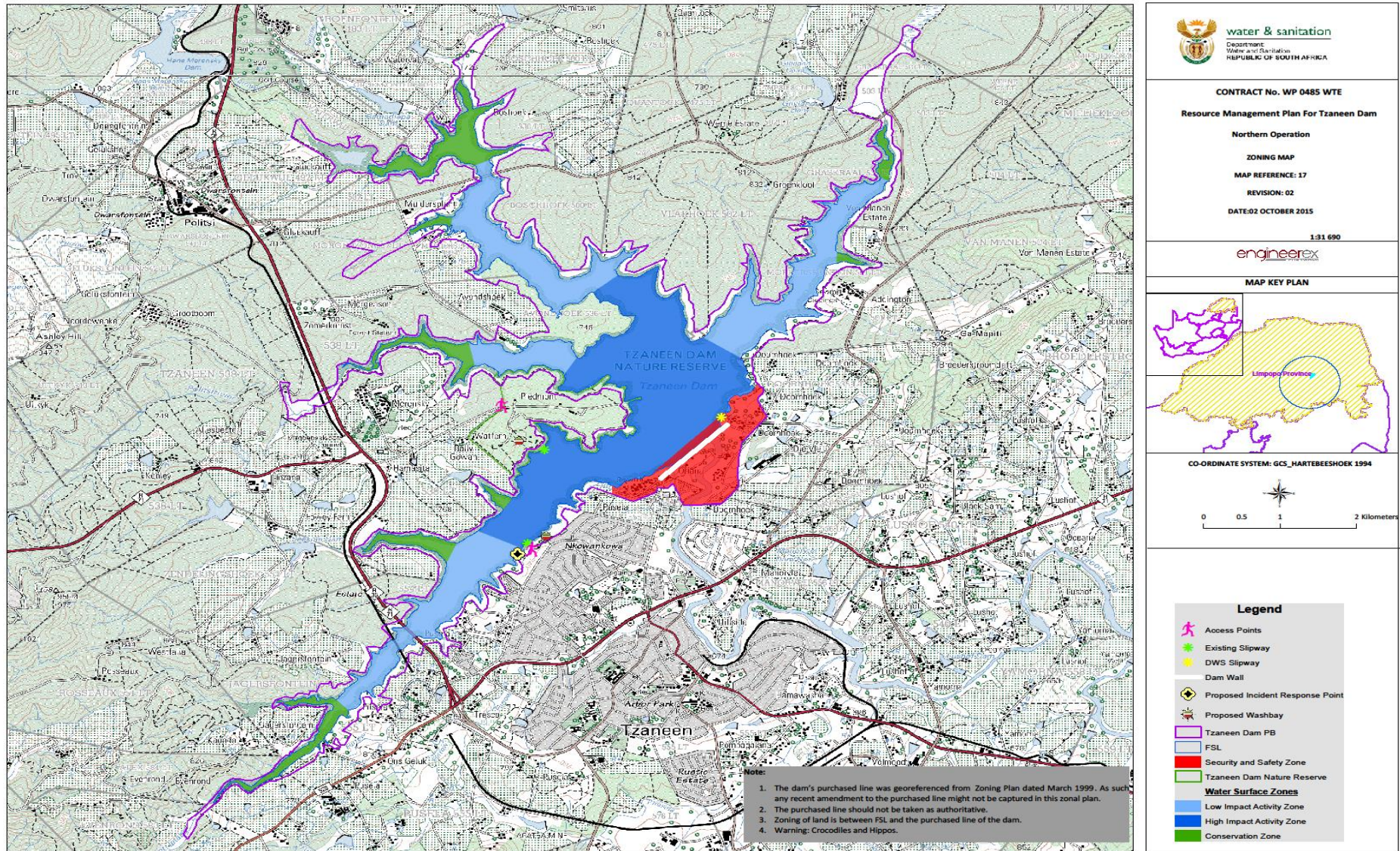
Water Surface Zones					
Zone Name	Motivation	Allowed facilities	Permissible activities	Safety Requirements	Recommendations
<ul style="list-style-type: none"> <li>Safety and Security Zone</li> </ul>	<ul style="list-style-type: none"> <li>This is the area around the dam wall and associated spillway. Access is limited to DWS and relevant authorised officials.</li> </ul>	<ul style="list-style-type: none"> <li>No facilities is allowed.</li> </ul>	<ul style="list-style-type: none"> <li>DWS maintenance and management activities.</li> </ul>	<ul style="list-style-type: none"> <li>AtoN and Demarcation Markers.</li> </ul>	<ul style="list-style-type: none"> <li>Area should be demarcated by demarcation markers and AtoN.</li> </ul>
<ul style="list-style-type: none"> <li>Conservation Zone</li> </ul>	<ul style="list-style-type: none"> <li>These areas, which are situated at the inlets of the dam, are ecologically sensitive and are environmental reserve that serve as filters for the purpose of water purification.</li> </ul>	<ul style="list-style-type: none"> <li>No facilities is allowed in this zone</li> </ul>	<ul style="list-style-type: none"> <li>No public activities are allowed in order to allow for undisturbed fish and bird breeding habitats and to limit pollution potential.</li> </ul>	<ul style="list-style-type: none"> <li>AtoN and Demarcation Markers</li> </ul>	<ul style="list-style-type: none"> <li>These areas should be demarcated by demarcation markers and AtoN. Strict management and control of these areas are necessary, especially with regards to unlawful net fishing.</li> </ul>

## TZANEEN DAM DRAFT RESOURCE MANAGEMENT PLAN

Water Surface Zones					
Zone Name	Motivation	Allowed facilities	Permissible activities	Safety Requirements	Recommendations
<ul style="list-style-type: none"> <li>Low Impact Activity Zone</li> </ul>	<ul style="list-style-type: none"> <li>This area functions as a buffer zone between the conservation and high impact activity zone</li> </ul>	<ul style="list-style-type: none"> <li>Any low impact facility that will ease the undertaking of permissible activities on this zone is allowed.</li> </ul>	<ul style="list-style-type: none"> <li>Activities associated with no or little wakes, such as:                             <ul style="list-style-type: none"> <li>canoeing,</li> <li>boat angling,</li> <li>sailing, as well</li> <li>Development of sport with specific requirement for low wake water surface conditions.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>AtoN and Demarcation Markers</li> <li>Registered safe water vessel</li> <li>UPN System</li> <li>Wash Bay</li> <li>Rescue Boat</li> <li>Wash Bay Officer</li> <li>Enforcement Officer</li> </ul>	<ul style="list-style-type: none"> <li>Area should be demarcated by demarcation markers and AtoN.</li> <li>Launching and mooring of vessels should take place at this zone.</li> <li>Recreational users will be responsible for the buoys system based in delineated zones while complying with DWS/SAMSA specifications.</li> </ul>
<ul style="list-style-type: none"> <li>High Impact Activity Zone</li> </ul>	<ul style="list-style-type: none"> <li>This zone is located where the reservoir is at its deepest and is also close to the dam wall.</li> </ul>	<ul style="list-style-type: none"> <li>Any high impact facility is allowed in this zone.</li> </ul>	<ul style="list-style-type: none"> <li>It is associated with high speed, wake and noise activities such as:                             <ul style="list-style-type: none"> <li>Power boating; and</li> <li>Canoeing.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>AtoN and Demarcation Markers</li> <li>Registered safe water vessel</li> <li>UPN System</li> <li>Wash Bay</li> <li>Rescue Boat</li> <li>Wash Bay Officer</li> <li>Enforcement Officer.</li> </ul>	<ul style="list-style-type: none"> <li>Area should be demarcated by demarcation markers and AtoN.</li> </ul>



# TZANEEN DAM DRAFT RESOURCE MANAGEMENT PLAN



**Figure 17:** Proposed Water Surface Zoning Map for Tzaneen Dam



#### 4.1.2.2 SHORELINE ZONES

##### Shoreline Security Zone

This area has already been demarcated by DWS for security purposes and control of the dam structure.

