Department of Water and Sanitation

NATIONAL WATER RESOURCE INFRASTRUCTURE (NWRI)

Resource Management Plan

MKHOMBO DAM

REPORT – Volume 4 of 5

December 2016

WATER IS LIFE - SANITATION IS DIGNITY

water & sanitation

Department:
Water and Sanitation
REPUBLIC OF SOUTH AFRICA

2030 NDP

Prepared by:

ENGINEEREX (PTY) LTD
107 Haymeadow Street
Boardwalk Office Park
Faerie Glen
Pretoria
0043

Tel: 012 664 1180
Fax: 012 664 1165
Website: **www.engineerex.co.za**

Prepared for:

DEPARTMENT OF WATER AND SANITATION
Private Bag X313
Pretoria
0001

Tel: 012 336 8582
Fax: 012 324 6692
Website: **www.dws.gov.za**

ACKNOWLEDMENTS

Engineerex (Pty) Ltd would like to express its gratitude to the following Stakeholder that immensely contributed in the development of this Resource Management Plan for Mkhombo Dam:

- Department of Water and Sanitation;
- Dr JS Moroka Local Municipality;
- Makometsane Community;
- Maphanga Community;
- Mkhombo Co-Management Committee;
- Mkhombo Dam Nature Reserve Manager;
- Mpumalanga Tourism and Parks Agency;
- Rhenosterkop African Tours;
- Senotlelo Community;
- Vaalbank/ Libangeni Community;
- Ward Committee Members; and
- Ward Councillors.

Acknowledgement is also extended to all other Stakeholders who attended and participated in the Stakeholder engagements.

TITLE AND APPROVAL PAGE

Recommended:

Name	Title	Signature	Date
Lucky Mzanywa	Project Manager: National Water Resource Infrastructure: Integrated Environmental Engineering (NWRI: IEE)		
Thanduxolo Dlamini	Director: Northern Operations, NWRI		
Leonardo Manus	Chief Director: Infrastructure Operations, NWRI		

Approved:

Name	Title	Signature	Date
Zandile Mathe	Deputy Director-General: NWRI		

Review:

Review Period	Month	Year				
Annual Review of Business Plan	December	2018[1]	2019	2020	2021	2022
Five (5) Yearly Review of RMP	December	2022				

[1] The implementation of the RMP and BP requires a year budget planning prior to operationalisation.

AMENDMENTS PAGE

Revision No	Description	Date
1	Draft RMP for DWS Review	12/10/2015
2	Draft RMP for DWS Review	19/11/2015
3	Final Draft RMP for DWS Review	11/04/2016
4	Final RMP for DWS Approval	15/08/2016
5	Final RMP for DWS Approval	14/12/2016

LIST OF ACRONYMS

AtoN	Aid(s) to Navigation
BID	Background Information Document
BP	Business Plan
CATHSSETA	Culture, Arts, Tourism, Hospitality, Sports Sector, Education and Training Authority
CD: IO MANCO	Chief Director: Infrastructure Operations Management Committee
CIWSP	Cooperative Inland Waterways Safety Programme
CMC	Co-Management Committee
COGTA	Cooperative Governance and Traditional Affairs
CPSI	Centre for Public Service Innovation
DAFF	Department of Agriculture, Forestry and Fisheries
DEA	Department of Environmental Affairs
DHS	Department of Human Settlement
DMC	Dam Management Committee
DoT	Department of Transport
DPW	Department of Public Works
Dr JSM LM	Dr JS Moroka Local Municipality
DRDLR	Department of Rural Development and Land Reform
DSR	Department of Sports and Recreation
DWAF	Department of Water Affairs and Forestry
DWS	Department of Water and Sanitation
ECC	Effective Carrying Capacity
EMF	Environmental Management Framework
FSL	Full Supply Level
GIAMA	Government Immovable Asset Management Act
GP	Guideline Programs
GPS	Global Positioning System
GWWs	Governmental Waterworks
I&APs	Interested and Affected Parties
IA	Implementing Agency
IDP	Integrated Development Plan
IEE	Integrated Environmental Engineering
IRMP	Integrated Resource Management Plan
KPAs	Key Performance Areas
LAAP	Local Accountable AtoN Parties
LED	Local Economic Development
MBSP	Mpumalanga Biodiversity Sector Plan
MDNR	Mkhombo Dam Nature Reserve
MNCA	Mpumalanga Nature Conservation Act
MOA	Memorandum of Agreement
MTPA	Mpumalanga Tourism and Parks Agency
NDT	National Department of Tourism
NEMA	National Environmental Management Act
NEMPAA	National Environmental Management Protected Areas Act
NPSC	National Project Steering Committee
NT	National Treasury
NWA	National Water Act
NWRI	National Water Resource Infrastructure
PCC	Physical Carrying Capacity

PP	Public Participation
PPP	Public Private Partnership
RCC	Real Carrying Capacity
RMP	Resource Management Plan
SAMSA	South African Maritime Safety Authority
SAPS	South African Police Service
SASCOC	South African Sports Confederation and Olympic Committee
SDF	Spatial Development Framework
SWOT	Strengths, Weaknesses, Opportunities, Threats
WfW	Working for Water
WSDP	Water Service Development Plan
WTWs	Water Treatment Works

EXECUTIVE SUMMARY

Mandate: 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 of Water and Sanitation, as the custodian of the nation's water resources must ensure that the Government Waterworks (GWWs), including Mkhombo Dam, are protected, used, developed, managed and controlled in a sustainable manner, for the benefit of all. To assist the Minister in attaining the mandate and to ensure that access to, and use of, the dam is equitable, the DWS initiated and commissioned the development of the Resource Management Plan (RMP) for Mkhombo Dam.

Purpose of RMP: The RMP is a plan which aims to regulate access and the recreational utilisation of a water resource and the surrounding state land, in ways which promote community participation and beneficiation, environmental conservation and unlock socio-economic potential of the water resource.

According to DWAF (2006), the use and management of the GWWs for recreation purpose needs to be based on Integrated Resource Management Plan (IRMP) included within the RMP.

Location of the dam: Mkhombo Dam is a combined gravity and arch type dam which impounds the Elands River, part of the Olifants River basin. It is located within the Mkhombo Nature Reserve and is widely known as Mkhombo Dam Nature Reserve (MDNR). It falls under seven (7) Wards (16, 17, 18, 19, 20, 21 and 26) within the jurisdiction of Dr JS Moroka Local Municipality (Dr JS MLM), which forms part of the Nkangala District Municipality (NDM) in Mpumalanga Province, South Africa. Its Global Positioning System (GPS) coordinates are **25°6'47.28"S 28°52'25.49"E.**

Purpose of the dam: The primary purpose of Mkhombo Dam is to provide raw water for industrial and domestic use.

The dam also currently offers a wide variety of recreational activities due to its location within a nature reserve. Such activities include fishing, boating, camping and bird watching.

Dam ownership and management: Mkhombo Dam is owned and operated by DWS for primary use. The dam has one authorised access point through the Mkhombo Dam Nature Reserve (MDNR) along R568 Road.

Mpumalanga Tourism and Parks Agency (MTPA) manages the dam for secondary use as part of MDNR for recreational purposes. This RMP proposes an improvement on the current institutional structure to include other relevant role players to assist in effectively managing the dam.

Stakeholder engagement: The success of the development and implementation of the RMP depends on the role players and their level of participation. It is thus recognized that different roles and responsibilities of the stakeholders [Authorities and Interested and Affected Parties (I&APs)], their relationship towards each other and the steps in the planning procedure are imperative in the successful development of the RMP. As such, proper consultation with the public was done in order to help in producing a credible RMP.

DWAF's Guidelines for Public Participation (2001) outlines three (3) broad phases for public participation namely the **Planning, Participation** and **Exit phase**.

During the **Planning phase** a site inspection was conducted and literature reviewed in order to gather baseline information about the dam. A process was also established to get into contact with the I&APs and relevant authorities to ensure co-operative interests and support in the RMP project.
The **Participation Phase** entailed three (3) important aspects, namely:

- Informing stakeholders about the RMP project;

- Meeting the stakeholders to present the RMP process; and
- Giving Feedback in the form of meeting minutes, follow-up emails, telephonic and direct communication.

During the Exit phase, a draft RMP was presented to the stakeholders for comment and inputs. The Exit phase entailed two (2) important aspects, namely:

- Ensuring that all goals, challenges, concerns, objectives and the vision of the dam are identified and documented in the RMP; and
- Officially ending the public participation process.

Identified objectives and vision: During the Authority and Public Meetings issues of concerns were raised from which common objectives were identified and a vision for the dam for a period of 20 years was formulated by the stakeholders.

The identified key common objectives are:

- To conserve, preserve and implement the Integrated Management Plan for Mkhombo Dam Nature Reserve;
- To ensure the maintenance of species diversity and ecological processes of veld types and plant communities;
- To establish potential development on the dam's surrounding like Chalets, braai area and other recreation al facilities;
- To establish more access points which have lower tariffs to accommodate the rural communities around the dam.
- To ensure safety in all aspects during boating;
- To promote sustainable harvesting of fish;
- To easily make applications to MTPA for concessions to utilize water in the dam for recreational activities and to have existing concessions easily renewed by MTPA;
- To uplift the local economy and increase Benefit Flows to the surrounding communities through community empowerment and job creation; and
- To establish an effective institutional structure that can manage the use of water for recreational purpose in an acceptable manner, which is also representative of all the Stakeholders.

A vision for the dam for a period of 20 years was formulated by stakeholders to be as follows:

"To sustainably utilize the natural and cultural resources of the Mkhombo Dam Nature Reserve in a manner which provides tangible benefits to landowners and adjacent communities, whilst ensuring a high value tourism experience".

The aforementioned objectives and vision are aimed at supporting the attainment of DWS's vision, mission and objectives.

Tourism Potential: The following were identified as some of the potential recreational developments at the Mkhombo Dam that could enhance tourist attraction:

- Development of day visitor facilities Such as swimming area, chalets, picnic.
- To develop a cultural centre to host Ndebele cultural activities and selling of cultural artefacts.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF APPENDICES

CHAPTER 1: INTRODUCTION

1.1 BACKGROUND OF MKHOMBO DAM

Mkhombo Dam (previously known as Rhenosterkop Dam) is situated within the jurisdiction of Dr JS Moroka Local Municipality (Dr JSM LM) under the Nkangala District Municipality in Mpumalanga Province. The centre of the dam is located on Global Positioning (GPS) Coordinates **25°06'47.28"S 28°52'25.49"E** and adjoins seven (7) municipal wards, namely 16, 17, 18, 19, 20, 21 and 26. **Figure 1** shows the location of the dam.

The dam is located within the Mkhombo Dam Nature Reserve (MDNR) which is declared protected area in terms of Mpumalanga Nature Conservation Act 10 of 1998 and National Environmental Management Protected Areas Act, 2003 (Act No. 57 of 2003) (NEMPA). MDNR is managed by Mpumalanga Tourism and Parks Agency (MTPA) which have the mandate to provide for the sustainable management and promotion of tourism and nature conservation in Mpumalanga and to ensure the sustainable utilisation of natural resources.

Mkhombo Dam occupies approximately 32% of 11 000 hectare of MDNR. The dam is owned and operated by the DWS. It was built in 1984 for industrial and domestic purposes. Dr JSM LM as the water service provide (WSP) abstract water from the dam to the Weltevrede water treatment works (WTWs) for purification for end users, nearby communities and town.

In addition to the dam's primary purpose, it also offers wide variety of recreational activities. Due to its' location within the nature reserve, the dam offers fishing, boating, camping and bird watching. According to *Nkangala Tourism*, for the enthused angler who enjoys the tranquillity and scenic views of nature, the Mkhombo Nature Reserve is an ideal destination.

There is plenty of fish in the dam so to speak, such as the Kurper, Silver Fish, Barber-exotic, Bass and Mackerel to keep the rod rolling. While game lovers can experience the magnificence of the giraffe, zebra, Blue Wildebeest, Red Hartebeest, Kudu, Water Buck and the Impala strutting in the open veld.

The surface area of the dam is approximately 3 624 hectare (ha) in size. The dam impounds the Elands River and is located within B31F quaternary catchment area which forms part of the Olifants River Catchment Area. It supplies 30% of water to a number of other local municipalities including Thembisile Hani and Greater Groblersdal Local Municipalities *(Reconciliation Strategy: 2011*).

The dam profile is summarized in **Table 1**.

Table 1: Mkhombo Dam Profile

Mkhombo Dam Profile	
Location	South Africa
Province	Mpumalanga
District Municipality	Nkangala District Municipality
Local Municipality	Dr JS Moroka Local Municipality
Nearest Town	Siyabuswa
Completion Year	1984
Coordinates	25° 6'47.28"S; 28°52'25.49"E
Purpose for the Dam:	Industrial and domestic
Owner	Department of Water and Sanitation
Water Management Area	Olifants River Proto CMA
Quaternary Catchment	B31F
Catchment Area (km^2)	3 723
River	Elands River
Capacity (m^3)	206 000 000
Surface Area (ha)	3 624
Wall type	Arch-gravity dam
Height (m)	36
Length (m)	515

Source: Department of Water Affairs (List of registered dams; March 2013).

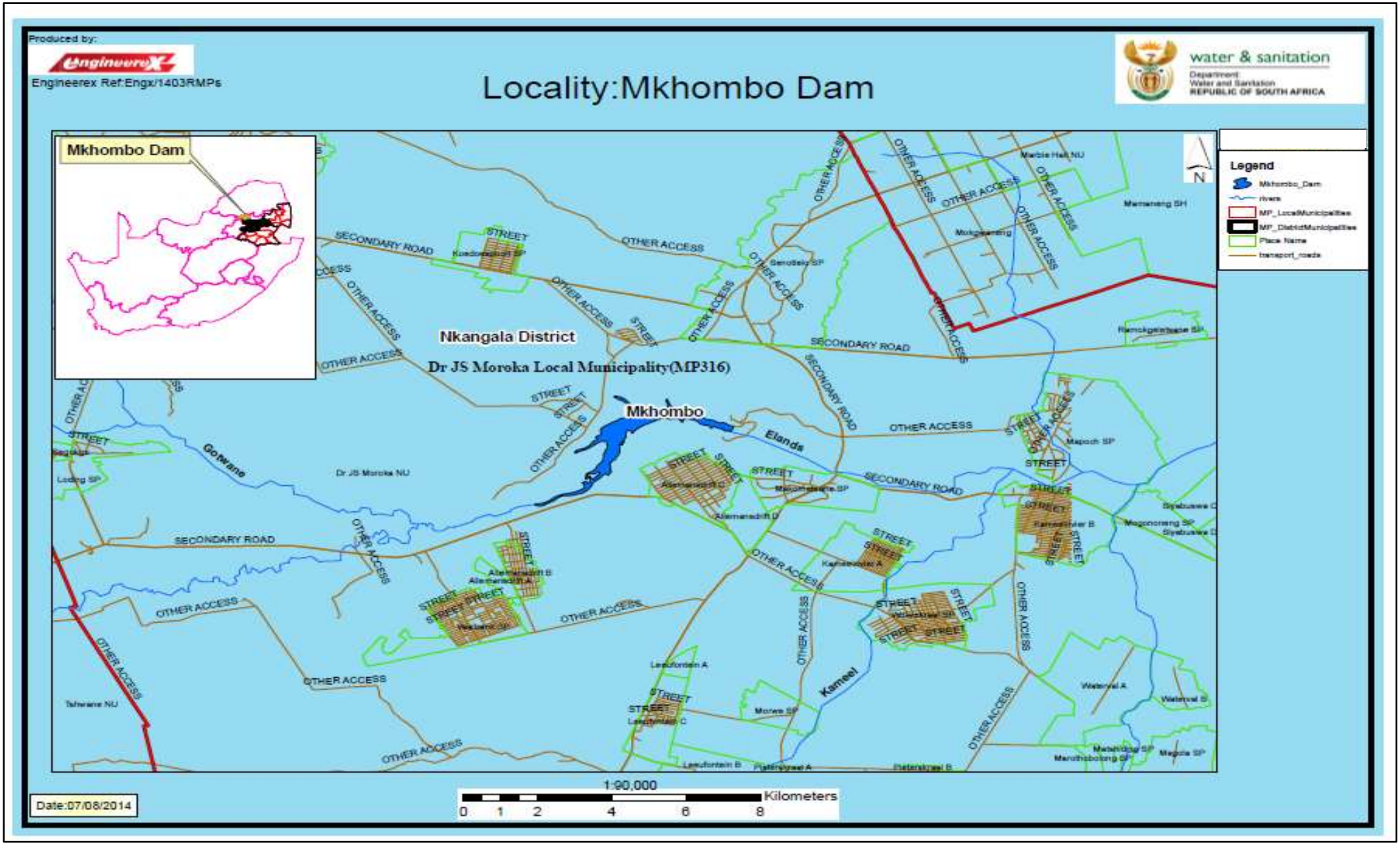

Figure 1: Locality Map

1.2 BIOPHYSICAL ENVIRONMENT

1.2.1 Climate

According to Mkhombo Feasibility Study, 2013; the climate of Dr JSM LM is semi-arid. It has warm summers, cool to cold winters and a varying rainy season. The winter season starts towards the latter half of May and extends till about the middle of October, followed by summer, which continues till about the end of February. The average temperatures vary between ± 25°C in summer and ± 12°C in winter with a maximum temperature of 33°C. Frost does occur in winter.

The rainy season is between September and March. The rainfall occurs mainly in summer (i.e. October to March). The peak rainfall months are January and February and rainfall occurs generally as thunderstorms. The mean annual rainfall is between 400 mm to 800 mm (Mkhombo Feasibility Study, 2013).

The area provides an excellent warm temperature which is ideal for recreational activities. It is ideal to camp and enjoy what MDNR offers.

1.2.2 Flora

Mkhombo Feasibility Study 2013; defines the vegetation of the eastern portions of Mkhombo Nature Reserve as the Mixed Bushveld veld-type. The Mixed Bushveld is characterised by a range of variations and transitions, leading to a heterogenic veld-type. The heterogeneity of vegetation occurs due to the heterogeneous topography and environmental factors. Important factors causing heterogeneity are aspect, soil depth and altitude.

The following broad vegetation communities have been identified on the reserve as:

- Terminalia bushveld
- Combretum bushveld
- Acacia bushveld
- Riverine vegetation
- Old lands: Major parts of the farm Koedoebos, are covered with old lands
- Camelthorn veld.

The vegetation of the eastern portions of MDNR, Combretum apiculatum bushveld is typical of the Mixed Bushveld veldtype. The vegetation communities on the western portions of the reserve vary from Acacia communities on the heavy clay soils and the Acacia erioloba communities on the deeper sandy soils. This could represent a transition from one veld-type to another. **Table 2** below depicts examples of the Vegetation found within Mkhombo Dam Nature Reserve (Mkhombo Feasibility Study, 2013).

Table 2: Vegetation Types within MDNR

Category	Number of Species	Key Examples
Trees	56 Recorded	• Acacia nigrescens • Berchemia zeyheri • Boscia sp. • Combretum sp. • Euclia Sp. • Ficus Natalensis • Mundulea sericea
Grasses	20 Recorded	• Eragrostis trigophora • Panicum sp. • Schizachyrium sanguineum • Themeda triandra

Figure 2 – 3 depicts the vegetation type in the nature reserve around the dam.

Figure 2: Geology and Vegetation type around the dam

Figure 3: Vegetation around the dam

1.2.2.1 **Sensitivity**

In order to effectively preserve and conserve biodiversity, targets must be set. These targets allow for the identification of areas with high conservation value, as well as, providing an indication of how much of a biodiversity feature is needed for it to be conserved in the long term.

The MTPA has developed the Mpumalanga Biodiversity Sector Plan (MBSP). The intention of the MBSP is to guide conservation and land-use decisions in an endeavour to support sustainable development. With this in mind, the MBSP has identified provincial conservation targets and goals.

The area was initiated as a nature reserve in 1988. The former Kwa-Ndebele Government gave internal approval for the area to be used as a nature reserve, and as a result the reserve was not formally proclaimed. In the mid 1990's a portion of land previously managed by the South African Defence Force was added to the reserve and the reserve now covers an area of approximately 8203 ha.

