Department of Water and Sanitation

NATIONAL WATER RESOURCE INFRASTRUCTURE (NWRI)

Resource Management Plan

DE HOOP 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

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- Buffelskloof Community;
- Department of Environmental Affairs;
- Department of Water and Sanitation;
- Elias Motsoaledi Local Municipality;
- Greater Tubatse Local Municipality;
- Leolo Mining Communities (LEMICO);
- Sekhukhune District Municipality;
- The community members of Maphooko and MaSeven; and
- Tshehla Trust Community.

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

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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	23/11/2015
2	Final Draft RMP for DWS Review	11/04/2016
3	Final RMP for DWS Approval	15/08/2016
4	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
COGTA	Corporative 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
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
EMLM	Elias Motsoaledi Local Municipality
EMP	Environmental Management Plan
FSL	Full Supply Level
GIAMA	Government Immovable Asset Management Act
GP	Guideline-Programs
GPS	Global Positioning System
GWWs	Government Waterworks
I&APs	Interested and Affected Parties
IA	Implementing Agency
IALA	International Association of Marine Aids to Navigation and Lighthouse Authorities
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
MOA	Memorandum of Agreement
NDT	National Department of Tourism
NEMA	National Environmental Management Act
NPSC	National Project Steering Committee
NT	National Treasury
NWA	National Water Act
NWRI	National Water Resource Infrastructure
OMC	Operations Management Committee
PCC	Physical Carrying Capacity
PP	Public Participation
PPP	Public Private Partnership

PSP	Professional Services Provider
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
SCPE	Sekhukhune Centre of Plant Endemism
SDF	Spatial Development Framework
SDM	Sekhukhune District Municipality
STMP	Sekhukhune Tourism Master Plan
SWOT	Strengths, Weaknesses, Opportunities and Threats
WfW	Working for Water
WMA	Water Management Area

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 De Hoop 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 De Hoop 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 in the RMP.

Location of the Dam: De Hoop Dam is a gravity type dam which impounds the Steelpoort River. It falls under Ward 18 withi the jurisdiction of Elias Motsoaledi Local Municipality (EMLM) adjacent to Ward 31 of Greater Tubatse Local Municipality (GTLM), which forms part of the Sekhukhune District Municipality (SDM) in Limpopo Province, South Africa. Its Global Positioning System (GPS) coordinates: **24°58'7.82"S 29°56'24.29"E**.

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

The dam is fairly new and there are no authorised recreational activities to take place at the dam. However, activities such as fishing and boating is currently taking place at the dam.

Dam ownership and management: De Hoop Dam is owned and operated by DWS. The dam has one authorised along the news R555 Road and one unauthorised access point along the old R555 Road.

There is currently no institutional structure to manage the recreational use of the dam. However, the structure has been proposed in this RMP. The recreational institutional structure is necessary for the effective management of the dam for recreational purposes.

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 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.

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 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.

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

- 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, 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 protect the Sekhukhune Centre of Plant Endemism (SCPE);
- To ensure the conservation of species diversity around the dam basin;
- To recognize and incorporate the Sekhukhune Tourism Master Plan (STMP) at the dam;
- To ensure that downstream water users requirements are met;
- To establish potential developments on the dam's surrounding environment like Chalets, braai area and other recreational facilities;
- To promote sustainable harvesting of fish within the dam;
- To formalize and secure the dam all around;
- To establish access points which have lower tariffs to accommodate the local communities around the dam;
- 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 from the objectives and stands as follows:

"To develop De Hoop Dam as an entertainment hub, recreational and tourism destination without compromising the water quality in the Sekhukhune Region".

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 De Hoop Dam that could enhance tourist attraction:

- Implementation of the Sekhukhune Tourism Master Plan (STMP) at the dam which aims to facilitate developments such as chalets, hotels, picnic areas, etc.
- Development of environmental and conservation centres.
- Introduction of houseboats at the dam.

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CHAPTER 1: INTRODUCTION

1.1 BACKGROUND OF DE HOOP DAM

The De Hoop Dam is situated under the jurisdiction of Elias Motsoaledi Local Municipality (EMLM) within Sekhukhune District (SDM) Municipality in the Limpopo Province. The dam is on Global Positioning System (GPS) co-ordinates: **24°58'7.82"S 29°56'24.29"E**. According to Mobilitate website (2014), the dam is situated within ward 18 of EMLM adjacent to Ward 31 of Greater Tubatse Local Municipality. It lies along R555 between Stoffberg and Steelpoort. **Figure 1** shows the location of the dam.

During the Resource Management Plan (RMP) project site visit on **27 May 2014**, the construction of the dam was not yet complete. Construction vehicles and personnel were evident around the area carrying on with their duties. Cattle were also seen close to the construction site drinking water from the dam and local communities fishing using sticks.

The De Hoop Dam is the first large dam on the Steelpoort River. The dam wall is 88 m high, the impounded lake covers an area of 1 690 ha when full, and has the capacity to store 347 million m^3 of water. The construction of the De Hoop Dam also required the realignment of the provincial road (R555), between Steelpoort and Stoffberg.

The dam impounds the Steelpoort and Klip Rivers within the Olifants River Catchment. The dam is located at B41E and B41F quaternary catchment areas which form part of the Olifants River Catchment Area. The dam profile is summarised in **Table 1**.

Table 1: De Hoop Dam Profile

De Hoop Dam Profile	
Location	South Africa
Province	Limpopo
District Municipality	Sekhukhune District Municipality
Local Municipality	Elias Motsoaledi
Nearest Town	Steelpoort
Completion year	2014
Purpose	Industrial & Domestic Use
Owner	Department of Water and Sanitation
Water Management Area	Olifants River Proto CMA
Quaternary Catchment	B41E and B41F
Catchment Area Size (km^2)	2 865
River	Steelpoort River
Capacity (m^3)	347 Million
Surface Area (ha)	1 690
Wall type	Gravity type
Wall Height (m)	88
Length (m)	110

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

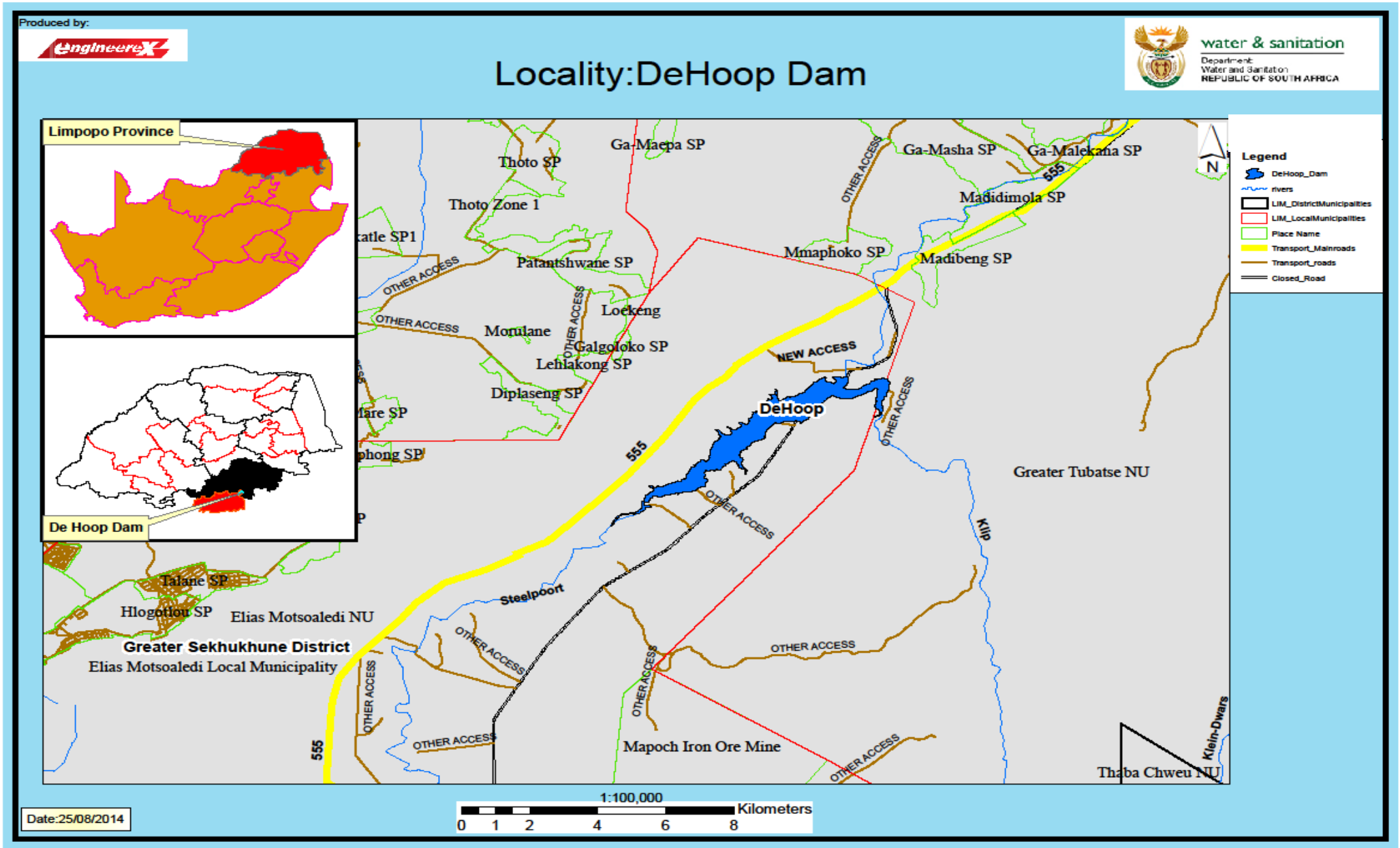

Figure 1: Locality Map for De Hoop Dam

1.2 BIOPHYSICAL ENVIRONMENT

1.2.1 Climate

According to the Council for Scientific and Industrial Research (CSIR) (2005), rainfall predominantly falls in the summer months between October and March, with January generally experiencing the heaviest rainfalls. The average rainfall in the Steelpoort sub-catchment ranges between 600 and 1 000 mm annually. The upper (southern portion) of the Steelpoort sub-catchment receives the most rainfall, averaging between 800 and 1000 mm/annum. This decreases towards the middle (northern) portion of the sub-catchment to approximately 700 mm per annum. The middle parts of the Olifants Sub-catchment receive the least rainfall, averaging between 500 and 600mm per annum.

Average daily temperatures in the Steelpoort sub-catchment fluctuates between 19°C and 22°C in summer, 13°C and 19°C in winter. Early morning frost generally occurs in low-lying areas. Prevailing winds blow in a north-westerly and south-easterly direction, with the strongest winds recorded during the summer months (SA Weather Service, 2014).

The area provides an excellent warm temperature which is ideal for recreational activities. It is ideal for camping and enjoy recreational potential of Sekhukhune Area.

1.2.2 Flora

The middle parts of the Olifants Basin consist of an important ecological transition zone where four separate bio-climatic regions meet. The region also contains several important conservation areas and is considered important in terms of the wide variety and unique features of its flora and fauna. The Steelpoort River passes through a largely modified environment, although there are some natural (unmodified) areas. **Figure 2** shows that the dam is located on the Forest and woodlands vegetation type which is characterised by Grasslands and Savanna Biome (ACER, 2005).

Grasslands are dominated by a single layer of grasses. The amount of cover depends on rainfall and the degree of grazing. Trees are absent, except in a few localised habitats. Geophytes are often abundant. Frost, fire and grazing maintain the grass dominance and prevent the establishment of trees (Rutherford & Westfall, 1986). Maize, sorghum, wheat and sunflowers are farmed successfully within this Biome.

The Savanna Biome is characterised by a grassy ground layer and a distinct upper layer of woody plants. Where this upper layer is near the ground, the vegetation is usually referred to as Shrub-veld; where it is dense, it is known as Woodland; and the intermediate stages are locally known as Bushveld. Nationally, much of the biome is used for game farming and can, thus, be considered effectively preserved, provided that sustainable stocking levels are maintained.

1.2.2.1 **Sensitivity**

The Sekhukhune Centre of Plant Endemism (SCPE) is underlain by the Bushveld Igneous Complex and covers an area of approximately 5,449 km^2. The endemic plants are primarily edaphic specialists (including both herbaceous and woody plants) that are specially adapted for survival in the habitats derived from the unique geology in this area. The SCPE is made up of the Roossenekal Sub centre, Leolo Mountain Sub-centre and the Steelpoort Sub-centre.

The Steelpoort Sub-centre is located in the larger Steelpoort River valley. The SCPE is a unique Kirkia wilmsii-dominated mountain Bushveld, with twenty taxa endemic to this centre and occurring nowhere else.

1.2.2.2 **Terrestrial Alien Invasive Plants**

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.

The Department of Environmental Affairs (DEA), through the working for Water project is currently identifying and removing alien invasive species along the Steelpoort River which feeds De Hoop Dam to reduce the widespread of the species.