**Activities:** The public is only allowed to view the dam structure which is necessary for tourist attraction, especially when the dam over flows.

##### Shoreline Conservation Zone

The purpose of these zones are to ensure that the dam basin does not become developed to such an extent that the rural and tranquil atmosphere of the area is changed. Development in this area should therefore be restricted. Public access is also not possible to most of this zone.

**Activities:** Hiking and bank angling will be allowed in these areas, if access can be obtained from development zones.

**Facilities:** No facilities are recommended.

##### Medium Density Development & Impact Activity Zone

A site already exists for day visitors. This area is easily accessible from the major public roads and infrastructure already exists.

**Activities:** Activities associated with day visitors and camping, such as picnicking, braaing and bank angling, a launching site for

water vessel exists on this site. The boat club should continue functioning from this area.

**Facilities:** Additional braai facilities, shade trees, kiosk, secluded picnicking, swimming pool and camping spots, packing as well as additional ablution facilities will have to be provided.

##### Low Density Development and Activity Zone

This has been zoned to allow for the public to spend the night in peaceful, aesthetically pleasing area with emphasis on private, secluded accommodation for small groups, couples and individuals surrounding.

**Activities:** The activities will be those which are associated with conservation objectives, such as bird watching, bank angling and hiking. Limited launching of water vessels will be allowed.

**Facilities:** Log cabin with braai facilities, a hiking trail and bird watching structures can be provided.

See **Table 14** below for the Shoreline Zoning and **Figure 18** for the proposed Water Surface Zoning Map. Figure 20 for the Proposed Overall Zoning Map for Tzaneen Dam, Figure 20 -24 are zoning maps which have been zoomed in for a clearer picture.

The water surface zoning colour coding mean the following as per the Zoning Map:

Color	Zone Description
Red	Safety and Security Zone
Green	Conservation Zone
Yellow	Low Density Development and Activity Zone
Orange	Medium Density Development & Impact Activity Zone

**Table 14:** Shoreline Zoning

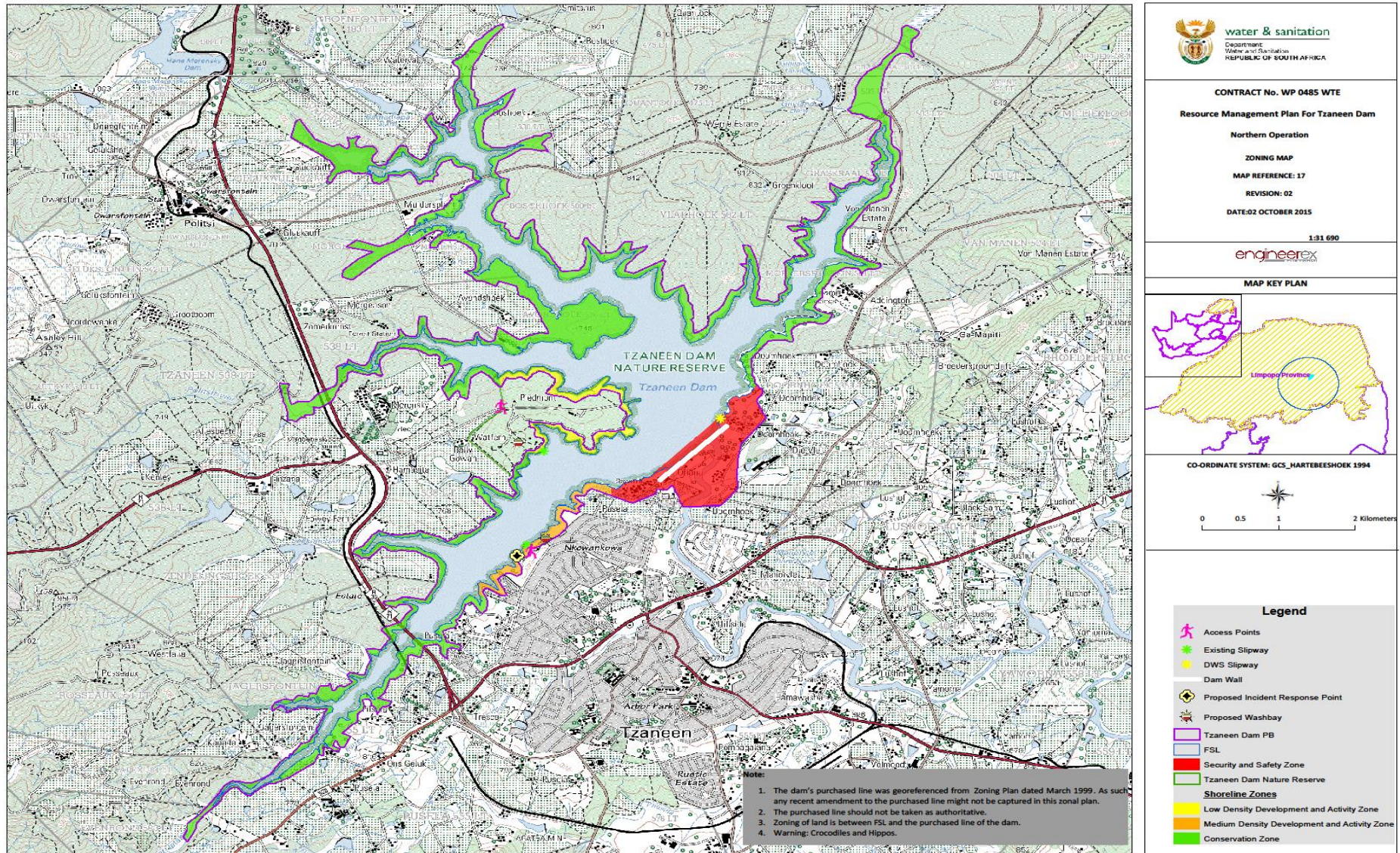
Shoreline Zone				
Zone Name	Motivation	Allowed facilities	Permissible activities	Recommendations
<ul style="list-style-type: none"> <li>Safety and Security Zone</li> </ul>	<ul style="list-style-type: none"> <li>This area delineates the area around the dam wall, as determined by DWS for purposes of dam and public safety, the extent of this zone is not negotiable. The security area should be 100m from the dam wall and outlet works.</li> <li>This area has already been demarcated by DWS for security purposes and control of the dam structure</li> </ul>	<ul style="list-style-type: none"> <li>A controlled access point might in future be necessary, should DWS identify the need thereof</li> </ul>	<ul style="list-style-type: none"> <li>The public is only allowed to view the dam structure which is necessary for tourist attraction especially when the dam over flows.</li> </ul>	<ul style="list-style-type: none"> <li>Access is limited to DWS and relevant authorised officials and the public (only to view the dam).</li> </ul>
<ul style="list-style-type: none"> <li>Conservation Zone</li> </ul>	<ul style="list-style-type: none"> <li>Allocated to ecological sensitive areas on land allowing for limited/no public access. The purpose of this zone is to ensure that the dam basin does not become</li> </ul>	<ul style="list-style-type: none"> <li>No facilities are allowed</li> </ul>	<ul style="list-style-type: none"> <li>Bird watching; and</li> <li>Hiking trails.</li> </ul>	<ul style="list-style-type: none"> <li>This zone should control access to ecological sensitive areas.</li> </ul>

**TZANEEN DAM DRAFT RESOURCE MANAGEMENT PLAN**

	developed to such an extent that the rural and tranquil atmosphere of the area is changed			
<ul style="list-style-type: none"> <li>Low Density Development and Activity Zone</li> </ul>	<ul style="list-style-type: none"> <li>Allow for sensitive development and low intensity use of State land.</li> </ul>	<ul style="list-style-type: none"> <li>This zone is suitable for low density use and structural developments such as camping sites, Caravan Park, and related infrastructure and activities.</li> </ul>	<ul style="list-style-type: none"> <li>Camping and picnics,</li> <li>Bank angling</li> </ul>	<ul style="list-style-type: none"> <li>Noise level to be kept at a minimum.</li> <li>No littering at Camping and Picnic spots.</li> </ul>
<ul style="list-style-type: none"> <li>Medium Density Development &amp; Impact Activity Zone</li> </ul>	<ul style="list-style-type: none"> <li>Allow for access and use relating to for example chalet developments, day visitor sites etc.</li> </ul>	<ul style="list-style-type: none"> <li>This zone is suitable for medium density use and structural developments such as camping sites.</li> </ul>	<ul style="list-style-type: none"> <li>Camping and picnics</li> </ul>	<ul style="list-style-type: none"> <li>No littering is allowed</li> </ul>