The reserve was officially proclaimed as a nature reserve in March 1996. The MDNR is formally protected by law and recognised in terms of the NEMPA Act No. 57 of 2003.

1.2.2.2 **Alien Invasive Plants Species**

Alien invasive plant species are non-indigenous plants introduced from other countries. Once they were introduced, they tend to spread beyond the area where they are desired. Alien plant species also outcompete the indigenous species wherever they germinate.

Alien invasive species have been categorized in the following categories: NEMBA 2004 (Act No. 10 of 2004): AIP Species Regulations, 2014:

- **Category 1a:** Invader plants species which must be combatted or eradicated.
- **Category 1b:** Invader plants species which must be controlled.
- **Category 2:** Invader plants species which require a permit to carry out a restricted activity within an area specified in the Notice or an area specified in the permit, as the case may be.
- **Category 3:** Invader plants species which are subject to exemptions in terms of section 71(3) and prohibitions in terms of section 71A of Act.

1.2.2.3 **Aquatic Alien Invasive Plants**

Invasive aquatic plants are introduced plants that have adapted to living in, on, or next to water, and that can grow either submerged or partially submerged in water

Their presence may harm native ecosystems or commercial, agricultural, or recreational activities dependent on these ecosystems. They may even harm human health.

These species can be spread in many ways including ships, boats, aquaculture, aquatic recreation, water gardening, connected waterways and many other pathways. Through these and other means, aquatic invasive species have been introduced into South Africa (Muse Web Design and Development-http://www.invasives.org.za/plants/, 11/04/2016).

The Department of Environmental Affairs, through the working for Water project is should be engaged to identify and remove alien invasive species along Elands River which feed Mkhombo Dam to reduce the widespread of the species.

The Department of Environmental Affairs working for water programme (DEA: WfW) should be engaged to identify and remove alien invasive species along Elands River which feed Mkhombo Dam to reduce the widespread of the species. **Figure 4** depicts the land cover map of MDNR.

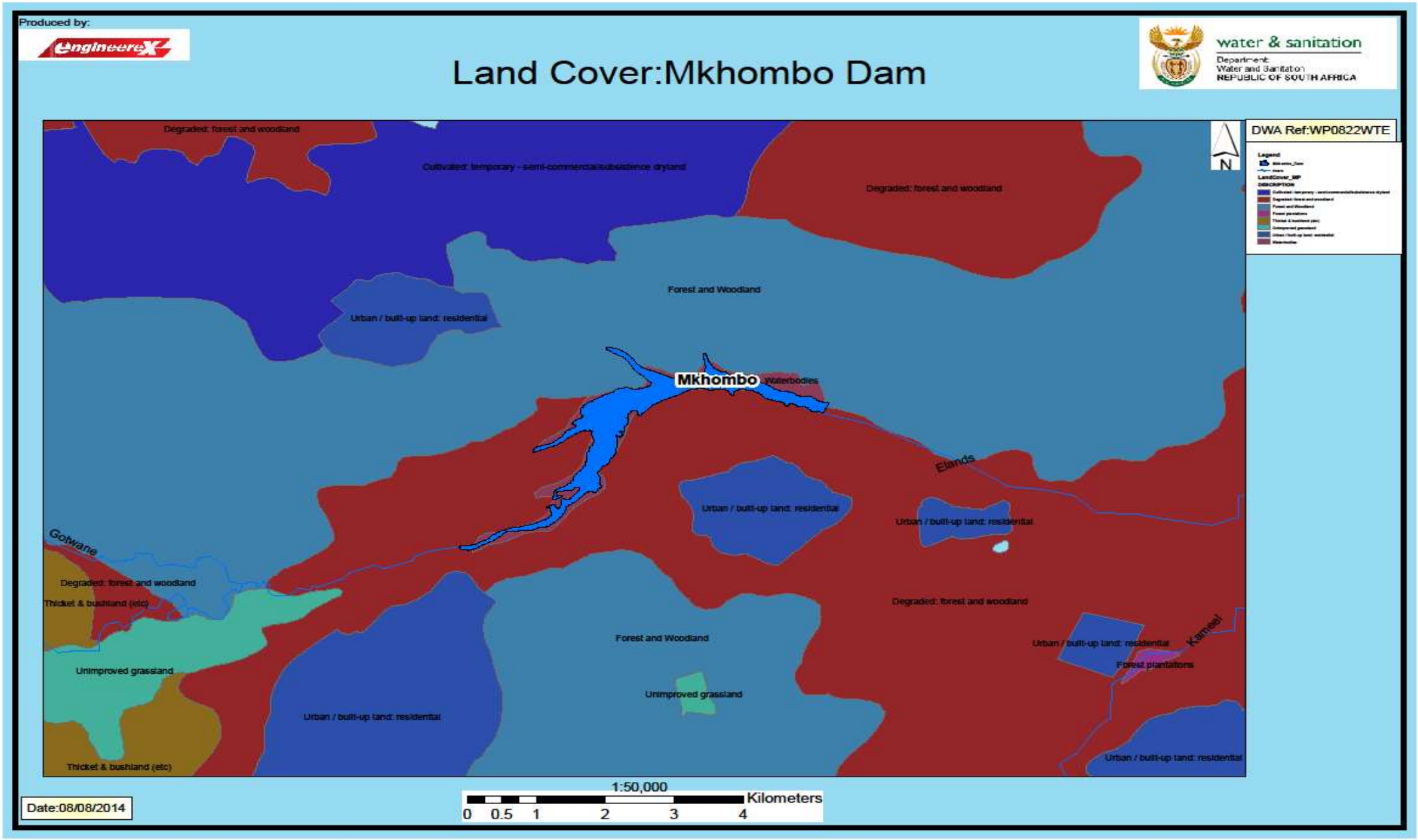

Figure 4: Land Cover Map for Mkhombo Dam

1.2.3 Fauna

1.2.3.1 **Game**

According to Nkangala Tourism; for the enthused angler who enjoys the tranquillity and scenic views of nature, the MDNR is an ideal destination. The game lovers can experience the magnificence of the giraffe, zebra, Blue Wildebeest, Red Hartebeest, Kudu, Water Buck and the Impala strutting in the open veld.

1.2.3.2 **Livestock**

MDNR has huge potential for development of a good mix of tourism and leisure products. However, the reserve is fraught with problems ranging from stolen fences, poaching of game and fish, the presence of large number of cattle that are being grazed in the park, and uncontrolled cutting of trees for firewood. **Figure 5** depicts the issue of cattle's within the nature reserve

Figure 5: Livestock

1.2.3.3 **Aquatic Animal Species**

According to Mkhombo Integrated Management Plan (IMP); 2015, the dam has a total of 12 species have been recorded which includes fishes such as Kurper; Silver fish; Bass; Mackerel etc. During the site inspection, aquatic species such as birds, crocodile were also seen during boat trip.

1.2.4 Topography

The Mkhombo IMP, 2014; defines the elevation of the reserve from 914 to 1026 m above sea level as indicated in **Figure 6: Topographical Map.** The Elands River valley and Mkhombo Dam dominate the relatively flat terrain. In the eastern parts, underlain by rhyolites, low rolling hills occur with some drainage line incisions. In the central and western parts the soft, shallow riverbanks in wide valleys/plains is typical of a mature (although not old) landscape.

The elevation/ slope of MDNR is not steep, thereby result in no challenges to establish most of the recreational facilities such as camping and chalets.

1.2.5 Geology and Soils

The IMP also highlighted the soil types within Mkhombo NR as Dundee, Hutton, Glencoe, Mispah, Shortlands, Rensburg and Valsrivier. The Mkhombo dam is underlain by Rhyolite. However, the Mkhombo NR is underlain by three geological systems which includes Rhyolite, Ecca Shale and Quaternary (sandy and clay plains) deposits.

Figure 7 depicts the geological features of MDNR. The dam is situated on Rhyolite rock formation which is highlighted in blue on the map.

The geological formation of MDNR is not prone to erosion provided that preventative measures are put in place. The rock is stable and sustain variety of facilities which can be aimed to promote tourism and recreational leisure within MDNR.

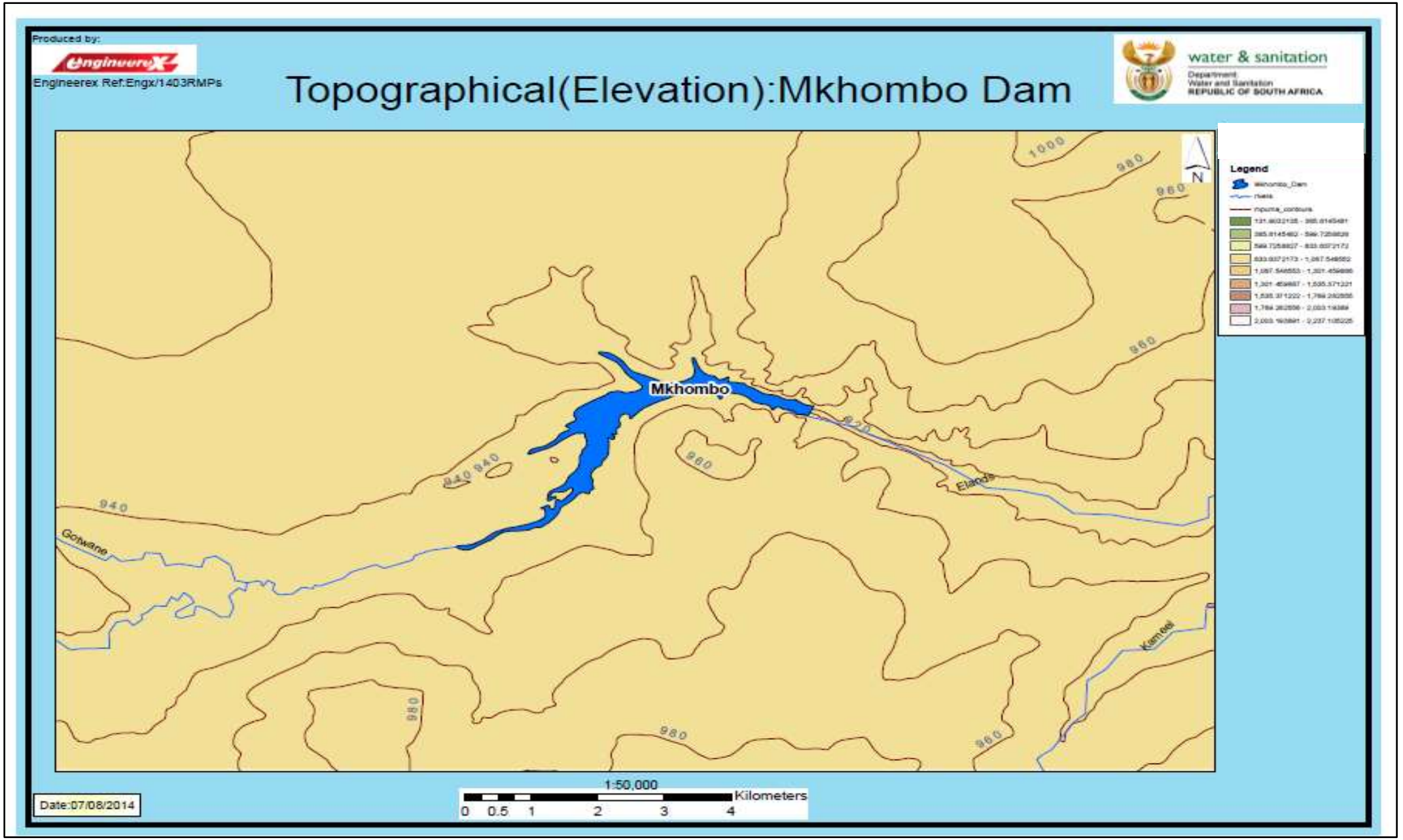

Figure 6: Topographical Map for Mkhombo Dam

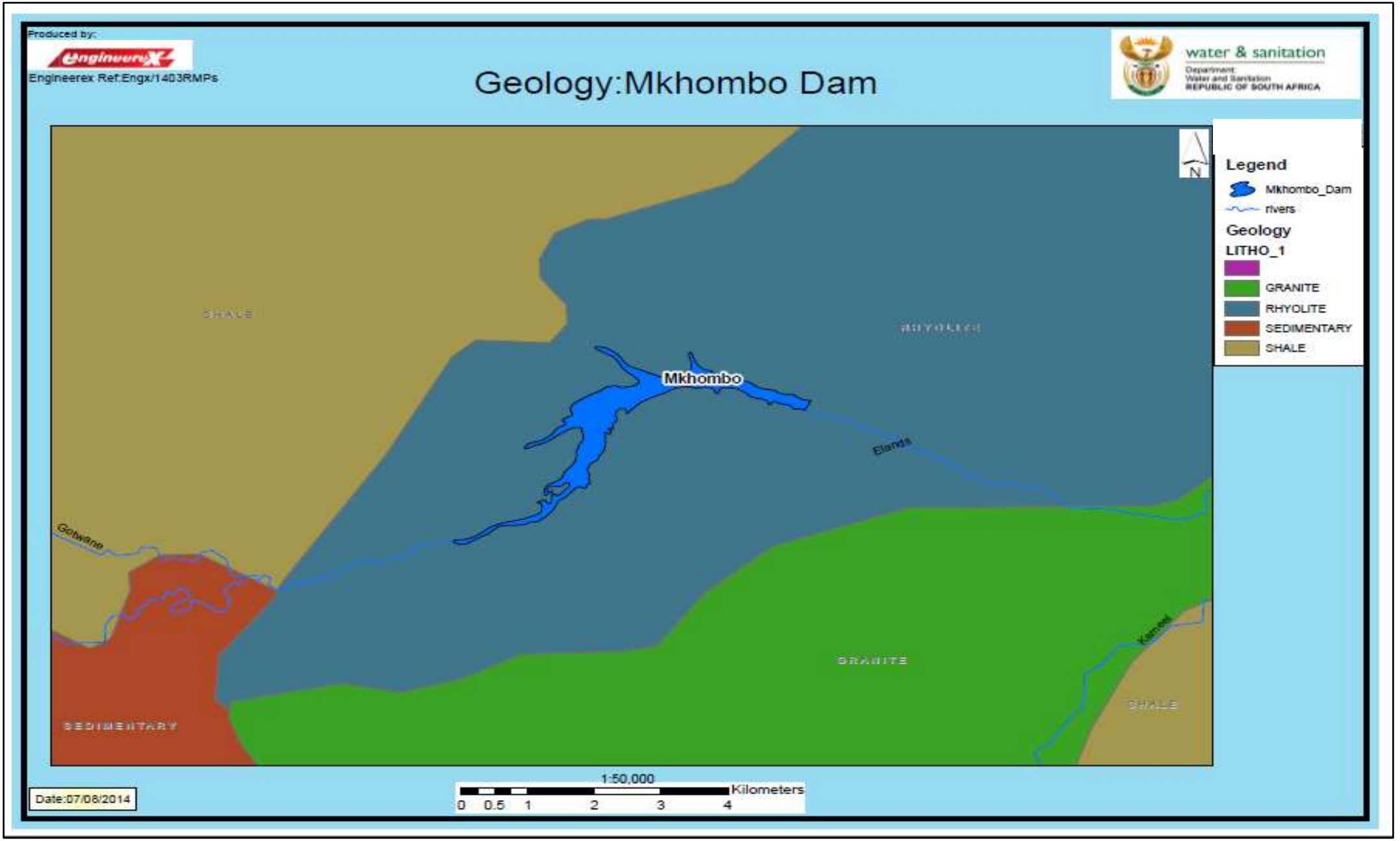

Figure 7: Geological Map for Mkhombo Dam

1.2.6 Hydrology

1.2.6.1 Surface Water

Mkhombo Dam is situated in the upper catchment of the Elands River, within B31F quaternary catchment area which form part of the Olifants River Catchment Area.

A weekly state of reservoirs by DWS released on the 13th of April 2015 shows that the dam is approximately 43% full. **Figure 8** illustrates the fluctuations of water levels over a year while **Figure 9** shows the Hydrological Map.

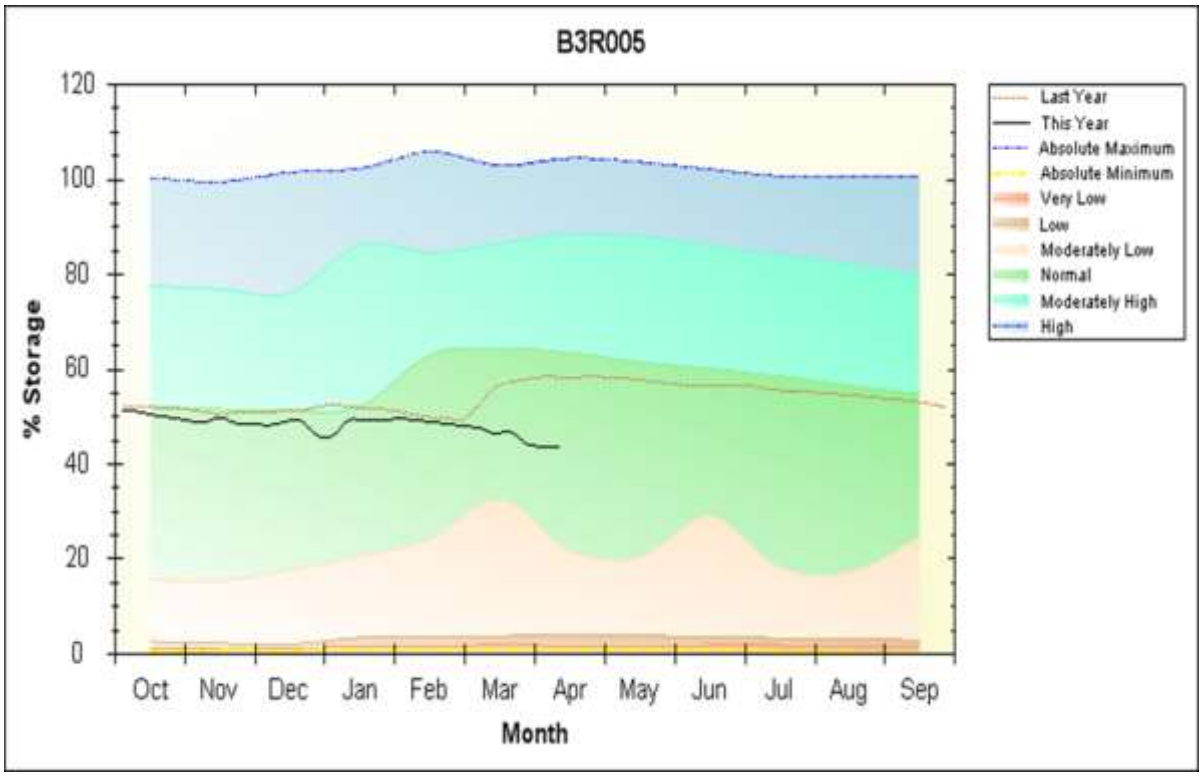

Figure 8: Fluctuations of the dam's water level over a year (DWS, 2015)

1.2.6.2 Water Quality

The term water quality is used to describe the physical, chemical and biological properties of water, all of which determine its fitness for use and its ability to maintain the health of aquatic organisms (DWAF, 1996). Water quality therefore expresses the suitability of water to sustain various uses or processes. Any particular use will have certain requirements for the physical, chemical or biological characteristics of water.

Consequently, water quality can be defined by a range of variables which limit water use. Human health is affected directly by the proximity, availability and quality of water resources. **Table 3** shows the water quality variables within the dam.

Table 3: Water Quality for Mkhombo Dam

Characteristic	Tests Results	Target Water Quality Range (Recreational Purposes)	Description
Turbidity (Secchi disc, m)	12.94	3.0	• Most users will perceive water as suitable for swimming. This allows water depth to be judged and possible hazards will be visible. Risk of disease transmission by organisms associated with particulate matter is minimal but cannot be excluded on the basis of clarity or turbidity measures alone. • No adverse effects on aesthetic appreciation.
pH (pH units)	8.03	6.5 - 8.5	• Minimal eye irritation occurs. The pH of water is well within the buffering capacity of the lachrymal fluid of the human eye. • Skin, ear and mucous membrane irritation absent
Algae (Chlorophyll-a method, µg/chl-a)	2.19	0 – 15	• Nuisance conditions negligible for lower end of range, but at a mean concentration of 15 Fg/R, severe nuisance. • 0 - 15 conditions encountered for < 12 % of a year. No health effects.
Phosphate (measured as Inorganic Phosphorus mg/l)	0.003	<5	• Oligotrophic conditions; usually moderate levels of species diversity; usually low productivity systems with rapid nutrient cycling. • No nuisance growth of aquatic plants or blue-green algae.

