INFRASTRUCTURE BUILD, OPERATE AND MAINTENANCE (IBOM)

Resource Management Plan
BUFFELJAGS DAM

REPORT – Volume 4 of 5

March 2020

WATER IS LIFE - SANITATION IS DIGNITY www.dws.gov.za

water & sanitation
Department:
Water and Sanitation
REPUBLIC OF SOUTH AFRICA

2030 NDP

Prepared by:

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

Tel: 012 999 4900
Website: www.engineerex.co.za

Prepared for:

DEPARTMENT OF WATER AND SANITATION
Private Bag X313
Pretoria
0001

Tel: 012 336 7592
Fax: 012 324 6692
Website: www.dws.gov.za

ACKNOWLEDGEMENTS

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

- Department of Water and Sanitation;
- Department of Environment, Forestry and Fisheries;
- Western Cape Department of Environmental Affairs and Development Planning;
- Western Cape Department of Transport and Public Work;
- Swellendam Local Municipality;
- Overberg District Municipality;
- Buffeljagsrivier Irrigation Board;
- Ward Councillor of Ward 3 of Swellendam Local Municipality; and
- Community members of Suurbraak, Barrydale, Buffeljagsrivier, and Swellendam.

Acknowledgement is also extended to all other stakeholders who attended and participated in the various stakeholder engagements during the development of this plan.

TITLE AND APPROVAL PAGE

Recommended:

Name	Title	Signature	Date
Steven Nhlabathi	Project Manager: Infrastructure Build, Operate and Maintenance: Integrated Environmental Engineering (IBOM: IEE)		
Jabulani Maluleke	Director: IBOM: IEE		
Bertrand van Zyl	Operational Manager: Western Cape, Southern Operations, IBOM		
Cebisa Goboza	Director: Southern Operations, IBOM		
Leonardo Manus	Chief Director: Infrastructure Operations, IBOM		

Approved:

Name	Title	Signature	Date
Leonardo Manus	Acting Deputy Director General: IBOM		

Review:

Review Period	Month	Year				
Annual Review of Business Plan (BP)	December	2021[1]	2022	2023	2024	2025
Five (5) Yearly Review of Resource Management Plan (RMP)	December	2025				

[1]The implementation of the RMP and BP requires one financial year planning ahead.

AMENDMENTS PAGE

Revision No	Description	Date
0	Draft RMP for DWS Review	11/02/2020
1	Draft RMP for Public Review	17/02/2020
2	Final Draft RMP for DWS Approval	23/03/2020
3	Final RMP for DWS Sign Off	26/03/2020

EXECUTIVE SUMMARY

Purpose of the Resource Management Plan: A Resource Management Plan (RMP) provides the principles and guidelines which the Dams must be used for recreational purposes. The principles and guidelines seek to promote community participation and beneficiation, environmental conservation as well as unlocking socio-economic opportunities associated with the recreational use of the Dam. This RMP is for Buffeljags Dam, herein after referred to as the Dam, which is part of the Infrastructure Build, Operate and Maintenance (IBOM) Southern Operations.

This RMP was developed in accordance with the Guidelines on Integrated Resource Management Planning for the Use of Water for Recreational Purposes (DWAF, 2004) and in accordance with the requirements in Section 2, 26 and 113 of the National Water Act, 1998 (Act No. 36 of 1998) [NWA)].

Mandate of Department of Water and Sanitation: The Department of Water and Sanitation (DWS), through the National Water Act, 1998 (Act No. 36 of 1998) [(NWA)], mandates the minister as the custodian of the nation's water resources. Part of the duties that the minister has are to ensure that the government waterworks (GWWs) including Buffeljags Dam, are protected, used, developed, managed and controlled in a sustainable manner, to the benefit of present and future generation, as contemplated in Section 2 of the NWA. In fulfilling this mandate, the DWS initiated and commissioned the development of the RMP for the Dam.

A number of factors have prompted the need to compile a Resource Management Plan (RMP) for GWWs which amongst others, include the following:

Resource Management:

- The location of the Dam being in a protected area and thus also governed by legislation relating to its protected status;
- The presence and management of Invasive Alien species; and
- Water quality issues.

Recreational Industry Involvement:

- Conflict amongst users due the absence of a management tool;
- Public safety with regards to the use of inland vessels; and
- Uncontrolled developments within the Dam basin.

Community Participation and Beneficiation:

- Challenges of communities regarding physical access as well as access to the water-based economy of the resource;
- Participation and beneficiation of surrounding communities remains a challenge;
- Unlocking the economic potential of the Dam through the establishment of effective Public Private Partnerships (PPPs); and
- Equitable and sustainable benefit flow into the community through the creation of appropriate institutional arrangements.

Public Policy:

- The water resource should be identified as a local development objective in terms of an Integrated Development Plan (IDP) or Strategic Development Framework (SDF) for the relevant local and/or district municipalities. The zoning plan for the water resource must either be developed or updated.

In fulfilling this mandate Minister, the DWS initiated and commissioned the development of the RMP for the Dam.

Description and Location of the Dam: The Dam is an earthfill and gravity type of dam which impounds the Buffeljags River. The construction

of the Dam was completed in 1967. At full capacity the Dam has a water surface area of approximately 129 hectares with a capacity of 5.2 million cubic meters.

The Dam is situated within the Swellendam Local Municipality (SLM) within the jurisdiction of the Overberg District Municipality (ODM) in the Western Cape Province of South Africa. The centre point co-ordinates of the Dam are 34°01'08"S 20°31'58.9"E.

Purpose of the Dam: The primary purpose of the Dam is to provide bulk raw water for agricultural use. The Dam currently offers fishing, canoeing, boat cruise, camping, picnicking, and swimming (in the Dam and also in the canal within the Buffeljagsrivier area). Overnight accommodation facilities were observed during the site visit and cattle grazing, however, local community members do not have access to the Dam for day visiting. Within the Buffeljags Recreational Club only members are allowed and Umshanti Resort does not have day visiting only overnight visits.

Dam Ownership and Management: The Dam is owned by DWS and is managed and operated by the Buffeljags Irrigation Board (BIB) for provision of bulk raw water.

Currently there is no proper institutional structure managing the Dam for secondary (recreational) use. Through the process of developing the RMP, a proposed Implementing Agency (IA), such as Swellendam Local Municipality (SLM) shall be appointed by DWS to facilitate the implementation of the objectives and identified projects in line with the requirements of the Buffeljags Dam RMP on behalf of DWS. The IA will sign a Memorandum of Agreement (MOA) with DWS which shall be a legally binding document outlining the roles, responsibilities and conditions that must be followed by both parties for the management of the water resource for recreational use.

Stakeholder Engagement: The success of the development and implementation of the RMP depends on the cooperation of all stakeholders both the Authorities and Interested and Affected Parties (I&APs). Authority and public meetings were conducted to obtain input (challenges and objectives) regarding the use and management of the Dam. These meetings were conducted in accordance with the DWAF Guidelines for Public Participation (2001) that outlines three broad phases for public participation namely the Planning, Participation and Exit phase.

Identified Objectives and Vision: During the authority and public meetings, issues and concerns were raised from which the following objectives were identified:

- To prevent and control the regeneration of alien plants species within the Dam's surrounds;
- To establish an effective and functional institutional structure inclusive of community representation to manage recreational activities and access;
- To raise the Dam wall in order to increase the storage capacity of the Dam;
- To cater and make provision sof public access for day visitors at the Dam;
- To promote subsistence fishing at the Dam;
- To investigate the feasibility of introducing an aquaculture project at the Dam;
- To construct swimming pools at the Dam for day visitors;
- To establish tourism facilities such as B&Bs, conference centres and recreational activities including hiking, bird watching, and other water sports at the dam for day visitors; and
- To uplift the local economy and increase benefit flow to the surrounding communities through meaningful community empowerment.

Vison: A 20-year vision for the Dam, formulated from the objectives identified by stakeholders, is as follows:

"To encourage inclusive use of the dam, ensure the optimization of the dam as a source of water for everyone around it while putting in

place programs for skills development and socio economic benefit of the community".

Tourism Potential The potential recreational development identified to enhance tourist attraction includes:

- Establishment of the day visitor's area; and
- To enhance and improve recreational use of Buffeljags Dam.

The key challenges identified include:

- Children in the Buffeljagsrivier area swim in the canal due to lack of access to the Dam;
- The Dam is silted;
- The water in the Dam has a dark 'coffee' colour;
- No day visitors are allowed at the Dam;
- Exclusive access within the recreational club;
- No day visitors are allowed at Umshanti Resort;
- Local community members are not safe when they access the Dam for recreational use (previously mistaken for baboons);
- There are incidences where people have been denied access to the dam due to their race;
- Drought threatens recreational activities on the water surface;
- Flashfloods threaten the use of the Dam for recreational activities during rainy seasons;
- Constant change in the wind direction will restrict zoning of the water surface for activities which depend on the wind for movement such as wind surfing;
- The possible regrowth of the AIPs in the area will threaten the indigenous plants species;
- There are baboons in the Buffeljagsrivier area which threatens the safety of the people when accessing the Dam for recreational purposes;
- Alien fish species such as barbel and black bass are present in the Dam;
- There are cattle from a private farmer which graze and drink water from the banks of the Dam;
- There is no public transportation to shuttle people from the communities to the Dam and most people do not have private cars,
- The area where the Dam is located has a steep slope which pose as a safety concern within Umshanti Resort as well as retricts access to the water surface in other parts of the Dam;
- The DWS purchase boundary is land locked by private properties restricting access to this area;
- Majority of the local community members in Ward 3 do not have higher education and they will need training in order to be involved or engage in tourism related opportunities at the Dam;
- Majority of the local community members in Ward 3 do not have higher education and they will need training in order to be involved or engage in tourism related opportunities at the Dam; and
- Local community members are expecting immediate access to the Dam for fishing and other recreational use.