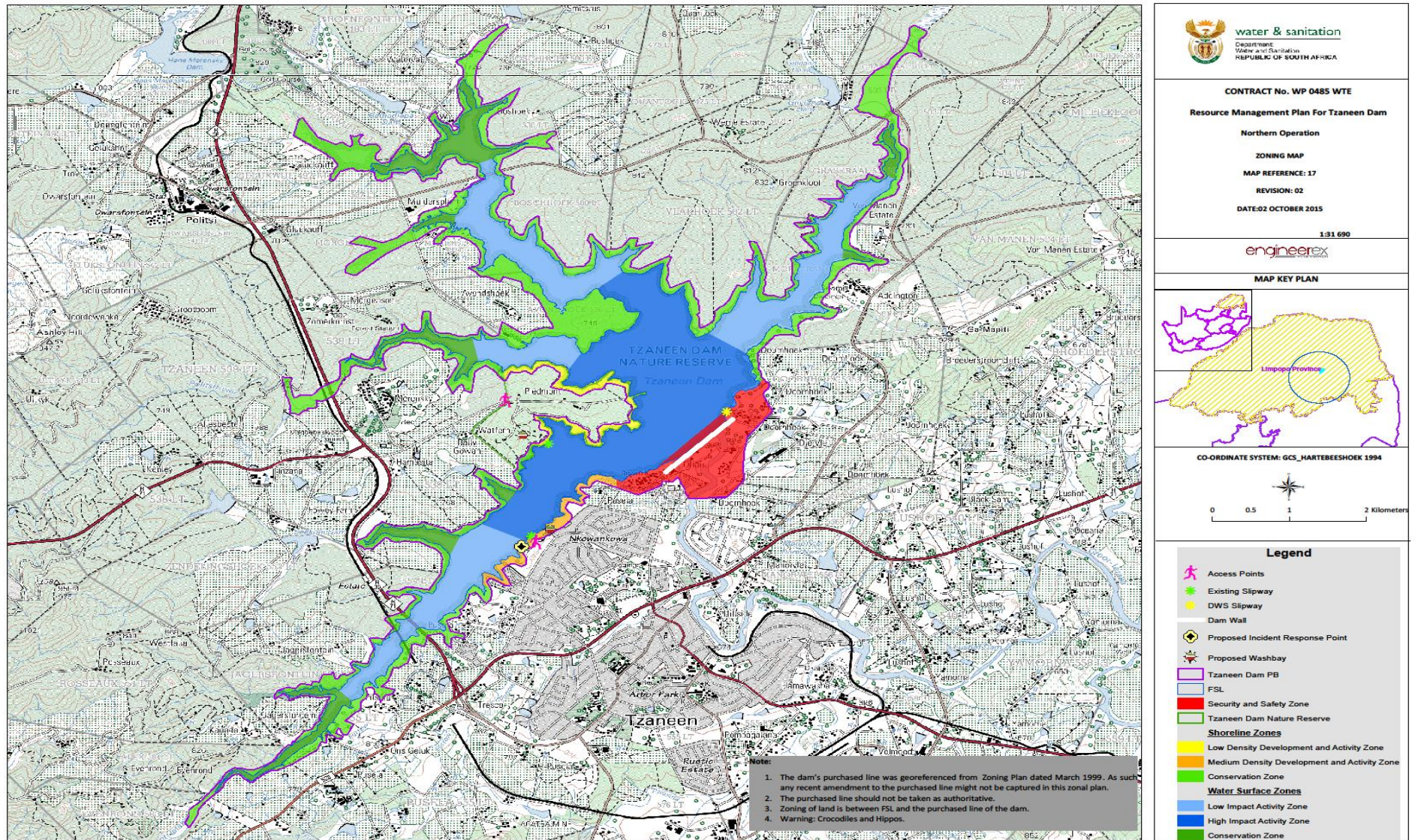
# TZANEEN DAM DRAFT RESOURCE MANAGEMENT PLAN



**Figure 18:** Proposed Shoreline Zoning Map



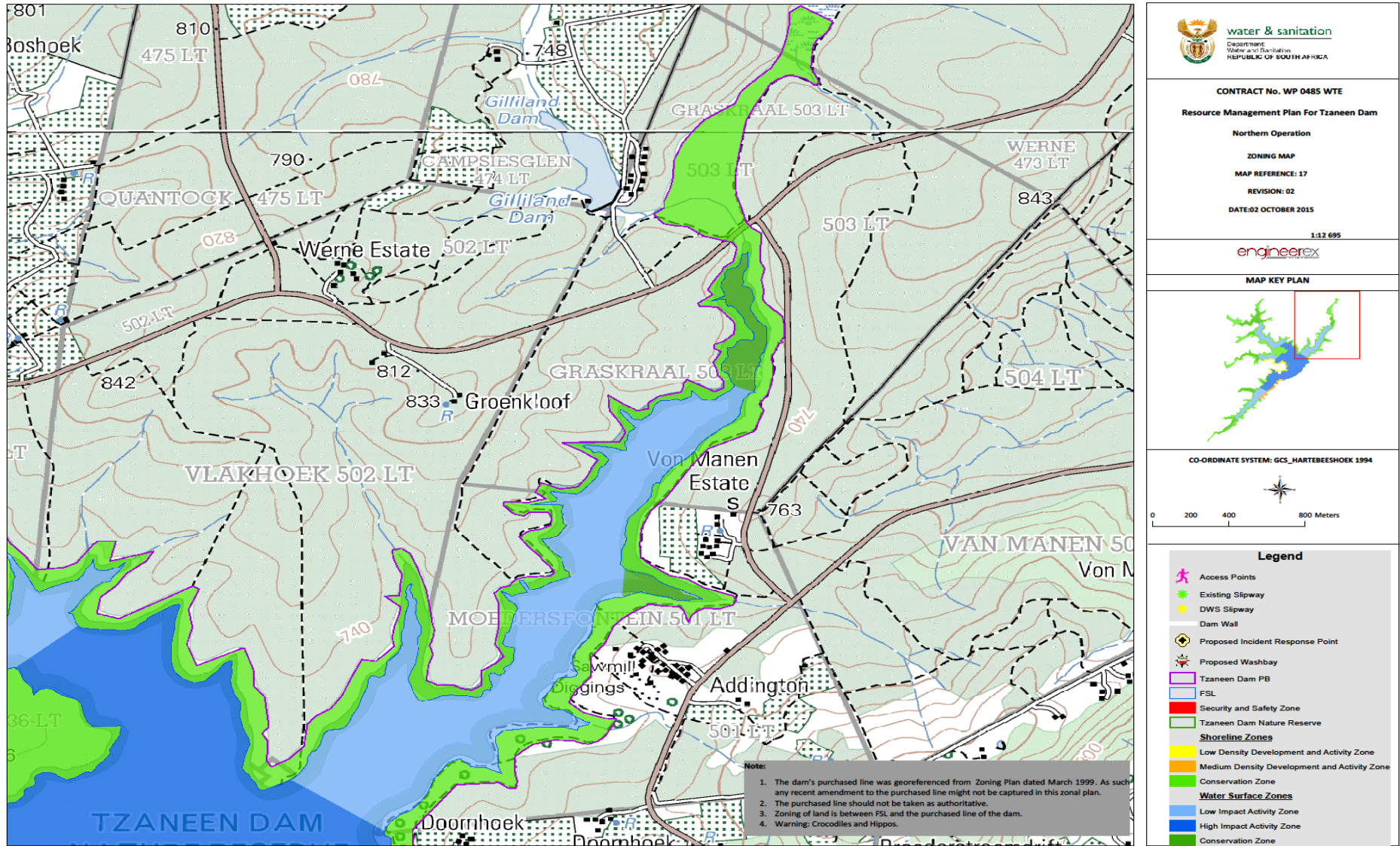
# TZANEEN DAM DRAFT RESOURCE MANAGEMENT PLAN



**Figure 19:** Proposed Overall Zoning Map for Tzaneen Dam



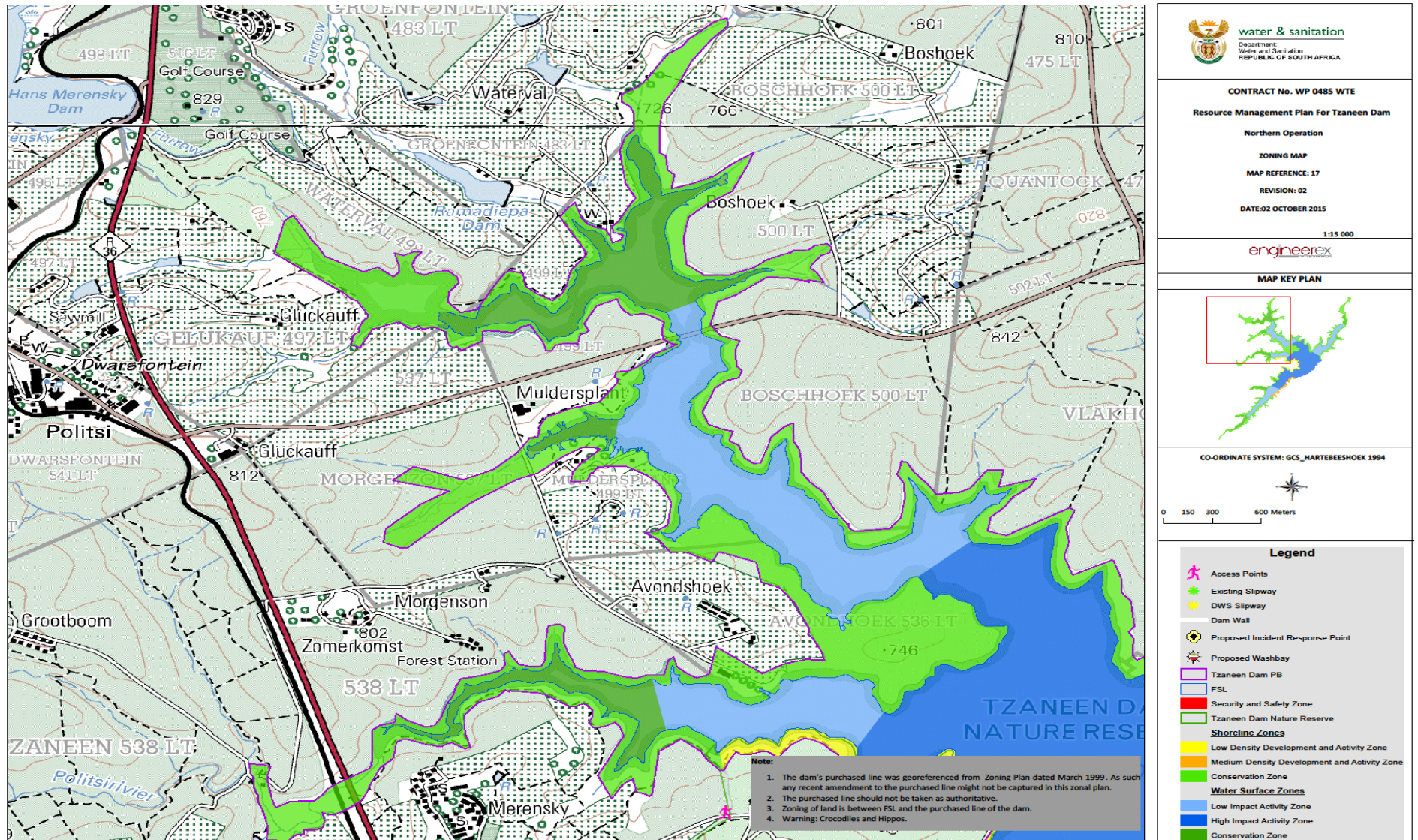
# TZANEEN DAM DRAFT RESOURCE MANAGEMENT PLAN



**Figure 20:** Proposed Overall Zoning Map - Section 1



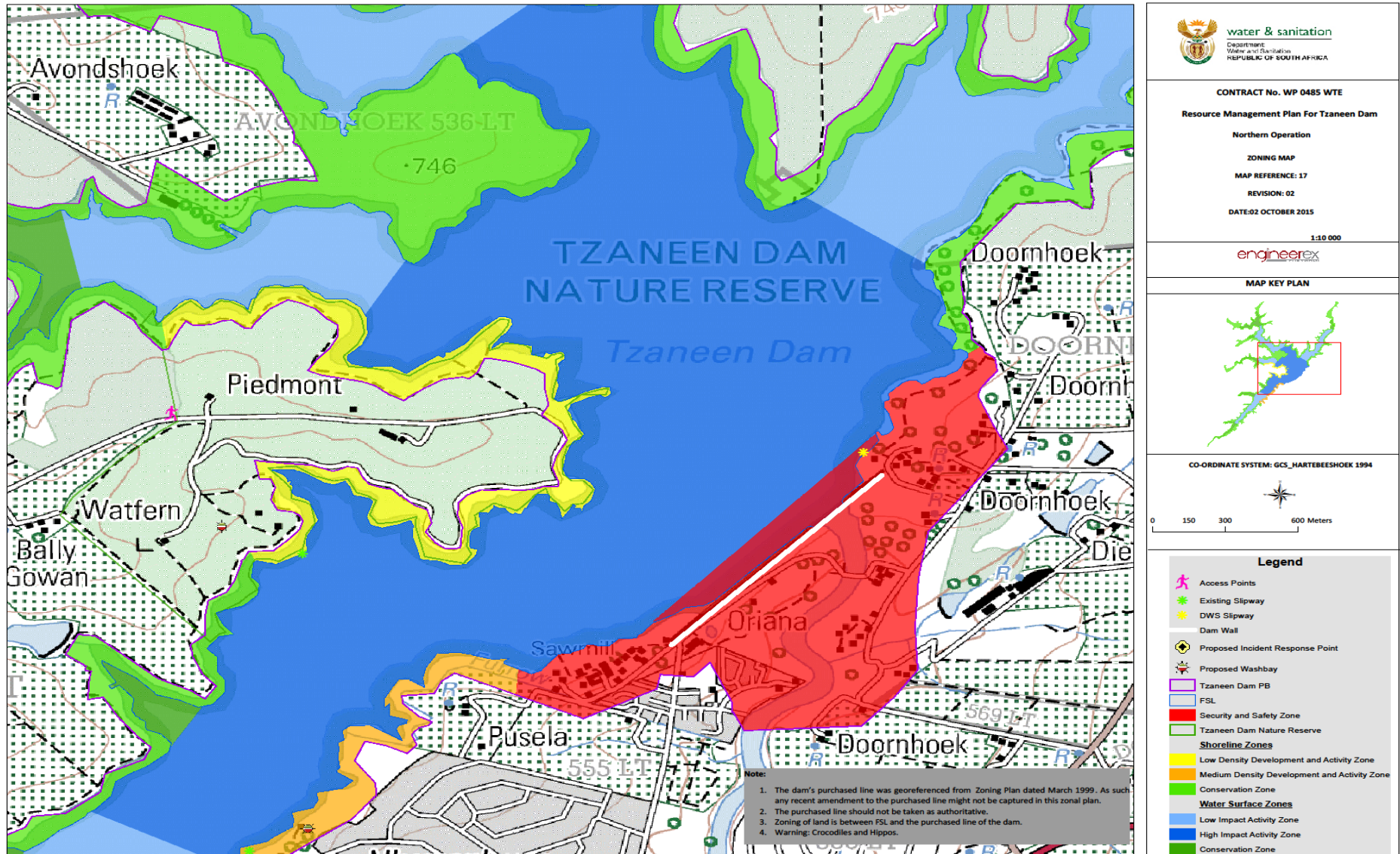