Algae:
The concentration for algae measured as chlorophyll-a will not have any health impact for non-contact recreation.

pH:
The pH for the dam is within the TWQR for recreational use and also suitable for Aquatic ecosystem.

Turbidity:
The turbidity is low but might be associated with a possibility of microbiological pollution associated with turbidity.

Phosphate:
The phosphate concentration in the dam is low and this results to no nuisance growth of aquatic plants or blue-green algae in the dam. Based on the water quality results for the dam, the water will not cause effects on the current recreational activities and the dam's aesthetic quality.

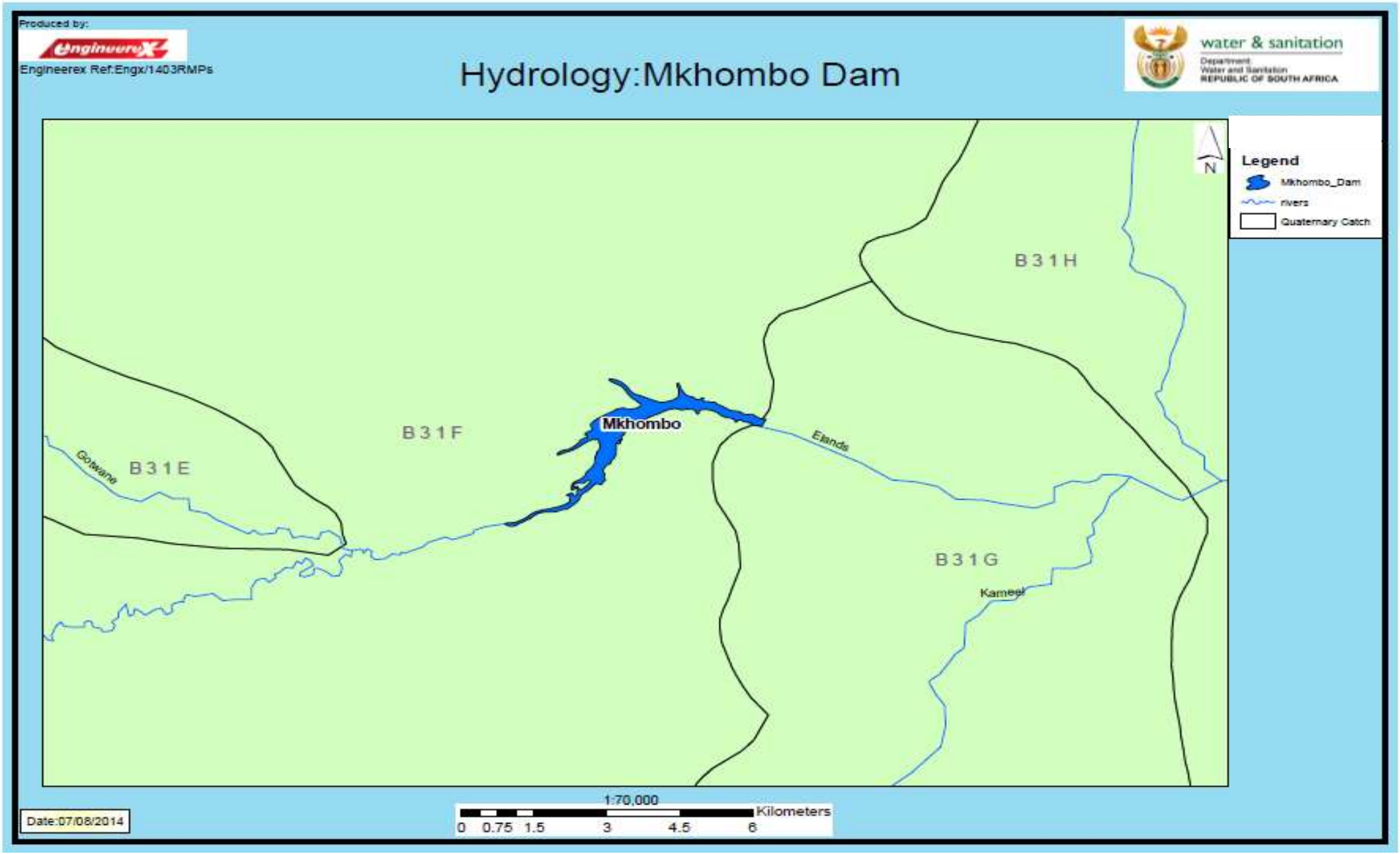

Figure 9: Hydrological Map for Mkhombo Dam

1.3 BUILT ENVIRONMENT

1.3.1 Infrastructure

The dam is owned and controlled by DWS for primary purpose. For recreational activities, the dam is being used by MPTA as part of MDNR. There is an existing boathouse and vessel slipway which is used by MTPA and DWS for maintenance purposes. Other facilities includes Admin Office and DWS Houses.

1.3.2 Transport Network

Mkhombo Dam is located along R658 Road from KwaMhlanga towards Senotlelo. The road is in good condition. There is an existing gravel road which leads to the dam within the nature reserve. It is approximately an hour drive from Tshwane (Pretoria)

1.3.3 Access

As indicated on the background of the dam, Mkhombo Dam is located within the Mkhombo Dam Nature Reserve (MDNR). There is one (1) authorised access point along R658 Road towards Senotlelo.

There are several informal access points which have been established by local communities for the purpose of illegal fishing and livestock farming. As part of the RMP, two (2) formal entrances has been proposed to curb the issues of illegal entry.

1.4 USES AND USERS OF THE DAM

The Mkhombo IMP states that "Currently, there is no formal database of Local Agreements, Servitude Arrangements or Memorandums of Understanding (MOU's) for the utilization of the MDNR by relevant stakeholders".

The existing agreements and servitudes are limited to the following:

1.4.1 Primary Function

DWS provides raw bulk water to the Water Service Provider (WSP), Dr JSM LM. The water is abstracted to the Weltevrede WTWs before distribution to the local communities and town. The dam also supplies 30% of water to a number of other local municipalities including Thembisile Hani and Greater Groblersdal Local Municipalities (***Reconciliation Strategy, 2011***).

1.5 RECREATIONAL INSTITUTIONAL STRUCTURE

1.5.1 Management Authority

The Mpumalanga Department of Economic Development, Environment and Tourism (MDEDET) is responsible for environmental conservation and Protected Areas within Mpumalanga. The NEMPA Act, 2003; requires that the relevant provincial MEC assigns a competent management authority to provincial Protected Areas, such as the MDNR.

The Mpumalanga Tourism and Parks Agency (MTPA), established in terms of the Mpumalanga Tourism and Parks Agency Act, 2005 (Act No. 05 of 2005), is the designated Management Authority pursuant to Section 38 (2) of the NEMPAA. MTPA oversees the development and management of MDNR.

1.5.2 Co-Management Committee (CMC)

A Co-Management Committee (CMC) agreement has been established and entered into, as stipulated by section 42 of NEMPA, 2003 (Act No. 57 of 2003), between MTPA and all relevant landowners who are being represented by the Moutse Game Park Communal Property Association (CPA).

The parties have agreed, that from the effective date, the Management Authority will continue to manage and control the MDNR in accordance with the provisions of all applicable Environmental Legislation; the provisions contained in the Co-Management Committee agreements and the management plans.

The CMC has the following specific functions amongst other things:

- The CMC shall have an overseeing; monitoring and evaluation function in regard to the overall strategic management of the Nature Reserve. It shall not be involved in the day-today operational management of the Nature Reserve, with particular reference to conservation management functions. Joint

directives, guidelines and rules of governance shall be issued by the Management Authority (MTPA) and Trust/CPA, from time to time, which the CMC must adhere to at all times.

- The CMC shall be involved the approval of the Management Plans and shall endeavour to accommodate the interests of all Neighbouring Local Communities.
- The CMC shall meet at least (6) times per annum to improve the effectiveness of the committee.
- The CMC shall conclude an annual performance based management contract with the Management Authority, which takes any budgetary constraints into consideration. This must be done on an annual basis.

Figure 10 illustrates the current institutional structure, a relationship between MTPA and CMC.

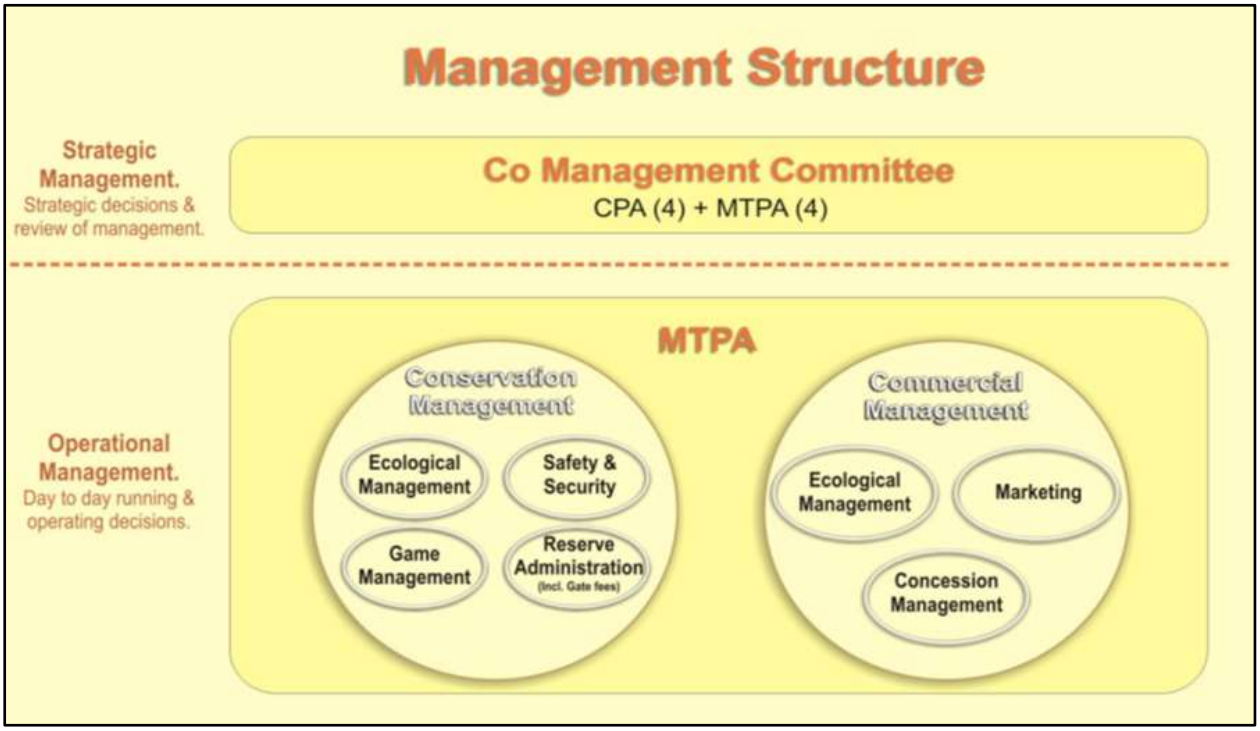

Figure 10: Current Management Structure of Mkhombo Dam

1.6 LAND OWNERSHIP

The RMP is focusing on the Government Waterworks (GWWs). GWWs refers to the dam surface area and surrounding purchase boundary of DWS. However, the RMP also takes cognisance of the activities adjacent to the GWWs.

The dam is located within the Nature Reserve which is owned and controlled by MPTA through a Co-Management Committee with the Land Claimants/beneficiaries.

1.6.1 Land Claims

A Co-Management Committee (CMC) agreement has been established and entered into, as stipulated by section 42 of NEMPA, 2003 (Act No. 57 of 2003), between MTPA and all relevant landowners (land claimants) who are being represented by the Moutse Game Park Communal Property Association (CPA).

The parties have agreed, that from the effective date, the Management Authority will continue to manage and control the MDNR in accordance with the provisions of all applicable Environmental Legislation; the provisions contained in the Co-Management Committee (CMC) agreement; and the Management Plan.

The potential land claims that may arise is on the Nature Reserve and will be dealt through the CMC.

1.6.2 Community

There are no official agreements in place for any community activities within MDNR. The main challenge is the grazing of cattle within the boundaries of the reserve. This needs to be addressed as a matter of urgency.

1.6.3 Commercial Activities

No official agreements are in place at this stage. Hunting permits are issued by MTPA on an ad-hoc basis through an official tender process.

1.6.4 Servitudes

Telkom and Eskom have Right of Way to their structures in order to fulfil essential functions (Only for portions with power and telephone infrastructure located around the reserve). The official traversing/servitude agreements of this infrastructure must be sourced and understood more effectively.

1.7 SAFETY AND SECURITY

1.7.1 Safety of Navigation

There is currently no adequate, standardised and harmonised fixed and floating Aids to Navigation (AtoN[2]) 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 SOCIO-ECONOMIC ENVIRONMENT

1.8.1 Social Audit

The main purpose of social audit is to examine the general status of the study area and to determine issues that need to be addressed when developing the RMP in order to overcome potential difficulties in an area. The study area falls within seven (7) Wards of the Dr JS MLM as shown in **Figure 11**. An understanding of socio-economic conditions of these Wards can be used at a later stage to determine the impact of a RMP in the area in terms of changed socio-economic conditions.

A social Audit which focused on the population composition of the ward, Education level, employment status and monthly income was undertaken and is presented in section 1.8.1.1 to 1.8.1.2, respectively.

[2] A marine 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".

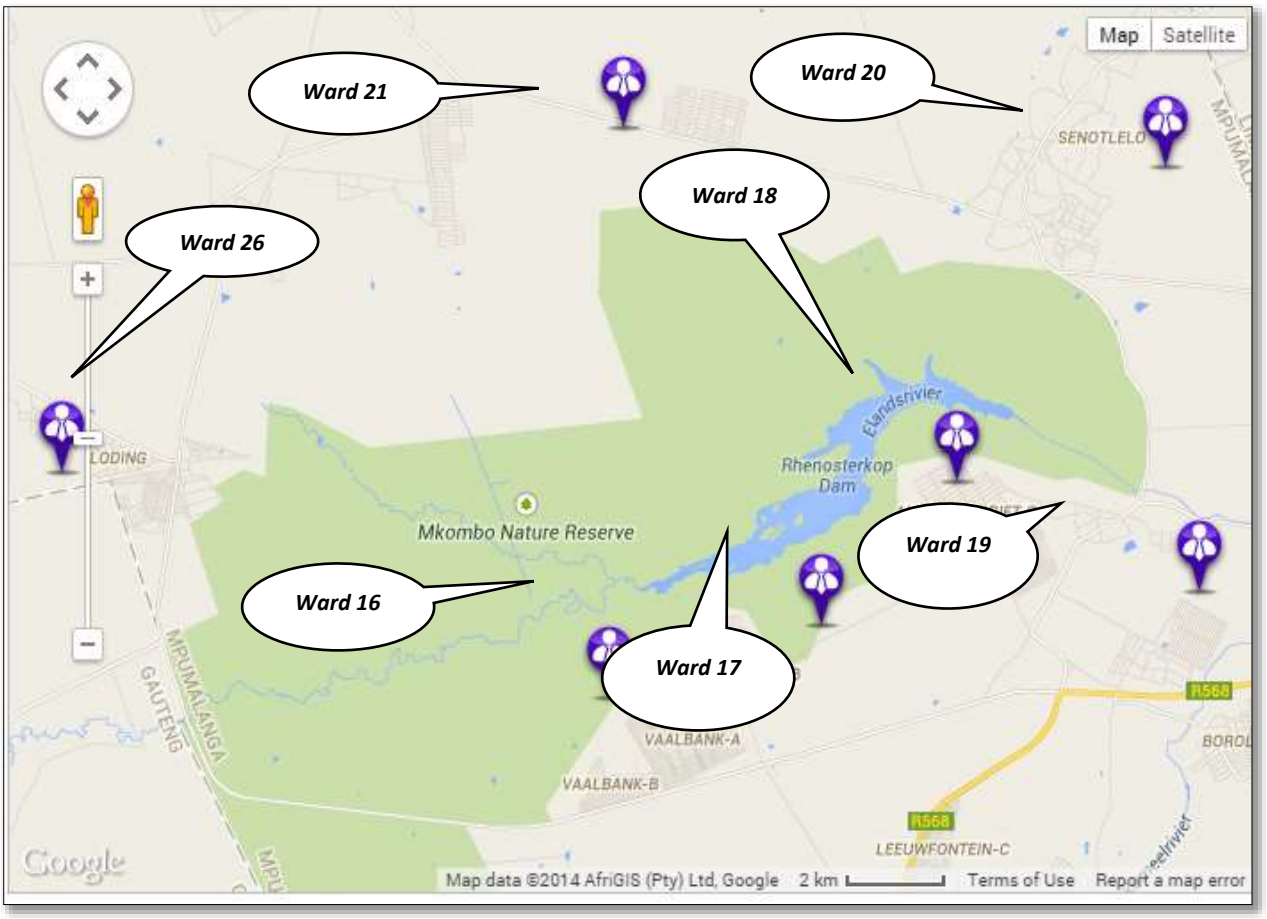

Figure 11: Municipal Wards surrounding Mkhombo dam

1.8.1.1 **Education Level**

The Census (2011) breaks down educational levels into each year of study. For the purpose of this report, the educational levels are grouped into key schooling, higher educational and no schooling categories. As indicated by the below table and chart, only 3% of the population has furthered their studies in higher institutions as indicated in **Table 4** and **Figure 12**.

Table 4: Education Status

Description	Wards (Census 2011)							
	16	17	18	19	20	21	26	Total
Primary Level	229	564	406	541	394	507	576	3 217
Secondary Level	892	1835	1284	1286	890	1174	1195	8 556
High Education Level	35	185	76	95	33	25	39	488
No Schooling	408	815	794	807	829	845	788	5 286

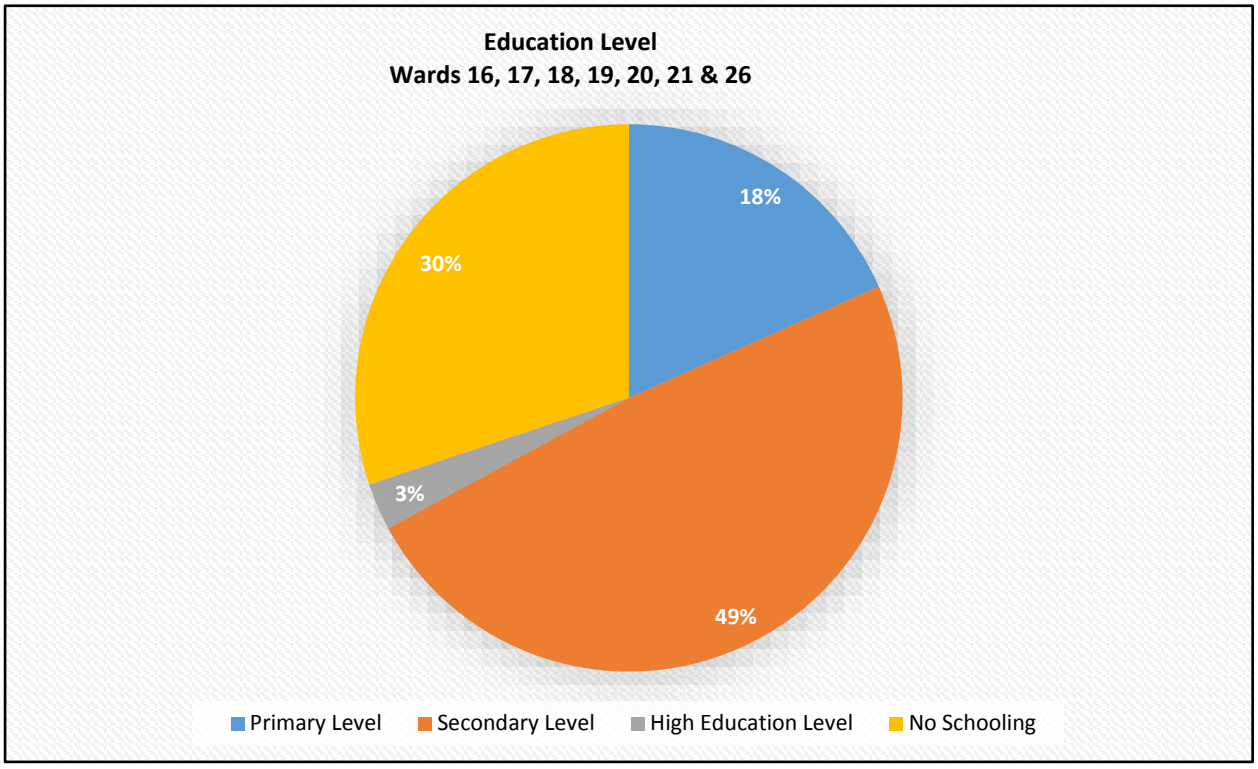

Figure 12: Educational Status

1.8.1.2 **Employment Status**

In terms of employment levels around the dam, unemployed and employed residents are at 21% each. Of greater concerned is that 51% of the residents are not economically active whereas 7% of them are discouraged work-seekers suggesting that they no longer seek to become employed (Census, 2011). Refer to **Table 5** and **Figure 13**.