Recommendations:

This RMP recommends the following immediate actions:

- To cater and make provision of public access for day visitors at the Dam;
- Appoint SLM as an IA to manage recreational use of the Dam on behalf of DWS;
- Establishment Dam Management Committees (DMC) to serve as an advisory committee to the proposed IA;
- To avoid conflict amongst users, avoid uncontrolled development and to protect the water resource, the permissible and non-permissible activities on the water- and shoreline

surface are delineated in the Zoning Plan and covered under Section 4.2; and

- To ensure public safety with regards to the use of inland vessels, the maximum level of recreational use the water resource can accommodate is covered under Carrying Capacity in section 4.2.3.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF ACRONYMS

ADU	Animal Demographic Unit
AtoN	Aids to Navigation
B&B	Bed and Breakfast
BBBEE	Broad Based Black Economic Empowerment
BIB	Buffeljags Irrigation Board
BID	Background Information Document
BP	Business Plan
CARA	Conservation of Agricultural Resource Act, 1983 (Act No. 43 of 1983)
CATHSSETA	Culture, Arts, Tourism, Hospitality, Sports Sector, Education and Training Authority
CD: IO MANCO	Chief Directorate: Infrastructure Operations Management Committee
CIWSP	Cooperative Inland Watercourse Safety Programme
CoGTA	Cooperative Governance and Traditional Affairs
DEA	Department of Environmental Affairs
DEADP	Western Cape Department of Environmental Affairs and Development Planning
DEFF	Department of Environment, Forestry and Fisheries
DHS	Department of Human Settlement
DMC	Dam Management Committee
DoT	Department of Transport
DPW	Department of Public Works
DSR	Department of Sports and Recreation
DWAF	Department of Water Affairs and Forestry
DWS	Department of Water and Sanitation
ECC	Effective Carrying Capacity
EIA	Environmental Impact Assessment
FP	Financial Plan
FSL	Full Supply Level
GIAMA	Government Immovable Asset Management Act, 2007 (Act No.19 of 2007)
GP	Guideline Programme
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
IBOM	Infrastructure Build, Operate and Maintenance
IDP	Integrated Development Plan
IEE	Integrated Environmental Engineering
IRMP	Integrated Resource Management Planning
KPAs	Key Performance Areas
LAAP	Local Accountable Aton Parties
MOA	Memorandum of Agreement
NDT	National Department of Tourism
NEMA	National Environmental Management Act, 1998 (Act No. 108 of 1998)
NEMBA	National Environmental Management Biodiversity Act, 2004 (Act No.10 of 2004)
NEMPAA	National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003)
NEWA	National Environmental Management: Waste Act, 2014 (Act No. 59 of 2008)

NHRA	National Heritage Resources Act, 1999 (Act No. 25 of 1999)
NPSC	National Project Steering Committee
NT	National Treasury
NWA	National Water Act, 1998 (Act No. 36 of 1998)
ODM	Overberg District Municipality
OMC	Operations Management Committee
PB	Purchased Boundary
PCC	Physical Carrying Capacity
PFMA	Public Finance Management Act, 1999 (Act No. 29 of 1999)
PP	Public Participation
PPP	Public Private Partnership
QDS	Quarter Degree Square
RCC	Real Carrying Capacity
RMP	Resource Management Plan
SAMSA	South African Maritime Safety Authority
SAPS	South African Police Service
SASCOC	South African Sports Confederations and Olympic Committee
SDF	Spatial Development Framework
SLM	Swellendam Local Municipality
SWOT	Strengths, Weaknesses, Opportunities and Threats
ToR	Terms of Reference
WMA	Water Management Area

CHAPTER 1: INTRODUCTION

1.1 BACKGROUND

The Department of Water and Sanitation (DWS), through the National Water Act (NWA), 1998 (Act No. 36 of 1998), mandates the Minister as the custodian of the nation's water resources. Part of the duties of the minister are to ensure that the government waterworks (GWWs), including the Buffeljags Dam, are protected, used, developed, managed and controlled in a sustainable manner and to the benefit of both the present and future generation as contemplated in Section 2 of the NWA.

A number of factors have prompted the need to compile Resource Management Plans (RMPs) for GWWs, which *inter alia* include the following:

Resource Management:

- Whether the water resource is situated within a protected area or not, and if yes would be subjected to protection by relevant legislation;
- The presence and management of Invasive Alien species; and
- Water quality issues.

Recreational Industry Involvement:

- Conflict amongst users due the absence of a management tool;
- Public safety with regards to the access and use of inland vessels; and
- Uncontrolled developments within Dam basin.

Community Participation and Beneficiation:

- Challenges of communities regarding physical access as well as access to the water-based economy of the resource;
- Participation and beneficiation of surrounding communities remains a challenge;
- Unlocking the economic potential of the Dam through the establishment of effective Public Private Partnerships (PPPs); and
- Equitable and sustainable benefit flow into the community through the creation of appropriate institutional arrangements.

Public Policy:

- The water resource should be identified as a local development objective in terms of an Integrated Development Plan (IDP) or Strategic Development Framework (SDF) for the relevant local and/or district municipalities. The zoning plan for the water resource must either be developed or updated.

In fulfilling this mandate, the DWS initiated and commissioned the development of the RMP and Business Plan (BP) for Buffeljags Dam, hereafter referred to as the Dam.

1.2 PURPOSE OF THIS RMP

A Resource Management Plan (RMP) provides the principles and guidelines within which the Dam must be used for recreational purposes[2]. The principles and guidelines seek to promote community participation and beneficiation, environmental conservation as well as unlocking socio-economic opportunities associated with the recreational use of the Dam. This RMP is for Buffeljags Dam, herein after referred to as the Dam, which is part of the Infrastructure Build, Operate and Maintenance (IBOM) Southern Operations.

This RMP is developed in accordance with the Guideline on Integrated Resource Management Planning for the Use of Water for Recreational Purposes (DWAF, 2004) for the Buffeljags Dam. This is done in order to attain the objectives underlying sustainability in Section 2 of the NWA, with particular relevance to Section 26 and 113 relating to the use of water and access and use of government waterworks for recreational purposes.

[2] NWA Section 21 (k) Water Use - Using water for recreational purposes.

1.3 DESCRIPTION AND LOCATION OF THE DAM

The Dam is an earthfill and gravity type of dam which impounds the Buffeljags River. The water surface area is approximately 129 hectares with a full capacity of approximately 5.2 million cubic meters. **Table 1** shows the Dam profile.

The Dam is located on the demarcation boundary of Ward 3 of Swellendam Local Municipality (SLM) which falls under the jurisdiction of Overberg District Municipality (ODM) in the Western Cape Province of South Africa as shown in **Figure 1**. The GPS coordinates are 34°01'08"S 20°31'58.9"E.

1.4 PURPOSE OF THE DAM

The primary purpose of the Dam is to provide bulk raw water for agricultural use. The Dam currently offers fishing, canoeing, and boat cruise, camping, picnicking, and swimming (mostly at the canal). Overnight accommodation facilities were observed during the site visit and cattle grazing, however, local community members do not have access to the Dam for day visiting.

1.5 DAM OWNERSHIP AND MANAGEMENT

The Dam is owned by DWS and is managed and operated by the Buffeljags Irrigation Board (BIB) for provision of bulk raw water. Currently there is no proper institutional structure managing the Dam for recreational purposes. Through the RMP development process, a proposed Implementing Agency (IA) such as SLM, shall be appointed by DWS to facilitate the implementation of the objectives and identified projects in line with the requirements of the Buffeljags Dam RMP on behalf of DWS.

Table 1: Buffeljags Dam Profile

Buffeljags Dam Profile	
Location	South Africa
Province	Western Cape
District Municipality	Overberg
Local Municipalities	Swellendam
Completion Year	1967
Coordinates	34°01'08"S 20°31'58.9"E
Purpose	Irrigation
Owner	DWS
Quaternary Catchment	H70E
Water Management Area	Breed-Gouritz
River	Buffeljags
Capacity (Mm^3)	5.2
Surface area (ha)	129
Wall type	Earthfill & gravity
Wall Height (m)	24
Crest Length (m)	335

Source: Adapted from the Department of Water and Sanitation (2016)

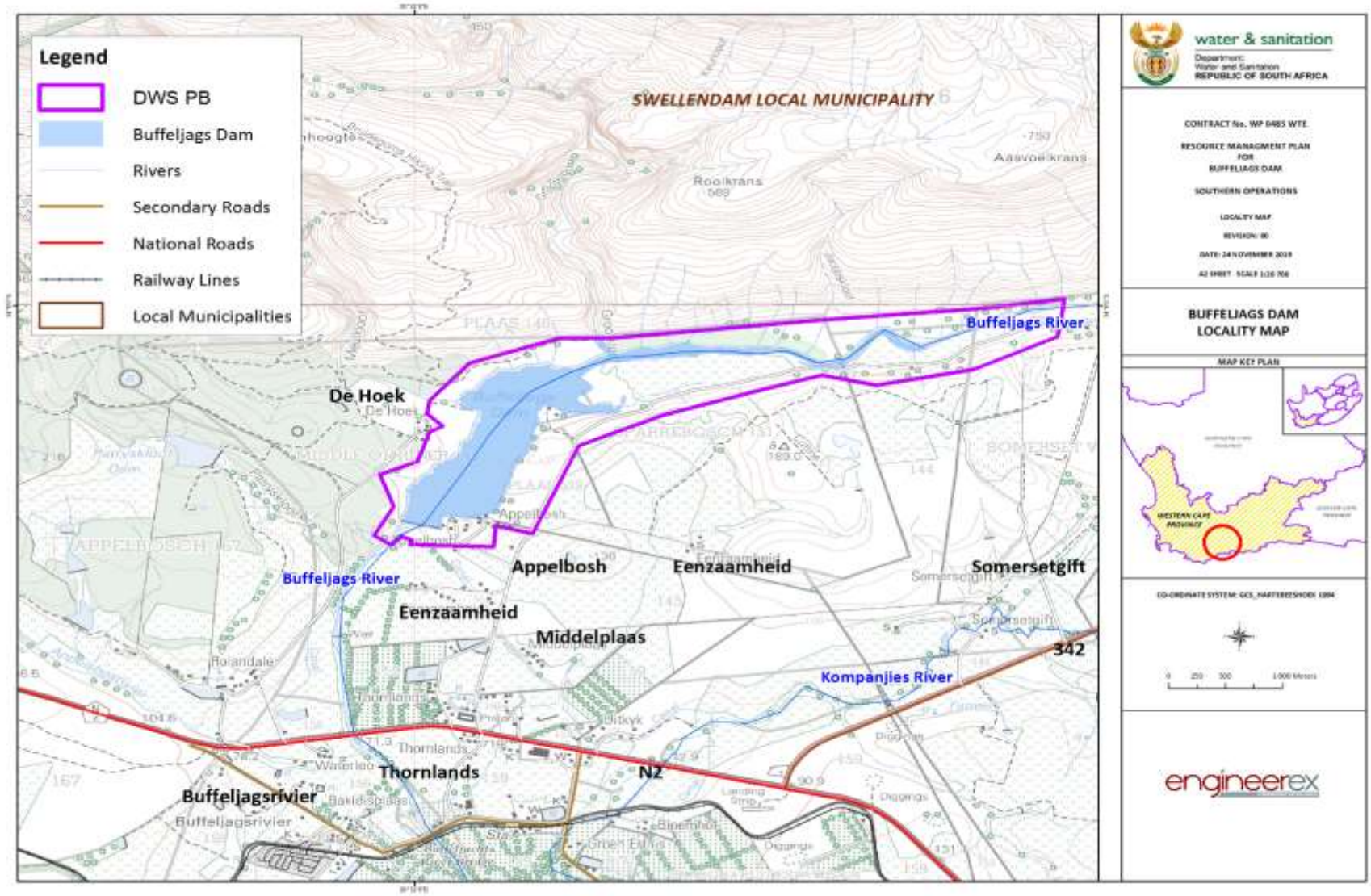

Figure 1: Locality Map for Buffeljags Dam

1.6 LEGISLATIVE FRAMEWORK

Provided in the table below are the key data sources used to develop the RMP and the legislative framework applicable to the management and use of the Dam for recreational purposes.