# TZANEEN DAM DRAFT RESOURCE MANAGEMENT PLAN



**Figure 21:** Proposed Overall Zoning Map - Section 2



# TZANEEN DAM DRAFT RESOURCE MANAGEMENT PLAN



**Figure 22:** Proposed Overall Zoning Map - Section 3

TZANEEN DAM DRAFT RESOURCE MANAGEMENT PLAN

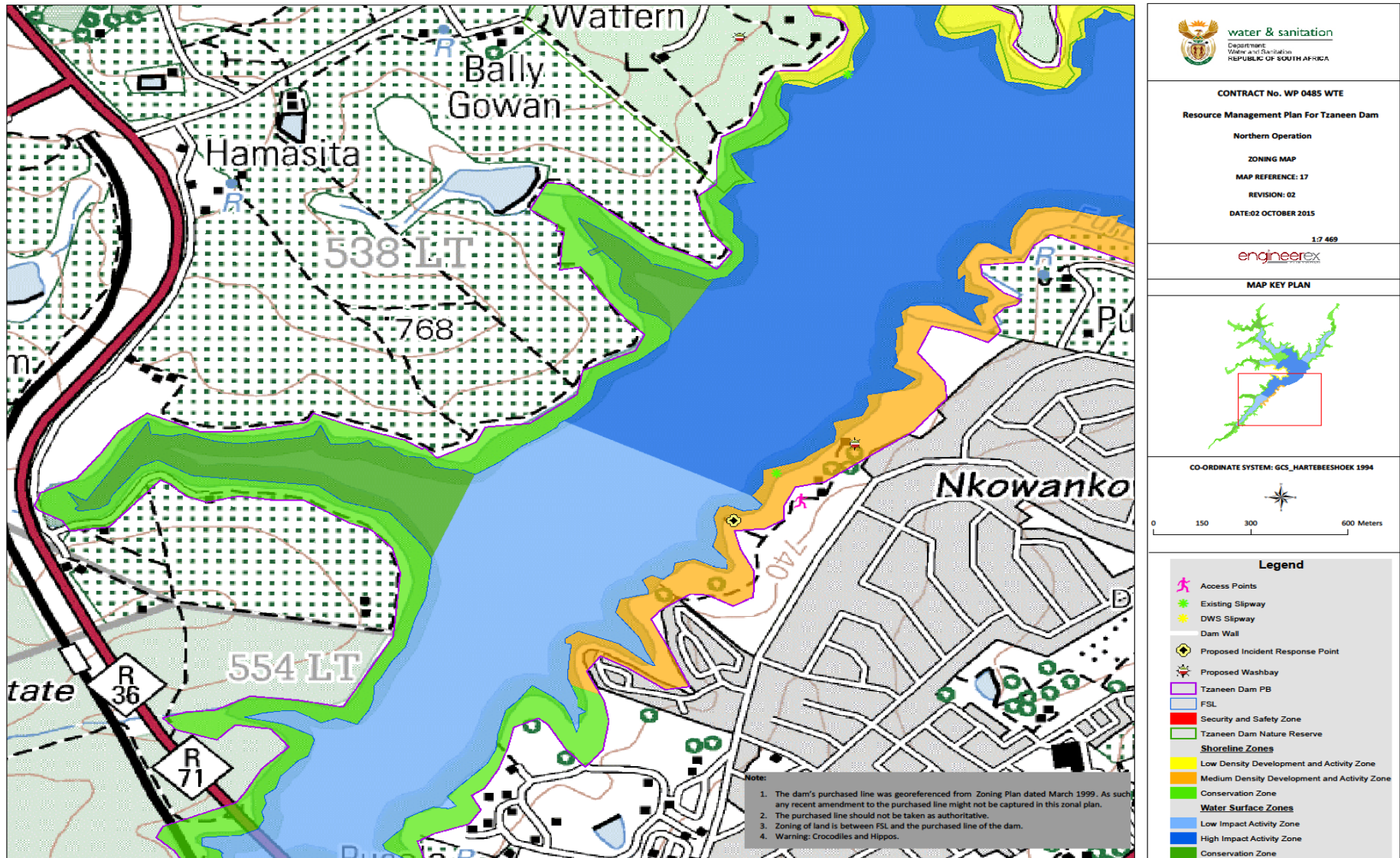


Figure 23: Proposed Overall Zoning Map - Section 4



TZANEEN DAM DRAFT RESOURCE MANAGEMENT PLAN

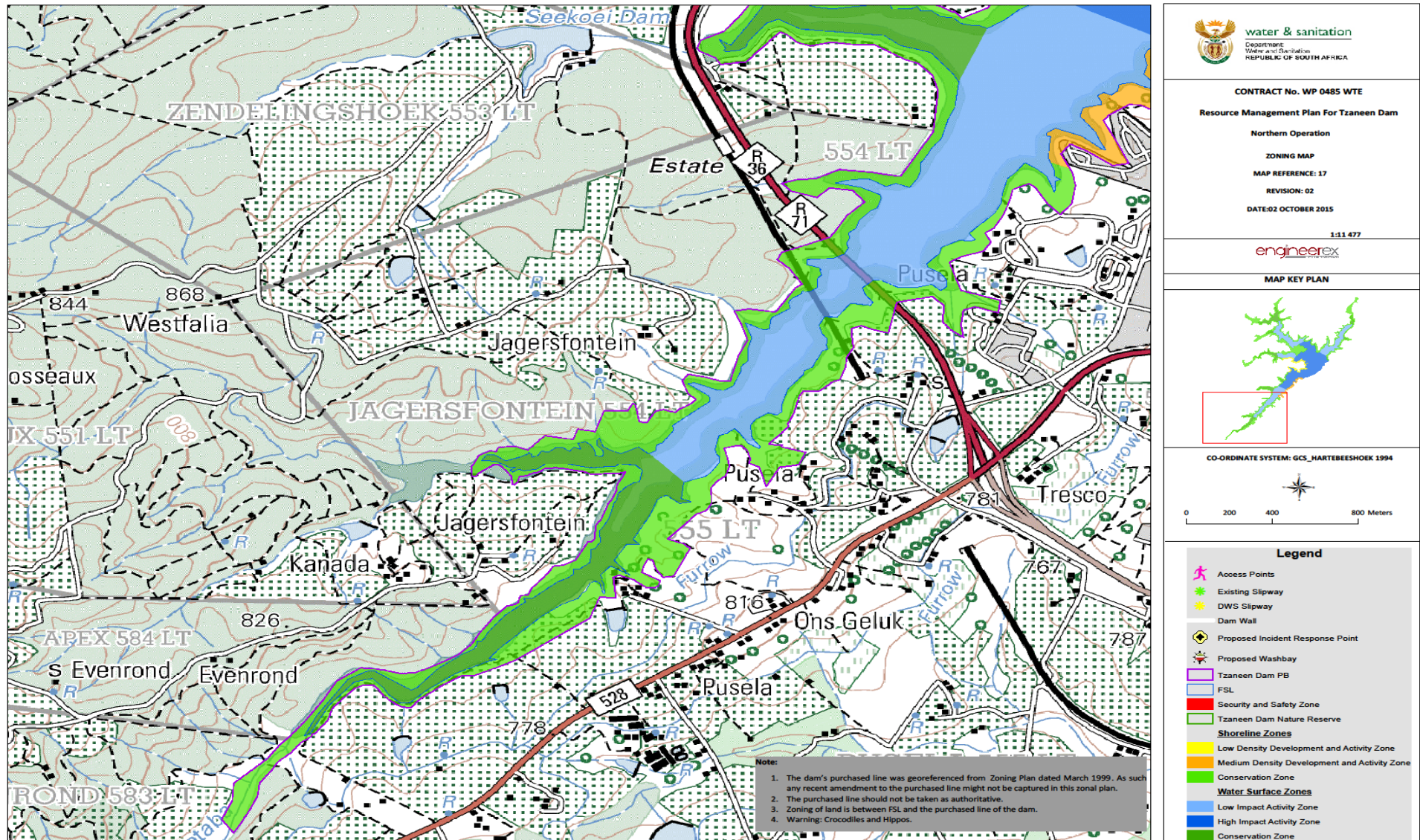


Figure 24: Proposed Overall Zoning Map - Section 5

**4.1.2.3 CARRYING CAPACITY**

In order to determine the degree or possible recreational use on the water surface, the Methodology for Carrying Capacity Assessment: Recreation Water Use (DWS 2003) was used as guideline to determine the level of activities that would be sustainable at Tzaneen Dam

Carrying capacity for recreation provides a guideline to ensure that recreation at the dam is safe, that users do not feel crowded and that they enjoy the use of the dam for leisure activities.