Table 5: Employment Status

Description	Wards (Census 2011)						
	16	17	18	19	20	21	26
Employed	655	1796	1021	1325	594	687	970
Unemployed	565	1735	779	1256	724	894	1248
Discouraged work seeker	197	295	280	247	515	306	327
Not economically active	1447	2743	2697	2795	2032	3090	2522

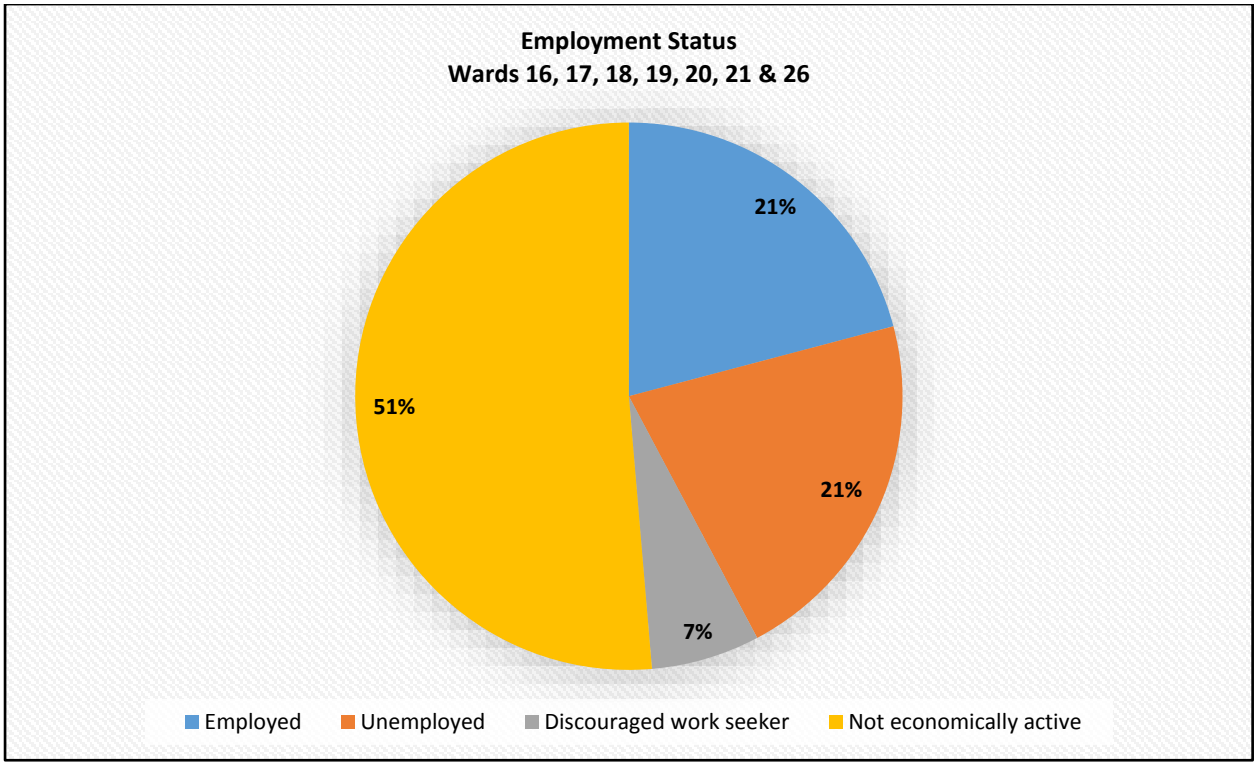

Figure 13: Employment Status

1.8.2 Community Beneficiation

It is DWS's belief that Local Communities should equally share the benefits emanating from the utilisation of the dam for recreational purposes, by ensuring that they have both physical access to the resource, as well as access to the water-based recreation economy.

According to DWAF (2006), by ensuring that the Local Communities move beyond merely being affected by or living close to a water resource, but rather undertaking the transition to become participants will ensure that water resources can and will be protected by the people closest to and most affected by the dam.

The community will benefit in amongst others the following ways:

- By having equitable access to the dam;
- The community needs will be addressed in an appropriate and equitable manner;
- By being safe while accessing and using the dam;
- By being given first preference when there are employment opportunities and skills development;
- Through the PPP; and
- By participating in decision-making with respect to major developments planned or proposed for the dam (through the Dam Management Committee).

CHAPTER 2: LEGISLATIVE FRAMEWORK

The RMP forms the overarching framework for the management of Mkhombo Dam. It is informed by relevant policy, legislation and planning documents administered by other government departments. Similarly, these government departments are required to use the RMP to inform the development of future policy, legislation and planning documents.

I. **The Constitution of the Republic of South Africa, 1996 (Act No. 108 of 1996), Section 24:** Provides that, everyone has a right to an environment that is not harmful to their health or well-being.

II. **Conservation of Agricultural Resource Act, 1983 (Act No. 43 of 1983):** Provides for control over the utilization of the natural agricultural resources of the Republic in order to promote the conservation of the soil, the water sources and the vegetation and the combating of weeds and invader plants; and for matters connected therewith. Regulation 7 and 8 within the same Act deals with the protection of wetlands and water courses, while regulations 15 and 16 deals with Alien Invasive Plant Species and bush encroachment**.**

III. **Consideration on Institutional Arrangement for Managing Use of Water for Recreational Purposes (DWAF, 2003):** It outlines some of the institutional issues at a local level and makes recommendations about the conditions under which different Institution Management arrangements may be considered.

IV. **General Public Participation Guidelines (DWAF, 2001):** Public Participation refers to the ongoing interaction between Role Players and all stakeholders that is aimed at improving decision making during planning, design, implementation and evaluation of all projects within the state, this includes the proposed development of the RMP.

V. **Government Immovable Asset Management Act, 2007 (Act No. 19 of 2007):** To provide for a uniform framework for the management of an immovable asset that is held or used by a national or provincial department; to ensure the coordination of the use of an immovable asset with the service delivery objectives of a national or provincial department; to provide for issuing of guidelines and minimum standards in respect of immovable asset management by a national or provincial department; and to provide for matters incidental thereto.

VI. **Government Notice R654 dated 1 May 1964, in terms of the Water Act, 1956 (Act No. 54 of 1956):** Regulates access and use of government waterworks for recreational purposes.

VII. **Guidelines for Compilation of Resource Management Plans (DWAF, 2006):** 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.

VIII. **Merchant Shipping (National Small Vessel Safety) Regulations (2007):** These Regulations provide *inter alia* for:

- Requirements for vessel safety;
- Crewing requirements and responsibilities;
- Controlled events such as competitions and regattas; and
- Responsibilities of authorised agencies (governing boards/clubs/organisations and regulating authorities).

These Regulations apply to the Department of Water and Sanitation

as they are applicable to all inland and sheltered waters and as the Department and its agencies are allowing access to government waterworks for recreational boating vessels.

IX. **Methodology for Carrying Capacity Assessment for the Use of Water for Recreational Purposes (DWAF, 2003):** 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.

X. **National Environmental Management Act, 1998 (Act No. 107 of 1998):** NEMA serves as South Africa's Environmental Framework Legislation. It was designed to provide for co-operative and Integrated Environmental Governance by establishing a general framework for decision-making on matters affecting the environment.

XI. **National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004) and Related Regulations:** This Act aims to provide the framework, norms and standards for the conservation, sustainable use and equitable benefit-sharing of South Africa's biological resources.

The Alien and Invasive Species Regulations for this Act came into effect 01 October 2014. NEMBA together with these Regulations aim to prevent the introduction and spread of alien and invasive species across South Africa.

XII. **National Environmental Management: Protected Area Act, 2003 (Act No. 57 of 2003):** The aim of this Act is to 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.

XIII. **National Treasury Public Private Partnership (PPP) Toolkit for Tourism, 2005:** This toolkit assist 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):** The purpose of the Act is to ensure that the nation's water resources are protected, used, developed, conserved, managed and controlled in a sustainable and appropriate manner, for the benefit of all. Furthermore Section 113 of the Act states that the water of a government waterworks and surrounding state owned land may be made available for recreational purposes, subject to controls determined by the Minister and regulations made by the Minister.

Using water for recreational purposes is a water use under Section 21K and can be exercised as permissible use of water under Schedule 1 of the Act. However, this provision does not cater for commercial use hence the RMP should be implemented in line with General Strategic Plan for commercialisation of Tourism Public Private Partnerships at Government Waterworks, 2009 and PFMA Treasury Regulation 16.

Once the RMP has been approved, the RMP will regulate access and use of the dam. It is important to note that users will need to comply with other relevant legislation.

XV. **Operational Policy: Using Water for Recreational Purposes (DWAF, 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. **Public Finance Management Act (PFMA) (Act No. 29 of 1999**): Section 76 of the Act secures transparency, accountability and sound management of the revenue, expenditure, assets and liabilities of government departments. The Act promotes the objective of good financial management in order to maximise service delivery. The Act allows DWS to enter into PPP agreements with the private sector for the commercial use of state assets.

XVII. **Safety at Sport and Recreational Events Act, 2010 (Act No. 2 of 2010):** Events management is addressed by Safety at Sport and Recreational Events Act (Act No. 2 of 2010). This act deals with ensuring responsibility for safety and security at events. The act deals with among other things,

- Responsibility for safety and security at the events;
- Risk categorization of events; and
- Safety certificates.

XVIII. **South African Maritime Safety Authority Act, 1998 (Act No. 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.

XIX. **Water Services Act (Act No. 108 of 1997):** The Act outlines the roles and responsibilities for the supply of water and sanitation to citizens. It also recognises the rights of all humans to basic water supply and sanitation services.

The RMP process also takes cognizance of the following Legislations, Policies, Programmes and Reports:

- Broad-based Black Economic Empowerment Act, 2003 (Act No. 53 of 2003).
- Communal Land Rights Act, 2004 (Act No. 11 of 2004).
- Development Facilitation Act, 1995 (Act No. 67 of 1995).
- Integrated Development Plan of Dr JS Moroka (2013/14).
- Intergovernmental Relations Framework Act, 2005 (Act No. 13 of 2005).
- Land Administration Act, 1995 (Act No. 02 of 1995).
- Local Government: Municipal Systems Act, 2000 (Act No. 32 of 2000).
- National Heritage Resources Act, 1999 (No. 25 of 1999)
- Occupation Health and Safety Act, 1993 (Act No. 85 of 1993).
- Restitution of Land Rights Act, 1994 (Act No. 22 of 1994).
- State Land Disposal Act, 1961 (Act No. 48 of 1961).
- **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 GWWs. 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.

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 extensive, other legislation could be applicable

CHAPTER 3: WHAT IS RESOURCE MANAGEMENT PLAN

3.1 DEFINITION OF RMP

A Resource Management Plan (RMP) is a plan which aims to regulate access and the recreational utilization of a water resource and the surrounding state land, in ways which promote community participation and beneficiation, environmental conservation and unlock socio-economic potential of the water resource.

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 OF THE RMP

The main aim of RMPs will be to attain the objectives underlying sustainability and to compile functional, workable sustainable access and utilisation plans for water resources.

Without approved management plans relating to water resources utilized for recreational purposes, it is difficult for informed decisions to be made necessitating a precautionary approach to access, utilisation and development proposals.

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 In addition a Financial Plan is incorporated into the Business Plan (BP) and provides guidance on funding requirements and funding options to implement the potential recreational activities at the dam.

3.3 PROCESS TRIGGERS

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 6.**

Table 6: Trigger Factors for the Development of Mkhombo Dam RMP

Trigger Factors	Description
Resource Management	**Protected Area** • Livestock farmers use the reserve as grazing land. The overgrazing of the area may result in soil erosion which in turn may cause siltation of the dam during rainy seasons. • An Integrated Management Plan of Mkhombo Nature Reserve and the dam is imperative to curb conflict between users of Mkhombo. **Safety and Security** • The accidents of drowning from time to time are experienced in the dam. • Poaching of fish using nets by local communities for commercial purposes as well as criminal activities around the dam and the reserve.

Trigger Factors	Description
	• The vandalism of property such as fence, dam wall gates, etc. by the public which leads to safety risks to the employees and visitors of Mkhombo.
Community Participation and Beneficiation	**Access Control** • The only authorized access control is far from the local communities. This result in locals damaging fences to access the reserve. **Community Participation** • The surrounding communities lack awareness of conservation and their farming activities (livestock farming) threatens the quality and capacity of Mkhombo Dam. **Community Beneficiation** • The previously disadvantaged local communities are not provided with physical access to the water resource as well as access to water-based recreational purposes, as a result the nature reserve experiences criminal activities such as stealing of visitors valuables around the reserve.
Recreational Industry	**Recreational Use** • MTPA is currently undertaking the studies to develop recreational facilities within the reserve and around the dam. These plans should be in harmony with norms and standards of the DWS.
Public Policy	**Local Planning Initiatives** • Mkhombo Dam should be integrated in other planning initiatives and decision support tools such as the Integrated Development Plan (IDP), Environmental Management Framework (EMF), Local Economic Development (LED), as well as Spatial Development Framework (SDF) of Dr. JS Moroka Local Community and Nkangala District Municipality.

3.4 RMP DEVELOPMENT PROCESS

The RMP is developed in accordance with the RMP guideline procedure (DWAF, 2006) as illustrated in **Figure 14.**

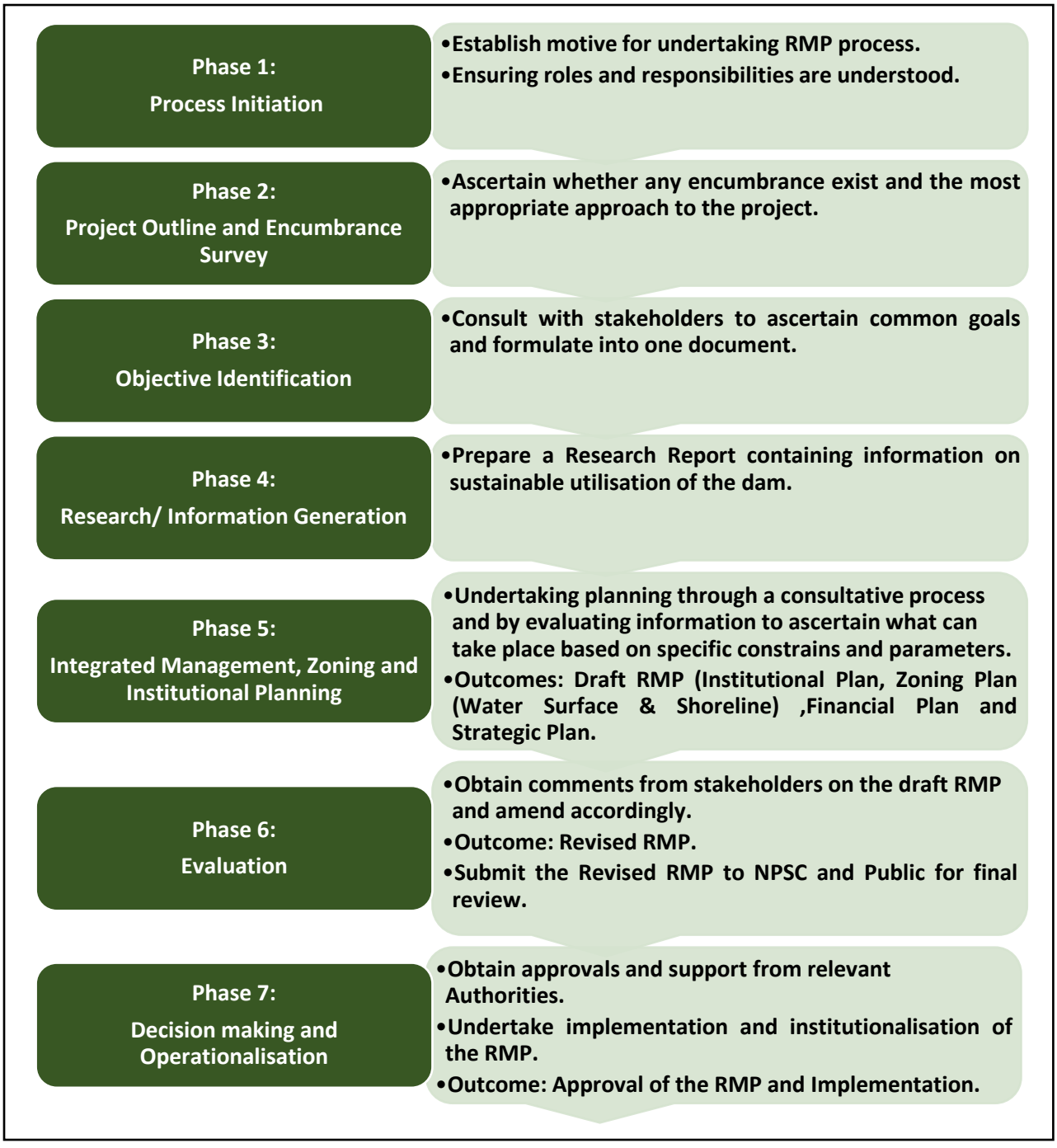

Figure 14: RMP Procedure

3.5 RMP PLANNING STAGES

3.5.1 Desktop Study

The desktop study was conducted with the aim of acquiring background information about the Mkhombo Dam. This was done through literature review. This study provided information such as the location of the dam, user groups, current activities, previous studies conducted for the dam.