Table 2: Key Data Sources Used to Develop the RMP:

Policy and Guidelines	Description
Consideration on Institutional Arrangement for Managing Use of Water for Recreational Purposes (DWAF, 2003)	"The guidelines illustrate various institutional options to institutionalise the management of recreational water use".
1st Draft National Inland Fisheries Policy Framework for South Africa. Department of Agriculture, Forestry and Fisheries, 2018	The Policy seeks to create an efficient regulatory regime for the inland fisheries sector in order to create an enabling environment to promote sustainable growth and transformation of the sector.
General Public Participation Guidelines (DWAF, 2001)	Public Participation refers to the ongoing interaction between Role Players and all stakeholders that is aimed at improving decision making during planning, design, implementation and evaluation of all projects within the state, this includes the proposed development of the RMP.
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.
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.
Guidelines for Compilation of Zoning Plans for Government Waterworks (DWAF, 1999)	The guidelines provides direction on the compilation of zoning plans for government waterworks within DWS purchased boundary.
Methodology for Carrying Capacity Assessment for the Use of Water for Recreational Purposes (DWAF, 2003)	The guideline documents a methodology to determine the maximum level of visitor/recreational use and related infrastructure that the water resource and surrounding area can accommodate.
National Treasury Public Private Partnership (PPP) Toolkit for Tourism, 2005	This toolkit assists the process of development of tourism-based businesses on State-owned Land. The Toolkit make it easier for Institutions and the Private Sector to enter into tourism related partnerships on State Property managed by National and Provincial Government Institutions.
Operational Policy: Using Water for Recreational Purposes (DWAF, 2004)	This policy is the main guideline in support of the RMP process with regards to the basic principles, policies, strategies and actions for regulating the use of water for recreational purposes.

The legislative framework applicable to the management and use of the Dam for recreational purposes is summarized in the table below.

Table 3: Legislative Framework Applicable to the Management and Use of the Dam for Recreational Purposes

Legislation: Acts, ordinances, bylaws	Relevance: Description
Constitution	**Relevance:**
Constitution of the Republic of South Africa, 1996 (Act No. 108 of 1996), Environmental Rights (Section 24)	Section 24 – "Everyone has the right: 1. to an environment that is not harmful to their health or wellbeing, 2. to have an environment protected for the benefit of present and future generations, through reasonable legislative and other measures that- a. prevent pollution and ecological degradation, b. promote conservation and secure ecologically sustainable development and use natural resources while promoting justifiable economic and social development."
National Legislation	**Significance to the RMP:**
Broad-Based Black Economic Empowerment Act, 2003 (Act No. 53 of 2003)	"Aims to address inequalities resulting from the systematic exclusion of black people from meaningful participation in the economy."
Communal Land Rights Act, 2004 (Act No. 11 of 2004)	"To provide legal security by transferring communal land to communities or by granting comparable compensation. Based on South Africa's complex history most communities who used to reside in the vicinity of the Dams have been forcefully removed. During the implementation of the RMP it is essential to comply with the act where necessary".
Conservation of Agricultural Resource Act, 1983 (Act No. 43 of 1983) [CARA]	"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 Act deals with the protection of wetlands and water courses, while regulations 15 and 16 deals with Alien Invasive Plant Species and bush encroachment".
1st Draft National Inland Fisheries Policy Framework for South Africa. Department of Agriculture, Forestry and Fisheries, 2018	"In terms of the National Water Act (Act No. 36 of 1998), the Department of Water and Sanitation (DWS) is the custodian of South Africa's water resources and is responsible for access to and the control of activities on Government waterworks (state dams) under its jurisdiction. As such, access to DWS government water works for fishing activities is subject to DWS control. A system of RMPs is being implemented by the DWS to manage the activities of multiple user groups on public water works".
Government Immovable Asset Management Act, 2007 (Act No. 19 of 2007) (GIAMA)	"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

Legislation: Acts, ordinances, bylaws	Relevance: Description
	minimum standards in respect of immovable asset management by a national or provincial department; and to provide for matters incidental thereto".
Local Government: Municipal Systems Act, 2000 (Act No. 32 of 2000)	"To provide for the manner in which municipal powers and functions are exercised and performed; to provide for community participation; to establish a simple and enabling framework for the core processes of planning, performance management, resource mobilisation and organisational change which underpin the notion of developmental local government".
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".
National Environmental Management Act, 1998 (Act No. 107 of 1998) [NEMA]	"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".
National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004) [NEMBA]	"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".
National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003) [NEMPAA]	"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".
National Environmental Management: Waste Act, 2014 (Act No. 59 of 2008) [NEWA]	"Provides for the national domestic waste collection standards and national norms and standards for the storage of waste".
National Heritage Resources Act, 1999 (Act No. 25 of 1999) [NHRA]	"To nurture and conserve their heritage resources so that they may be hand down to future generation. To introduce an integrated system for the identification, assessment and management of the heritage resources of South Africa. All heritage sites and cultural artefact must be protected and should be demarcated in the RMP zoning map".
National Water Act, 1998 (Act No. 36 of 1998) [NWA]	"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

Legislation: Acts, ordinances, bylaws	Relevance: Description
	state owned land may be made available for recreational purposes, subject to controls determined by the Minister and regulations made by the Minister".
Occupational Health and Safety Amendment (Act No. 181 of 1993G.15369 GoN. 2471)	"It requires the employer to bring about and maintain, as far as reasonably practicable, a work environment that is safe and without risk to the health of the workers. The workers and the employer must share the responsibility for health and safety in the workplace".
Public Finance Management Act, 1999 (Act No. 29 of 1999) [PFMA]	Section 76 "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".
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 *inter alia* responsibility for safety and security at the events, risk categorization of events and safety certificates".
South African Maritime Safety Authority Act, 1998 (Act No. 5 of 1998) [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".
Water Services Act, 1997 (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".
Municipal Policy, By-Laws, Reports & Guidelines	**Significance to the RMP:**
Swellendam Local Municipality IDP (2017 - 2022) Review.	"The IDP is an overarching strategic tool that guides and informs all Planning and Economic Development, and decisions taken regarding planning, management and development within the municipality. Further to this, the IDP provides for effective performance monitoring, evaluation and measureable development frameworks with key performance areas, indicators and performance targets."
Overberg District Municipality IDP (2017/18 – 2021/22)	

CHAPTER 2: ENVIRONMENTAL ANALYSIS

2.1 BIOPHYSICAL ENVIRONMENT

2.1.1 Climate

According to (Climate-data.org, 2020), the Buffeljagsrivier lies at 70m above sea level, the climate is warm and temperate. The rainfall in Buffeljagsrivier is significant, with precipitation even during the driest month. This location is classified as Cfa by Köppen and Geiger. In Buffeljagsrivier, the average annual temperature is 18.5 °C and about 530 mm of precipitation falls annually. South Africa is a relatively dry country and is well known for its sunshine. With an average annual rainfall of only 464mm (compared to a global average of 860 mm), making it a popular spot for foreign visitors, (Climate and Weather, 2020).

At the time of development of this document, the Western Cape Province was experiencing drought and as such operating limits needed to be implemented from time to time by DWS. During normal conditions the Buffeljagsrivier area experiences flash floods during rainy seasons as well as strong winds which constantly change direction.

According to (SLM IDP, 2018), climatic factors are important causes of the current drought. Climate change impacts are already being experienced and are likely to be long term in nature. Other factors that have exacerbated the crisis include population growth, economic growth, increased water pollution, the state of water infrastructure and its current management. These factors have resulted in historically low dam levels for the Western Cape. The current crisis, being long term in nature, according to some scientists may require new ways to think about water resource management in the Western Cape.

The impact of the water crisis on the Western Cape economy is likely to be significant, both directly on businesses and through their supply chains. Swellendam do not have enforced water restrictions in this Dam but support and distribution of pamphlets on the water awareness program (SLM IDP, 2018).

2.1.2 Topography

The Buffeljagsrivier area where the Dam is located has a steep slope. Steep slopes are undesirable for development as it is difficult to construct on steep terrain and they also create surface run-off situations during rainy seasons. They also pose as a safety concern within Umshanti Resort as well as retricts access to the water surface in other parts of the dam.

2.1.3 Geology and Soil

Fynbos vegetation types occur predominantly on well-leached, infertile soils. The Cape Supergroup sandstones typically produce such soils but under high rainfall conditions granites and even shales become sufficiently leached to support Asteraceous Fynbos, replacing Renosterveld, Low & Rebelo (1996).

2.1.4 Hydrology

Water Surface

The Dam lies within the H70E quaternary catchment which forms part of the Breed-Gouritz WMA. The Dam impounds the Buffeljags River. **Figure 2** shows the fluctuations of water level over a year.