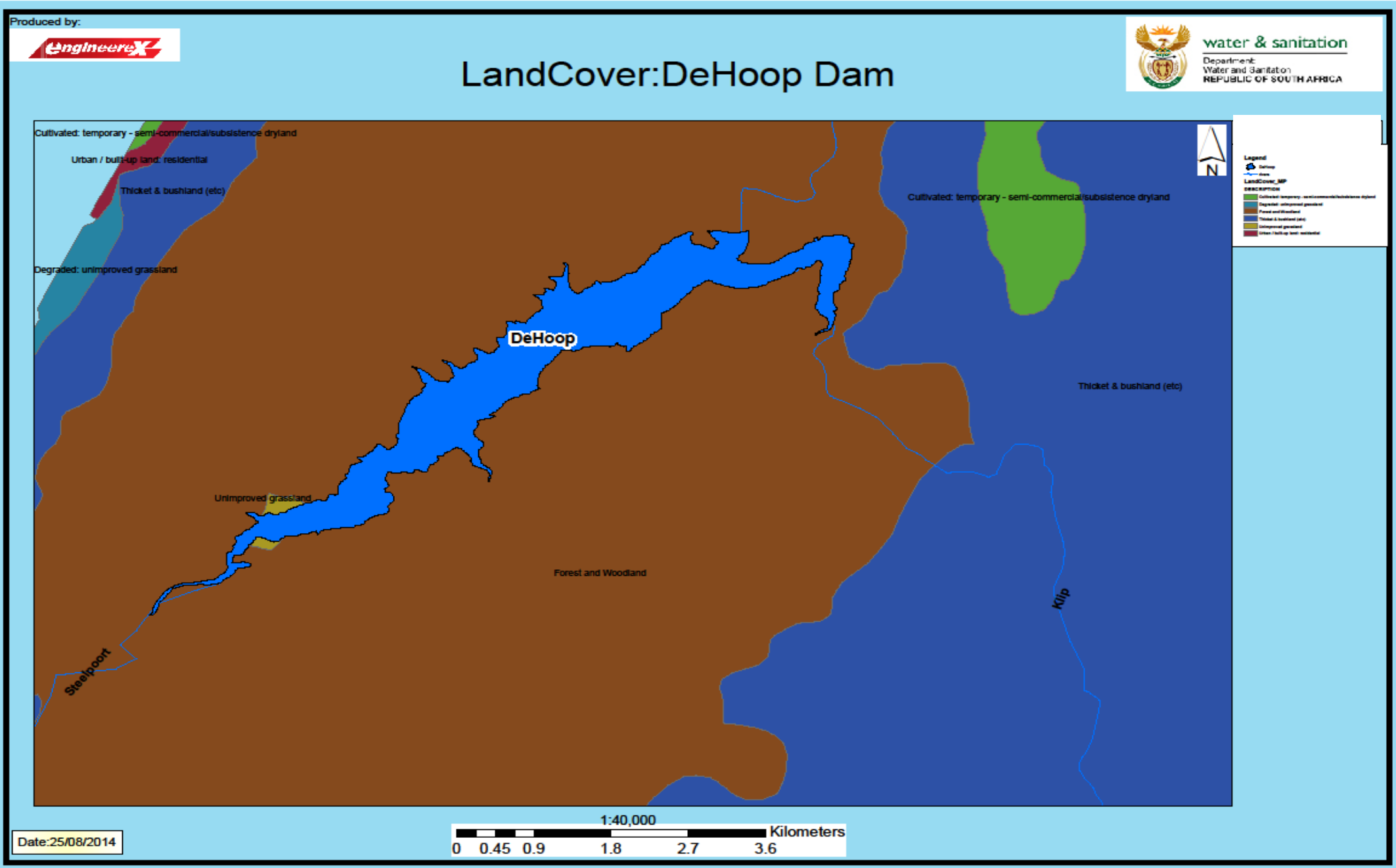

Figure 2: Land Cover Map for De Hoop Dam

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 currently identifying and removing alien invasive species along the Steelpoort River which feeds De Hoop Dam to reduce the widespread of the species.

1.2.3 Fauna

Cattles and crocodile were evident around the dam. It is believed that these cattle's are from the surrounding communities such as Tshehla Trust and Buffelskloof. Furthermore, local communities also fish at the dam using sticks. Refer to **Figure 3.**

Figure 3: Local Community Member Fishing

1.2.4 Topography

The topography of the Olifants WMA ranges from approximately 150 m above sea level in the north-eastern portion, to about 2 400 m above sea level in the southern parts of the WMA. The Steelpoort River passes through the Middleveld whilst the northern portion of the study area is in the Bushveld (CSIR, 2005).

The Steelpoort basin lies on an escarpment between 1 500m and 2 400m above sea level. To the west of the Steelpoort River lie the conspicuous Nebo/ Sekhukhune Mountains. The Nebo/ Sekhukhune-land plateau is characterized by a circular mountain range on its southern, eastern, and northern side. On the western side, the Nebo Plateau is bounded by the Olifants River. The topographical map is illustrated in **Figure 4**.

This mountain range is also known as the Leolo-Mountains on the eastern and northern side. The grassy plateau slopes westwards, varying in height from 1800m in the east, 1400m in the centre and 1100m in the west, with a dense concentration of villages of the Sekhukhune District.

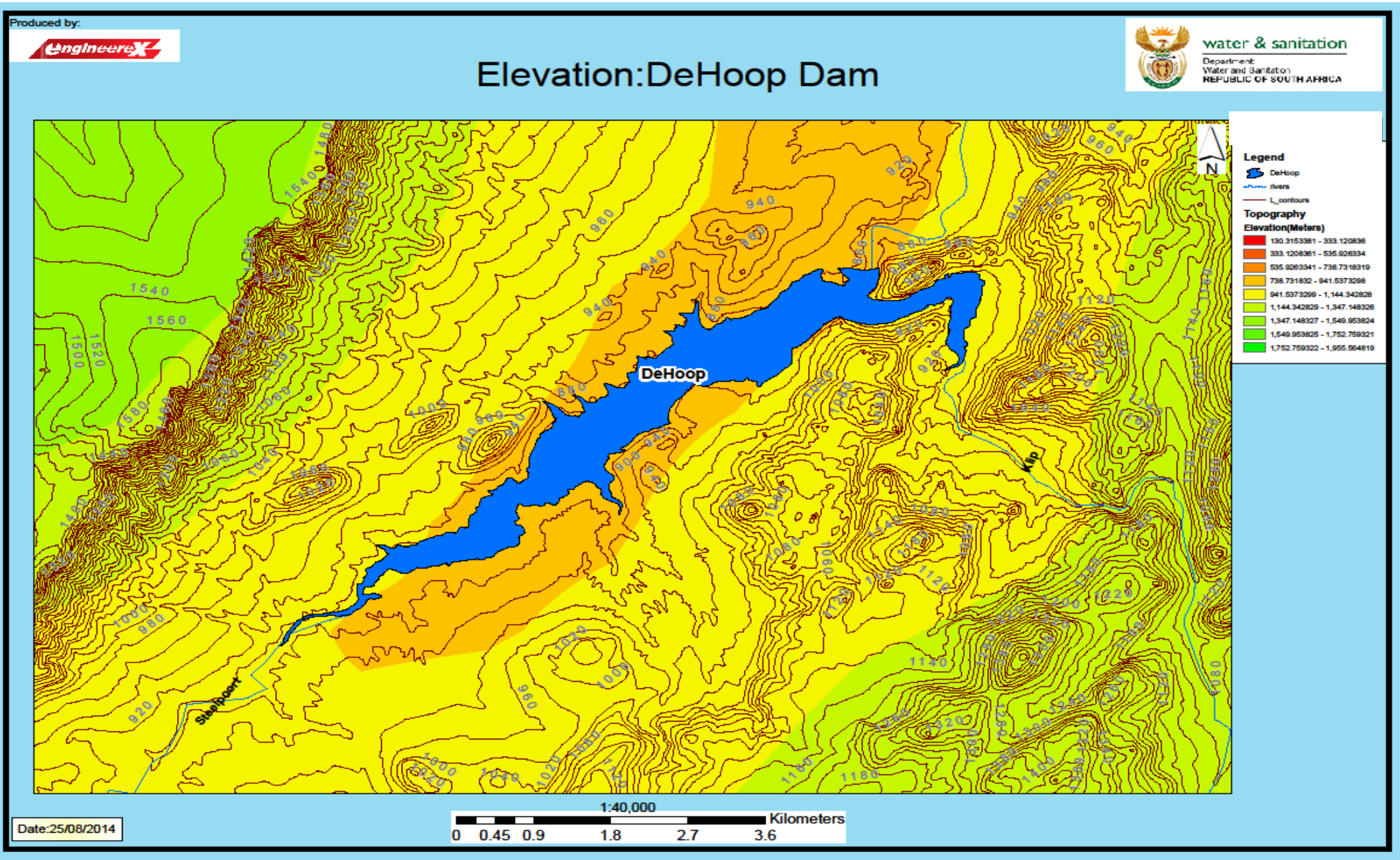

Figure 4: Topography Map for De Hoop Dam

1.2.5 Geology and Soils

The Steelpoort sub-catchment is characterised by predominantly basic rocks of the Bushveld Igneous Complex. Large mining reserves of the platinum group metals and ferrochrome reserves exist. The Steelpoort River valley is a relatively flat-bottomed and steep-sided valley, orientated in a predominantly north-easterly direction as a result of the Steelpoort Fault. It mainly comprises undulating norite, pyroxenite and magnetite outcrops and hills, and dongas (eroded areas of weak structured soils). The east and west of the Steelpoort River are steep-sided and have hilly and mountainous terrain (CSIR, 2005).

The soils of the Steelpoort sub-catchment are moderate to deep, stony sandy-clay loam soils on the foot slopes and the sloping and undulating terrain in the upper reaches of the sub-catchment. There are also shallow to moderately deep clayey loam soils that line the valley bottoms in the middle reaches of the sub-catchment. These are suitable for cultivation. As a result, rain-fed and irrigation agriculture are practiced in this region. The central and lower reaches of the sub-catchment consist of shallow to moderately deep, fine to coarse, sandy alluvial soils lining flood terraces on the river channels.

Figure 5 depicts the geological feature around the dam. The dam is situated on a Gabbro Rock formation which is highlighted in green. The geological formation of De Hoop Dam 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 the area.

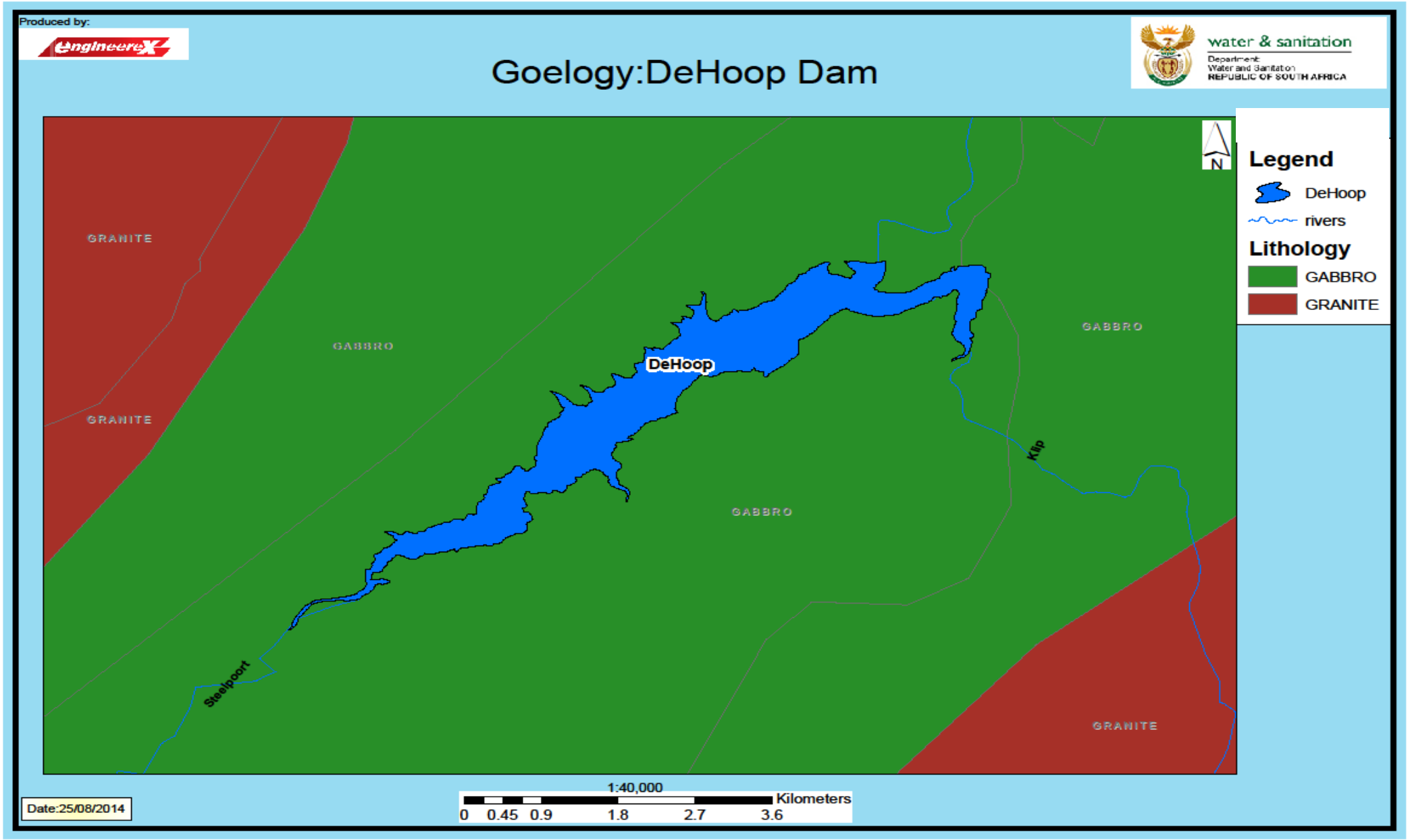

Figure 5: Geology Map for De Hoop Dam

1.2.6 Hydrology

1.2.6.1 **Surface Water**

The Steelpoort sub-catchment consists of the area drained by the Steelpoort River, and its mostly perennial tributaries. Such tributaries include the Klip, Dwars, Waterval and Spekboom Rivers. The Steelpoort River flows north-eastwards through a gorge in the escarpment to join the Olifants River. Flows in the Steelpoort River are relatively stable. Estimates in 1999 for runoff in the Steelpoort sub-catchment were 397.9 million m^3 per annum (Stimie et al, 2001).