3.5.2 Site Inspection

A site inspection was conducted at Mkhombo Dam on **30 May 2014** to gather the baseline information about the dam using a checklist questionnaires. The site inspection was undertaken with the DWS IEE and Mpumalanga Tourism and Parks Agency (MTPA) officials. Photos of the study area were also taken during site inspection as illustrated in **Figure 15.**

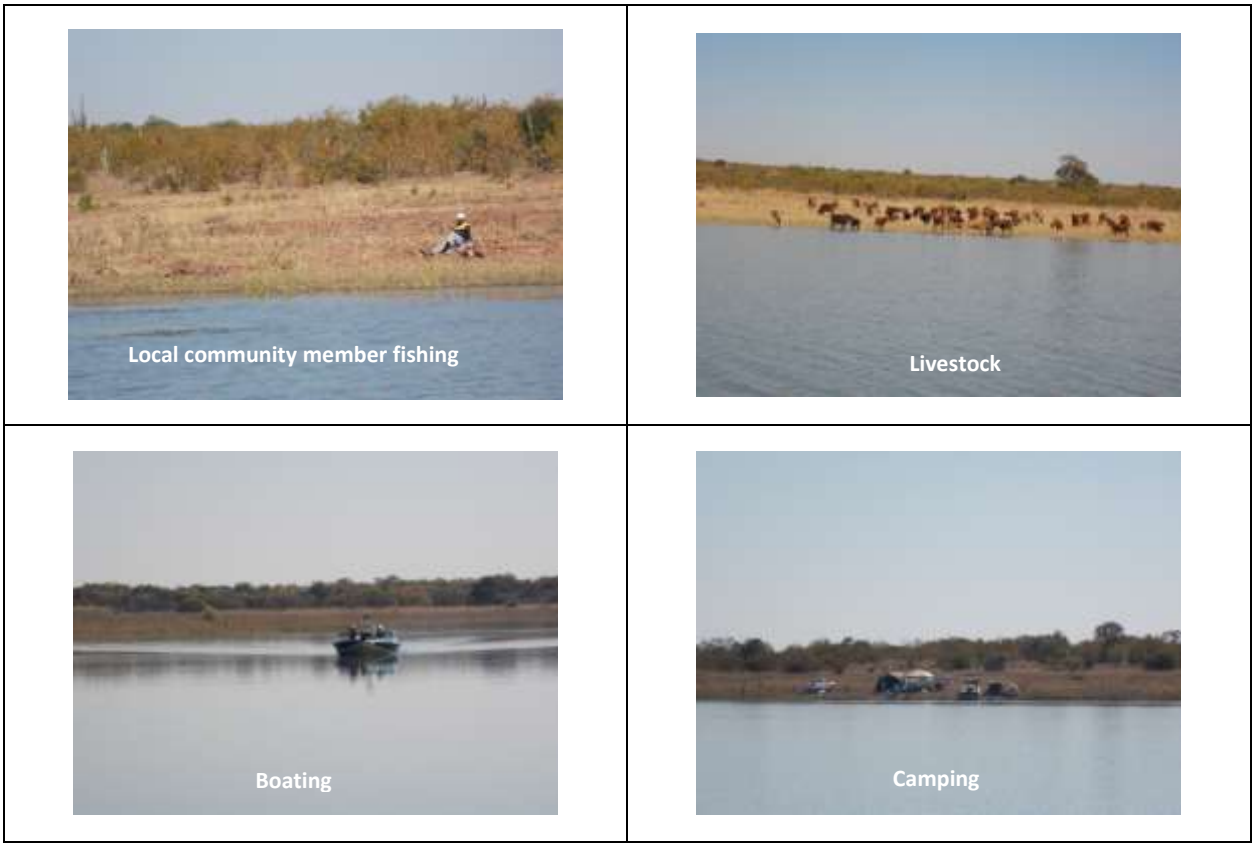

Figure 15: Activities at Mkhombo Dam

3.5.3 Public Participation

Public Participation process (PP) is a process in which potential Interested and Affected Parties (I&APs) are given an opportunity to comment on or raise issues relevant to specific matters. The three (3) fundamental and theoretical objectives of PP process as stipulated in the DWAF's Guideline for Public Participation (2001) are:

- To improve decision-making;
- To bring about sustainable development; and
- To normalise the attitudes of stakeholders (Authorities and I&APs).

A Public Participation was conducted in order to acquire information for **Phase 2 (Encumbrance Survey)**, **Phase 3 (Objective Identification) and Phase 4 (Information Gathering and Research)**

from Stakeholders, which was used to complete **Phase 5 (Integrated Management, Zoning and Institutional Planning)**. In order to successfully complete the RMP, it is essential that the information obtained in the previous phases is utilised as planning input.

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

- The identification of role players;
- The introduction of the RMP project to role players and inform them about their roles and responsibilities;
- The engaging of 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 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 The Planning Phase

The **Planning Phase** entails three (3) important aspects namely;

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

During the **Planning Phase** a site inspection and literature review was conducted to gather baseline information about the dam. A process was also established to get into contact with the I&APs and relevant Authorities to ensure co-operative interests and support in the RMP project.

3.5.3.1.1 The Role Players

It is recognized that different roles and responsibilities of the stakeholders (Authorities and I&APs), 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. As such, the success of the RMP is dependent on the level of involvement of the various stakeholders. Various stakeholders were identified and invited to participate in an open and consultative process. (See attached **Appendix A**). The stakeholder list is updated on a continuous basis throughout the RMP process.

3.5.3.2 The 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 Direct Communication.**
- 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 e-mails.

3.5.3.3 The Exit Phase

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

- Ensuring that all goals, challenges, concerns, objectives and the vision for the dam have been identified and documented in the RMP.
- Officially ending the public participation process for the RMP process.

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

3.5.3.4 **Advertising Process**

3.5.3.4.1 Compilation and Distribution of Background Information Document (BID)

The purpose of this document was to provide stakeholders with the background information about the proposed RMP project and to introduce the processes to be followed in developing the plan. It also aimed to inform Authority's and I&APs on how to fully participate in the process and encouraged active attendance to stakeholder's engagement meetings. The BID was compiled from the information collated through the desktop study and site inspection (See attached **Appendix B**).

3.5.3.4.2 Newspaper Advert

A Newspaper advert regarding the RMP project was placed in the **Uthingo Mail Newspaper**. The advert invited the public to attend the Public Participation Meeting. The advert was published in English on **08 July 2014**. Furthermore, an advert for the draft RMP was advertised on **11 December 2015**. (See attached **Appendix C**).

3.5.3.4.3 Flyer Compilation and Distribution

Flyers were also used as a form of notification, they aimed at informing the I&APs about the public consultative meetings. The flyer detailed a brief description of the RMP, meeting date, time, venue and relevant contact details. The flyers were compiled in English and were distributed on **02 July 2014.** Moreover, the flyers for the draft RMP were distributed on **11 December 2015** (See attached **Appendix D**).

3.5.3.5 **Direct Communications**

3.5.3.5.1 E-mails

Meeting invitations were sent out to authorities and I&APs notifying them about the scheduled consultative meetings. The invitation entailed the BID, meeting venue and time. The email notification was sent out on **01 July 2014**. Moreover, the meeting invites for the draft RMP were sent out on **17 December 2015** (See attached **Appendix E**).

3.5.3.5.2 Authority Meeting

The initial authority meeting was held on **10 July 2014** at **Mkhombo Dam Nature Reserve Admin Office.**

The purpose of the meeting was:

- To present the RMP, its goal and the objectives of the project to the authorities; and
- To allow the authorities an opportunity to participate in the project by sharing information on their respective mandates.

The draft RMP was presented to the authorities on the **19 January 2016**.

3.5.3.5.3 Public Meeting

The initial public meeting was held on **10 and 11 July 2014**. A platform was also given to I&APs to identify encumbrances/challenges that might hinder the progress of the RMP as well as to identify objectives and vision for the Mkhombo Dam.

The strategic meeting between the PSP, DWS, MTPA, and the Ward Councillors was on **19 September 2014 t**o discuss the logistics of conducting public meetings in different seven (7) wards. It was resolved that it is easier to meet with the ward committees, present the project to them and in turn they will take the message to the public in general. A standard questionnaire was developed to direct the ward committee members when they do community engagements. See attached **Appendix F** for **sample of a completed questionnaire**.

Table 7 depicts the dates of ward committee meetings. The meetings were well attended, however the challenge was experienced with ward 26, the Ward Councillor did not invite the ward committee members to the meeting.

Table 7: Initial Ward Committee Meetings

Ward Number	Venue	Date	Time
Ward 20	Senotlelo	07 October 2014	09: 00 to 11: 00
Wards 16 & 17	Vaalbank / Libangeni	08 October 2014	09:00 to 11: 00
Ward 18	Maphanga	08 October 2014	14:00 to 16:00
Ward 21	Troya	09 October 2014	10:00 to 12:00
Ward 19	Makometsane	10 October 2014	09:00 to 11:00

The draft RMP was presented to the public as illustrated in **Table 8.**

Table 8: Draft RMP Public Meetings

Ward Number	Venue	Date	Time
Ward 20	Senotlelo	22 January 2016	10:00 to 12:00
Wards 16 & 17	Vaalbank / Libangeni	20 January 2016	10:00 to 12:00
Ward 18	Maphanga	21 January 2016	10:00 to 12:00
Ward 19	Makometsane	21 January 2016	13:30 to 14:30

3.5.3.5.4 Comments and Responses Register

A copy of the draft report was circulated on **18 December 2015** for commenting. The commenting period was to elapse on **15 January 2016.** (See attached **Appendix G**).

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 compilation of the RMP.

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 as outlined in **Table 9**.

Table 9: RMP Planning Partners and their Respective Mandates

Department/ Agency	Mandate
Dr JS Moroka Local Municipality	The dam is within the jurisdiction of the municipalities and mandated to provide bulk water services.
Mpumalanga Tourism and Parks Agency (MTPA)	To grow tourism and manage bio-diversity to stimulate sustainable economic growth that is inclusive and creates decent employment. MTPA currently manages Mkhombo Dam for recreational activities.
Department of Agriculture, Forestry and Fisheries (DAFF)	The purpose of DAFF includes sustainable development and management of resources to maximizing the economic potential of the fisheries sector while protecting the integrity and quality of the country's aquatic ecosystems.

Department/ Agency	Mandate
	Operation Phakisa expansion to inland dams is one of DAFF initiative aimed at unlocking economic potential of fisheries sector within the inland water. The latter programme will be used as benchmark for implementation of conservation policies while implementing job creation within fishery and fish processing market.
Department of Rural Development and Land Reform (DRDLR)	The department will assist in terms of Land Claims/Ownership issues.
Department of Environmental Affairs (DEA)	Responsible for Biodiversity Management within the dam including Invasive Alien Species.
Department of Public Works (DPW)	Has the power to regulate and control the use of state land outside the GWWs. 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.
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 (NT)	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.
South African Maritime Safety Authority (SAMSA)	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.

3.6 RMP DATA ANALYSIS

3.6.1 Encumbrance Survey (Phase 2)

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

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 **Biophysical, Legal and Social.**

Table 10 - 12 outline the summary of limitations that might affect the development or implementation of the RMP for the dam.

Table 10: Summary of Biophysical Encumbrances

Item	Description
Biodiversity	• Livestock farmers use the reserve as grazing land. The overgrazing of the area may result in soil erosion which in turn may cause siltation of the dam during rainy seasons. • The reserve has been declared as a protected area, however the local community lacks an awareness of such a status.
Hydrology	• The use of man-made boats which do not comply with the South African Maritime Safety Authority (SAMSA) standards as well as the unavailability of washing bays to prevent contamination of water by boats. • The presence of algae can hinder potential surface water activities. • There is a challenge of illegal dumping of waste by local communities around the dam which is washed into the dam during rainy season which may impact on the quality of water.

Table 11: Summary of Legal Encumbrances

Item	Description
Institutional Plan	• Excludes major role players such as DWS, local and district municipalities who can play a vital role in managing the MDNR and the dam.
Agreements	• The copy of the agreement cannot be found at DWS and MTPA offices. This is necessary to evaluate the conditions of the Agreement. • Effective management of the reserve to curb existing illegal activities around the dam and reserve is a challenge. • Applicant who applied for a lease agreement has built a conference venue on apparent state land, need to verify the right owner for the land.

Table 12: Summary of Social Encumbrances

Item	Description
Mobility/ Access	• The vandalism of property such as fence, dam wall gates, etc. by the public which leads to safety risks to the employees of Mkhombo and visitors. • The only authorized access control is far from the local communities. This result in locals damaging fences to gain access to the reserve.
Safety and Security	• Infrastructure damage at the dam wall as well as safety of employees is of great concern. • MTPA lack skills for dam management, law enforcement for water and forestry as well as peace officer. • The only authorized access control is far from the local communities. This result in locals damaging fences to gain access to the reserve. • The accidents of drowning from time to time are experienced in the dam and poaching of fish by local communities using nets for commercial purposes.

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 SWOT Analysis and Objective Identification

The SWOT Analysis was conducted to gather **Strengths** and **Opportunities** that define the potential of the dam whereas the challenges regarding the dam where identified through **Weaknesses** and **Threats**. The common key objectives were formulated and identified from

the **Strengths** and **Opportunities** of the dam. Moreover, the vision for the dam for a period of 20 years was formulated by stakeholders from the identified objectives.

3.6.2.1 SWOT Analysis Approach

There were issues of concerns that were raised in the stakeholder engagement meetings prior to conducting the SWOT Analysis. Other challenges or encumbrances that may hinder the progress of the dam's RMP process were identified by the stakeholders following the SWOT analysis approach as illustrated in **Table 13**.

Table 13: SWOT Analysis for Mkhombo Dam

Strengths	Weaknesses
• The establishment of environmental centre which may be used for environmental awareness activities to the local communities. • Attracts visitors from Gauteng Province. • Dr JS Moroka LM has developed a feasibility study for Mkhombo Nature Reserve encompassing the dam which showed the potential of recreational development on the area. • Fishing for subsistence by local communities. • Tourist attraction for game and fishing. • Heritage ceremonies held annually for graves under water for affected local communities. • Provides habitat for many aquatic species and other terrestrial species. • Provides water to downstream users.	• Access control closer to the communities. • Safety concerns. People drown from time to time in the dam. • No prosecution of perpetrators for illegal activities such as u fishing and poaching. • Poaching of game and drowning of people in the dam. • The dam does not have access in Senotlelo and Loding side which result in communities damaging the fence to gain access. • There are no demarcation signs to show safe and danger zones. • Lack of capacity for MTPA to manage and curb illegal activities. • Uncontrolled harvesting of natural resources, grazing of livestock on the wetlands.
Opportunities	**Threats**
• Using the water in efficient / sustainability manner. • There are opportunities for small scale fisheries activities to address malnutrition, food insecurity and poverty in the rural villages. • The study area has an opportunity for tourism development as it is a secured area. • Development of resort and day visitor facilities. • To have heritage events held at the dam in support of heritage month and King Makhosonke. • To have the big 3 animals within MDNR, i.e. Buffalo, Rhino and elephant. • Environmental awareness relating the use of MDNR.	• Livestock farmers use part of the reserve as grazing land. There is a threat of disease of mixing wild animals and livestock. • The waste is disposed to the surrounding environment of the dam by the community and is washed into the dam during rainy season. • Dangerous water animals, i.e. Crocodile, water python • Poaching of fish for commercial purposes. • Safety of visitors and water resource. • Accidents of drowning from time to time.

3.6.2.2 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?

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

KPA 1: Resource Management

- To conserve, preserve the dam within Mkhombo Nature Reserve;
- To ensure the maintenance of species diversity and ecological processes of veld types and plant communities;
- To protect the aquatic ecosystem from the degradation of the water quality while introducing water-based activities; and
- To compile a Zoning Plan which will integrate conservation, recreation and development whilst not retarding the primary functions of the dam.

KPA 2: Resource Utilisation

- To establish potential development on the dam's surrounding like Chalets, braai area and other recreation al facilities;
- To establish more access points which have lower tariffs to accommodate the rural communities around the dam;
- To ensure safety in all aspects during boating; and
- To promote sustainable harvesting of fish.

KPA 3: Benefit Flow Management

- Uplift the Local Economy and increase Benefit Flows to the surrounding communities through community empowerment and job creation; and
- To establish an effective institutional structure that can manage the use of water for recreational purpose in an acceptable manner, which is also representative of all the Stakeholders.

Action projects required to achieve these objectives are provided in detail in **Section 4.3** (**The Strategic Plan**).

A vision for the dam for a period of 20 years was formulated from the key common objectives identified by the stakeholders and stands as follows:

"To sustainably utilize the natural and cultural resources of the Mkhombo Dam Nature Reserve in a manner which provides tangible benefits to landowners and adjacent communities, whilst ensuring a high value tourism experience".

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 Research/ Information Generation (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 16.**

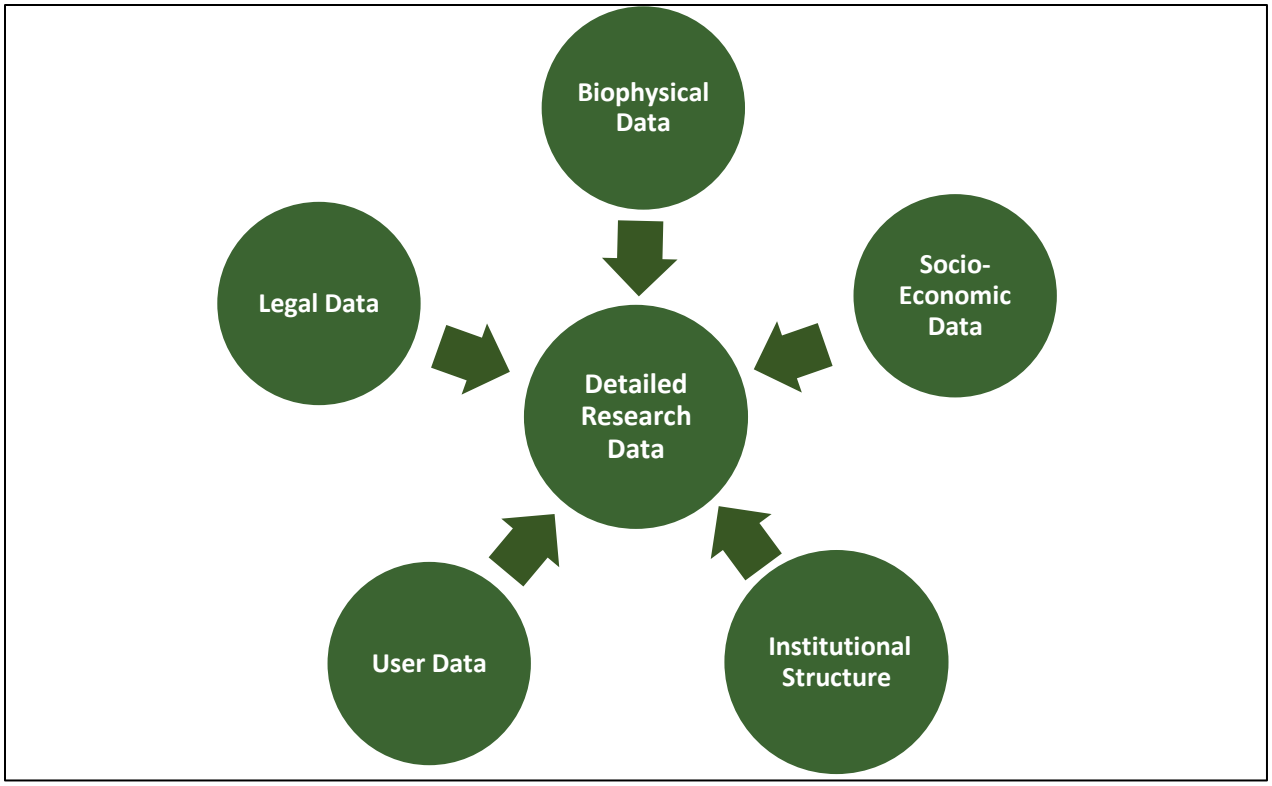

Figure 16: Research Data

The main aim 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

Mkhombo is a large, 11 000ha reserve, which is somewhat unique in that it conserves an easterly Kalahari thornveld environment around the shores of a large dam. This feature provides a wonderful variety of natural habitats across a relatively small area. One of the principal attractions is the quality of the angling where some record catches have been taken. Vlei kurper, bass, carp and barbel are the more common species. Birders are attracted to Mkhombo for the many bushveld species, including the lilac breasted roller and the black breasted snake eagle.

According to Nkangala Tourism, for the enthused angler who enjoys the tranquillity and scenic views of nature, the Mkhombo Nature Reserve is an ideal destination. There is plenty of fish in the dam so to speak, such as the Kurper, v, Silver Fish, Barber-exotic, Bass and Mackerel to keep the rod rolling. While game lovers can experience the magnificence of the giraffe, zebra, Blue Wildebeest, Red Hartebeest, Kudu, Water Buck and the Impala strutting in the open veld.

3.6.3.2 Mkhombo Feasibility Study

The purpose of the Mkhombo Feasibility Study (MFS) study was to determine the potential of Mdala and Mkhombo Dam Nature Reserves, to contribute towards the development and sustainability of the tourism sector through the preservation of the natural and man-made attractions of Dr JSM LM, of which Mdala and Mkhombo Dam Nature Reserves are primary products.

The feasibility study report therefore aimed to provide development options for the reserves, supported by a feasibility study and business

case that will give confidence to and could be used to attract investors to explore investment opportunities in the reserves.