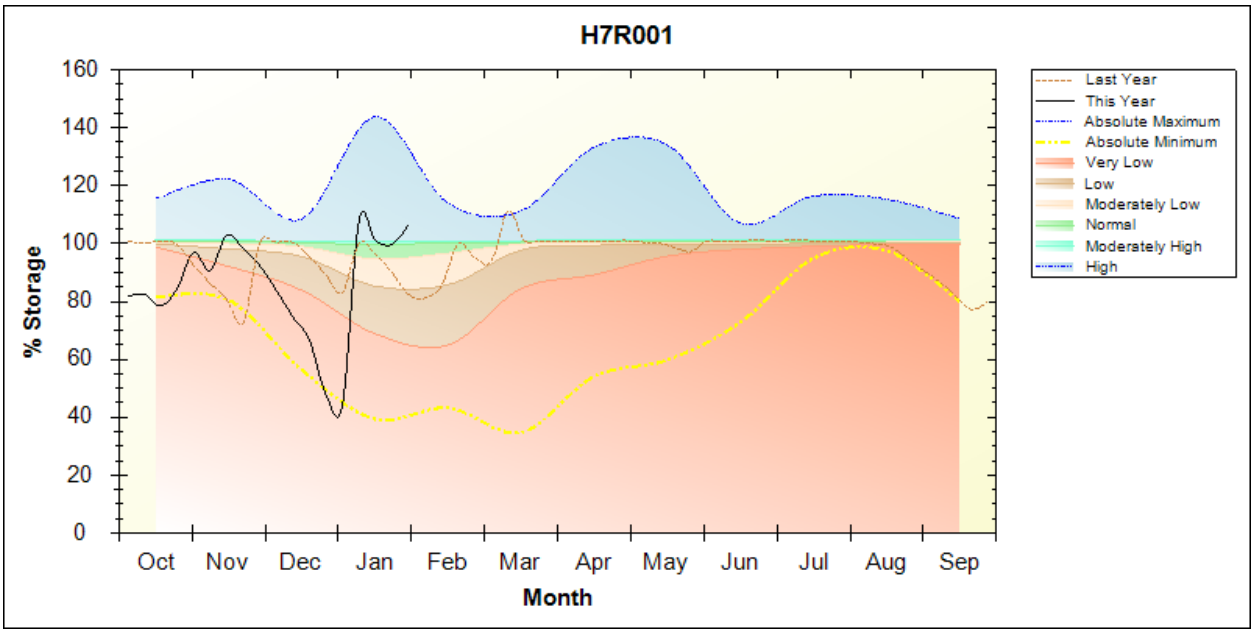

Figure 2: Fluctuations of Buffeljags Dam water level over a year.
Source: DWS, (2020)

As per **Figure 3**, the average storage level for the year 2019 was approximately 100% which is considered normal at Buffeljags Dam. However, in 2020 (January) there was a 50% decrease in the storage capacity of the Dam and this was caused by the drought in the Western Cape Province.

The Dam has since increased it storage capacity to normal which is approximately 100%. The overall water level of the Buffeljags Dam is high and most of the year is spilling and as a result WCDoA wants to raise the dam wall to increase the storage capacity of the Dam.

According to Breede-Gouritz WMA, (2017), the raising of Buffeljags Dam wall by 10m will double its current yield of 11 million m^3 per annum to 22 million m^3 per annum.

Water Quality

The term water quality is used to describe the physical, chemical, biological and aesthetic properties of water, all of which determine its fitness for use and its ability to maintain the health of aquatic organisms (DWAF, 1996).

During the site inspection it was observed that Buffeljags Dam has a black “coffee” like colour, which was attributed to runoff from the mountains which are adjacent to the Dam. For safety concerns swimming is only allowed at the shallow areas of the Dam with strict supervision, while this may be the case it was indicated that the overall quality of the water in the Dam is good during a site inspection meeting in September 2019 at the Dam.

Breede-Gouritz WMA, 2017 indicated that the water in the Dam is of good quality and can be utilised to establish resource poor farmers in the area, see **Figure 3** for the dark color.

Figure 3: Dark color

To determine the water's fitness for use other water quality parameters such as pH, turbidity, conductivity, e-coli etc. need to be tested. During the compilation of the report there was no water quality data available.

2.1.5 Flora

The Dam falls within five (5) vegetation types namely the Eastern Reuns Shale, Renosterveld, Cape Lowland Alluvial vegetation, Swellendam Silcrete Fynbos, Cape Lowland Alluvial Vegetation and South Langeberg Sandstone Fynbos, (SANBI, 2012). Shoreline vegetation is being threatened by overgrazing from cattle owned by a private farmer which graze and drink water from the water banks, and this may cause soil erosion. Soil erosion may increase siltation in the Dam.

2.1.6 Fauna

During the public participation meeting held on 22 October 2019, it was indicated that there are baboons in the Buffeljagsrivier area which might threaten the safety of the people when accessing the Dam for recreational purposes.

There are alien fish species in the Dam such as barbel and black bass. The presence of these species in the Dam leads to the habitat reduction of the indigenous fish through carnivoring, spread of diseases, and genetic change to indigenous fish population.

2.2 BUILT ENVIRONMENT

The aspects that have been investigated consists of (and are presented under the following sub-headings):

- Roads and land-based transportation;
- On-site facilities;
- Fencing;
- Management and operation;
- Safety; and
- Legal.

2.2.1 Roads and Land-Based Transportation

Internal Road and Circulation: There are several internal gravel roads that leads to the Dam wall, DWS offices, DWS staffing house (now recreational cottages), DWS slipway; Umshanti Resort and the Buffeljags Recreational Club.

Parking: There is no specific area dedicated for parking, however, there is a lot of open space area that can be used as parking.

2.2.2 On-site Facilities

The existing facilities at the Dam includes:

- DWS offices;
- Water Purification Works;
- 1x DWS slipways; and
- DWS staff house currently used as recreational cottages.

2.2.3 Fencing

The Dam is fenced at the Dam wall, Buffeljags Recreational Club, and where it is adjacent a private property by the owners and as such other parts of the Dam can be accessed from anywhere where there is a flat surface. Facilities at the Dam wall are said to have been vandalised by local community members as a result of uncontrolled access to the Dam.

2.2.4 Management and Operation

The management of the water surface in terms of operation of the Dam is done by BIB. Currently there is no sound and all-inclusive/ well represented institutional structure managing the Dam for recreational use. Through process of developing the RMP, an appropriate IA such as

SLM is proposed for the management of the potential recreational use for this Dam.

There are fixed and floating Aids to Navigation (AtoN) and Demarcation Markers in place at the safety and security zones. 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 the DWS and thereafter the permission by South African Maritime Safety Authority (SAMSA).

2.2.5 Safety

There is currently no specific incident management system in place to ensure that incidents are recorded and responded to in a coordinated manner. As part of the RMP process, the Incident Management Plan will be put in place to ensure that incidents are recorded and responded to.

Due to other parts of the Dam not been fenced facilities at the Dam wall have been vandalised by local community members as a result of uncontrolled access to the Dam.

2.3 SOCIO-ECONOMIC ENVIRONMENT

Socio-economic Status

The purpose of assessing the socio-economic conditions is to determine matters that need to be addressed through the implementation of the RMP to uplift the standard of living of the communities. The study focuses on the socio-economic conditions of Ward 3 of SLM, refer to **Figure 4** for the Municipal Ward Boundary.

The socio-economic conditions, according to Stats SA Community Survey (2016) are summarised in the sub-sections as follows:

- Education level;
- Monthly income; and
- Community beneficiation.

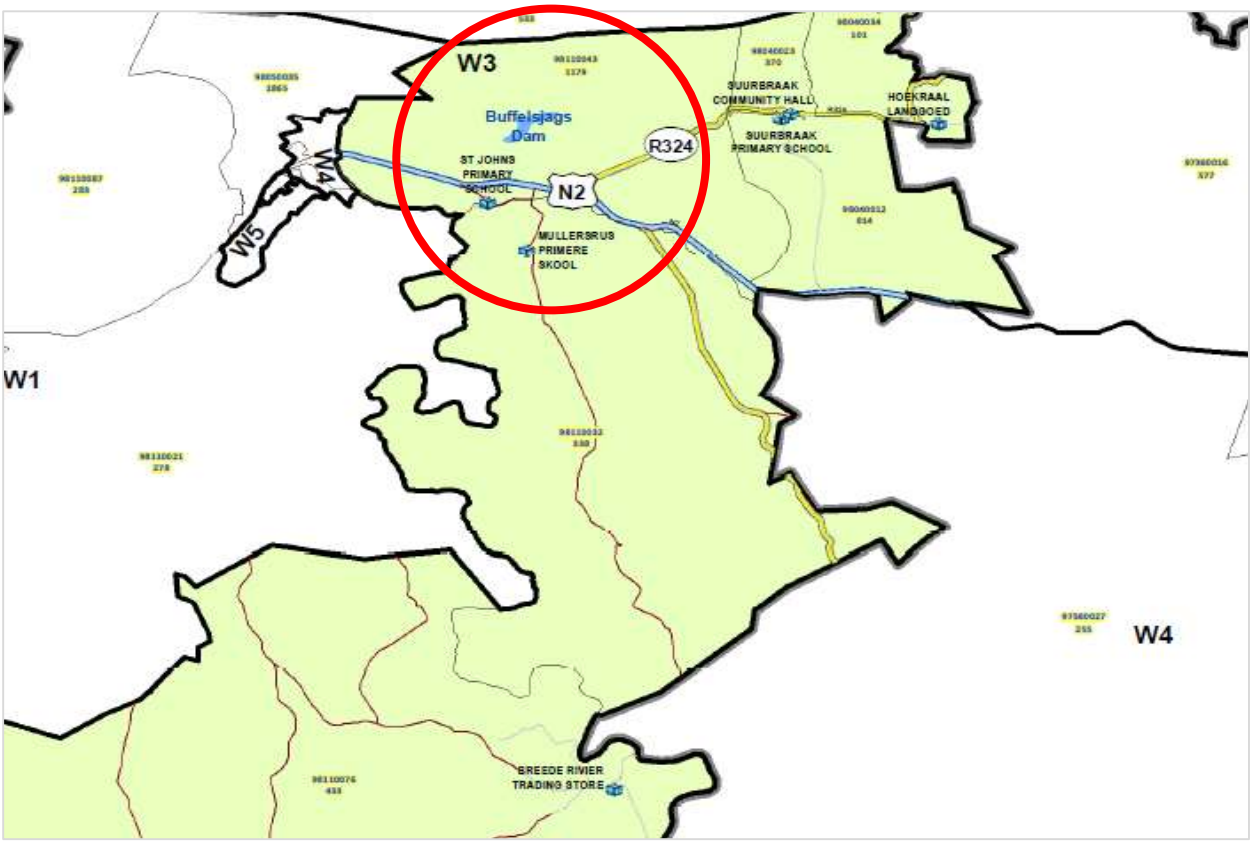

Figure 4: Swellendam Local Municipality Ward 3 Boundary
Source: Municipal Demarcation Board (2016)

Educational Level

The Stats SA Community Survey (2016), breaks down educational levels into each year of study. For the purpose of this report, the educational levels are grouped into primary, secondary, higher education and no schooling categories. Ward 3 has people representing 47% of residents in SLM who have secondary level education. Furthermore only 8% of people in ward 3 have furthered their studies up to higher education level as illustrated in **Table 4** and **Figure 5**.