Figure 6 illustrates the fluctuations of the dam's water level over a year (DWS, Limpopo Province State of Dams).

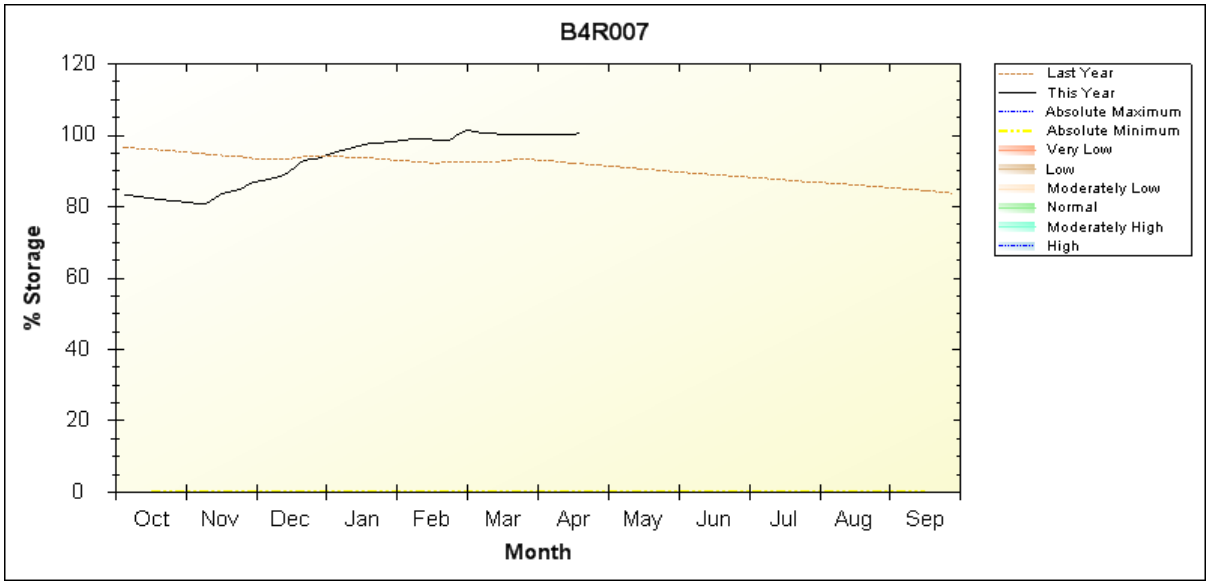

Figure 6: Fluctuations of the dam's water level over a year (DWS, 2017)

De Hoop Dam impounds Steelpoort and Klip Rivers which form part of the Olifants River Catchment Area as indicated in **Figures 7: Hydrological Map**.

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.

According to the Water Quality Report, 2005; the ecological reserve study indicates that the Steelpoort River is considered to be a fair state for water quality (Class C). There are significant increase in total dissolved salts (TDS) in downstream areas of the river, which can be attributed to mining activities, irrigation and land use practices. **Table 2** shows the water quality variables within the dam.

Table 2: Water Quality for De Hoop 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

Characteristic	Tests Results	Target Water Quality Range (Recreational Purposes)	Description
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.

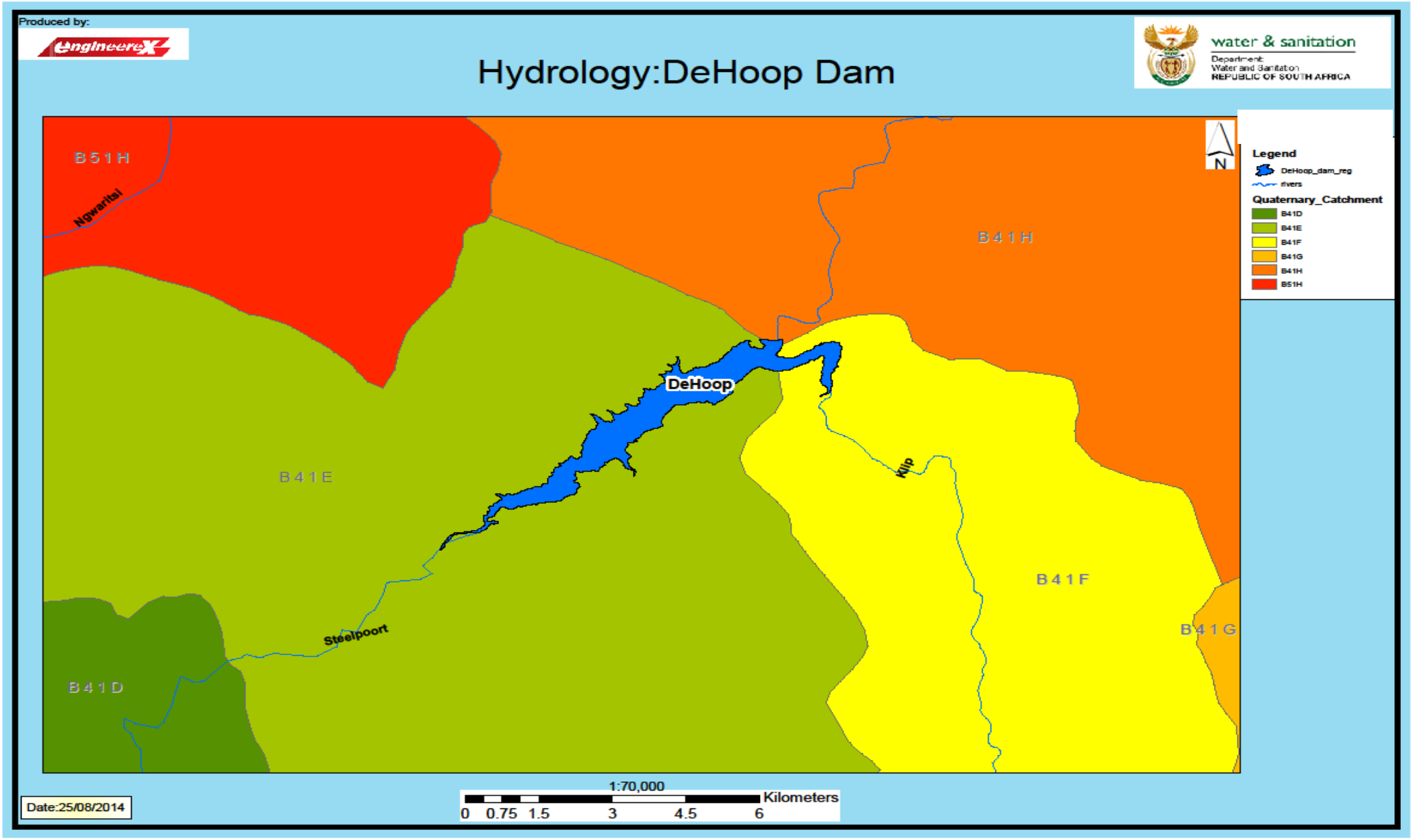

Figure 7: Hydrological Map for De Hoop Dam

1.3 BUILT ENVIRONMENT

1.3.1 Infrastructure

The dam is owned and operated by DWS for Bulk water supply. Infrastructure around the dam include Information Centre with offices and boardroom used mainly for meetings; boat slipway, workers residents and internal roads.

1.3.2 Transport Network

The dam is situated adjacent to the new R555 Road between Roossenekal and Steelpoort Town. It is approximately 25km away from Steelpoort Town. The road is in good condition and is also used by trucks working at the mines in the area.

1.4 USERS AND USES OF THE DAM

1.4.1 Primary Functions

The total population of Steelpoort River catchment is concentrated in the northern part of the catchment in the former homeland area and is about 185 000 with 25 900 urban residents and 159 000 rural residents. Several towns and rural areas are dependent on water from Steelpoort for potable and urban use.

Cattle are the most popular form of livestock, with sheep also being kept in the catchment. Land use is dominated by mining of heavy metals, irrigated agriculture and extensive livestock farming (cattle, sheep & goats). Eight mines operate in this area, mining mainly chrome, vanadium, platinum, granite, and coal. The existing mines use mainly public and borehole water.

1.4.2 Secondary Functions

De Hoop Dam is fairly new (was opened in 2014) and there are no formal recreational activities which have been introduced at the dam. The current activities can be deemed unauthorised/illegal as there are no agreements nor permits issued for such uses.

1.5 RECREATIONAL INSTITUTIONAL STRUCTURE

There is currently no institutional structure to manage recreational use of the dam and as part of the RMP process a recreational institutional structure will be established.

1.5.1 Management of Water Surface

DWS operates the dam for primary purposes and bulk water release to SDM, water service provider.

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.

1.5.2 Access

The dam has one authorized access point along the new R555 Road. It is regulated by security personnel. Local communities also access the dam through unauthorized entrances for mainly fishing and harvesting of wood. The boats use the old R555 Road access point.

The informal access point on the old R555 Road needs to be formalized and developed to be used during the implementation of the RMP.

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.

During the construction of the dam, DWS expropriated private land. The land owners were compensated and relocated across the new R555 Road.

1.6.1 Land Claims

All land ownership has been resolved for the construction of the dam. Previous owners were either compensated and/or relocated.

There is no land claims around De Hoop Dam purchase boundary.

1.7 SAFETY

1.7.1 Safety of Navigation

There are floating Aids to Navigation (AtoN[2]) and demarcation markers for no-go area and safety zone at the dam wall.

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.

As part of the RMP process an area has been proposed to be used as Incident Response Point, refer to the **Zoning Plan**.

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 EMLM as shown in **Figure 8**. An understanding of socio-economic conditions of Ward 18 can be used at a later stage to determine the impact of a RMP in the area in terms of changed socio-economic conditions. The socio economic status of Ward 18 was also considered as it is also situated close to the dam.

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 1.8.1.1.1 to 1.8.1.1.2, respectively.

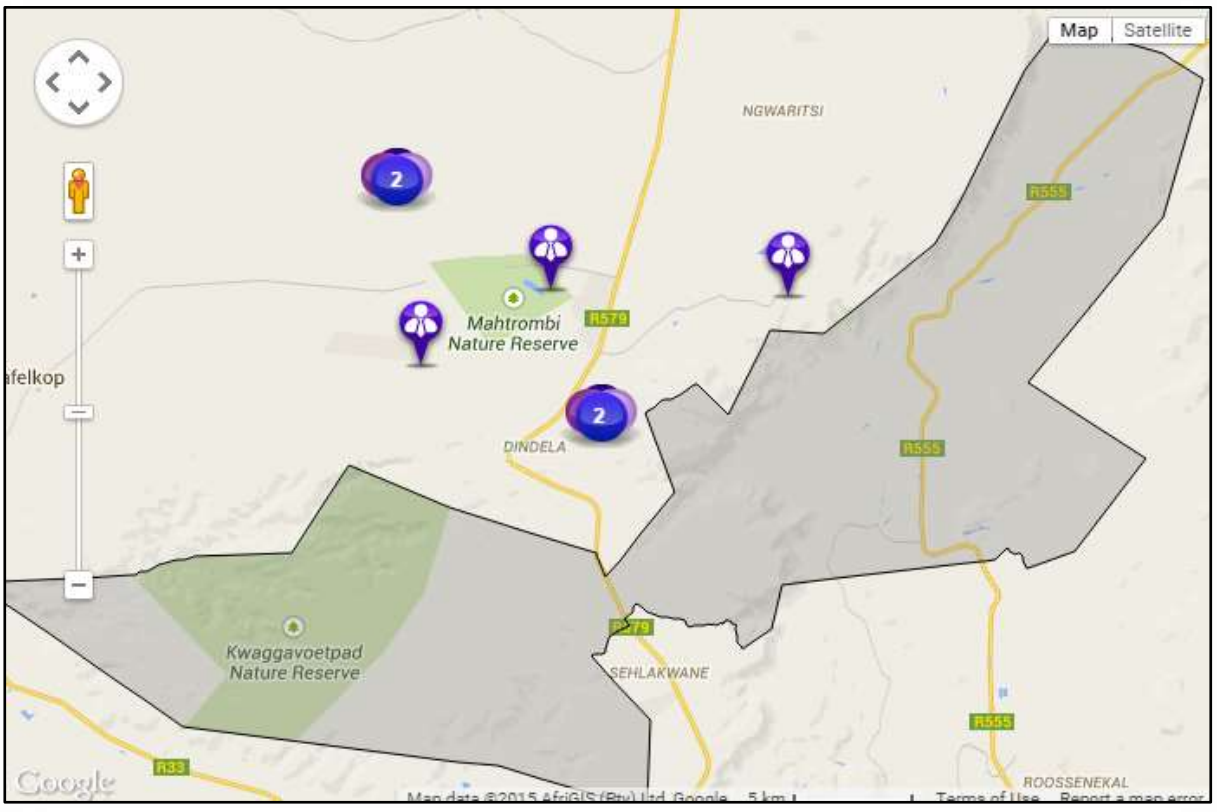

Figure 8: Municipal Ward (Mobilitate, 2014)

[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".