3.6.3.3 Mkhombo Integrated Management Plan

Mpumalanga Tourism and Parks Agency has initiated the process to develop and compile the Integrated Management Plan (IMP). The purpose of Mkhombo IMP is in threefold and generally includes the following:

- **Resource Management**: The Reserve conserves biodiversity and natural ecosystems in the area for the benefit of future generations. Additionally, the area plays a role in the management of the Mkhombo Dam and its associated aquatic systems. Cultural Heritage features in the reserve are also protected.
- **Commercialisation and increased investment**: The Reserve opens up additional income generating opportunities for the local communities which would probably not have been relevant if the area was not effectively conserved and formally proclaimed. The Reserve also provides additional investment opportunities for external investors who are willing to make investments in the area, especially due to the location of the dam.
- **Secured benefits:** The Reserve provides benefits to local and affected communities. Without the formal proclamation of the area, these benefits may not have been possible. The protected nature of the area ensures sustainable provision of benefits over the long term.

3.6.3.3.1 Land Use Zoning

As a result of the above two (2) processes (MFS & IMP), the MTPA has developed Land Use Zoning for Mkhombo and Mdala Nature Reserve (refer to **Appendix H: Current Land Use Zoning**). The zoning exercise emanates from the previously determined opportunities and constraints of both the Conservation and the Development Mandates, and responds to a range of information, including:

- Environmental Sensitivity;
- Proximity to existing development and infrastructure;
- Nature of adjacent land uses;
- Nature of boundaries with adjacent land uses;
- Tourism product development potential; and
- Safety and security concerns.

The zones include:

- Terrestrial zones; and
- Special management overlay zones.

Each zone is described in terms of defining characteristics, recommended management guidelines, appropriate activities and facilities, maximum permissible carrying capacities and access types and roads. It is important to note that *Special Management Overlay: Community Resource Zones* have been defined in response to the illegal grazing of cattle on both reserves. These zones are set aside for resource harvesting, mainly the grazing of cattle, but also potentially the harvesting of firewood and medicinal plants.

3.6.3.4 Feasibility of Identified Potential Objectives

According to DWAF (2006), the feasibility of the proposed objectives needs to be determined in light of the local environmental conditions. **Table 14** shows the practicability of all proposed recreational objectives.

Table 14: Feasibility of Potential Recreational Objectives

KPA 1: Resource Management		
Objectives	**Status Quo**	**Practicability**
• To develop a RMP that will take into account IMP for Mkhombo & Dr JSM LM Feasibility Study.	• MTPA manages the Mkhombo Dam Nature Reserve. It also aims to provide for the management and promotion of tourism, nature conservation and to ensure sustainable utilisation of natural resources for the benefit of everyone in Mpumalanga Province.	• MTPA has a legislative mandate which vests the custodianship of biodiversity conservation. Also MTPA developed an IMP which aims to guide the conservation of both the reserve and the dam.
• To ensure the maintenance of species diversity and ecological processes of veld types and plant communities.	• The maintenance of species diversity is limited due to livestock grazing within the reserve. • The grazing of livestock on the study area may result in soil erosion and also impact the dam through siltation. • The mixture of domesticated livestock and wild animals may result in health impacts on both animals.	• The objective will only be practical, if environmental awareness programmes are implemented for local communities and local farmers. • MTPA should raise an awareness of the importance of the nature reserve and the role it aims to play on conservation.
KPA 2: Resource Utilisation		
Objectives	**Status Quo**	**Practicability**
• To establish potential developments such as chalets, braai area and other recreational facilities on the dam's surrounding.	• The DWS purchase boundary is unknown hence these proposed developments will be limited. It is unclear where the purchase line ends and these developments may encroach on the MTPA land.	• DWS and MTPA should enter into Memorandum of Understanding (MOU's) and Agreements to develop within the purchase boundary and the reserve.
• To establish alternative authorized access points around the reserve.	• There is only one (1) authorized access, however, it is far from the local communities. This results in locals vandalizing fences to gain access to the reserve. • The Fence Boundary Map depicts six (6) entrance gates in which one is authorized access and other alternative five (5) gates are solely used by MTPA employees. • A 37 km fence has been erected around Mkhombo Nature Reserve but this has excluded the south-eastern and western side of the reserve. This is to allow the livestock's to have access to water.	• The proposed access points are limited due to MTPA's lack of capacity to control the accesses. MTPA should improve its capacity to effectively manage the other alternative accesses. However, there is a potential to authorize other gates for public access.
• To ensure safety in all aspects during water activities.	• The safety aspects are affected by illegal activities such as fishing which result in accidents of drowning. These are recorded and reported from time to time in the dam.	• To ensure safety around Mkhombo, safety measures and signs should be put in place around the reserve and the dam. • The signage should depict safety areas, danger zones and no-go areas.

• To promote sustainable harvesting of fish within the dam.	• The sustainable fishing is affected by illegal and poaching of fish by local communities using nets for commercial purposes.	• The promotion of sustainable fishing can be through issuing of fishing license/permits for subsistence fishing for local communities. • The aquaculture development is another way to look into commercial farming.
KPA 3: Benefit Flow Management		
Objectives	**Status Quo**	**Practicability**
• Uplift the Local Economy and increase Benefit Flows to the surrounding communities through community empowerment and job creation.	• The benefit flows are affected by criminal activities such as stealing of visitors valuables around the reserve.	• The local economic development can be achieved according to National Treasury Regulation (Public Finance Management Act, 1999 (Act No. 01 of 1999). • The implementation of the RMP will guide empowerment of local communities to be active participants in tourism sector.
• To establish an effective institutional structure that can manage the use of water for recreational purpose in an acceptable manner, which is also representative of all the stakeholders.	• The institutional plan is only limited to MTPA and land owners who established a Co-Management Committee (CMC) to assist in managing the nature reserve and the dam.	• To appoint MTPA as an Implementing Agency (IA). • Roles and Responsibilities of an IA to be clearly defined.

CHAPTER 4: INTEGRATED MANAGEMENT, ZONING, AND INSTITUTIONAL PLANNING (PHASE 5)

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 Resource Management Plan (IRMP) 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 IRMP is broken down into four (4) main plans namely the **Institutional Plan**, **Zoning Plan**, **Strategic Plan** and **Financial Plan** as illustrated by **Figure 17**.

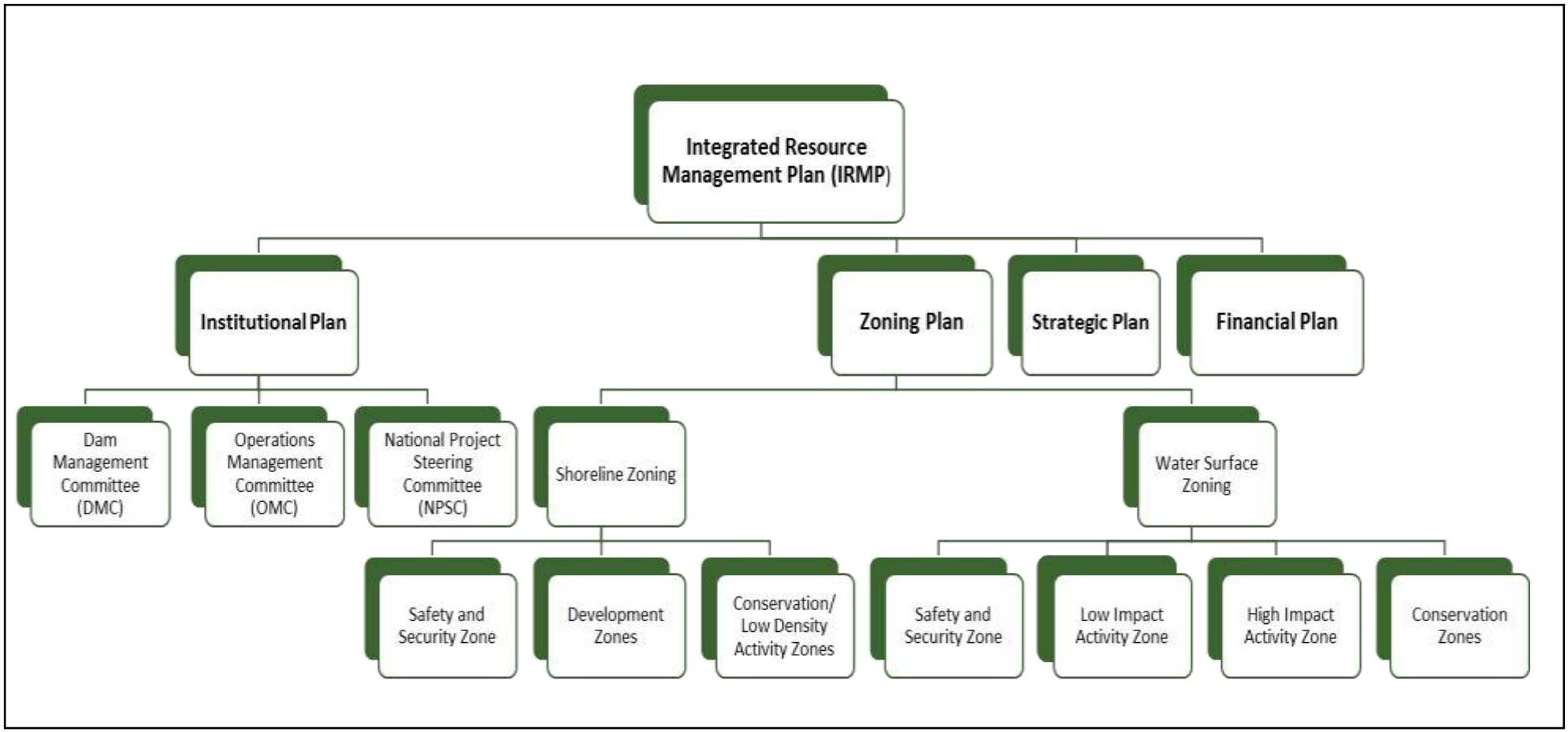

Figure 17: Integrated Resource Management Plan

4.1 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 National Project Steering Committee (NPSC). The appointed management authorities by DWS at the dams, will also form part of the institutional structure.

4.1.1 Dam Management Committee (DMC)

DMC refers to any party that is interested or affected by the dam and will assist in raising and addressing issues relating to the dam.

One of the main functions of the DMC is to give support to Implementing Agency (IA) in the management of the dam for recreational purposes. Moreover, 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 must meet quarterly.

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

- Seeking resolution for general management issues;
- Monitoring the practical implementation of the RMP and BP;
- 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; and
- Management of the incident management system and wash bays.

Figure 18 illustrates the proposed user groups that will form part of the DMC.

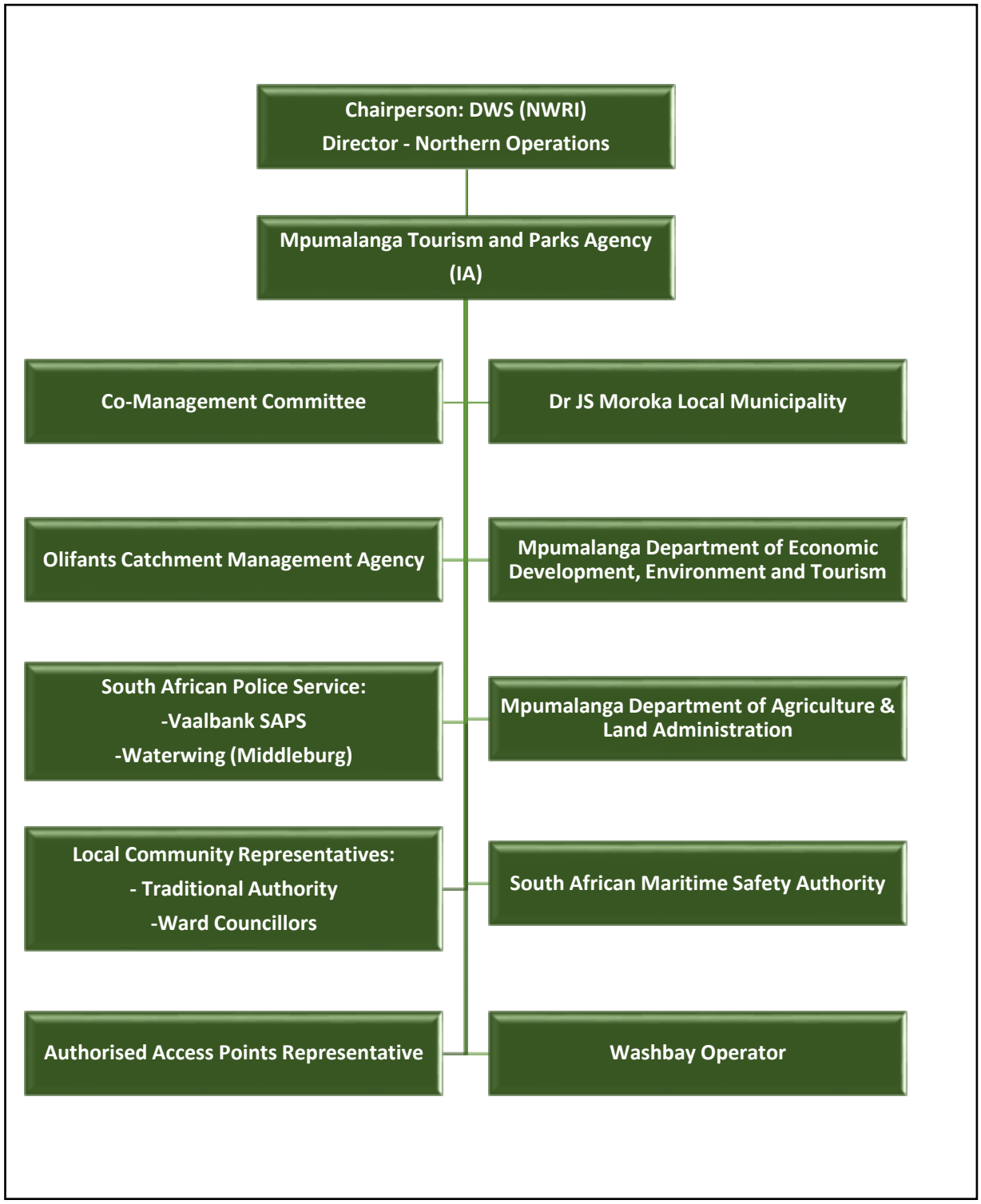

Figure 18: Proposed DMC

The 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 Management Tools

Terms of Reference

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

- Roles and responsibility of chairperson;
- Roles and responsibilities of an IA;
- 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 incident management system and wash bays; and
- 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.

Agreements between DWS and Implementing Agency (IA)

MTPA will be appointed to be an Implementing Agency (IA) for the Mkhombo Dam RMP. DWS will sign the 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.

The minimum requirements of an IA include the following:

- An implementing agency can be a government entity or a public-sector body identified by DWS;
- 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; and
- 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 public access area;
- Management of incident management system;
- Management of community skills and training programmes;
- Management of commercial activities (in line with Treasury Requirements); and
- Management of AtoN and demarcation markers.

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

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 No. 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 AtoN[3] for general navigation.

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

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

- Exhibit the relevant AtoN; and
- 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 IA. Further, a formal agreement with IA 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 and DEA on the management and maintenance of the facility.

Event Applications

All events must be managed through an event application process. The applications will be submitted to the IA for approval and to DWS for commenting. 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); and
- 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.

4.1.2 Operations Management Committee (OMC)

There is an existing Chief Director: Infrastructure Operations Management Committee (CD: IO MANCO) within Infrastructure Operations which comprises of all directors of four (4) operations (Northern, Southern, Eastern and Central) and is chaired by the Chief Director: Infrastructure Operations within NWRI as illustrated in **Figure 19.**

The committee should meet quarterly discussing matters relating to operations and maintenance of all GWWs. RMP must be a standard agenda item. Any matters relating to the RMP that are outside the scope of DWS will be escalated to the NPSC.

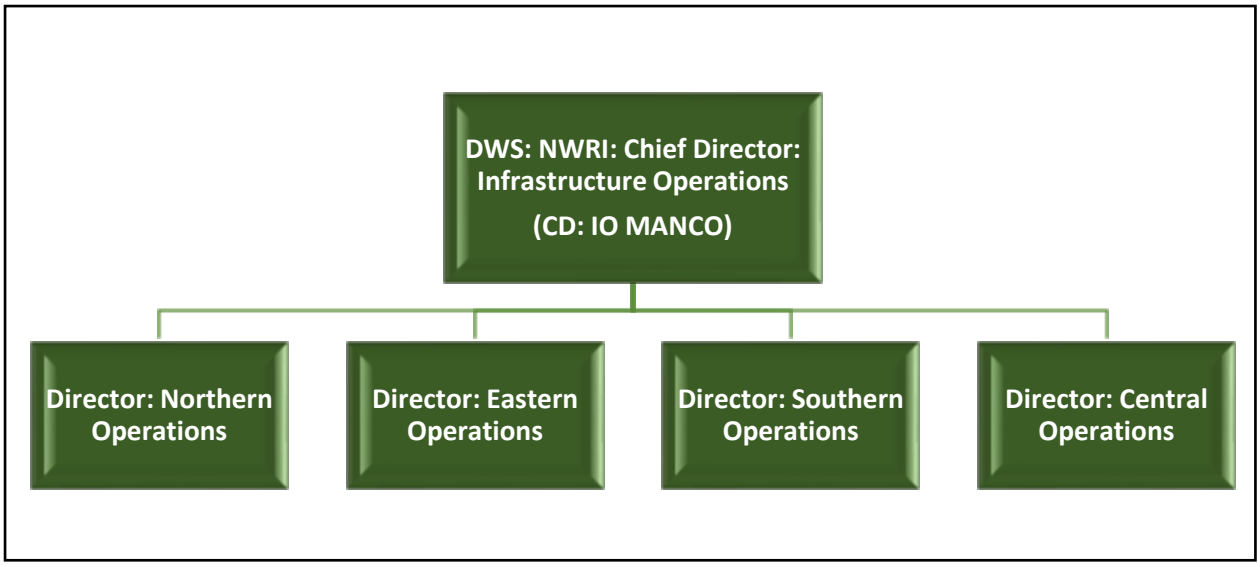

Figure 19: Existing CD: IO MANCO

4.1.3 National Project Steering Committee (NPSC)

NPSC is formed by DWS and is made up of representatives from National Government Departments and Implementing Agencies that are relevant in terms of managing the water resource.