Table 4: Educational Level for Ward 3 versus SLM

Description	Ward 3 (2016)	SLM (2016)
Primary Level	40%	45%
Secondary Level	47%	46%
Higher Educational Level	8%	5%
No Schooling	5%	4%

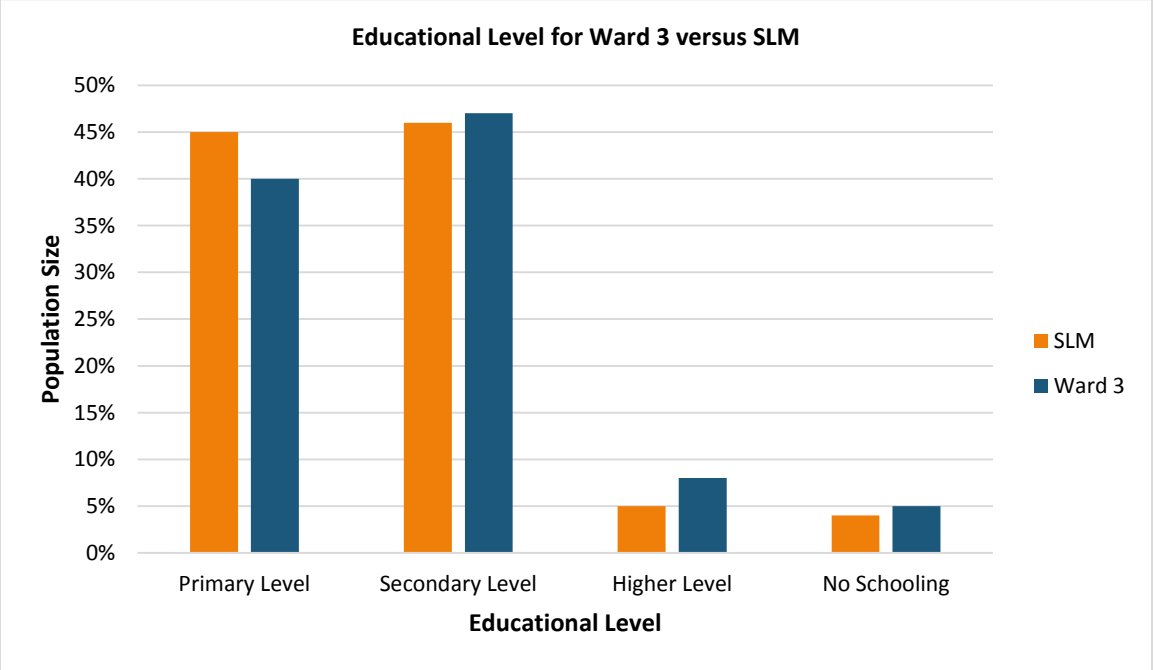

Figure 5: Educational Level for Ward 3 versus SLM
Source: Stats SA Community Survey (2016)

Monthly Income

Figures 6 show that 37% individuals within ward 3 of the SLM receive no income (Stats SA Community Survey, 2016). This then requires concerted and integrated efforts by the municipalities to create decent work and sustainable livelihoods for the people.

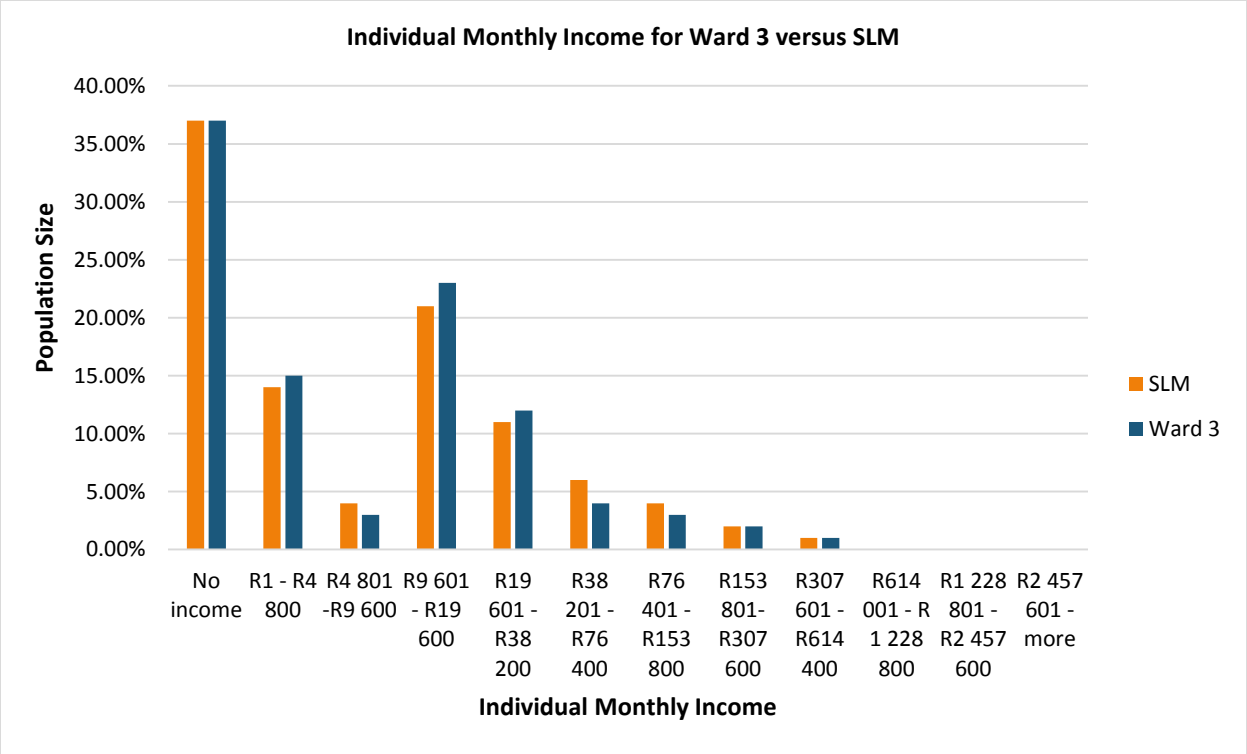

Figure 6: Individual Monthly Income for Ward 3 versus SLM
Source: Stats SA Community Survey (2016)

2.3.1 Community Beneficiation

It is the DWS's aim that local communities should equally share the benefits emanating from the utilisation of the Dam for recreational use.

According to DWAF (2006), "it is important to ensure that communities have physical access to the resource, as well as access to the water-based recreation economy". This will ensure that water resource remain protected for present and future generations.

Recreational angling sector has a substantial participation rate and a significant economic impact through the tourism sector and angling supply value chains. It is therefore important that recreational anglers are recognised as important stakeholders in South African inland fisheries and that their interests are recognised in future fisheries development initiatives.

The value chain associated with the recreational fishing sector has the potential to support rural food security through decent jobs, entrepreneurship and participation in the fishing linked tourism service sector.

In addition to the above, subsistence and small-scale fishing is widely practiced by rural community members to sustain their livelihoods. Subsistence and small-scale fishing has the potential to achieve the following:

- Food security and production;
- Rural development;
- Job creation;
- Poverty alleviation; and
- Socio-economic development.

Involving the communities in the utilisation and management of the Dam will ensure that communities benefit through:

- Controlled access to the Dam;
- Safety while accessing and using the Dam;
- Being given first preference when there are employment opportunities and skills development through the Public Private Partnership (PPP); and

- Participating in decision-making with respect to major developments planned or proposed for the Dam through the DMC.

CHAPTER 3: RESOURCE MANAGEMENT PLAN PROCESS

3.1 DEFINITION OF RMP

A Resource Management Plan (RMP) is a tool which regulates access to and the recreational utilisation (secondary use) of a water resource and the surrounding state land, in ways that promote community participation and beneficiation, environmental conservation and the unlocking of socio-economic potential of the water resource.

Secondary use includes leisure, culture and religious activities. Although recreational use does not involve consumption of water, it is still a major water use and needs to be managed effectively with minimal detrimental environmental impacts.

3.2 PROCESS TRIGGERS

Process triggers are factors used to initiate the planning and public participation process in which stakeholder and potential Interested and Affected Parties (I&AP) are given an opportunity to comment or raise issues of concern that are relevant and site specific in line with the process triggers and potential challenges. Triggers for this Dam are detailed in **Table 5.**

The resource management planning process aims to achieve a common goal, identify site specific challenges and establish a set of objectives and projects to attain community participation and beneficiation, environmental conservation and the unlocking of socio-economic potential of the water resource.

Table 5: Summary of triggers and potential challenges for Buffeljags Dam

Trigger Factors	Description
Resource Management	**Water quality and hydrology (sedimentation):** • The Dam is silted. • The water in the Dam has a dark colour. **Access control:** • There is currently no public access at the Dam for day visiting. • Exclusive access within the Buffeljags Recreational Club. • No day visitors allowed at Umshanti Resort. **Management Structure:** • There is no proper management structure to oversee the recreational use of the Dam.
Resource Utilisation	**Public Safety:** • Local community members are not safe when they access the Dam for recreational use (previously mistaken for baboons). • There are incidences where people have been restricted for access to the Dam due to their race.
Community participation and beneficiation	**Community Participation and Beneficiation:** • Local communities should be involved in managing and utilizing the Dam for recreational purposes. This will assist in ensuring that the Dam is utilised in a manner that it meets social and economic needs of the local community and ensure sustainable resource development.

Trigger Factors	Description
Public Policy	**Local Planning Initiative:** • To integrate Buffeljags Dam in the Municipal Development Plans and Policies such as Integrated Development Plan (IDP), Environmental Management Framework (EMF), Strategic Development Framework (SDF).