1.8.1.1 **Population Dynamics**

1.8.1.1.1 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 in **Table 3** and **Figure 9**, only 1% of the population ward has furthered their studies in higher institutions.

Table 3: Education Level

Description	Ward 18 (2011)
Primary level	470
Secondary level	817
Higher education level	19
No schooling	1590

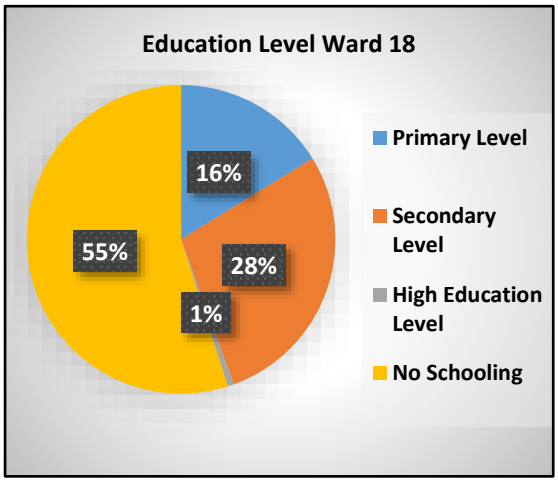

Figure 9: Education Level

1.8.1.1.2 Employment Status

In terms of employment levels around the dam, employed and unemployed residents are 11% and 10% respectively. The greater concern is that 73% of the residents that are not economically active whereas 6% of them are discouraged work-seekers suggesting that they no longer seek to become employed (Census, 2011). Refer to **Table 4** and **Figure 10**.

Table 4: Employment Status

Description	Ward 18 (2011)
Employed	492
Unemployed	422
Discouraged work-seekers	287
Not economically active	3199

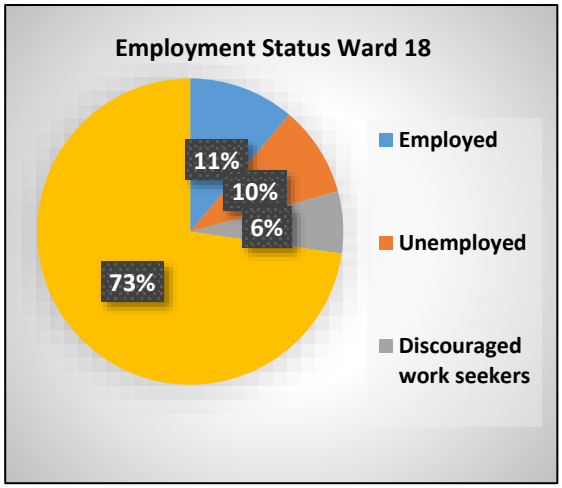

Figure 10: Employment Status

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 De Hoop 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:** This paper outline some of the institutional issues at a local level and makes recommendations about the conditions under which different institution management arrangements may be considered.

IV. **General Public Participation Guidelines:** Public participation refers to ongoing interaction between role players and all stakeholders that is aimed at improving decision making during planning, design, implementation and evaluation of all project within the state, this includes the proposed development of the RMP.

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:** 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 PPP Toolkit for Tourism:** This toolkit assists the process of development of tourism-based businesses on state-owned land. The Toolkit should make it easier for institutions and the private sector to enter into tourism related partnerships on state property managed by national and provincial government institutions.

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 Document on 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 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).
- Intergovernmental Relations Framework Act, 2005 (Act No.13 of 2005).
- Land Administration Act, 1995 (Act No. 2 of 1995).
- Local Government: Municipal Systems Act, 2000 (Act No. 32 of 2000).
- Limpopo Environmental Management Act, 2003 (Act No. 7 of 2003).
- 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).
- Sustainable Development Goals (2015)
- **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 complete and other legislation could be applicable.

CHAPTER 3: WHAT IS A RESOURCE MANAGEMENT PLAN

3.1 DEFINITION OF RMP

A Resource Management Plan (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 to 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 water consumption, it is still a major water use and needs to be managed correctly to ensure increased community participation and beneficiation with minimal disturbances and environmental impacts.

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 5.**

Table 5: Trigger Factor for the Development of De Hoop Dam RMP

Trigger Factors	Description
Resource Management	**Sekhukhune Centre of Plant Endemism:** • The De Hoop Dam basin hosts 45 SCPE endemic, 41 near-endemic and 14 newly assess Red Data list plant species, conservation of this species should be prioritized.
Community Participation and Beneficiation	**Access Control:** • There is vandalism of the fence surrounding the dam and this has led to illegal fishing and harvesting of wood in bulk by local communities. This needs to be prevented going forward. **Community Beneficiation:** • Physical access to the water resource and recreational and tourism related activities for local communities.
Recreational Industry	**Tourism:** • The proposed Sekhukhune tourism master plan facilitates a legacy of development benefits from the dam for the communities in the

Trigger Factors	Description
	affected area. The proposed development came as a result of the need to facilitate economic development in the Sekhukhune District Municipality.
Public Policy	**Local Planning Initiatives** • The De Hoop Dam has been integrated into the SDM Integrated Development Plan (IDP) as well as the Sekhukhune Tourism Master Plan.

3.4 DEVELOPMENT OF RMP

The RMP is developed in accordance with the RMP guideline procedure (DWAF, 2006) as illustrated in **Figure 11.**

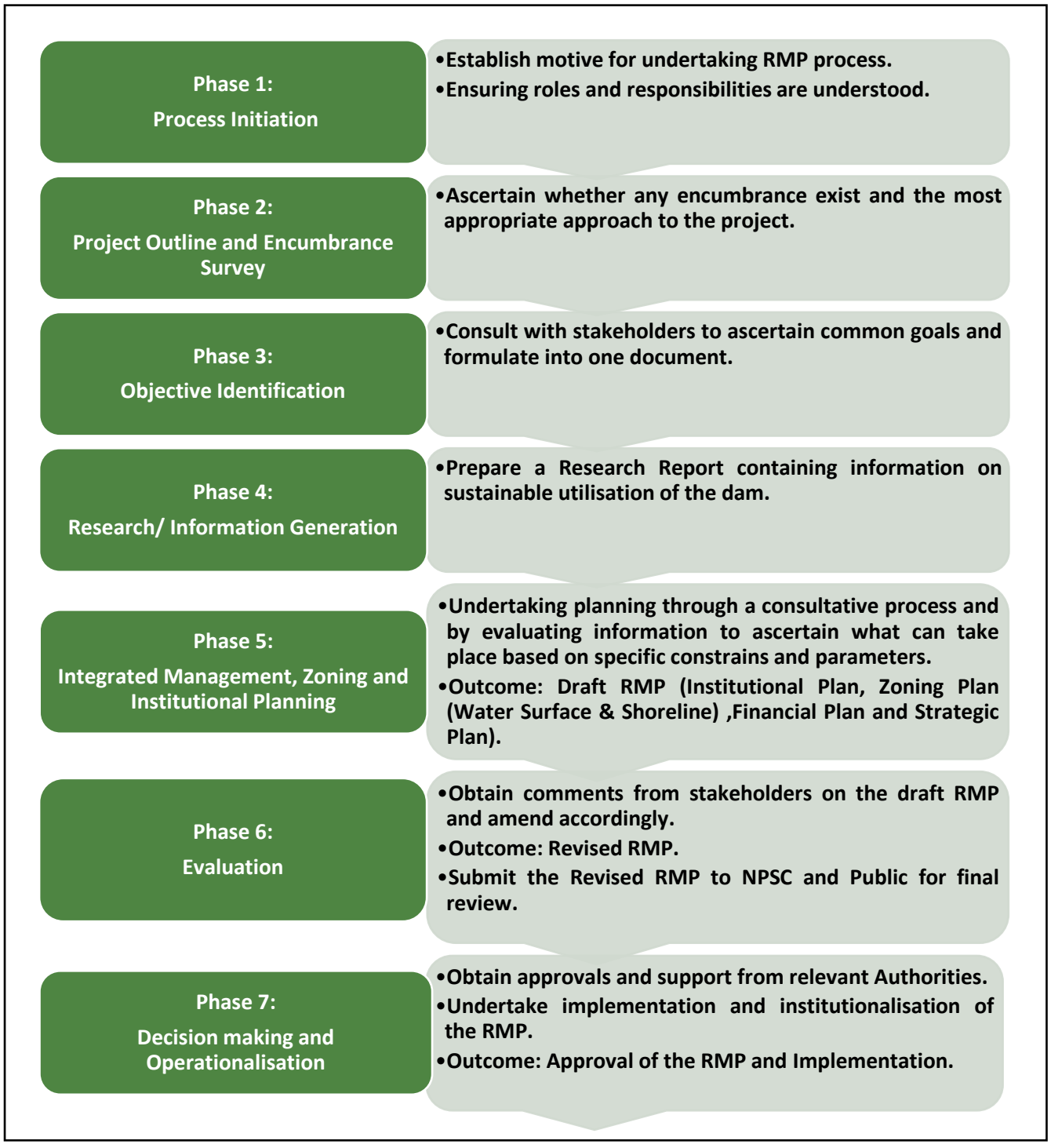

Figure 11: RMP Procedure

3.5 RMP PLANNING STAGES

3.5.1 Desktop Study

The desktop study was conducted with the aim of acquiring background information about the De Hoop 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 De Hoop Dam on **27 May 2014** to gather the baseline information about the dam using a checklist questionnaires. The site inspection was undertaken with the DWS IEE and De Hoop Dam construction personnel. Photos of the study area were also taken during site inspection.

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 **Exit Phase**

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

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

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 (Authorities and I&APs) with the background information about the proposed RMP project and to introduce the processes to be followed in the development of the plan. It also aimed to inform authorities and I&APs on how to fully participate in the process and to encourage active attendance in stakeholder 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 **Steelburger Newspaper** on **11 July 2014**. The advert invited the public to attend the Public Participation Meeting. Furthermore, an advert for the draft RMP was advertised on the **05 February 2016**. (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 **10 July 2014.** Moreover, the flyers for the draft RMP were distributed on **03 February 2016** (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 **28 July 2014**. Moreover, the meeting invites for the draft RMP

were sent out on **15 April 2015** (See attached **Appendix E**).

3.5.3.5.2 Authority Meeting

The initial authority meeting was held on the **17 July 2014** at **De Hoop Dam Information Centre.**

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 **18 January 2016** at **Groblersdal Fire Station.**

3.5.3.5.3 Public Meeting

The initial public meeting was held on **17 July 2014** at **Buffelskloof Sports Ground**. 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 De Hoop Dam.

The PSP held strategic Meeting with Greater Tubatse and Elias Motsoaledi Local Municipalities, Sekhukhune District Municipality (SDM), Ward Councillors and Tribal Authorities on **16 October 2014** to come with the strategy on how the public meeting can be conducted and improve on the attendance of the public. It was resolved that SDM will use political principals to launch the project, thereafter public meetings will be planned.

The public meetings were scheduled to run concurrently with the IDP meetings for SDM as outlined in **Table 6**.