There are three kinds of carrying capacity:

- **Physical Carrying Capacity (PCC)** – this is the maximum number of users that can physically fit onto the water surface at any given time;
- **Real Carrying Capacity (RCC)** – this is the maximum number of users that can use the resource once corrective factors that are unique to the dam are taken into account; and
- **Effective (or permissible) Carrying Capacity (ECC)** – this is the number of visitors that can use the resource, given the management capacity.

Each level constitutes a corrected capacity level of the preceding level. The PCC is always greater than the RCC, and the RCC is greater than the ECC, thus: **PCC > RCC and RCC ≥ ECC.**

The process of establishing the carrying capacity is normally determined through the following tasks:

- Analysis of recreation and water resource management policies;
- Analysis of objectives of the water resource;
- Analysis of current recreational water use;
- Definition, strengthening or modification of policies regarding recreational water use management;
- Identification of factors influencing recreational water use; and
- Determination of the recreational water use carrying capacity.

**PHYSICAL CARRYING CAPACITY (PCC)**

**PCC is calculated as  $PCC = A \times U/a \times Rf$**

- **Where A** = Area available for public use;
- **U/a** = area required for each user; and
- **Rf** = Rotation Factor (the number of visits per day)

**A** is calculated as the area of the water surface available for public use: 1163.6 ha

The **U/A** = There is a range of literature regarding the area required for different recreational users.

The U/A used for the assessment is as follows: <b>Craft</b>	<b>U/A (ha/craft)</b>
Powerboats	<b>4.0</b>
Angling	<b>3.0</b>
Canoeing	<b>1.0</b>
<b>Average</b>	<b>2.7</b>

Based on the fact that most activities do not require much space, the average hectare per user is 2.7 ha (27 000 m<sup>2</sup>), the value of 5.0 ha (50 000 m<sup>2</sup>) can be acceptable area per user. This has been chosen in order to ensure that the dam is not overcrowded, as such impacting on the sense of the area.

The PCC for Tzaneen Dam can further be calculated as:

$$\begin{aligned}
 PCC &= A \times U/a \times Rf \\
 &= 1163.6 \times 1/5 \times 1 \\
 &= 233 \text{ vessels}
 \end{aligned}$$

**REAL CARRYING CAPACITY**

The RCC takes factors into account that limits recreation. The limiting factors include:

Safety Areas/ No go Zones (10.3 ha); and

Conservation Area (193.9 ha).

The above factors results in 17.5% decrease in water surface available for recreation at the dam, therefore 82.5% of the surface area of the dam is still available for recreation.

RCC for Tzaneen Dam is therefore:

$$RCC = PCC \times (100 - Cf1)\% \times (100 - Cf2)\% \times (100 - Cfn)\%$$

Where **Cf** = a corrective factor expressed as a percentage.

$$RCC = 233 \times (100 - 17.5)\% / 100 \\ = 192 \text{ vessels}$$

**EFFECTIVE CARRYING CAPACITY**

The maximum number of visitors that a site can sustain, given the management capacity (MC) available.

Currently there is no formal management structure in place, as such the ECC is 0. The ECC will be calculated after the proposed Institutional structure (as part of the RMP) have been implemented in order to manage the sustainable utilization of the dam for recreational purposes.

**4.1.3 STRATEGIC PLAN**

The Strategic Plan is informed by the objectives identified by stakeholders and through research on potential opportunities at the dam. The objectives are broken down into management fields which are listed below in a format offering ease of reference:

- Objective (What do we want?);
- Motivation (Why do we want to achieve this?);
- Action Projects (How do we achieve this?); and
- Management Support (Who will be involved?).

In **Table 15**, the Strategic Plan on how to achieve the identified objectives identified regarding the dam is outlined.



## TZANEEN DAM DRAFT RESOURCE MANAGEMENT PLAN

**Table 15:** Resource Management Strategic Plan

KPA 1: RESOURCE MANAGEMENT			
OBJECTIVE	MOTIVATION	ACTION PROJECT	MANAGEMENT SUPPORT
<ul style="list-style-type: none"> <li>To maintain the water quality of Tzaneen Dam.</li> </ul>	<ul style="list-style-type: none"> <li>The water in the dam is of good quality and is in compliance to the DWS Standards for Recreational Water Use.</li> <li>Tzaneen Dam is surrounded by farms which poses a threat of water pollution through uncontrolled agricultural runoff.</li> </ul>	<ul style="list-style-type: none"> <li>The water upstream and downstream of the water resource must be regularly sampled to check any trace of pollution in the dam.</li> <li>To educate and/ or encourage farmers to use organic fertilizers other than artificial fertilizers.</li> <li>Proper waste management system at the dam.</li> </ul>	<ul style="list-style-type: none"> <li>The DWS, Department of Agriculture, Forestry and Fisheries, Department of Environmental Affairs and the municipalities (local and district) Greater Tzaneen Local Municipality and Mopani District Municipality.</li> </ul>
<ul style="list-style-type: none"> <li>To increase the storage capacity of Tzaneen Dam.</li> </ul>	<ul style="list-style-type: none"> <li>The water within Tzaneen Dam has been fully allocated due to the growing demand of agriculture and afforestation in the area.</li> <li>Local Communities tend to install unauthorized water pumps into the dam and take water without permits / authorization.</li> <li>The raising of the dam wall will increase water security in the area.</li> </ul>	<ul style="list-style-type: none"> <li>The storage capacity of the dam will be increased by raising the dam wall.</li> <li>By verifying the existing water use and regulating the abstraction of water.</li> <li>Enforcement unit to deal with alleged unlawful water abstraction.</li> </ul>	<ul style="list-style-type: none"> <li>DWS is responsible for raising the dam wall.</li> <li>DWS is responsible for Water Use Licensing and Regulation.</li> </ul>
<ul style="list-style-type: none"> <li>To have the dam and the surrounding environment free of Alien Vegetation in order to support the proposed recreational activities.</li> </ul>	<ul style="list-style-type: none"> <li>WFW programme is currently not eradicating alien plants at Tzaneen Dam.</li> <li>There is no proper control and inspection of the vessels before they launch into the dam, which poses a threat of spread of aquatic alien invasive weeds.</li> </ul>	<ul style="list-style-type: none"> <li>Construct an inspection and cleaning mechanism such as wash bays to ensure that there is no spread of any alien invasive species.</li> <li>To re-establish the native species to the area and DEA (WFW) to remove all invasive alien vegetation within the purchased boundary.</li> </ul>	<ul style="list-style-type: none"> <li>DEA (Working for water), DWS.</li> <li>Boat wash bays must be constructed to eliminate the spread of alien vegetation when launching the boat into the dam.</li> <li>Vessel and trailer wash bays must be constructed, as per the CIWSP best practice model, to eliminate the spread of alien vegetation when launching the vessel on the dam.</li> </ul>