3.3 RMP DEVELOPMENT PROCESS

The RMP is developed in accordance with the RMP guideline procedure (DWAF, 2006) which stipulates the stages that needs to be adhered to as shown in **Figure 7**.

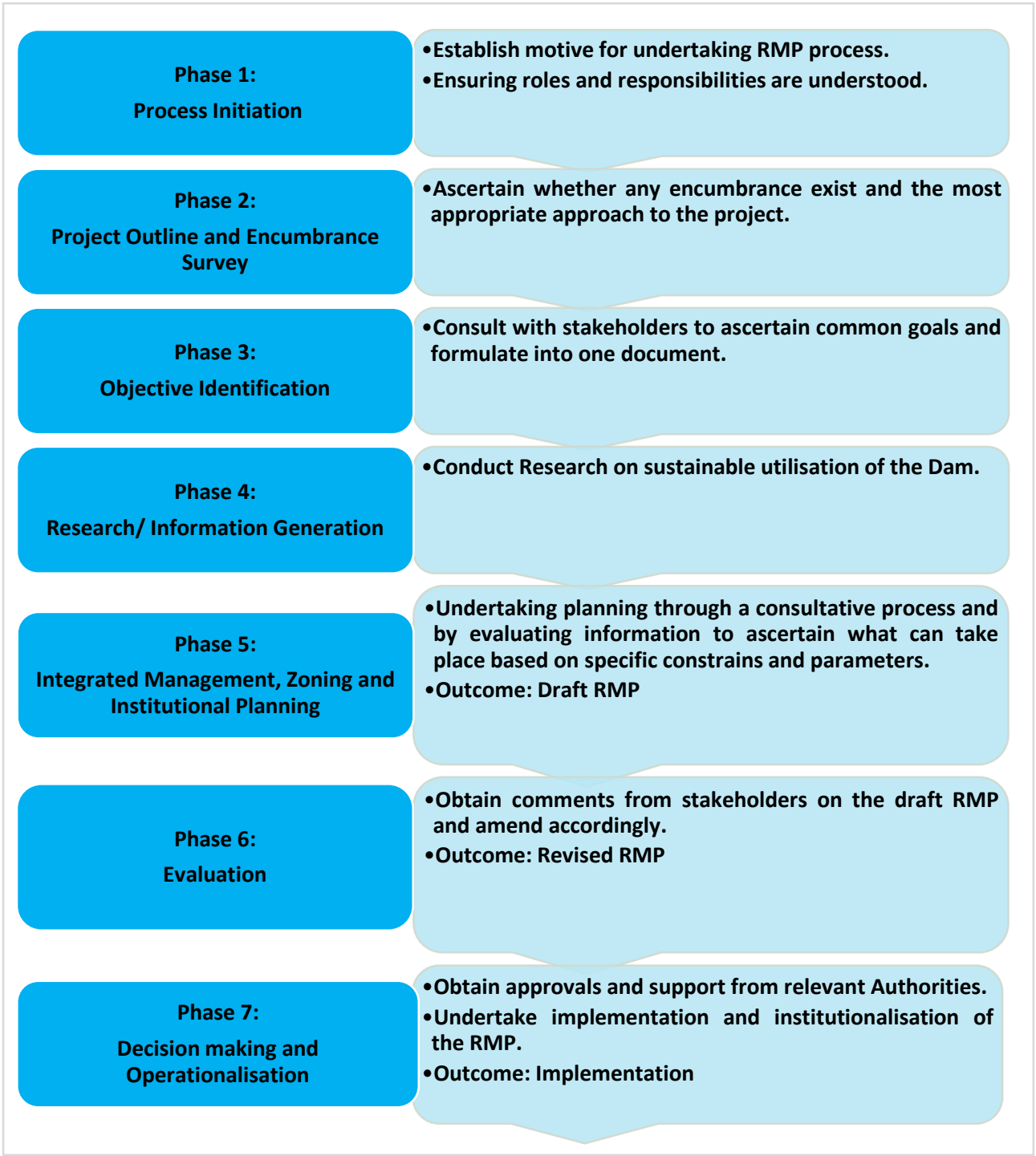

Figure 7: RMP Procedure
Source: Adapted from DWAF (2006)

3.4 RMP PLANNING STAGES

3.4.1 Desktop Study

A desktop study was conducted with the aim of acquiring background information about the Dam. This stage included the review of legislative and regulatory framework, decision-support tools, specialist reports, policies and guidelines, local and district municipal plans, biodiversity sector plans and integrated water information systems.

3.4.2 Site Inspection

A site inspection was conducted with the DWS officials (DWS IEE, Dam Control Officer and the Southern Operations Champion) on **03 September 2019.**

During the site inspection the following were observed: At the Dam wall, there are buoys demarcating the area where boats are not allowed as a safety measure. There was a sign stating that no person was allowed at the Dam but has been since removed.

Additional background information was collated from consultation with different stakeholders. Some Interested and Affected Parties were identified during site inspection through liaison with the Dam operator.

3.4.3 Public Participation

The Public Participation (PP) process is a process in which potential I&APs are given an opportunity to comment or raise issues of concern on specific matters. The three (3) fundamental and theoretical objectives of the 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.

The PP process was conducted in order to obtain information for Phase 2 (Encumbrance Survey), Phase 3 (Objective Identification) and Phase 4 (Research/ Information Generation) from stakeholders, authorities and I&APs that was used to complete Phase 5 (Integrated Management, Zoning and Institutional Planning).

Stakeholder Database Register

Various stakeholders were identified and invited to participate in an open and consultative process. The stakeholder database was updated on a continuous basis throughout the RMP process (refer to **Appendix A**).

Advertising Process

The purpose of advertising was to notify the public about the proposed RMP project and to give the public an opportunity to register as I&APs.

The following advertising methods were used:

- **Newspaper Advert:** A Newspaper advert regarding the RMP project was placed in the **Langeberg Bulletin**. It invited the public to attend the Public Participation Meetings. The advert was published in English on **10 October 2019.** The draft RMP presentation advert was published on **Langeberg Bulletin** on **20 February 2020** (see attached **Appendix C**).
- **Flyers and Onsite Notices:** Flyers and onsite notices were compiled in English and were distributed on **08 October 2019.** For the draft RMP presentation, the flyers and the draft RMPs were distributed on **19 February 2020** (refer to **Appendix D**).

Consultation and Engagement

Consultation with stakeholders shall continue until the approval of the RMP.

The following consultation and engagement methods were used:

- **E-mails:** Initial meeting invitations were sent to stakeholders on **11 October 2019,** notifying them about the scheduled consultative meetings. The meeting invites for the draft RMP presentation were sent on **17 February 2020** (refer to **Appendix E**).
- **Background Information Document (BID):** The BID was sent to stakeholders

via email with information about the proposed RMP project (refer to **Appendix B**).

- **Authority Meeting:** The initial authority meeting was held on **22 October 2019** at **Swellendam Town Hall**. The draft RMP was presented on **03 March 2020** at **Swellendam Local Municipality: Council Chamber.** The purpose of the meeting was:
  - To present the RMP, its goal and the objectives to the authorities; and
  - To allow the authorities an opportunity to participate in the project by sharing information on their respective mandates.
- **Public Meeting:** The initial public meeting was held on **22 October 2019** at **Buffeljagsrivier Community Hall**. The follow up public meetings were held on **19** to **21 November 2019** at **Forthaven Hall (Barrydale)** and **Suurbraak community Hall (Suurbraak)**. The draft RMP was presented on **02** and **03 March 2020** at **Buffeljagsrivier Community Hall (Buffeljagsrivier)** and **Forthaven Hall (Barrydale).**
- **Comment and Responses Register:** Copies of the draft RMP were circulated on **19 February 2020** for public review. The commenting period lapsed on **06 March 2020.** The comments received were documented in the Comments and Responses Register (refer to **Appendix F**).

3.4.4 Planning Partners

The RMP Process addresses both the institutional structure required to effectively manage the water resource, as well as the site planning parameters (environment, community and visitor) resulting in a management plan specific to the Dam. Both the proposal regarding the institutional structure and the management plan are consolidated into a RMP. This RMP will serve as guide for the development and management of the water resource for recreational use.

In order to successfully complete the RMP, it is essential that the information obtained in the previous phases is utilised as planning input. The RMP provides for coordination between different government departments and agencies as shown in **Table 6.** This is to ensure that not only the objectives of DWS are achieved but also that the functions/ objectives of the planning partners (relating to the recreational use of the Dam) are taken into consideration when developing the RMP.

Table 6: Planning Partners and their Respective Mandates

Department	Functions / objectives
Swellendam Local Municipality	The Dam is within the jurisdiction of the SLM. The Municipality has also show interest in assuming the role of an IA for the Dam.
Department of Environment, Forestry and Fisheries (DEFF)	The purpose of the DEFF includes sustainable development and management of resources to maximise the economic potential of the fisheries sector while protecting the integrity and quality of the country's aquatic ecosystems. Operation Phakisa's expansion to inland Dams is one of the DEFF's initiatives aimed at unlocking the economic potential of the fisheries sector of inland water. The latter programme will be used as a benchmark for the implementation of conservation policies, while implementing job creation in the fishery and fish processing market.
Department of Environmental Affairs (DEA)	The 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 DEA is responsible for biodiversity management within the GWWs, including invasive alien species. In addition, the Department should ensure that Environmental Impact Assessments (EIAs) is undertaken for all activities that triggers EIA Regulations. The DEA through the WfW programme, can assist in eradicating alien invasive plants species (blue gums and parrot furthers) and alien invasive fish species.
Department of Public Works (DPW)	DPW is tasked with the function to regulate and control the use of state land outside the GWWs.
Department of Rural Development and Land Reform (DRDLR)	The Department will assist in terms of land claims/ ownership issues (i.e. land under traditional authorities). The Department are also involved in rural development by improving both economic infrastructure (such as roads) and social infrastructure (e.g. communal sanitation and non-farming activities).
Department of Transport (DoT)	Responsible for legislation, policy and regulations for all transportation in South Africa, including shipping and other transport by water, and inland waterways. For the purpose of Inland Waterways, DoT has established an agency called the South African Maritime Safety Authority (SAMSA). SAMSA has been charged with the responsibility of executing the administration of the Merchant Shipping (National Small Vessel Safety) Regulation, 2007 (as amended). The Regulations extends SAMSA's core mandate to include inland waterways accessible to the public within the Republic, to ensure boating safety on our waters.
National Treasury (NT)	The use of state assets is governed by National Treasury Regulations, requiring the DWS to plan concessions in compliance or association with the National Treasury, guided by the Tourism Public Private Partnership (PPP) Toolkit of 2005.
Cooperative Inland Watercourse Safety Programme (CIWSP)	The CIWSP is the programme under DWS and 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 watercourses and to implement responsible water use within the broader socio-economic context of the country.