Table 6: Public Meetings

Date	Time	Venue	Audience
10/02/2015	12:00	Makhuduthamaga Council Chamber	Magoshi
11/02/2015	12:00	Makhuduthamaga Council Chamber	Business
20/02/2015	10:00	Roosenekal Community Hall	General public
05/03/2015	12:00	Leboeng (Pitjaneng Primary)	General public
29/04/2015	16:00	Maphooko Primary School	MaSeven Community

The draft RMP meetings were conducted to cover the communities closer to the dam and interested organised groups. The Draft RMP Meetings were held as follows:

- **MaSeven Public Meeting:** The meeting was held on **23 February 2016** at **Maphooko Primary School**.
- **Buffelskloof Community:** The meeting was held on **24 February 2016** at the new houses of **Buffelskloof Community.**
- **Tshehla Trust**: The meeting was held on **24 February 2016** at **Tshehla Trust Offices.**

3.5.3.5.4 Comments and Responses Register

A copy of the draft report was circulated on **02 February 2016** for commenting. The commenting period was to elapse on **19 February 2016.** (See attached **Appendix F**).

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 outlined in **Table 7**.

Table 7: Planning Partners and their Respective Mandates

Department/ Agency	Mandate
Sekhukhune District Municipality	The dam is within the jurisdiction of the municipality and mandated to provide bulk water services. SDM also developed Tourism Master Plan for the entire district including De Hoop Dam.
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 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, Social and Existing Plans.**

Tables 8 - 11 outline the summary of limitations that might affect the development or implementation of the RMP for the dam.

Table 8: Summary of Biophysical Encumbrance

Item	Description
Vegetation	• The De Hoop Dam basin hosts 45 SCPE endemic, 41 near-endemic and 14 newly assess Red Data list plant species, conservation of this species should be prioritized.

Table 9: Summary of Legal Encumbrance

Item	Description
Relocations	• Sustainable livelihoods of the families will be affected as they are dependent on natural resources for survival.

Table 10: Summary of Social Encumbrances

Item	Description
Employment	• Fence damage along R555 Road. • Wood harvesting in Bulk. • Use of nets for fishing.
Expectations	• The local communities are still experiencing the shortage of potable water to meet their water requirements. • Community beneficiation in terms of job and business opportunities relating to the construction of the dam and tourism development.

Table 11: Summary of Existing Plan

Item	Description
Sekhukhune Tourism Plan	• The plan lacks the proposal for an institutional plan to manage the proposed recreational activities.

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 12**.

Table 12: SWOT Analysis for De Hoop Dam

Strengths	Weaknesses
• The dam has high fish population. • The dam has a good water quality. • The dam is huge and is said to be the 13th largest dam in the country. • Located in a pleasant climate year round. • Easily accessible – located on a busy road from Stoffberg to Burgersfort Town. • The dam can support large scale hydropower station. • The communities are organised and work well together.	• Presence of dangerous animals at the dam (i.e. Crocodile, Snakes and Hippopotamus). • The DWS purchase boundary is limited to accommodate major tourism facilities. • Pollution threats from mining activities upstream.
Opportunities	**Threats**
• The provision of drinking water to local communities. • Development of recreational and tourism facilities (e.g. hotels, picnic areas, etc.) which will provide jobs. • Commercial and subsistence fishing. • Eco-tourism (Snake Park), environmental and conservation centres. • Develop water / environmental awareness to local communities to strengthen conservation. • The dam has potential for tourism industry. • Communities should be trained and skilled in order to play a role in tourism around De Hoop Dam. • Livestock should be demarcated a grazing area. • The dam has a potential for aquaculture development.	• Poor security around the dam. • Illegal fishing. • Communities are kept in the dark about De Hoop Dam project. • Safety of communities during flooding and alarm during raising water level. • Previous promises made by DWS to the communities regarding the De Hoop Dam Construction Project that has not been fulfilled. • There is only one access which is controlled by DWS. It is a bit far from other communities. • Municipal demarcation, the dam previously fell under the Greater Tubatse Local Municipality in Ward 31, however now the study area falls in Elias Motsoaledi Local Municipality.

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 De Hoop Dam and have been categorized into three (3) Key Performance Areas (KPAs) as illustrated below:

KPA 1: Resource Management:

- To protect the Sekhukhune Centre of Plant Endemism (SCPE);
- To ensure the conservation of species diversity around the dam basin;
- Recognise and incorporate the Sekhukhune Tourism Master Plan (STMP)at the dam; and
- To compile a Zoning Plan which will integrate conservation, recreation and development whilst not compromising the primary functions of the dam.

KPA 2: Resource Utilisation

- Ensure that downstream water user requirements are met;
- To establish potential developments on the dam's surrounding environment like Chalets, braai area and other recreational facilities;
- To promote sustainable harvesting of fish within the dam;
- To formalise and secure the dam all around; and
- To establish access points which have lower tariffs to accommodate the local communities around the dam.

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 develop De Hoop Dam as an entertainment hub, recreational and tourism destination without compromising the water quality in the Sekhukhune Region".

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 a 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 data as illustrated in **Figure 12.**

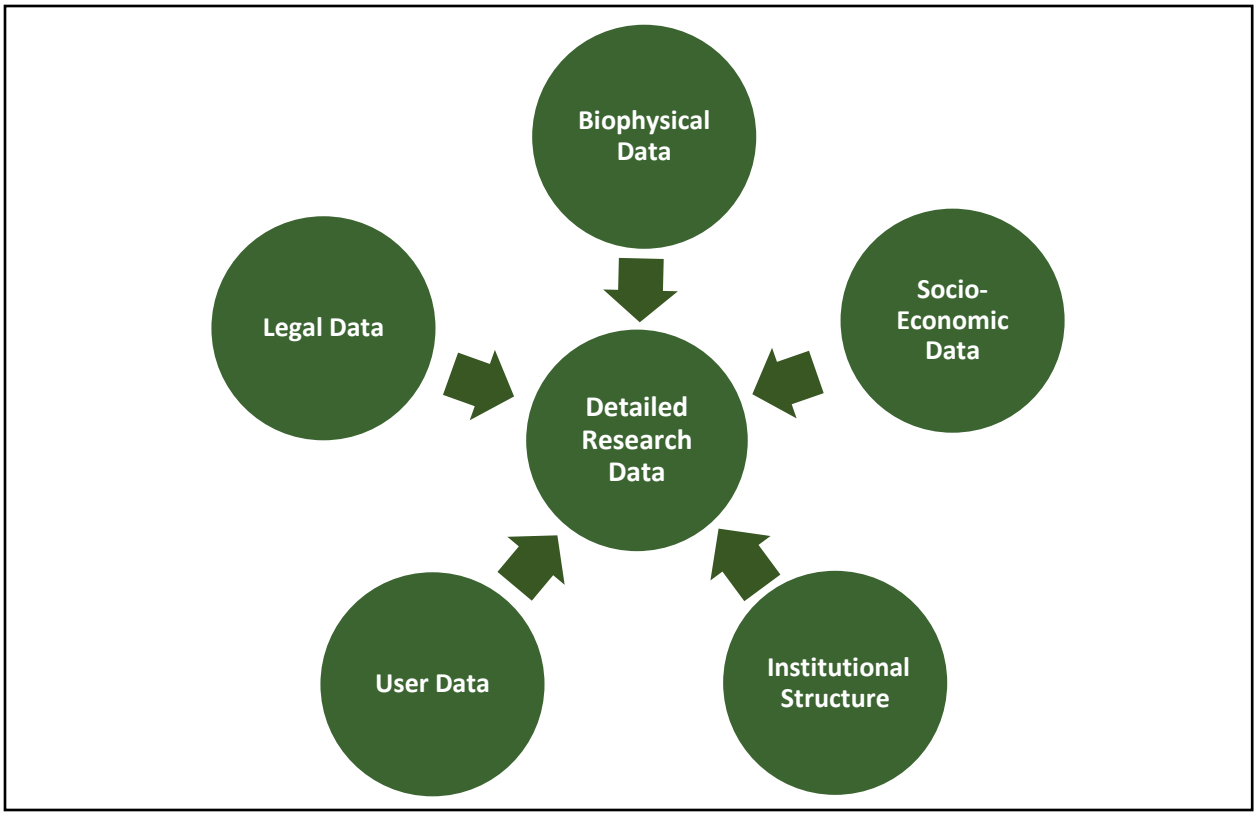

Figure 12: Research Data

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**

The De Hoop Dam and the conservation area have an important role to play in the tourism industry. The conservation area is specifically declared to protect the natural state of the area for the enjoyment and protection of future generations. The De Hoop Dam has the potential to play a role in the tourism industry in the Limpopo Province and more specifically in the Sekhukhune District Municipality and its local counterparts. Socio-economic development and water resources management in the De Hoop Dam within the Steelpoort catchment should be most appropriately achieved through the holistic management and control of tourism, agriculture, human settlement and resource conservation.

Through effective management of the water resource and surrounding conservation area, and the controlled use and development thereof, the true recreational potential of the dam and its surroundings can be unlocked. To ensure sustainability and socio-economic development, it is imperative that local communities participate in and benefit from the opportunities emanating from the use and development of the dam. The facilitation of controlled tourism development is accompanied with community participation and beneficiation.

The Tourism BEE Scorecard contained in the PPP Toolkit for Tourism stipulates that local communities must benefit from such opportunities. In an effort to ensure that the biodiversity and resources of the De Hoop Dam are protected, used, developed, conserved, managed and controlled in a sustainable and appropriate manner, and to ensure that the access to and use of the dam and surrounding land is equitable, the Sekhukhune District

Municipality (SDM) commissioned the compilation of a Tourism Master Plan.

3.6.3.1.1. Sekhukhune Tourism Master Plan

According to the SDM Tourism Strategy, the De Hoop Dam project (eventually to be linked to the Mapoch Caves area) is one of the five most important areas in the Sekhukhune District to diversify the district tourism base away from its current reliance on business visitors towards a product cluster. It also can provide a major recreational resort and holiday destination for the whole Steelpoort Valley (one of the major economic growth points in South Africa).

It is one of the rare sites where most of the seven most important motivations for visiting South Africa could be found namely natural scenery, wild life, cultural interest, value for money, diversity and curiosity value. Situated almost exactly half way between Gauteng and the Kruger to Canyon destination, it is ideally positioned to attract tourist's en-route to the Kruger National Park, Limpopo Transfrontier Park and the Blyde River Canyon.

The SDM Tourism Strategy also states that the dam can serve and complement the business visitor, holiday maker, international tourist, special interest visitor, conference markets and plays a complementary and supporting role to Tsate and Mapoch Caves – the core cultural attractions and projects of the district. Some urgent action has to be taken to protect and realise the full potential for tourism, economic development and conservation of the projects.

The Tourism strategy emphasises the establishment of a major conservation area in the Steelpoort Valley around the dam stretching from the high mountains of Sekhukhune (Thaba ya Sekhukhune) in the north across the Steelpoort Valley towards Mapoch Caves. It encompasses the total ecotone between mountain grassveld and lower-lying bushveld. This would protect and facilitate a highly impressive diversity of fauna and flora. The area is large enough to incorporate a major resort and conference facility and several exclusive bush and mountain lodges, as well as a major recreational facility for local citizens. The project can form a naturally significant nodal point in the Sekhukhune Empire and along the Kamoka, Great Limpopo Tourism and Africa Ivory Routes and become one of the Big Five projects (literally and figuratively of the Sekhukhune Empire). The main attractions of Tourism will include the following:

- Major Dam in valley surrounded by impressive mountains hills and attractive riverine vegetation;
- Current and potentially very high biodiversity of the Sekhukhune Centre of Plant Endemism;
- Potential Big Five Reserve;
- Relatively unspoiled bushveld savannah valley and surrounding mountains in a district and area which is highly degraded and threatened;
- Situated between principal tourism market Gauteng (within 3 to 4 hours reach) and the Kruger Park is about 3 hours;
- Location within one hour drive of one of South Africa's principal growth points where good accommodation facilities enjoy very high occupancies of 67% or more;
- Located between royal seat and primary tourism project of the Sekhukhune Empire at Tsate and Mapoch Caves; and
- Malaria free and Year round tourism climate.

The dam, the conservation area and the whole Steelpoort Valley development have been identified as one of the anchor projects to improve tourism in the Sekhukhune District.

The SDM compiled Sekhukhune Tourism Master Plan. The objective of the study was to compile a tourism master plan for integrated and sustainable development in the Steelpoort Valley. The proposed tourism master plan facilitates a legacy of development benefits from the dam for the communities in the affected area.

The proposed development came as a result of the need to provide the previously disadvantaged communities with potable water and to facilitate economic development in the Sekhukhune Municipality (See attached **Appendix G**).

The Project scope is divided into three levels, namely primary, secondary and tertiary levels.

The water surface of the dam can be demarcated as the primary project area. The secondary project area is the land reserve around the dam. This can also be demarcated. The tertiary project area is more complex to define. It has to include settlements in the Steelpoort Valley, from the dam wall in a north-easterly direction from MaSeven Settlement to Mampuru and from there to Mapodile and Steelpoort town.

The dam is in Elias Motsoaledi Local Municipality, but at MaSeven the valley becomes part of the southern section of Tubatse Municipality. The valley extends upwards in a southerly direction in Elias Motsoaledi Municipality. There are some settlements on the western side of the valley, but the side is very steep (more than 2,000 meters above the dam) meaning that access is restricted. The Kliprivier joins the Steelpoort River just upstream of the dam wall. The Kliprivier valley extends in a southerly direction into Mpumalanga.