The primary function of the NPSC is to provide guidance on recreational water use in terms of their respective mandates as well as to ensure that continuous support by different Government Sectors is provided to the dam with the aim of achieving sustainable utilisation of the dam for recreational purposes. The NPSC should meet twice a year. **Figure 20** illustrates a typical example of Governmental Departments that will form part of the NPSC:

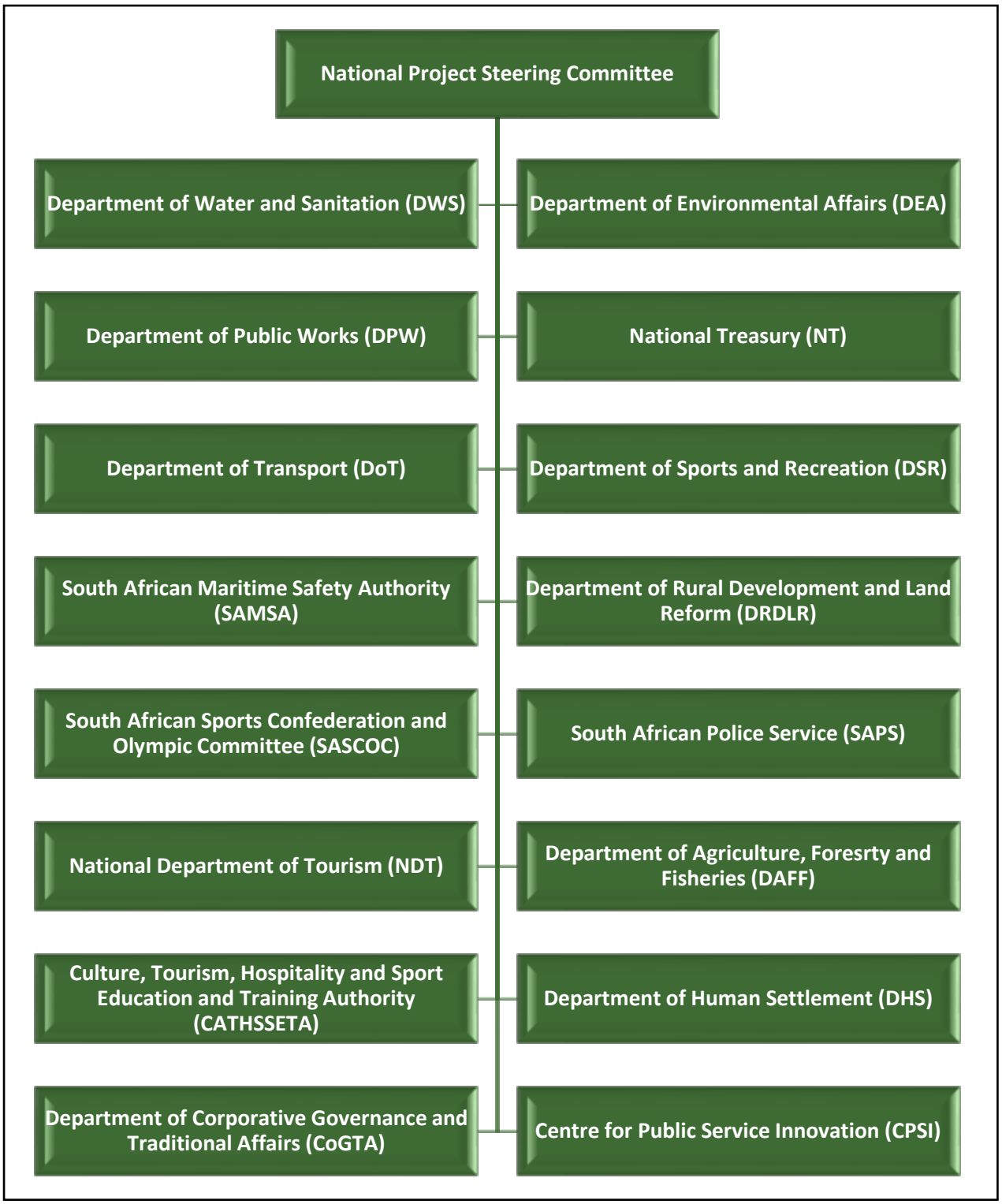

Figure 20: Proposed NPSC

The role of the relevant departments forming part of the NPSC is listed below:

Centre for Public Service Innovation (CPSI):
The CPSI is supporting a multi-departmental working group that is developing an innovative approach to inland water and safety integrity. The project, was initiated out of the need to find an innovative, practical and cost-effective way to implement SAMSA' vessel safety regulations on inland waterways and to implement responsible water use within the broader socio-economic context of the country.

The CIWSP is a project piloted by CPSI that is a partnership between multiple Government entities and between the Government and communities. The main aim of the project is to enhance the development of a best practice model to ensure safe and structured inland maritime environment and culture, whilst protecting the country's precious water resource.

Culture, Arts, Tourism, Hospitality, Sport Sector, Education and Training Authority (CATHSSETA):
CATHSSETA deals with the approval and financing of training relating to culture, hospitality, tourism and sport sectors.

Department of Agriculture, Forestry and Fisheries (DAFF):
The purpose of DAFF includes sustainable development and management of resources to maximizing the economic potential of the fisheries sector while protecting the integrity and quality of the country's aquatic ecosystems.

Operation Phakisa expansion to inland dams is one of DAFF initiative aimed at unlocking economic potential of fisheries sector within the inland water. The latter programme will be used as benchmark for implementation of conservation policies while implementing job creation within fishery and fish processing market.

Department of Corporative Governance and Traditional Affairs (CoGTA):
Its function is to develop national policies and legislation with regard to Provinces and Local government, and to monitor their implementation. Other function of the Department is to support Provinces and Local Government in fulfilling their constitutional and legal obligations.

Department of Environmental Affairs (DEA):
DEA is mandated to give effect to the right of citizens to an environment that is not harmful to their health or wellbeing, and to have the environment protected for the benefit of present and future generations. In relation to the RMP, the Department should ensure that Environmental Impact Assessments is undertaken for all activities that triggers EIA Regulations at the dam. Furthermore, DEA through WfW programme can assist to eradicate alien invasive plants species (Blue Gums and Parrot Furthers) and alien invasive fish species at the dam.

Department of Public Works (DPW):
DPW has the power to regulate and control the use of state land outside the GWWs. 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 running, biking and running.

Department of Rural Development and Land Reform (DRDLR):
The Department is tasked with the facilitation of land claims within the country. They are also involved in rural development by improving both economic infrastructure (such as roads, etc.) and social infrastructure (e.g. communal sanitation and non-farming activities).

Department of Sports and Recreation (DSR):
The Department is mandated to promote and develop sport and recreation activities and also in co-ordination of the relationships between the Sports Commission, national and recreation federations and other agencies.

Department of Tourism (NDT):
The Department is mandated to create conditions for the sustainable growth and development of tourism in South Africa. The Tourism Act makes provision for the promotion of tourism to and in the Republic and for regulation and rationalisation of the tourism sector, including measures aimed at the enhancement and maintenance of the standards of facilities and services utilised by tourists; and the co-ordination and rationalisation of the activities of those who are active in the tourism sector.

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, including small vessels and inland waterways.

Department of Water and Sanitation (DWS):
DWS through the National Water Act, 1998 (Act No. 36 of 1998) is mandated to protect aquatic and associated ecosystems and their biological diversity as well as to reduce degradation of the water resources. As part of its mandate, DWS initiated the development of RMPs together with the supporting BPs with the aim of ensuring sustainable and equitable development, utilisation and management of GWWs.

National Treasury (NT):
The Department is mandated to support the optimal allocation and utilisation of financial resources in all spheres of government. As part of the RMP, The National Treasury Public Private Partnership (PPP) Toolkit for Tourism (2005), will assist the process of tourism-based businesses development 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, Provincial and Local Government Institutions.

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 AtoN in South African waters.

South African Police Service (SAPS):
The South African Police Service have been entrusted with the responsibility of creating a safe and secure environment for all people in South Africa as well as to prevent anything that may threaten the safety or security of any community.

South African Sports Confederation and Olympic Committee (SASCOC):
SASCOC is mandated to promote and develop high performance of sports as well as to act as a controlling body for sports in South Africa. It can also assist to coordinate organised events at the dam.

4.2 ZONING PLAN

According to DWAF (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, Social and Cultural environment as well as the objectives set by the Stakeholders (refer to section **3.6**).

The proposed Zoning Plan will integrate conservation, recreation and development whilst not retarding the primary functions of the dam.

4.2.1 Water Surface Zoning

The water surface zoning provides guidance on permissible and non-permissible recreational activities on the water surface taking into account the biophysical factors of the dam. The Water Surface is zoned as follows:

Safety and Security Zone:

It covers a minimum of 100m area from the wall and outlet works indicated by demarcation markers and AtoN. This area is reserved for DWS management purposes.

Management of this zone is aimed at protecting the dam wall and outlet works, as well as to ensure the safety of the public. This is a no-go zone to the public unless authorised.

Conservation Zones:

The aim of this zone is to conserve and protect sensitive aquatic habitation at the inlet(s) of the dam. According to Section 12 and 26 of NWA, the existence of these zones is thus not negotiable as it is imperative to protect the water resource for the purposes relating to basic human needs, environmental sustainability and water quality requirements. Access to these areas is generally not allowed due to the following:

- The areas intercept sediments and nutrients/pollutants which pose safety risks to the public due to muddy clay, and
- They are used by aquatic birds and fish species as habitat, refuge and breeding areas.

Low Impact Activity Zone:

This zone act as a buffer between High Impact Activity Zones and Conservation Zones. Low Impact Activity Zone allows for low intensity activities, i.e. activities associated with little or no wake such as wind surfing, kayaking, swimming, rowing, sailing, paddle boating, float tubes, canoeing, angling, yachting, aquaculture and small scale fisheries.

High Impact Activity Zone:

This zone has the largest water surface area and is located where the reservoir is at its deepest. It caters for high impact activities associated with high speed, wake and noise activities such as motorised boating, house boating, water skiing, and para-sailing.

The water surface zoning colour coding means the following:

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

Table 15: Proposed Water Surface Zoning Description

Zone Name	Permissible Activities	Non-Permissible Activities	Recommendation
• Safety and Security Zone.	• Management of dam infrastructure • Management and maintenance activities by DWS and authorised personnel	• Public access	• Area should be demarcated by dermacation makers and AtoN.
• Conservation Zone.	• None	• Public activities (in order to prevent aquatic habitats disturbance)	• Area should be demarcated by demarcation makers and AtoN. • Strict management and control of these areas, especially with regards to illegal fishing and dumping.
• Low Impact Activity Zone.	• Activities associated with no or little wakes, such as ○ Angling ○ Canoeing ○ Rowing ○ Kayaks ○ Sailing	• Motorised boating • Water Skiing • House boats • Para-sailing • Jet skis • Swimming	• Area should be demarcated by demarcation makers and AtoN. • Access to Low Impact Activity Zone will be through the medium Density Development Zone.
• High Impact Activity Zone.	• Activities associated with water wakes such as: ○ Power boats ○ Water skiing	• Activities associated with no or little water wakes such as: ○ Angling ○ Canoeing ○ Rowing ○ Paddle boating ○ Kayaks ○ float tubes ○ Wind Surfing ○ Sailing	• Area should be demarcated by demarcation makers and AtoN. • All activities within the high impact zone shall take place beyond 70m from the shoreline. • Activities within this zone must be evaluated to determine their impact on the water resources and other dam users before they are allowed into the dam.

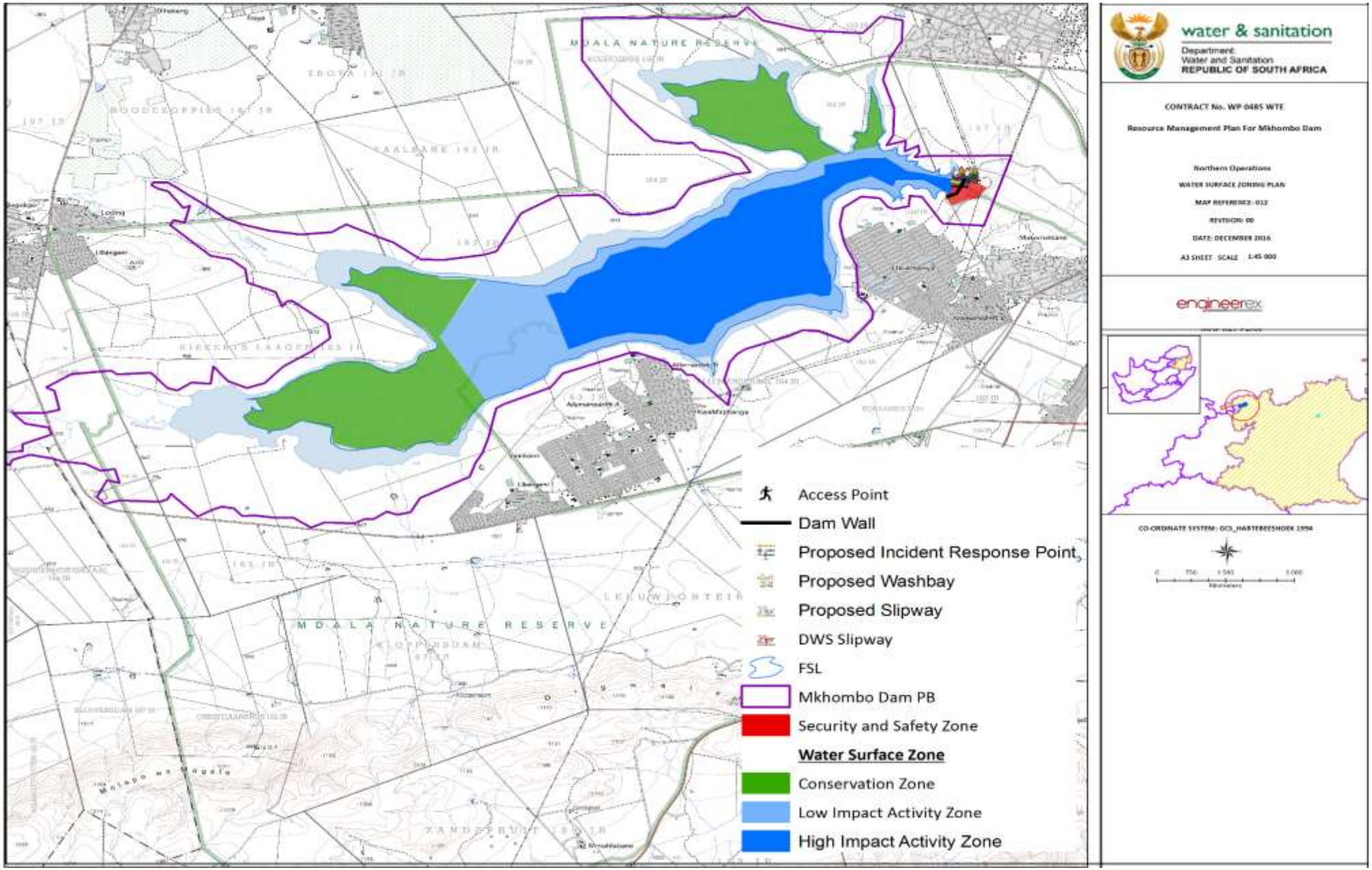

Figure 21: Proposed Water Surface Zoning Map

4.2.2 Shoreline Zoning[4]

In addition to the water surface zoning, an integral part of the RMP is also shoreline zoning, which provides guidance on what recreational activities (if any) are permissible and not permissible on the land adjacent to the dam (DWS purchased boundary). The management zones include:

Safety and Security Zone (dam wall and associated DWS infrastructure):

It is applicable to the area surrounding the dam wall and the outlet works. The extent of this zone is determined by DWS and shall not be less than 100m from the dam wall and downstream. This area is reserved for DWS management purposes.

Management of this zone is aimed at protecting the dam wall and outlet works, as well as to ensure the safety of the public and surrounding areas. This is a no-go zone to the public unless authorised.

Conservation / Low Density Activity Zone:

This zone consists of ecologically sensitive areas and areas with high biodiversity. It also includes the area around the inlets of the dam. Access to this area is limited to low impact activities such as hiking, bird watching, etc. This area is reserved to prevent ecological damage due to development activities hence high impact development not permitted.

Medium Density Activity Zone:

This area is reserved for small scale activities such as day visitors, picnic areas, shoreline fishing, camping (tent and caravan), braai facilities, swimming pools, ablution facilities and infrastructure for services.

High Density Activity Zone:

This area is reserved for large scale activities including chalets, recreational club houses, infrastructure for services, and Land Based Aquaculture.

Community Resource Zone:

This zone is for the sole beneficiation of the local communities in ensuring that their livelihood is maintained and improved. Activities include subsistence fishing, livestock watering points, small scale community gardens, etc.

The shoreline zoning colour coding means the following:

Colour	Zone Description
Red	Safety and Security Zone
Green	Conservation/ Low Density Activity Zone
Yellow	Medium Density Activity Zone
Orange	High Density Activity Zone
Brown	Community Resource Zone

[4]Permanent structures within the purchase line are not allowed. All developments should be outside 1:100 year floodline.

Table 16: Proposed Shoreline Zoning Description

Zone Name	Permissible Activities	Non-Permissible Activities	Recommendation
• Safety and Security Zone.	• Fire management • Alien invasive species clearing • Management of dam infrastructure • Management and maintenance activities by DWS and authorised personnel.	• Public access	• A minimum area of 100m wide downstream the dam wall should be demarcated preventing public access and use.

• Conservation / Low Density Activity Zone.	• Conservation management activities:
	  ○ Bird watching
	  ○ Hiking
		• Development	• These zone should control access to ecological sensitive areas.

• Medium Density Activity Zone.	• Camping (tent and/or caravan)
	• Day visitors
	• Picnic
	• Shoreline fishing
	• Allowed facilities:
	  ○ Braai facilities
	  ○ Swimming pools
	  ○ Ablution facilities
	• Infrastructure for services
	• Slipways for vessel launching
		• Accommodation facilities such as:
		  ○ Chalets
		  ○ Recreational club houses
			• The management of this area should follow the PPP in terms of National Treasury.
			• All developments must be approved by IA and DWS.
			• Requirements of NWA and NEMA must be taken into account in all developments.
			• All developments should adhere to the approved MTPA IMP to ensure construction does not impact on dam and must blend in with the natural environment.
			• Camping, picnicking, bank angling and access to the water must be done in accordance to access agreements.
			• Camping and picnicking is allowed only in designated areas.
			• Noise levels to be kept at a minimum.
			• No littering at Camping and Picnic spots.

• High Density Activity Zone.	• Accommodation facilities such as:
	  ○ Chalets
	  ○ Resorts
	• Recreational Club house
	• Infrastructure for services
	• Slipways for vessel launching/ mooring
		• Camping
		• Day visitors
		• Picnic
		• Shoreline fishing
		• Hiking
			• The management of this area should follow the PPP in terms of National Treasury.
			• All developments must be approved by IA and DWS.
			• Requirements of NWA and NEMA must be taken into account in all developments.
			• All developments should adhere to the approved MTPA IMP to ensure construction does not impact on dam and must blend in with the natural environment.
			• Noise levels to be kept at a minimum.
			• No private slipways to be built without approval from DWS.

Zone Name	Permissible Activities	Non-Permissible Activities	Recommendation
• Community Resource Zone	• Area used for upliftment of local communities through: ○ Selling hand-made cultural products such as beads, clothes, handcrafts, etc. ○ Subsistence fishing	• Livestock watering	• MTPA should provide stalls for local people preferably near the entrance to sell cultural branded products. • Local communities should be allowed for a planned subsistence fishing activities to improve benefit flow. • MTPA should facilitate and establish livestock drinking area with local communities to avoid livestock mixing with wild animals.