Department	Functions / objectives
	The CIWSP 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 the culture, hospitality, tourism and sport sectors.
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. Another function of the Department is to support provinces and local government in fulfilling their constitutional and legal obligations
Department of Basic Education (DBE):	The function of the DBE is to develop, maintain and support a South African school education system. In this regard, the DBE can collaborate with nature reserves that encompasses GWWs, in order to provide an opportunity for school environmental tours, as this can also have influence on career options.
Department of Sports and Recreation (DSR)	The Department is mandated to promote and develop sport and recreation activities and also to co-ordinate the relationships between the sports commission, national and recreational 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.
South African Police Service (SAPS)	The South African Police Service has been entrusted with the responsibility of creating a safe and secure environment for all people in South Africa, as well as preventing anything that may threaten the safety or security of any community. Hosting of recreational events must comply with the Safety at Sports and Recreational Events Act, 2010 (Act No. 2 of 2010).
South African Sports Confederation and Olympic Committee (SASCOC)	SASCOC is mandated to promote and develop high performance in sports, as well as to act as a controlling body for sports in South Africa. It can also assist in coordinating organised events at the Dam.

3.5 RMP DATA ANALYSIS

3.5.1 Encumbrance Survey (Phase 2)

The purpose of the encumbrance survey is to investigate/ascertain whether any impediments exist around the development and implementation of the RMP for the Dam.

The survey also identifies the information that is required for effective decision-making in the RMP development and implementation process (DWAF, 2006).

The identified encumbrances are categorized into Biophysical, Legal and Socio-cultural. **Table 7** summarises the identified biophysical, legal and socio-cultural encumbrances/ limitations that might affect the development or implementation of the RMP for the Dam.

Table 7: Summary of Biophysical, Legal and Socio-cultural Encumbrances

Item	Description
Climate	• Drought threatens recreational activities on the water surface. In Buffelsjags Dam flashfloods threaten the use of the Dam for recreational activities during rainy seasons. • Constant change in the wind direction will restrict zoning of the water surface for activities which depend on the wind for movement such as wind surfing.
Flora	• The possible regrowth of the AIPs in the area will threaten the indigenous plants species. As AIPs cause loss of native biodiversity resulting in the degradation of local ecosystem and also consume more water which will cause the water resource to be stressed.
Fauna	• Baboons can become dangerous especially when they feel threatened. • Alien species threaten indigenous species through predation, competition for food, habitat resources and displacement of indigenous species. • The shoreline vegetation around the Dam is threatened by overgrazing from the domestic livestock which may cause soil erosion. Soil erosion may increase the siltation problem in the Dam. • The cattle belonging to a private farmer, drinking water and grazing on the Dam banks are not regulated.
Topography	• Steep slopes are undesirable for development as it is difficult to construct on steep terrain. • Steep areas also create surface run-off situations during rainy seasons. • Steep slope pose as a safety concern within Umshanti Resort as well as retricts access to the water surface in other parts of the dam.
Water quality	• The color of water at the Dam will restrict recreational activities such as swimming in the water surface for safety purposes.
Hydrology	• The Dam is silted and silt reduces the storage capacity of the Dam as well as its life span.
Land ownership	• The Dam is landlocked by private properties which restricts access to the DWS purchase boundary.
Agreements	• There is an exclusive use of the Dam within the recreational club of which only members of the club are allowed to access the Dam for recreational use. Furthermore, only 150 members are allowed to join the club and currently it is full and there is a waiting list to join the club. • Umshanti Resort does not allow for day visit within the resort, only overnight visitors are allowed to access the Dam for recreational use. • There is no public access to the Dam for day visitors.
Mobility	• There is no public transportation to shuttle people from the communities to the Dam and most people do not have private cars, this discourages locals from the surrounding communities to go the Dam for recreational use.
Expectations	• Local community members are expecting immediate access to the Dam for fishing and other recreational use.

Item	Description
	• If the community expectations are not adequately addressed the community may lose trust in the department and this might affect negatively the presentation of the draft RMP and ultimately the implementation phase.
Education Level	• Majority of the local community members in Ward 3 do not have higher education and they will need training in order to be involved or engage in tourism related opportunities at the Dam.
Monthly Income	• Ward 3 of SLM has 37% of people with no source of income. This will result to a lack of community participation in the tourism developments at the Dam. • Most of residents in Ward 3 have no sources of income and are living below the poverty datum line, representing a standard of living attained by a person to be deemed poor.

3.5.2 SWOT Analysis and Objective Identification

Engineerex Pty Ltd as the process facilitator conducted the Strengths, Weaknesses, Opportunities and Threats (SWOT) analysis. This was done in order to determine the **Strengths** and **Opportunities** that define the potential of the Dam and the challenges regarding the Dam were identified through **Weaknesses** and **Threats**. Refer to **Table 8** for the SWOT analysis.

Table 8: SWOT Analysis for Buffeljags Dam

Strengths	Weaknesses
• Source of good water supply for domestic and irrigation uses. • The water quantity is good at the Dam. • Good management for primary use. • Alien plants are been eradicated. • No health risk on the water. • Subsistence fishing. • Canoeing at the Dam. • No dangerous aquatic animals. • The Dam is not far from N2 road from Cape Town making it easily accessible. • Good rainfall in the area. • No drowning incidents since 1975. • Camping.	• Exclusive use of the Dam. • Limited space for camping within the recreational club. • No access to the Dam on the north western side of the Dam (private farm). • The depth of the Dam is considered deep and the water on the Dam has a dark colour. • Access road to the Dam is dangerous when wet. • The Dam is very steep. • No access to the Dam for day visitors. • Children swim in the canal due to lack of access to the Dam. • No public access at the Dam. • No access to information regarding the Dam. • No public transport. • No recreational facilities for children.
Opportunities	**Threats**
• Controlled access point for all. • Redressing past imbalances. • Employment opportunities through alien plants control. • Establishment of water sports. • Establishment of swimming pools. • Tourist attraction. • Mountain hiking. • Raising of the Dam wall. • Community projects. • Grazing land for local farmers. • Job opportunities.	• Alien vegetation. • Climate change. • Drought. • Veld fires. • Vandalism and theft. • Flash floods without warnings during rainy seasons. • Reported siltation in the Dam. • Dark colour of the water. • Dangerous obstacles in the Dam (logs).

• Aquaculture project. • Boat rides. • Bird watching. • Hiking trails. • Canoeing. • Hosting of water sports competition. • Clear marking on the water and land (zoning plan). • Clear marking of government land. • Chalets. • Conference centres. • Dam Management Committee. • Tourism facilities. • Ablution facilities. • Potable water when engaging in recreational activities. • Fishing (subsistence and sports). • Security personnel. • Equitable access fee.	• Strong winds and constant change in wind direction will prevent some recreational activities at the Dam. • Squatter camps. • Fish farming will increase phosphate in the water. • There are baboons in the area. • Children in Buffeljagsrivier swim in the canal due to lack of recreational facilities in the area. • No clear marking at the Dam. • New housing development will stress the water resource. • Safety of public when engaging in recreational activities.

Key objectives were formulated from the identified **Strengths** and **Opportunities** of the Dam.

The vision and key performance areas (KPA) for the Dam for a period of 20-years was formulated from the key objectives, discussed in the paragraphs to follow.

KPA 1: Resource Management

- To prevent the regeneration of alien plants species within the Dam's surrounds;
- To establish an effective and functional institutional structure inclusive of community representation to manage recreational activities and access; and
- To raise the Dam wall.

KPA 2: Resource Utilisation

- To cater and make provision of public access for day visitors at the Dam;
- To promote subsistence fishing at the Dam;
- To investigate the feasibility of introducing aquaculture project at the Dam; and
- To construct swimming pools at the Dam for day visitors; and
- To establish tourism facilities such as B&Bs, conference centres and recreational activities including hiking, bird watching, and other water sports at the dam for day visitors.

KPA 3: Benefit Flow Management

- Uplift the Local Economy and increase Benefit Flow to the surrounding communities through meaningful community empowerment.

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

A 20 year vision for the Dam, formulated from the objective identified by the stakeholder, is as follow:

"To encourage inclusive use of the dam, ensure the optimization of the dam as a source of water for everyone around it while putting in place programs for skills development and socio economic benefit of the community".

3.5.3 Research/ Information Generation (Phase 4)

The main aim of the research was to identify the Dam's tourism development potential and to evaluate the practicality/ feasibility of the identified objectives.

Tourism Development Potential

The Dam currently offers fishing, canoeing, and boat cruise, camping, picnicking, and swimming (mostly at the canal). There are overnight facilities within the Umshanti Resort which are operating adjacent the Dam.

There is a potential to open a controlled public access point for the day visitors to encourage local community members and tourists to go the Dam because currently there is no access to Dam for day visitors. Local community members are interested in fishing (subsistence, sports and aquaculture), swimming facilities for children, water sports, picnic site, braai facilities and camping facilities at the Dam.

Practicability/ Feasibility of Potential Objectives:

According to the DWAF (2006), the feasibility of the proposed objectives needs to be determined prior to the RMP implementation. Based on the desktop study done for the Dam, not all identified objectives are considered to be practical/ feasible during the implementation stage, others will be subjected to a feasibility study, refer to the Strategic Plan in **Section 4.3** of this RMP.

CHAPTER 4: INTEGRATED RESOURCE MANAGEMENT PLANNING

The purpose of Integrated Resource Management Planning (IRMP) is to evaluate the information obtained from preceding phases (Process Triggers, Encumbrance Survey, Objective Identification and Research/ Information Generation) to ascertain what could be achieved based on specific constraints and parameters of the water resource and surrounding State land.

The IRMP consists of four (4) plans namely the Institutional Plan, Zoning Plan, Strategic Plan and Financial Plan. **Figure 8** shows the plans and their components.