## TZANEEN DAM DRAFT RESOURCE MANAGEMENT PLAN

KPA 1: RESOURCE MANAGEMENT			
<ul style="list-style-type: none"> <li>To conserve and manage the natural environment in and around the dam in a sustainable manner.</li> </ul>	<ul style="list-style-type: none"> <li>Portion of the left bank of the dam is adjacent to the nature reserve.</li> </ul>	<ul style="list-style-type: none"> <li>Developing an Integrated Environmental Management System (IEMS) for the dam.</li> <li>By undertaking a biodiversity management plan</li> <li>By identifying areas where vegetation has deteriorated and rehabilitate accordingly.</li> </ul>	<ul style="list-style-type: none"> <li>DWS, DEA, LEDET and other local conservation initiatives.</li> </ul>
<ul style="list-style-type: none"> <li>To protect the faunal species against poaching and other unauthorized activities.</li> </ul>	<ul style="list-style-type: none"> <li>There are unauthorized practices at the dam including net fishing and poaching of bushbucks. Such practices can result in population decrease of the fish species in the dam.</li> </ul>	<ul style="list-style-type: none"> <li>To appoint personnel to patrol the dam and also check for any unauthorised activities that might occur at the dam both at Lions Club and the Tzaneen Dam Nature Reserve.</li> </ul>	<ul style="list-style-type: none"> <li>An Implementing agency (IA) will be appointed and it will ensure that the faunal species will be protected and eliminate unauthorised activities at the dam.</li> </ul>

**Table 16:** Resource Utilization Strategic Plan

KPA 2: UTILISATION			
<ul style="list-style-type: none"> <li>To promote equitable access and safe usage of the dam by the public.</li> </ul>	<ul style="list-style-type: none"> <li>Local communities should be able to go to the dam and engage in recreational activities at a reasonable price.</li> <li>The entrance fees for both the Nature Reserve and the Boat Club are reasonable at R5 per child and R10 per adults. This makes it affordable for everyone who wants to engage in recreational activities.</li> <li>To ensure that the community is safe when engaging in recreational activities at the dam.</li> </ul>	<ul style="list-style-type: none"> <li>The skipper should have a skipper's license and complete the SAMSA checklist for safety purposes prior to conducting the boat trips.</li> <li>Ensure that the skipper and the crew comply with SAMSA Regulations at all times.</li> </ul>	<ul style="list-style-type: none"> <li>The IA must ensure that the entrance fees remain reasonable and affordable to the community and tourisms.</li> <li>The established institution will check for the skipper's Certificate of Competence and the vessel's Certificate of Fitness.</li> <li>Implementation of standardised and harmonised AtoN and Demarcation Markers</li> <li>Implement all other aspects of the CIWSP best practice model.</li> </ul>

## TZANEEN DAM DRAFT RESOURCE MANAGEMENT PLAN

KPA 2: UTILISATION			
<ul style="list-style-type: none"> <li>To improve the existing recreational facility within Tzaneen Dam Nature Reserve.</li> </ul>	<ul style="list-style-type: none"> <li>The existing recreational facilities are in a state of despair and need renovations.</li> <li>The roads within the nature reserve are in a bad condition, and during the rainy seasons, it becomes difficult to access the recreational facilities.</li> </ul>	<ul style="list-style-type: none"> <li>The existing facilities within the nature reserve should be renovated and maintained.</li> <li>Maintenance of the existing road for ease access to the dam.</li> <li>To develop and improve recreational facilities at the dam in order to attract new tourists to the dam.</li> </ul>	<ul style="list-style-type: none"> <li>The IA and LTA will ensure the nature reserve is developed and utilised to its maximum potential, as it serves as a tourist attraction.</li> <li>The BP will assist in identifying the marketing strategies and funding mechanism to improve the current recreational structures.</li> </ul>
<ul style="list-style-type: none"> <li>To introduce swimming as an activity at the dam for visitors.</li> </ul>	<ul style="list-style-type: none"> <li>Currently there is no swimming activities taking place at the dam, as it is a home to a population of crocodiles and hippopotamus. Hippopotamuses are dangerous animals that attack human in water and on land without apparent provocation.</li> </ul>	<ul style="list-style-type: none"> <li>Establishment of a swimming pool is safer than actually swimming in the dam which has dangerous animals.</li> </ul>	<ul style="list-style-type: none"> <li>The institutional structure must make sure that the community is aware of the crocodiles and hippopotamus in the dam by putting big visible warning signs.</li> <li>The swimming pool will require life guards for the safety of the community and tourists. Local community members can be trained to be life guards.</li> <li>The BP will give an insight on how the swimming pool will be financially resourced.</li> </ul>
<ul style="list-style-type: none"> <li>Introduction of small scale fishery</li> </ul>	<ul style="list-style-type: none"> <li>Currently there are illegal fishing at the dam where people use nets to harvest fish.</li> <li>Tzaneen dam is big enough to accommodate this project.</li> <li>Small scale fisheries will make an important contribution to nutrition, food security, sustainable livelihoods and poverty alleviation to the local community.</li> </ul>	<ul style="list-style-type: none"> <li>Preserve the core habitats for nesting, resting, feeding and breeding of fish within the inlets.</li> <li>Management authority must develop a communication signage in order to effectively inform different angling groups about the dam fishing rules.</li> <li>Appoint Safety Officer that will monitor compliance of the fishing rules.</li> </ul>	<ul style="list-style-type: none"> <li>Different government departments such as DWS, DEA, DAFF, and DTI should work together into a management structure in order to assess the viability and possibility of introducing the small scale fishery.</li> </ul>



## TZANEEN DAM DRAFT RESOURCE MANAGEMENT PLAN

**Table 17:** Benefit Flow Strategic Plan

KPA 3: BENEFIT FLOW			
<ul style="list-style-type: none"> <li>To establish an appropriate institutional structure, this will assist in effectively managing the recreational use of the dam and the surrounding environment.</li> </ul>	<ul style="list-style-type: none"> <li>There is no proper institutional structure in place for recreational use.</li> </ul>	<ul style="list-style-type: none"> <li>The institutional structure must be representative of all key stakeholders.</li> <li>The role and responsibilities of the role players must be clearly defined and understood.</li> </ul>	<ul style="list-style-type: none"> <li>Establishment of functional institutional structure that will effectively manage the recreational utilization of the dam and its associated state land in accordance with the RMP.</li> <li>The institutional structure should be representative of all relevant stakeholders.</li> <li>DWS and key stakeholders.</li> </ul>
<ul style="list-style-type: none"> <li>To promote Tzaneen Dam to become a major tourist attraction.</li> </ul>	<ul style="list-style-type: none"> <li>There is lack of marketing strategies regarding tourism attraction for the dam.</li> </ul>	<ul style="list-style-type: none"> <li>The institutional structure for the dam must work together with the IA to market the dam.</li> </ul>	<ul style="list-style-type: none"> <li>The established institutional structure must ensure that there is a good marketing strategy for the dam.</li> </ul>
<ul style="list-style-type: none"> <li>To uplift the local communities through employment opportunities and skills development programs.</li> <li>To establish youth training programs for cultural, heritage and tourism sectors.</li> </ul>	<ul style="list-style-type: none"> <li>There are no skills development programmes which are linked to the dam.</li> <li>The IA should appoint members of the local community as gate keepers and ground men to clean recreational facilities at the dam.</li> <li>Currently there are no skills development programs in place which are linked to the utilization of the dam.</li> </ul>	<ul style="list-style-type: none"> <li>Strengthens community participation and beneficiation.</li> <li>The job opportunities which might arise from the RMP for the dam should be given to the local community as first preference.</li> <li>There should be youth development programs, for the local youth, to educate and equip them with the necessary skills to enter into tourism and or to open their own business.</li> </ul>	<ul style="list-style-type: none"> <li>Involvement of the Ward councilor in making sure that the community is participating as well as benefiting from the dam through recreational activities.</li> <li>Community awareness on the benefits of utilizing water for recreational activities and the possibly commercial opportunities through recreational and tourism related activities.</li> </ul>

**4.1.4 FINANCIAL PLAN**

The RMP provides guidance on cost recovery mechanisms to ensure the sustained and improved management of the dam. The Tzaneen Dam could become an economic lever and central to development in the Limpopo Region. There are opportunities for PPPs which could further unlock the economic potential of the dam.