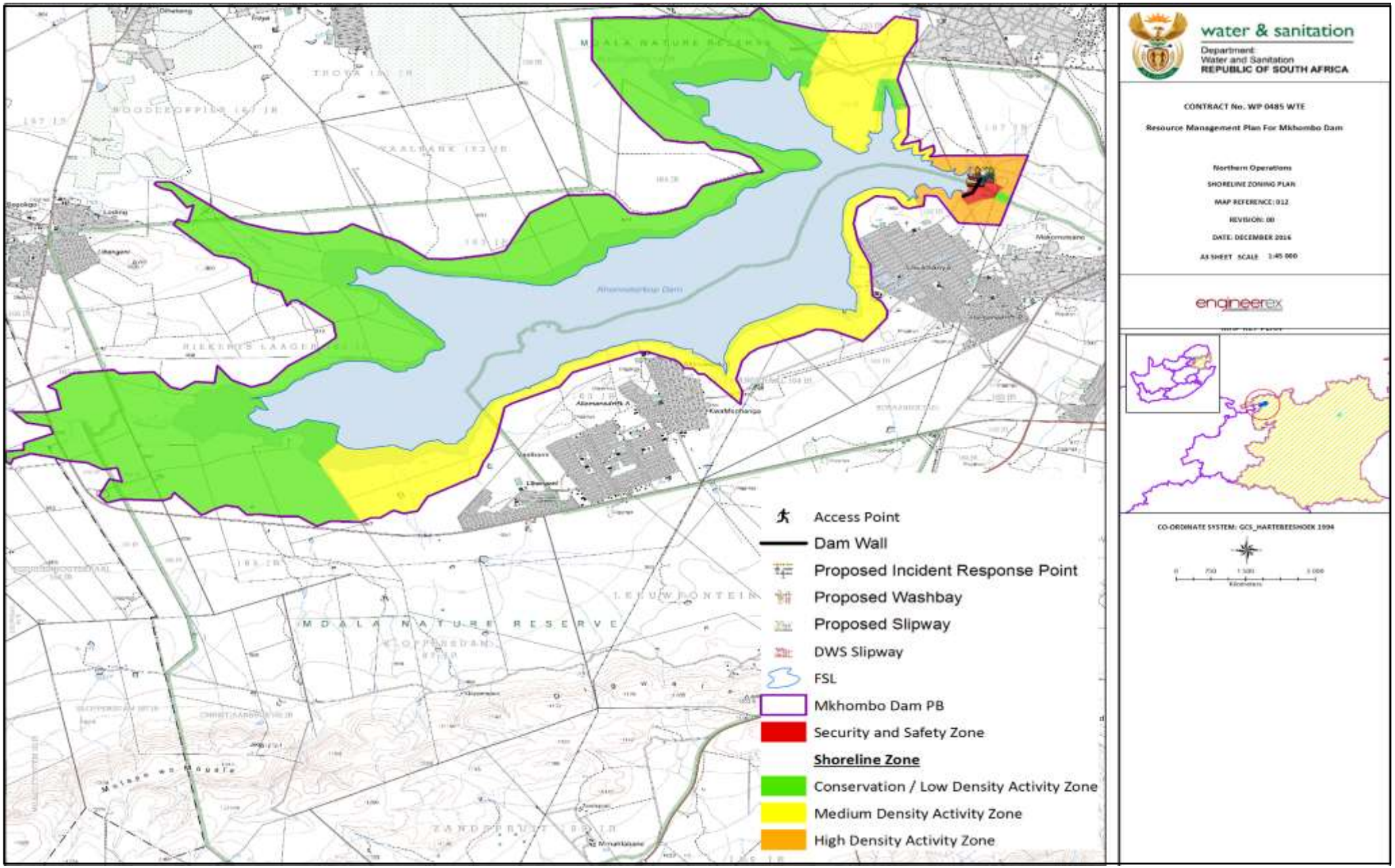

Figure 22: Proposed Shoreline Zoning Map

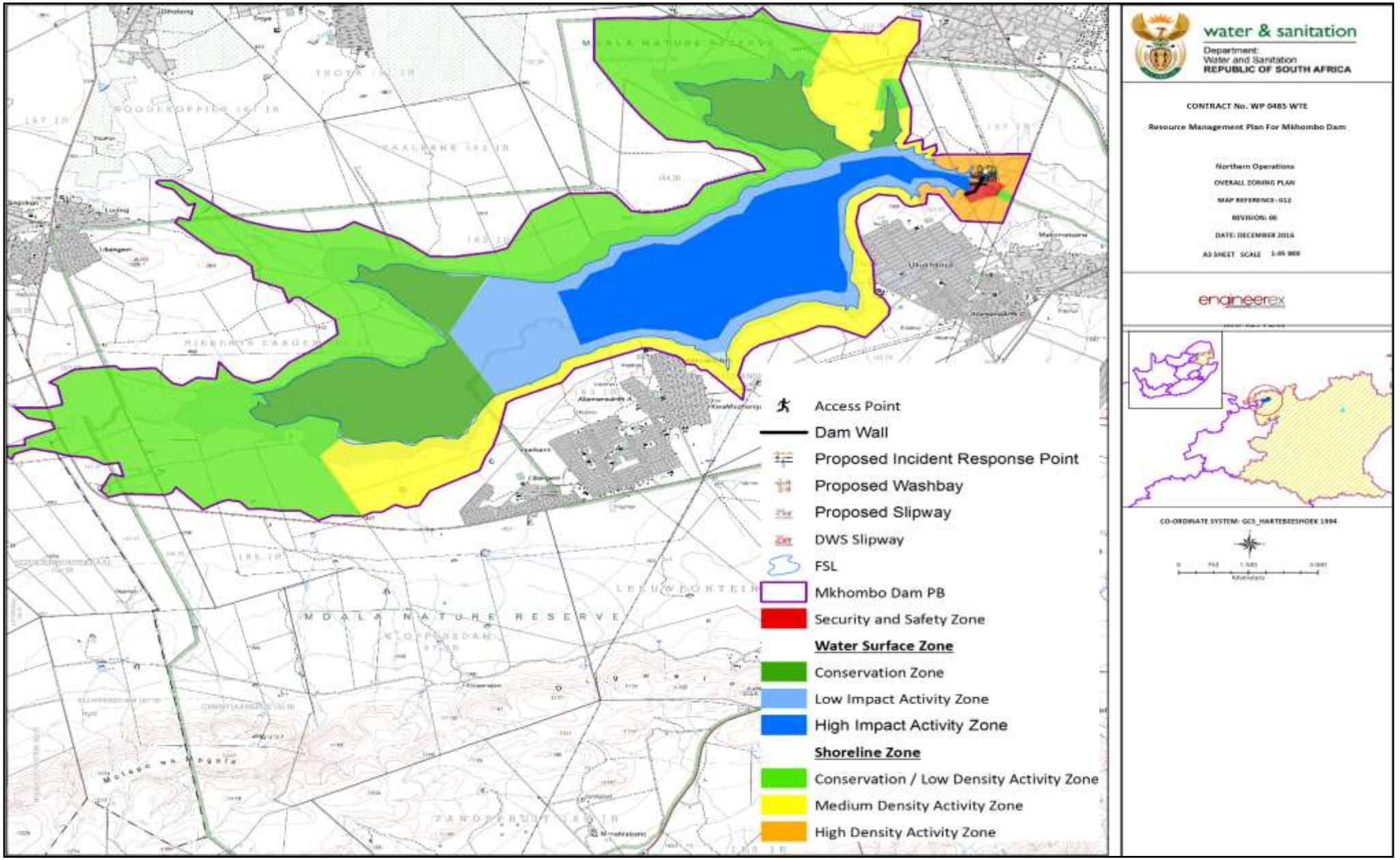

Figure 23: Proposed Overall Zoning Map

4.2.3 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 Mkhombo 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 ×U/a ×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: 3 624 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: Craft	U/A (ha/craft)
Powerboats	**4.0**
Angling	**3.0**
Canoeing	**1.0**
Average	**2.7**

Based on the fact that most activities do not require much space, the average hectare per user is 2.7 ha (27 000 m^2), the value of 5.0 ha (50 000 m^2) 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 Mkhombo Dam can further be calculated as:

PCC = A × U/a × Rf
=3 624 × 1/5 × 1
=1812 vessels

Real Carrying Capacity (RCC)

It refers to the maximum permissible number of users to the water resource, once the corrective factors (Cf) derived from the particular characteristics of the site have been applied to the PCC. The RCC takes factors into account that limits recreation. The limiting factors include:

- Safety Areas/ No go Zones (**120 ha**); and
- Conservation Area (**800 ha**).

The above factors results in 25.4% decrease in water surface available for recreation at the dam, therefore 74.6% of the surface area of the dam is still available for recreation.

RCC for Mkhombo Dam is therefore:

RCC = PCC × (100 – Cf1) % × (100 – Cf2) % × (100 – Cfn) %

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

RCC = 1812 × (100 – 25.4) %/100
= 1351.8 vessels

Effective Carrying Capacity (ECC)

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

4.3 STRATEGIC PLAN

The Strategic Plan is informed by the objectives identified by relevant Stakeholders and through research on possible opportunities for the Dam.

The objectives were clearly defined and they effectively address the following questions:

- 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 **Tables 17 – 19**, the Strategic Plan on how to achieve the identified objectives identified regarding the dam is outlined.

Table 17: Strategic Plan for KPA 1: Resource Management

KPA 1: Resource Management			
Objective (What do we want)	**Motivation (Why do we want to achieve this)**	**Action Projects (How do we achieve this)**	**Management Support (Who will be involved)**
Species Diversity: • To ensure the maintenance of species diversity and ecological processes of veld types and plant communities.	• The maintenance of species diversity is limited due to livestock grazing within the reserve. • The grazing of livestock on the study area may result in soil erosion and also impact the dam through siltation. • The mixture of domesticated livestock and wild animals may result in health impacts on both animals.	• MTPA (IA) should raise an awareness of the importance of the nature reserve and the role it aims to play on conservation.	• The Department of Environmental Affairs (DEA) as well as Mpumalanga Department of Economic Development, Environment and Tourism (DEDET) should provide support and guidance on the management of biodiversity within Mkhombo Nature Reserve.
Zoning Plan: • To update the current Zoning Plan which will integrate conservation, recreation and development whilst not retarding the primary functions of the dam.	• Mkhombo Dam has an existing Zoning Plan which was compiled during the IMP process. The existing Zoning Map has been updated as part of the RMP process.	• The Zoning Plan should accommodate all feasible recreational activities within the purchased line.	• DWS Survey Service section and other relevant Departments should be involved so that they can give their input in terms of their respective mandates.

Table 18: Strategic Plan for KPA 2: Resource Utilisation

KPA 2: Resource Utilisation			
Objective (What do we want)	**Motivation (Why do we want to achieve this)**	**Action Projects (How do we achieve this)**	**Management Support (Who will be involved)**
Tourism Development: • To establish potential developments such as chalets, braai area and other recreational facilities on the dam's surrounding.	• The location of the dam within the reserve provides an excellent opportunity to develop the recreational facilities within this protected area.	• Apply and implement the development of recreational facilities with the relevant departments such as DEA, DWS and SAMSA.	• All the necessary authorisations for access, use and development within the purchased boundary should be approved by IA (MTPA) before any action. • MTPA as the management authority of the dam basin and its surrounding should maintain the facilities and ensure that the routes are properly marked.

KPA 2: Resource Utilisation			
Objective (What do we want)	**Motivation (Why do we want to achieve this)**	**Action Projects (How do we achieve this)**	**Management Support (Who will be involved)**
Access: • To establish alternative authorized access points around the reserve.	• The dam is surrounded by rural communities such as; Makometsane, Vallbank, Loding, etc. Most community members access the dam through unauthorised points, stating that they cannot afford the provisional points provided by MTPA.	• A minimum amount of infrastructure and safety measures need to be in place and maintained. • Public access and use should be equitable, compatible and safe. • Entry fees can be levied for public access and use; however these need to be reasonable to ensure the dam remains an affordable destination.	• DWS and MTPA's support is required to sanction any kind of public access to the dam.
Safety: • To ensure safety in all aspects during water activities.	• The current boating activity in Mkhombo Dam has to be in compliant with the SAMSA Regulations and Section 22 of Boating Regulations of the Government Notice R. 654 in terms of the Water Act, 1956 (Act No. 54 of 1956). • People drown at the dam from time to time due to illegal fishing.	• Involve SAMSA to survey boats for water worthiness. • Ensure that the skipper and the crew comply with SAMSA Regulations at all times. • Patrons boarding for boat trips should put on SAMSA approved life jacket. The cruise boat should have spare jackets all the time. • MTPA in conjunction with DWS should develop safety emergency management plan.	• SAMSA should be involved in surveying the boats, ensuring that they are water worthy. • IA (MTPA) and DWS.
Sustainable Fishing: • To promote sustainable harvesting of fish within the dam.	• Subsistence fishing by the Local Communities remain an active use of the dam, however this must be regulated by relevant policy to	• Preserve the core habitats for nesting, resting, feeding and breeding of fish within the inlets.	• DWS, DAFF and other relevant conservation NGOs must be involved.

KPA 2: Resource Utilisation			
Objective (What do we want)	**Motivation (Why do we want to achieve this)**	**Action Projects (How do we achieve this)**	**Management Support (Who will be involved)**
	avoid overfishing within the dam.	• Management Authority must develop a communication signage in order to effectively inform different angling groups about the dam fishing rules. • Appoint Safety Officers that will monitor compliance of the dam fishing rules.	

Table 19: Strategic Plan for KPA 3: Benefit Flow Management

KPA 3: Benefit Flow Management			
Objective (What do we want)	**Motivation (Why do we want to achieve this)**	**Action Projects (How do we achieve this)**	**Management Support (Who will be involved)**
<u>Job Opportunities:</u> • Uplift the Local Economy and increase Benefit Flows to the surrounding communities through community empowerment and job creation.	• Tourism sector have been identified as a vehicle for skills development, job creation, Broad-based Black Economic Empowerment, etc. It is imperative that the Local Communities derive benefits from recreational activities conducted at the dam.	• Implement Skills Development Programmes where opportunities exist. • Implementation of environmental education to the Local Communities and ensure that they are always updated with environmental information. • Provision of suitable day visit areas within the dam as majority of communities enjoy visiting the dam during weekends. This will reduce littering at dam as there will be good waste management containers onsite.	• The Local Empowerment Organizations must be involved. • Relevant Departments such as Local Economic Development (LED) must be involved. • Involvement of the Ward Councillors, steering committee as well as other relevant government departments that deal with community social welfare, sport and education should be involved in making sure that the community is participating as well as benefiting from the dam through recreational activities.

KPA 3: Benefit Flow Management			
Objective (What do we want)	**Motivation (Why do we want to achieve this)**	**Action Projects (How do we achieve this)**	**Management Support (Who will be involved)**
		• To introduce affordable recreational events such as trail running, hiking and motor biking at the dam so that the Local Communities can participate as well.	
<u>Small scale fishery:</u> • Introduction of small scale fishery	• Currently there is illegal fishing at the dam where people use nets to harvest fish. • Small scale fisheries will make an important contribution to nutrition, food security, sustainable livelihoods and poverty alleviation to the local community.	• Preserve the core habitats for nesting, resting, feeding and breeding of fish within the inlets. • Management authority must develop a communication signage in order to effectively inform different angling groups about the dam fishing rules. • Appoint Safety Officer that will monitor compliance of the fishing rules.	• Different government departments such as DWS, DEA, DAFF, DTI should work together into a management structure in order to assess the viability and possibility of introducing the small scale fishery as proposed by the local community

4.4 FINANCIAL PLAN

The RMP provides guidance on cost recovery mechanisms to ensure the sustained and improved management of the dam. 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 (DWAF, 2009). PPPs should be established as per Regulation 16 of the National Treasury.

The dam is a state asset and as such all profits generated from the recreational use, should also 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 information acquired from the RMP will be used to produce the Business Plan based on the action projects for each objective as stipulated under the Strategic Plan. However, many of the identified objectives are not of commercial nature and as such these non-economic objectives will not feature in the BP.

The BP provides a good description of possible economic recreational activities and the methods that can be used or enhanced to achieve the ultimate vision and the key objectives of Mkhombo Dam RMP. It also describes the financial management and operational requirements to implement the Objectives of the RMP

The BP will include a Financial Plan (FP) which will facilitate the implementation of the RMP by providing implementation program cost estimate for all possible economic recreational activities.

WAY FORWARD

Once the RMP and its BP are approved by the Minister of Water and Sanitation, it will be published in the Government Gazette as a regulation in terms of Section 26 of the NWA.

Review of RMP

According to DWAF (2006), the RMP is reviewed and updated every five (5) years to ensure that the management objectives remains relevant and management actions are continually improved. The BP is updated annually. **Figure 24** shows the RMP and BP review framework.

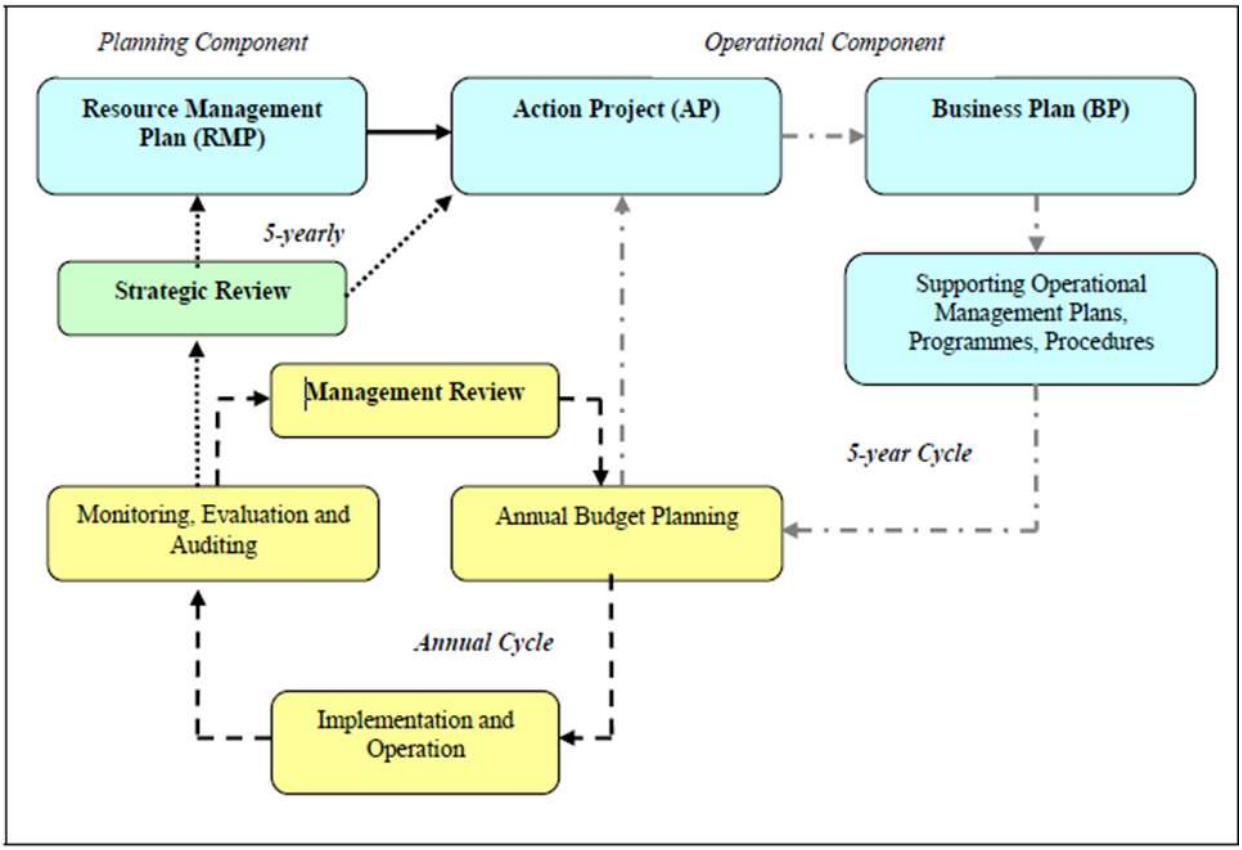

Figure 24: RMP and BP Review Framework

CONCLUSIONS

The RMP documents the challenges that exists within the Mkhombo Dam that can significantly impact on the utilisation and management of the dam and it's surrounding for recreational purposes. Such factors include legal, biophysical, socio-economic, 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.

Furthermore 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 Mkhombo Dam, a BP has been developed to describe a manner in which the potential recreational activities are to be financially resourced. Furthermore, by including the RMP in the Local Initiatives such as IDPs, LED, 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

Census, 2011; Statistical Release – Statistical South Africa.

Department of Water Affairs and Forestry, (1996), South African Water Quality Guidelines, Volume 2 - Recreational Water Use Manual Guideline.

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

Department of Water Affairs and Forestry, (2006), Recreational Water Use Manual Guideline.

Department of Water Affairs and Forestry, 1996. South African Water Quality Guidelines (second edition), Volume 2: Recreational Use.

DR JS MOROKA MUNICIPALITY. 2013. A Feasibility Study for the Development of Mdala and Mkhombo Dam Nature Reserves. Final Report

First Order Reconciliation Strategy for the Siyabuswa Cluster, 2010; Dr. JS Moroka Local Municipality; October 2010.

Integrated Development Plan, 2013/14: Dr. JS Moroka Local Municipality; Final Reviewed.

Mkhombo Dam Nature Reserve Tourism Investment and Development Propositions (2013); Mkhombo Feasibility Study; Dr. JS Moroka Local Municipality, January 2013.

Mpumalanga Nature Conservation Act, (Act No 10 of 1998). Government Printers. Pretoria.
Mpumalanga Tourism and Parks Agency (MTPA). 2014. Integrated Management Plan: Mkhombo Nature Reserve, South Africa. MTPA

Mpumalanga Tourism and Parks Agency (MTPA). 2014. Mpumalanga Biodiversity Sector Plan Handbook. Mpumalanga Tourism & Parks Agency, Mbombela (Nelspruit).

MTPA. 2014. Integrated Management Plan: Mkhombo Nature Reserve, *South Africa*. MTPA.

Water Services Development Plan (WSDP), 2009: Dr. JS Moroka Local Municipality; Final Revision November 2009.

APPENDICES