The four primary components of the Tourism within the three level scopes are:

- **Economic development:** the promotion of sustainable economic growth based on the resource character of the catchment; i.e. agriculture, mining and tourism while providing employment and increased real income for the historically disadvantaged inhabitants. It includes the promotion of tourism around the dam and the wider area of the buffer zone as a cornerstone of economic development and the provision of accessible recreational facilities for all the region's inhabitants.
- **Heritage development:** the identification of heritage resources within the boundaries of the study that need to be managed and conserved.
- **Social Development:** the development of the catchment on a sustainable basis, opening up opportunities and providing access for as broad community as possible and thereby improving the quality of life of all inhabitants.
- **Conservation:** the conservation of the natural resources, landscape, sensitive ecosystems and biodiversity around the De-Hoop Dam in support of sustainable water supply, tourism and environmental health.

3.6.3.2 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 13 shows the practicability of all proposed recreational objectives.

Table 13: Feasibility of Potential Recreational Objectives

KPA1: Resource Management		
Objectives	**Status Quo**	**Practicability**
• To protect the Sekhukhune Centre of Plant Endemism (SCPE). • To ensure conservation of species diversity around the dam.	• The dam basin hosts 45 SCPE endemic, 41 near-endemic and 14 newly assessed Red Data list plant species, conservation of these species should be prioritized.	• The protection of SCPE will be achieved through maintenance of the conservation area at the right bank and limiting high development to areas that are significantly disturbed. • The conservation of species diversity can only be achieved through the introduction of Institutional Structure which will be responsible for monitoring and conserving the biodiversity at and around the dam.
• Recognize and incorporate the Sekhukhune Tourism Master Plan (STMP) at the dam.	• The tourism master plan aims to facilitate a legacy of development benefits from the dam for the communities in the affected area.	• Strengthening the enforcement of the tourism plan which is aimed at promoting tourism around the dam and the wider area of the buffer zone as a cornerstone of economic development and the provision of accessible recreational facilities for all the region's inhabitants.
KPA 2: Resource Utilisation		
Objectives	**Status Quo**	**Practicability**
• To ensure adequate water supply to the local communities.	• The local communities downstream do not have potable water for domestic uses.	• The District Municipality has a mandate as a water service provider (WSP) through the Water Services Act, 1997 (Act No.108 of 1997) for the purification and provision of water to the end users such as local communities.
• To establish potential developments on the dam's surrounding environment like Chalets, braai area and other recreational facilities.	• There are no recreational facilities that exist around the dam. • The location provides an excellent opportunity to develop the recreational facilities within area.	• Establishment of functional Institutional Structure with sufficient power to manage the recreational use of the dam, as well as encourage local economic initiatives and participation with regards to the use of the dam. • The BP will assist in identifying the marketing strategies and funding mechanisms that can assist the local communities to invest in the recreational industry at the dam.
• To promote sustainable harvesting of fish within the dam.	• Sustainable fishing is threatened by illegal fishing and use of nets for commercial purposes.	• Policy such as Marine Living Resources Act 1998, (Act No.18 of 1998)) should be considered as it aims to provide rights to small scale fishing communities and to ensure that communities have equal access to water resources.
• To provide adequate public access for broader public use of the water resource and its associated State land through controlled	• The dam is surrounded by rural communities which access the dam through unauthorized points.	• The dam rules relating to the dam, use, fees payable for access, safety measures, speed limits and the time in which the dam will be open to the public should be established.

authorized access and associated infrastructure development.	• There is one entry point which is controlled by the DWS.	• The appointment of Safety and Enforcement Officer is imperative to ensure compliance with the dam rules and other relevant Legislation • Potential access points can be evaluated along R555 road and access to the dam must be equitable and safe to all users.
KPA 3: Benefit Flow Management		
Objectives	**Status Quo**	**Practicability**
• Uplift the Local Economy and increase Benefit Flows to the surrounding communities through community empowerment.	• The dam is still new and do not have established tourism facilities which can yield economic benefits for local communities.	• The local economic development can be achieved through complying with the National Treasury Regulation (Public Finance Management Act, 1999 (Act No. 1 of 1999)). • The implementation of RMP will guide the training of the locals to equip themselves and become active participants in the tourism sector as this will lead to community beneficiation. • Recreational transformation has a potential to change the livelihood of the community for the better and will improve the socio economic status of the local communities. • The BP will assist in identifying the marketing strategies and funding mechanisms that can assist the local communities to invest in the recreational industry at the dam.
• 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.	• No institutional arrangement at the dam for the management of recreational purposes.	• To appoint SDM 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 13**.

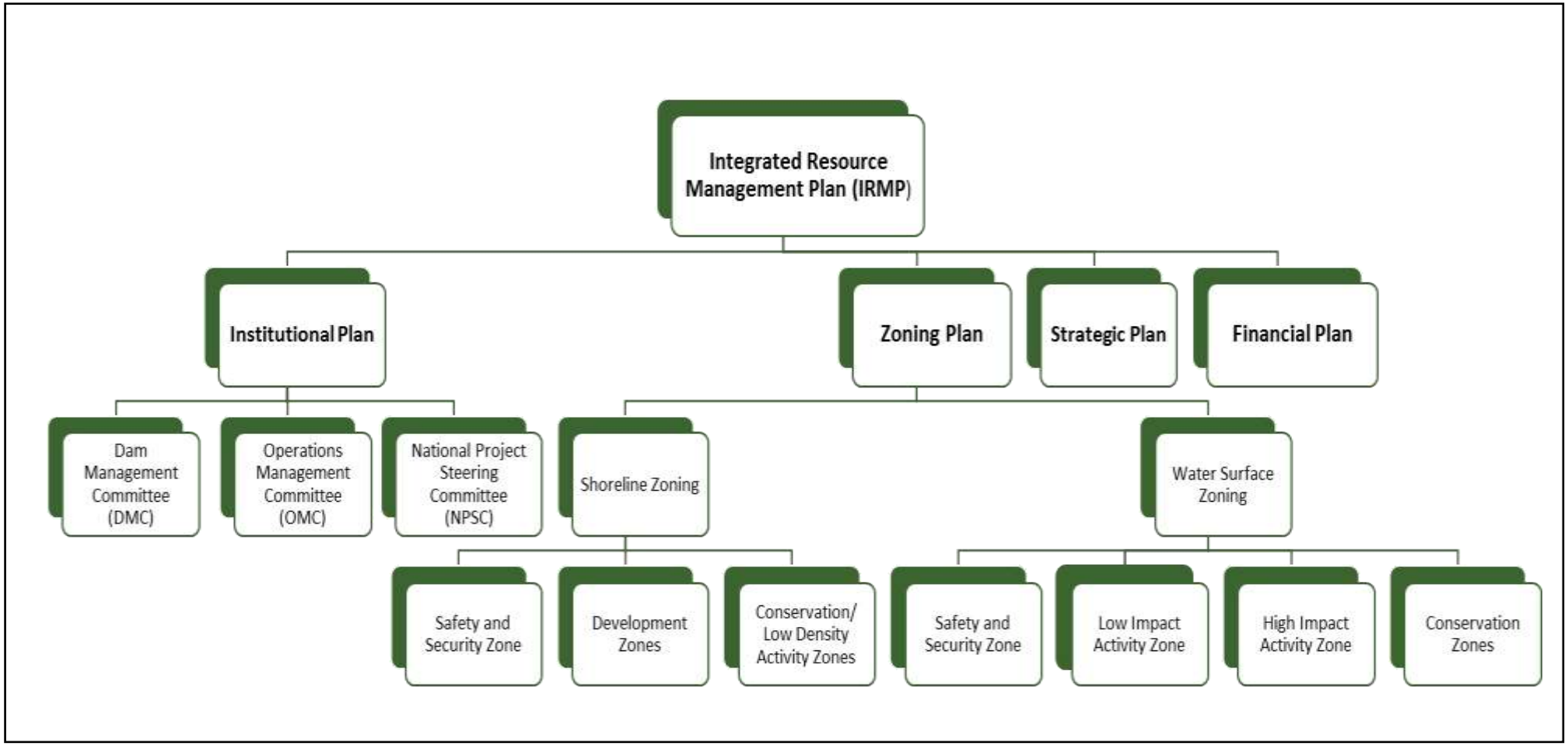

Figure 13: Integrated Resource Management Plan

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 the 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 14 illustrates the proposed user groups that will form part of the DMC.

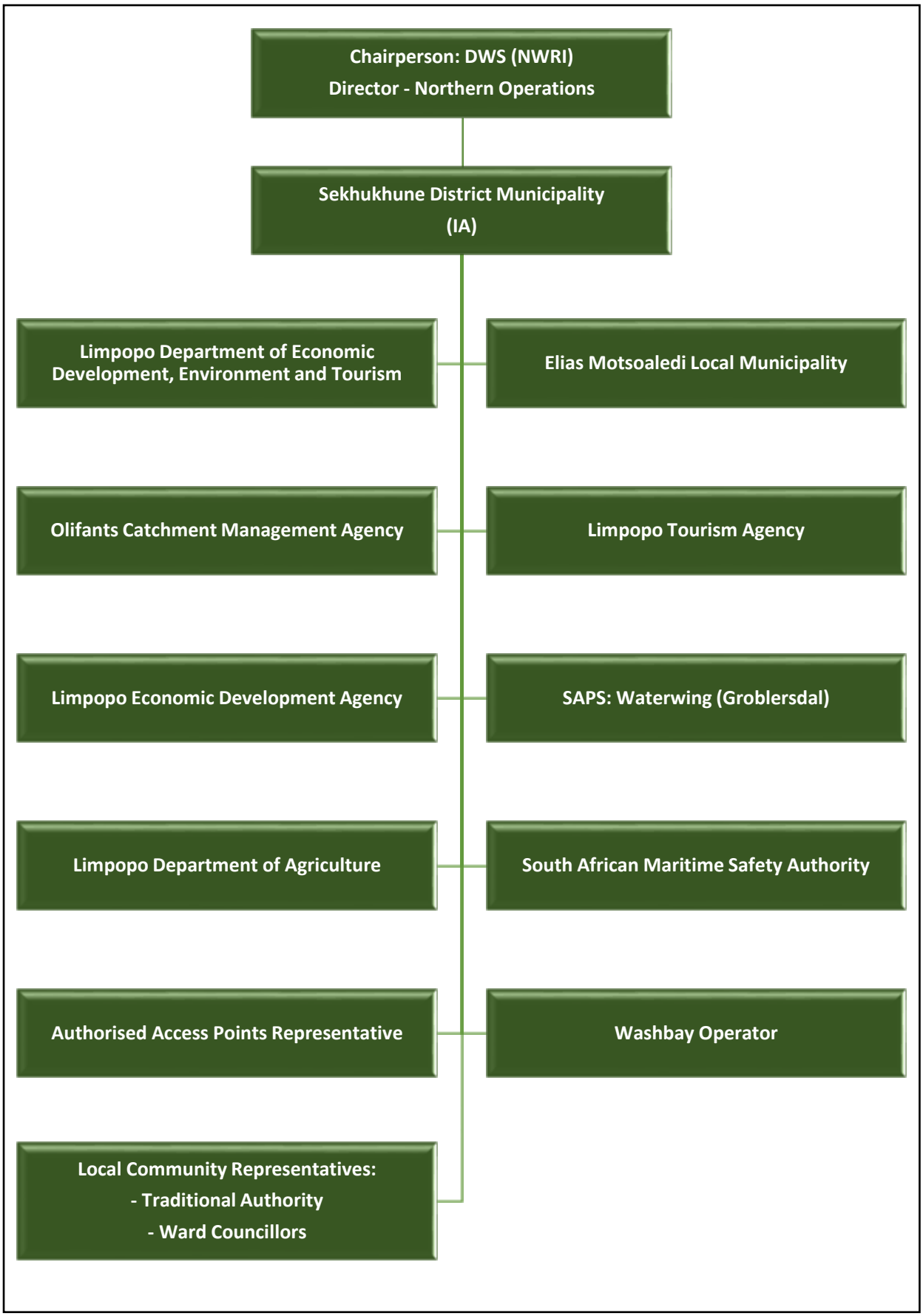

Figure 14: Proposed DMC

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)

SDM will be appointed as an IA for the RMP of De Hoop Dam. SDM and DWS will sign a Memorandum of Agreement (MOA), which is a legal binding document which will outline the roles and responsibilities and conditions to be followed by both parties in terms of managing the water resource for recreational use.

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 floating 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 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).

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 of Infrastructure Operational within NWRI as illustrated by **Figure 15.**

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.