PPPs allows for DWS to make State Assets such as GWWs available to private parties who wish to engage in tourism related commercial operations (DAAF, 2009). PPPs should be established as per Regulation 16 of the National Treasury. When PPPs are established the private party takes up the financial, technical and operation risks but receives benefits.

Tzaneen Dam is a State asset and as such all profits generated from the recreational use, should be used to further develop the dam. People should not be denied access to the dam. All fees associated with the usage of the dam

for recreation should take into account the socio-economic status of the users. The access fees should make a provision for equitable access.

The BP provides a financial model to undertake certain interventions. The Financial Plan will facilitate the implementation of potential and recommended activities in the RMP.

**4.2 WAY FORWARD**

twenty-year vision has been identified for the dam as part of the RMP. This vision will be implemented through the RMP which will be revised and updated every five years, according to changing priorities, constraints and achievements. Within a five-year cycle of the RMP, the BP will identify key objectives in line with a changing status quo and potential change in circumstances. After five years the RMP will be reviewed and updated so to identify new objectives in line with the vision for the dam. The BP is updated annually. The figure below show the RMP & BP review framework.

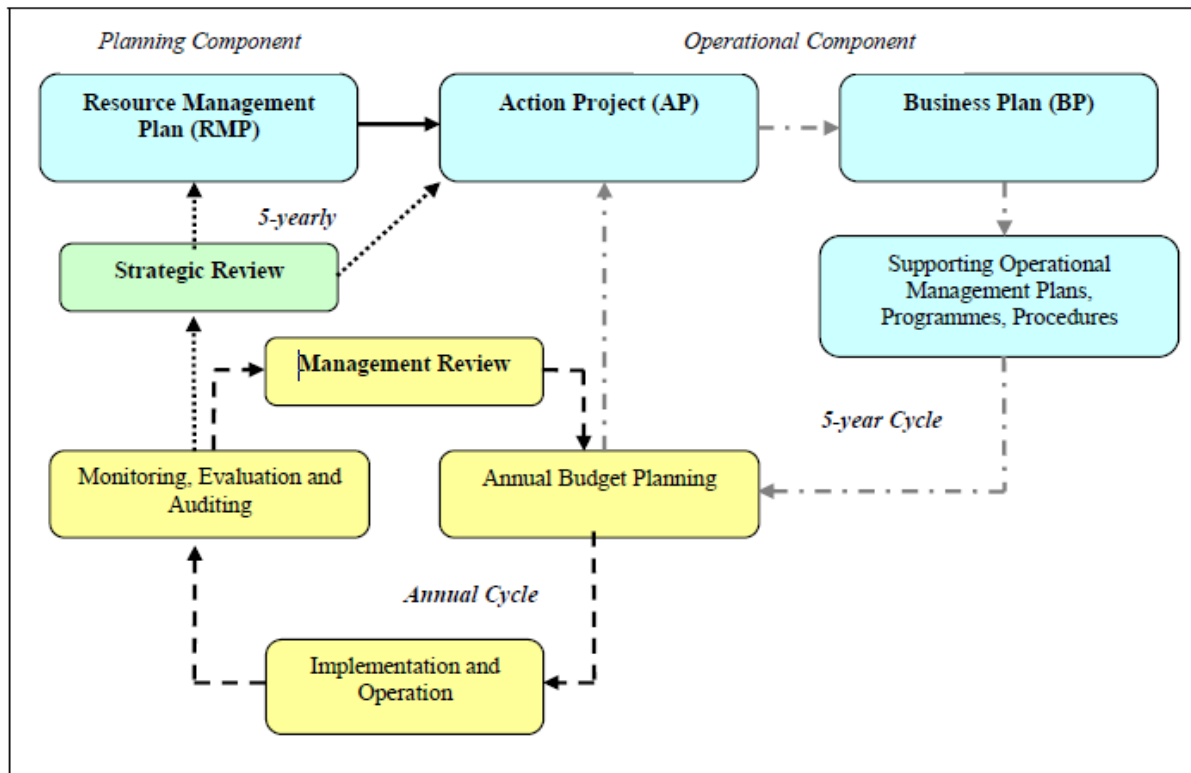


Figure 25: RMP Review Framework

## CONCLUSIONS

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The RMP documents the challenges that exist within the dam that can significantly impact the utilisation and management of the dam and its surrounding for recreational purposes. Such factors include legal, biophysical, socio-economic, and hydrological as well as access to the resource. These factors will assist DWS with the most appropriate approach to ascertain that the issues are addressed before the implementation of the RMP.

The RMP will assist in effectively managing the dam and its surrounding environment. Furthermore its function is to implement an Institutional Plan for the effective management of dam. The focus on Institutional Plan is accompanied by a Zonal Plan which provides guidance on potential activities that are allowed on the dam, together with a Strategic Plan. The Strategic plan explains the action plans on how to achieve the identified objectives. In addition, a Financial Plan provides guidance on funding requirements and funding options to implement the objectives of the RMP.

Moreover, the RMP promotes community participation and beneficiation, through Stakeholders engagement which were conducted to obtain common key objectives to be met by the RMP. The vision of the dam was formulated from the key common objectives identified by Stakeholders. Based on the strategic objectives identified for Tzaneen Dam, a BP has been developed to describe a manner in which the potential recreational activities are to be financially resourced. In addition, by including the RMP in the Local Initiatives such as IDPs, LED, SDF, etc. can ensure effective co-operative governance as well as to provide necessary support with regards to the use of dam for recreational purposes. Undertaken in this manner, it is believed that the potential of the water resource can be optimally unlocked in a sustainable and equitable manner.

## REFERENCES

**Department of Environmental Affairs, (2009)** *Environmental Management Framework for Olifants and Letaba River Catchment Area: Draft report on the Status Quo, Opportunities, Constraints and the desired State.*

**Department of Water Affairs and Forestry, (1998),** *National Water Act. 1998. Act No 36 of 1998, Pretoria, South Africa.*

**Department of water affairs and forestry, (1999),** *The Zoning of Tzaneen Dam*, prepared by Landscape Dynamics Cc.

**Department of Water Affairs and Forestry, (2001)** *Generic Public Participation Guidelines.*

**Department of Water Affairs & Forestry, (2004),** *Internal Strategic Perspective (ISP) – Luvuvhu/Letaba Water Management Area.*

**Department of Water Affairs and Forestry, (2006),** *Recreational Water Use Manual Guidelines, First Release, South Africa.*

**Department of Water Affairs, (2012),** *Development of a Reconciliation Strategy for the Luvuvhu and Letaba Water Supply System: Water Quality Assessment Report*, Golder Associates Africa.

**Department of Water Affairs, (2014),** *Terms of Reference- Development of Resource Management Plan for prioritized Governmental Water works.*

**Greater Tzaneen Local Municipality, (2014),** *Integrated Development Plan 2014/2015 Final*

**Greater Tzaneen Local Municipality, (2007),** *Revised Tourism Development Framework*

**Kabanda T.A, (2003)** *A first synthesis of the Environmental, Biological and Cultural Assets of the Soutpansberg in Macdonald, I.A.W, Gaigher I, Gaigher R, & Berger K.* <http://www.soutpansberg.com/workshop/synthesis/climate.htm>.

**South African National Biodiversity Institute Vegetation Maps -** <Http://www.bgis.sanbi.org>

<Http://www.mobilitate.co.za>

**Statistics South Africa, (2011),** *Statistics Release, Census.*

[www.ultraquickhost.com](http://www.ultraquickhost.com)

**Greater Tzaneen Economic Development Agency, (2009),** *Feasibility Study on Tourism Anchor Projects – Report and Business Plan*

# **APPENDICES**