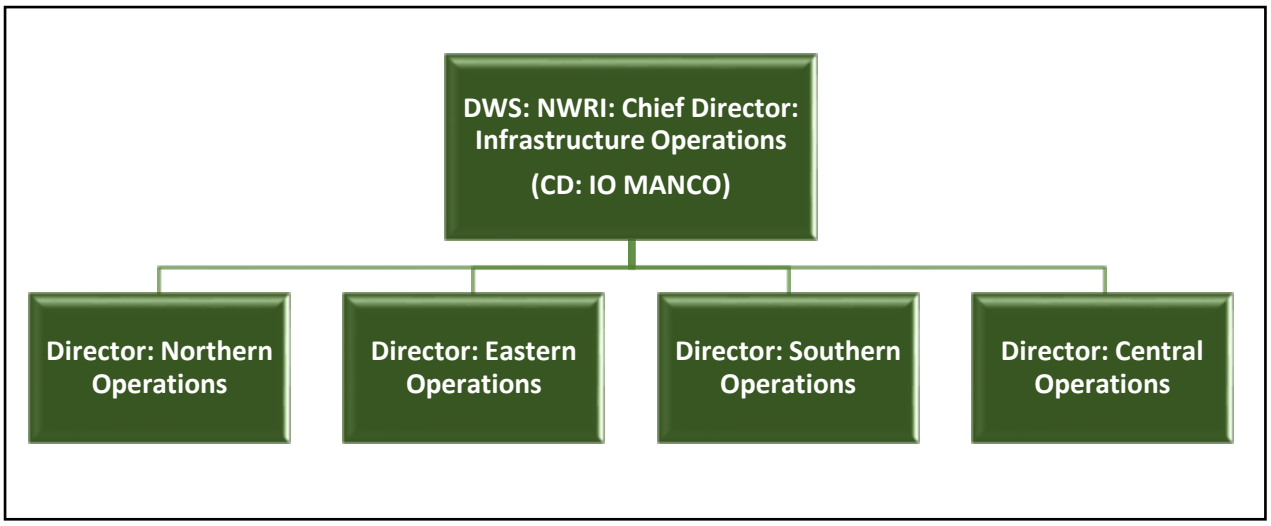

Figure 15: Existing CD: IO MANCO

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

Figure 16: 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 organized 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 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 14: Proposed Water Surface Zoning Description

Zone Name	Permissible activities	Non-Permissible Activities	Recommendation
• Safety and Security Zone.	• Alien invasive species clearing • Management of dam infrastructure • Management and maintenance activities by DWS and authorised personnel	• Public access	• Area should be demarcated by demarcation makers and AtoN.
• Conservation Zones.	• None	• No public activities are allowed in order 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
	  ○ Paddle boating
	  ○ Kayaks
	  ○ Float tubes
	  ○ Sailing
		• Motorised boating
		• Water Skiing
		• House boats
		• Para-sailing
		• Kite-surfing
		• Jet skis
			• Area should be demarcated by demarcation makers and AtoN.

• High Impact Activity Zone.	• Motorised boating
	• Water Skiing
	• House boats
	• Para-sailing
	• Kite-surfing
	• Jet skis
		• Activities associated with no or little wakes, such as
		  ○ Angling
		  ○ Canoeing
		  ○ Rowing
		  ○ Paddle boating
		  ○ Kayaks
		  ○ float tubes
		  ○ 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

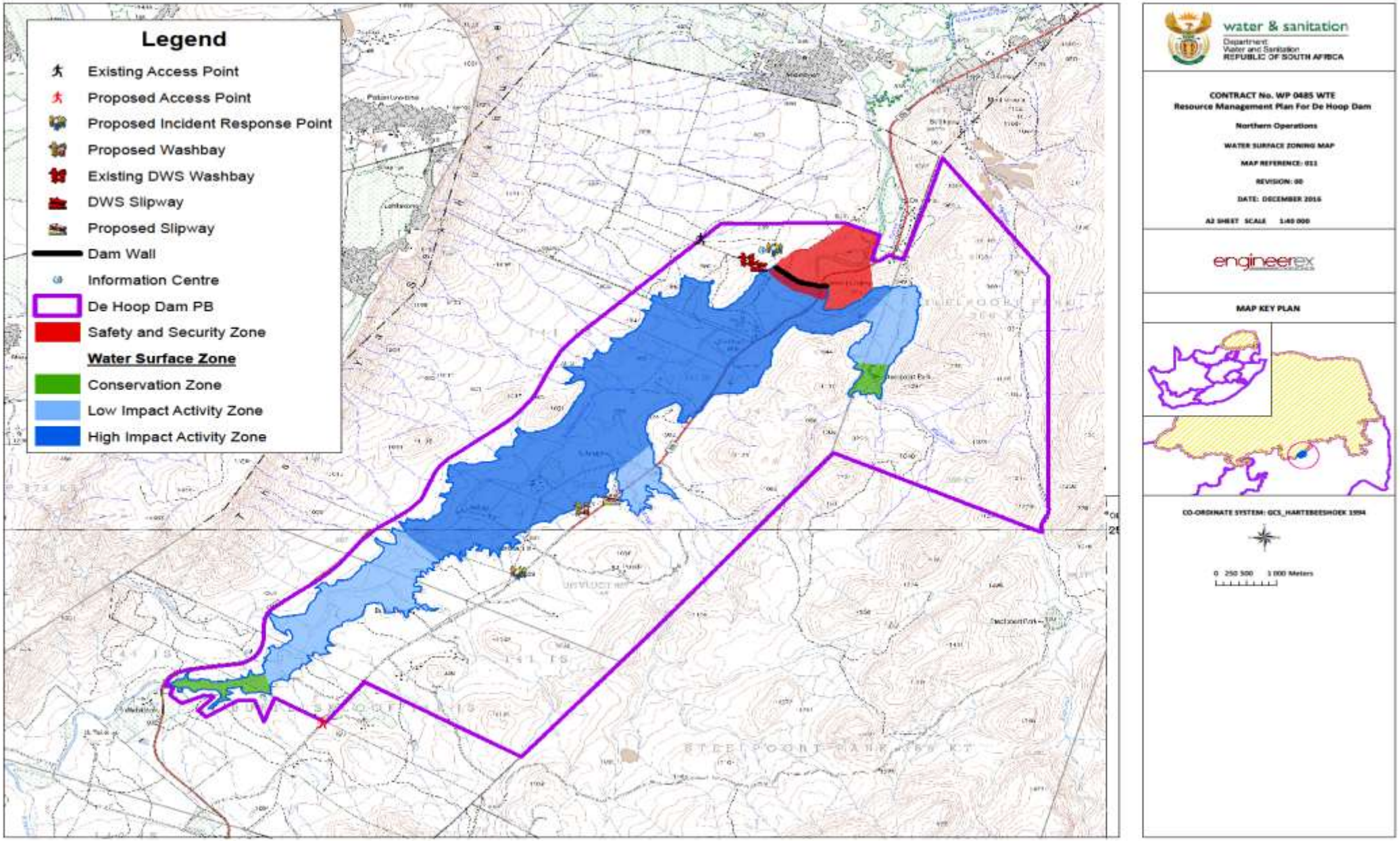

Figure 17: Proposed Water Surface Zoning Map

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 15: 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 • Braai facilities • Swimming pools • Ablution facilities	• Accommodation facilities such as chalets, houses, etc. • Recreational club houses • Infrastructure for services • Permanent Structures	• The management of this area should follow the PPP process in terms of National Treasury. • All developments must be approved by IA. • Requirements of NWA and NEMA must be taken into account in all developments. • All developments should adhere to the approved SDM Tourism Master Plan to ensure development does not impact negatively on dam and must blend in with the natural environment. • Noise levels to be kept at a minimum. • 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 (chalets, resorts, etc.) • Recreational club houses • Infrastructure for services	• Camping (tent and/or caravan) • Day visitors • Picnic • Shoreline fishing • Permanent structures	• The management of this area should be submitted for PPP in terms of National Treasury. • All developments must be approved by IA. • Requirements of NWA and NEMA must be taken into account in all developments. • All developments should adhere to the approved SDM Tourism Master Plan to ensure development does not impact negatively on dam and must blend in with the natural environment.

Zone Name	Permissible Activities	Non-permissible Activities	Recommendation
			• Noise levels to be kept at a minimum. • No private slipways to be built without approval from DWS.
• Community Resource Zone	• Subsistence fishing • Livestock watering points • Small scale community gardens	• Chalets • Recreational club houses • Hiking • Braai facilities • Camping	• Demarcation of the area by fence and provision of an access control. • The Community Resource Zone along R555 is only for subsistence fishing. • The Community Resource Zone near the security zone is for Tshehla Trust community for existing residential dwellings, livestock watering and subsistence fishing

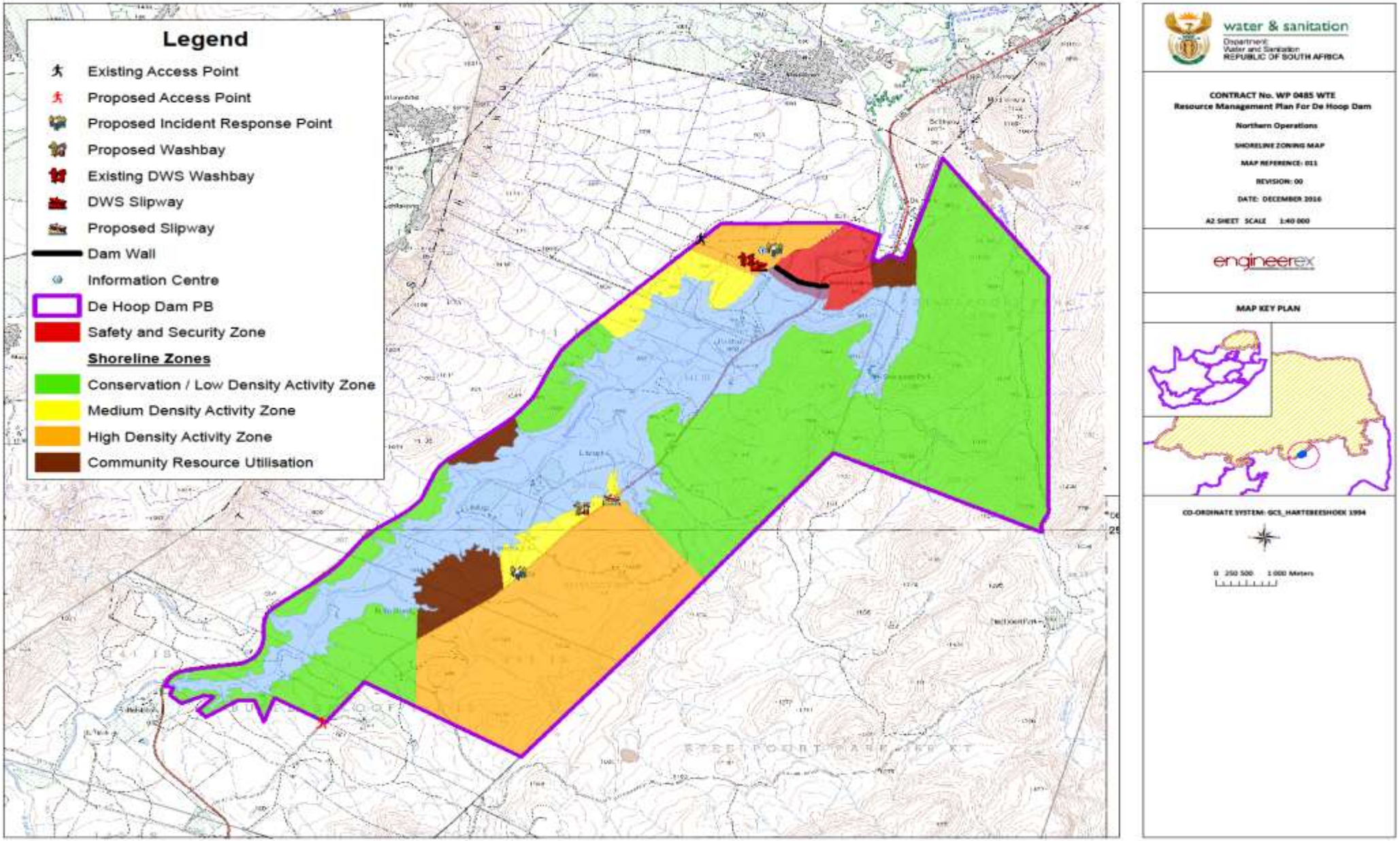

Figure 18: Proposed Shoreline Zoning Map

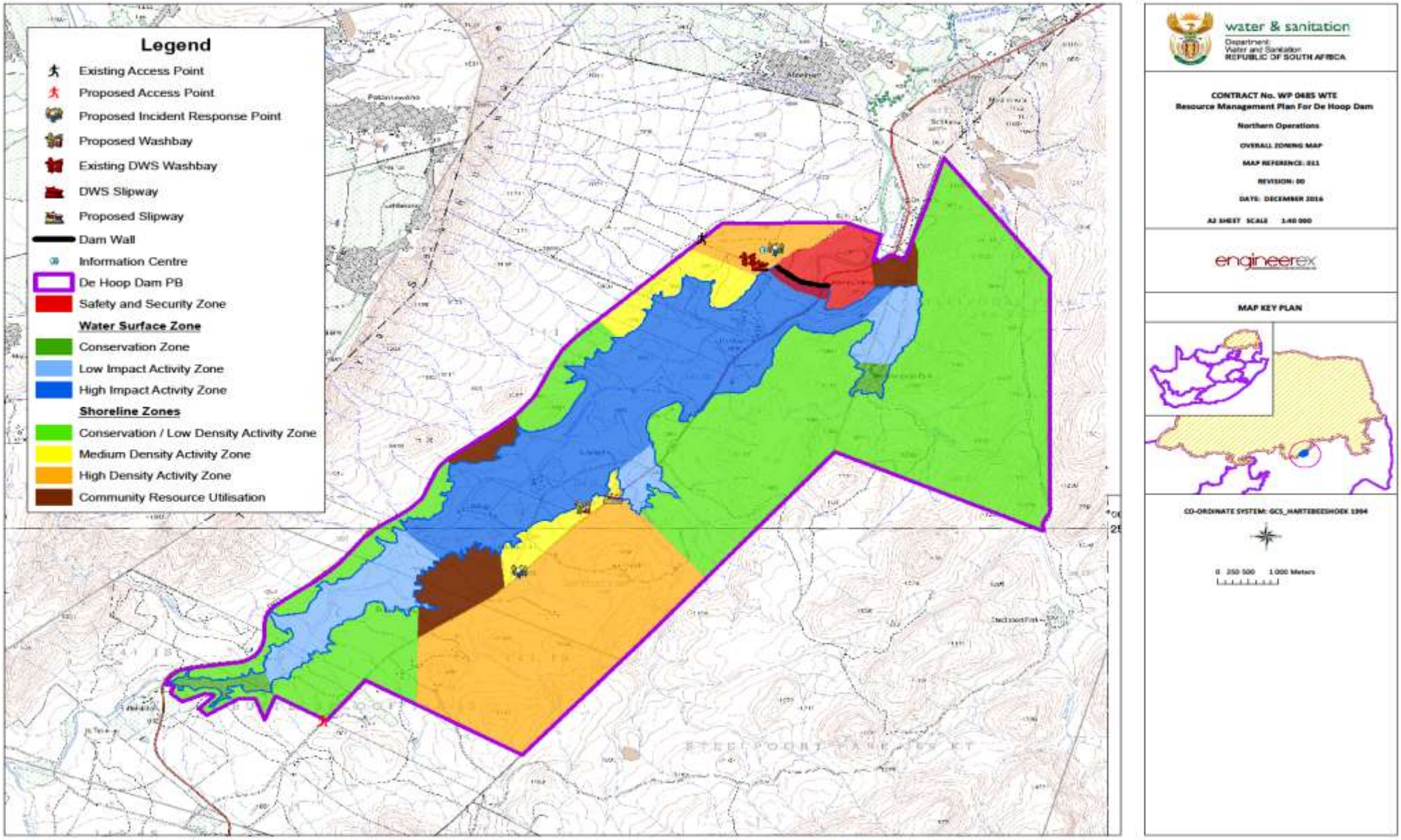

Figure 19: Proposed Overall Zoning Map

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 De Hoop 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: 1690 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 De Hoop Dam can further be calculated as:

PCC = A × U/a × Rf
=1 690 × 1/5 × 1
= 338 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 (**150 ha**); and

- Conservation Area (**400 ha**).

The above factors results in 26.6% decrease in water surface available for recreation at the dam, therefore 73.4% of the surface area of the dam is still available for recreation.

RCC for De Hoop Dam is therefore:

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

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

RCC = 338 × (100 – 26.6) %/100
= 248 vessels

Effective Carrying Capacity (ECC)

The maximum number of visitors that a site can sustain, given the management capacity (MC) available. Currently there is no formal management structure in place, as such the ECC is 0. The ECC will be calculated after the proposed Institutional structure (as part of the RMP) have been implemented in order to manage the sustainable utilization of the dam for recreational purposes.

4.3 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?)

Table 16 – 18, the Strategic Plan on how to achieve the identified objectives identified regarding the dam is outlined.

Table 16: 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)**
Conservation: • To protect the Sekhukhune Centre of Plant Endemism (SCPE). • To ensure conservation of species diversity around the dam.	• The dam basin hosts 45 SCPE endemic, 41 near-endemic and 14 newly assessed Red Data list plant species, conservation of these species should be prioritized.	• The protection of SCPE will be achieved through maintenance of the conservation area at the right bank and limiting high development to areas that are significantly disturbed. • The conservation of species diversity can only be achieved through the introduction of Institutional Structure which will be responsible for monitoring and conserving the biodiversity at the dam.	• The Department of Environmental Affairs (DEA) as well as Limpopo Department of Economic Development, Environment and Tourism (LEDET) should provide support and guidance on the management of biodiversity around the dam. • SDM (IA) and DMC
Tourism Master Plan: • Recognize and incorporate the Sekhukhune Tourism Master Plan (STMP) at the dam.	• The tourism master plan aims to facilitate a legacy of development benefits from the dam for the communities in the affected area.	• Strengthening the enforcement of the tourism plan which is aimed at promoting tourism around the dam and the wider area of the buffer zone as a cornerstone of economic development and the provision of accessible recreational facilities for all the region's inhabitants. • Prioritize the formation of co-operatives from local communities • The STMP should be coupled with the National Treasury Regulations to form Public-Private Partnerships.	• SDM (IA) • EMLM
Alien Invasive Vegetation: • To have the dam and the surrounding environment free of Alien Vegetation in order to support the proposed recreational activities.	• There is no programme - WFW which is eradicating alien plants at the dam. There is no proper control and inspection of the boats before they launch into the dam, which poses a threat of spread of aquatic alien invasive weeds.	• Boat wash bays must be introduced to eliminate the spread of alien vegetation when launching the boat into the dam. • To re-establish the native species to the area and DEA (Wfw) to remove all invasive alien vegetation within the purchased boundary.	• Involvement of DEA [Working for Water (Wfw) programmes] and Land use and soil Management section within DAFF to eradicate and control Invasive Alien Plant Species at the dam. • Involve the Expanded Public Works Programme (EPWP) regarding the Alien Vegetation clearing projects. • Involvement of SDM (IA) and DMC.

Table 17: Strategic Plan for KPA 2: Resource Utilisation

KPA 2: Resource Utilization			
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)**
Water Supply: • To ensure adequate water supply to the local communities.	• The local communities downstream do not have potable water for domestic uses.	• The District Municipality has a mandate as a water service provider (WSP) through the Water Services Act, 1997 (Act No.108 of 1997) for the purification and provision of water to the end users such as local communities.	• SDM get bulk water from DWS which is then purified to be supplied to the end users, local communities and towns. GDSM should initiate project and monitor service delivery around the area. • EMLM
Access: • To promote equitable access and use of the dam by the public.	• Local communities should be able to go to the dam and engage in recreational activities at a reasonable price.	• Access to the dam must be equitable and safe to all users. • Initiation of access fee at the dam for control purposes. However, the tariffs must remain reasonable and affordable to accommodate all the local communities.	• SDM (IA), DWS and DMC should ensure that the entrance fees remain reasonable and affordable to the community and tourists.
Safety: • Improved safety of navigation	• The dam is fairly new with only demarcation at the dam walls.	• To improve safety of navigation through the implementation of standardised and harmonised AtoN and demarcation markers as directed by SAMSA.	• SAMSA • LAAP • DWS to facilitate the process and agreements between SAMSA, • SDM (IA) • DMC
Developments: • To establish potential developments on the dam's surrounding environment like Chalets, braai area and other recreational facilities.	• There are no recreational facilities that exist around the dam. • The location provides an excellent opportunity to develop the recreational facilities within area. • Recreational transformation has a potential to change the livelihood of the community for the better and will improve the socio economic status of the local communities.	• Appointment of IA to manage the recreational use of the dam, as well as encourage local economic initiatives and participation with regards to the use of the dam. • The BP will assist in identifying the marketing strategies and funding mechanisms that can assist the local communities to invest in the recreational industry at the dam.	• SDM (IA) • EMLM • DMC

KPA 2: Resource Utilization			
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)**
Fish Harvesting: • To promote sustainable harvesting of fish within the dam.	• Sustainable fishing is threatened by illegal fishing and use of nets for commercial purposes.	• Policy such as Marine Living Resources Act 1998, (Act No.18 of 1998) should be considered as it aims to provide rights to small scale fishing communities and to ensure that communities have equal access to water resources. • The introduction of small scale fisheries to promote commercial activity of fish.	• The involvement of DAFF to assist in funding and training of small scale fisheries. • SDM (IA) • DMC

Table 18: 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)**
Job Opportunities: • To uplift the local communities through employment opportunities and skills development programs. • To establish youth training programs for cultural, heritage and tourism sectors.	• Identification of potential feasible opportunities and skills development programmes which are linked to the utilisation of the dam for recreational purposes. • The dam is still new and do not have established tourism facilities which can yield economic benefits for local communities.	• Strengthens community participation and beneficiation. • The job opportunities which might arise from the RMP for the dam should be given to the local community as first preference. • There should be youth development programs, for the local youth, to educate and equip them with the necessary skills to enter into tourism and/or to open their own business.	• EMLM and SDM (IA) to facilitate and monitor community participating as well as benefiting from the dam through recreational activities.
Institutional Arrangement: • To establish an appropriate institutional structure which will effectively manage the recreational use of the water resource and the surrounding environment in accordance with the institutional guidelines.	• There is no institutional structure in place.	• SDM will be appointed as an IA. • The role and responsibilities of the IA must be clearly defined and understood.	• DWS

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 draft 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 De Hoop 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 20** shows the RMP and BP review framework.

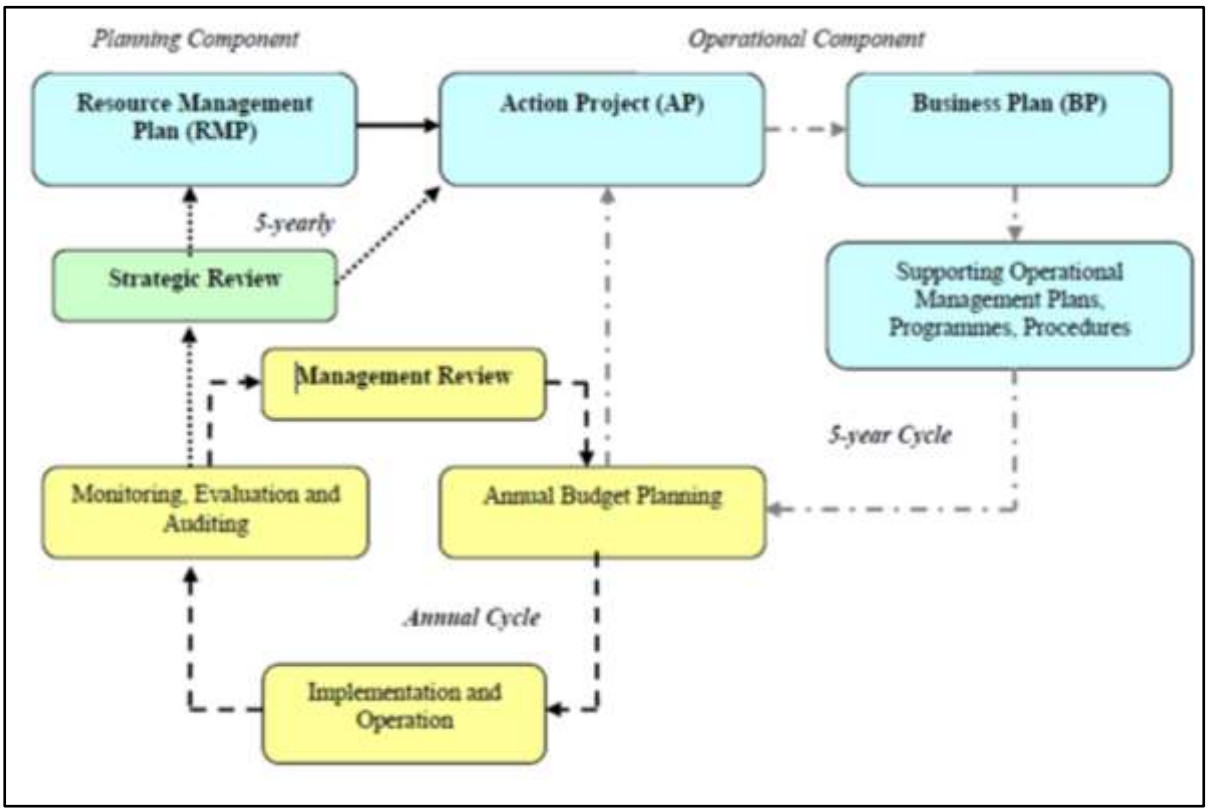

Figure 20: RMP and BP Review Framework

CONCLUSIONS

The RMP documents the challenges that exists within the De Hoop 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, and hydrological as well as access to the resource. These factors will assist DWS with the most appropriate approach to ascertain that the issues are addressed before the implementation of the RMP.

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

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 De Hoop 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.

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APPENDICES