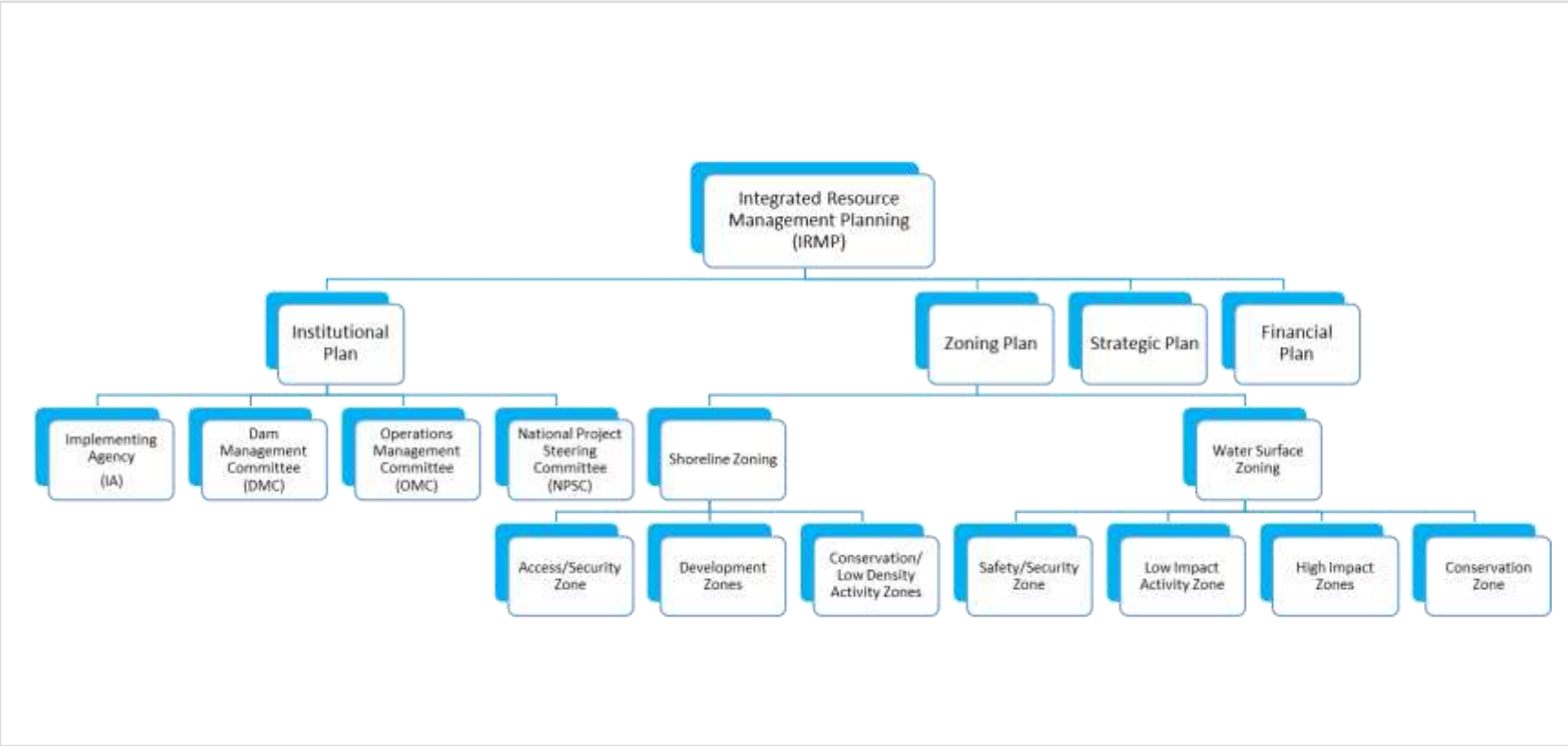

Figure 8: Integrated Resource Management Planning

4.1 INSTITUTIONAL PLAN

The Institutional Plan provides a framework for the institutional arrangements at the Dam. The proposed management systems include four (4) committees namely; the Implementing Agency (IA), Dam Management Committee (DMC), Operations Management Committee (OMC); and National Project Steering Committee (NPSC).

The management authorities appointed by the Department at the Dam, also form part of the institutional structure.

4.1.1 Implementing Agency (IA)

The IA is an institution that would implements a programme or project on behalf of DWS.

According to DWS, the minimum requirements of an IA include the following:

- An IA must be a government entity or a public-sector body, identified by the DWS;
- IA must have the best interest of water resource and the community at large; and
- IA must be willing to work with the DWS and other users of the water resource.

The IA shall facilitate the implementation of programs or action projects identified in the RMP. The IA and DWS will sign a Memorandum of Agreement (MOA), which is a legally binding document that outlines the roles and responsibilities and conditions to be followed by both parties with regards to managing the Dam for recreational use.

Some of the functions/ responsibilities of the IA include:

- Management of public access area;
- Management of recreational and tourism related activities;
- Management of agreements entered between DWS and third parties;
- Implementation of an incident management system and wash bays;
- Management of community skills and training programmes;
- Management of commercial activities (in line with Treasury Requirements); and
- Management of AtoN and demarcation markers.

4.1.2 Dam Management Committee (DMC)

The DMC comprises of user groups representatives that are interested or affected by the Dam and will assist in raising and addressing issues relating to the Dam. Any issues that the DMC is unable to resolve will be escalated to OMC (described in detailed in 4.1.4). The DMC is required to meet quarterly.

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

- To give support to Implementing Agency (IA);
- To assess commercial opportunities at the Dam;
- Seeking resolution for general management issues;
- Monitoring the practical implementation of the RMP and BP;
- Seeking and reviewing the feedback received from I&APs;
- Operational management of recreational activities, such as ensuring that the floating AtoN and demarcation markers are in place and setting times for use of the Dam;
- Assist in conveying the Dam management objectives and decisions pertaining to the relevant stakeholders; and
- Assist in the management of the incident management system and wash bays.

Figure 9 shows the proposed parties to form part of the DMC for Buffeljags Dam.

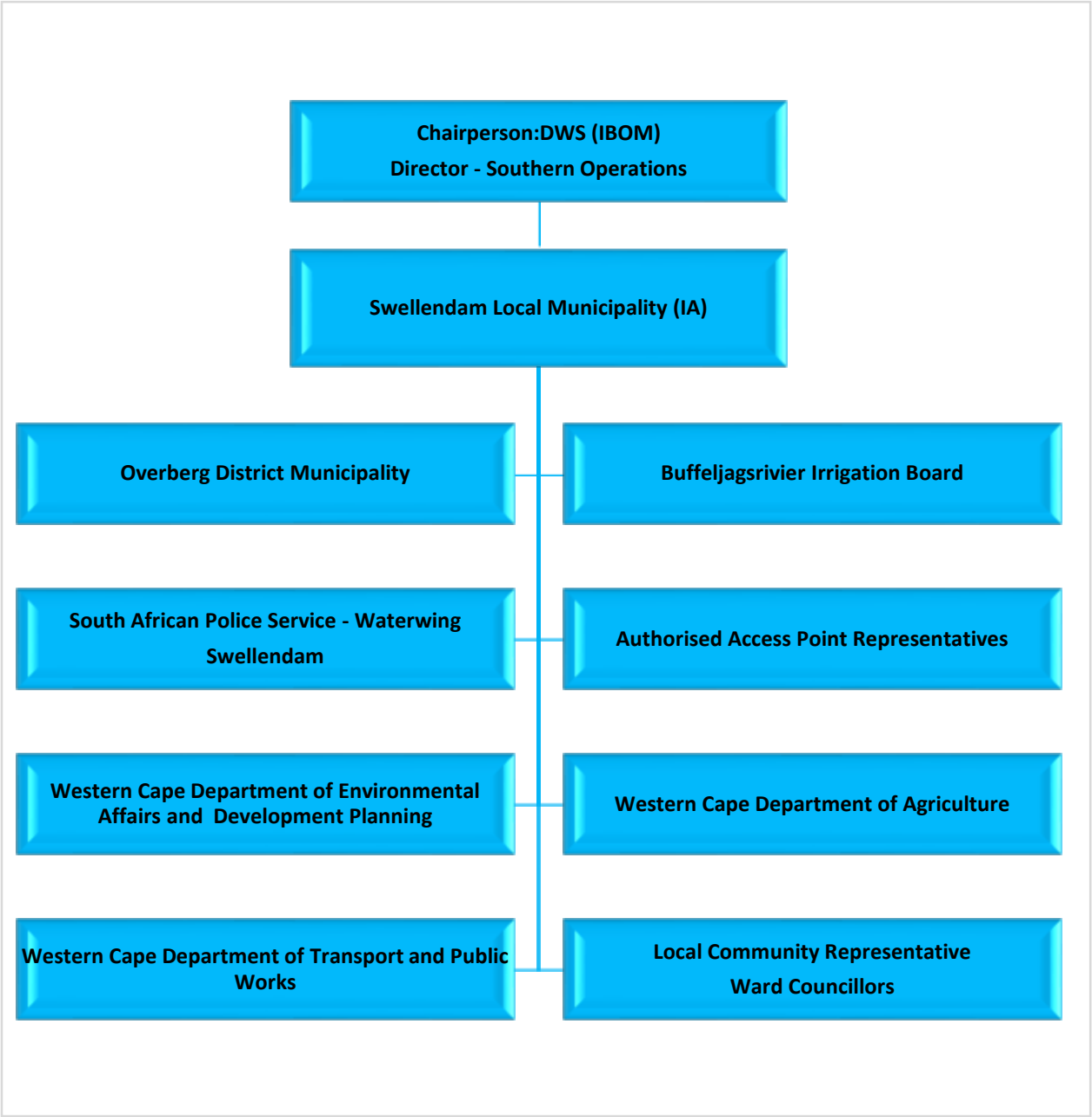

Figure 9: Proposed DMC

Management Tools:
The DMC will have a number of management tools which will enable proper management of the Dam in line with legislative requirements. Some of the management tools includes the Terms of Reference.

The Terms of Reference (ToR) define the purpose and structure of the DMC and its management aspect for the implementation of the RMP. The management aspects that will be guided by the ToR includes:

- Roles and responsibility of chairperson;
- Roles and responsibilities of members;
- Attendance requirements;
- Minutes and Reporting requirements;
- Management of agreements;
- Management of access objectives;
- Management of development targets;
- Management of water quality monitoring;
- Management of and 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.

4.1.3 Agreements and Permits

The purpose of agreements is to ensure proper use of the Dam in line with the RMP requirements and the relevant acts and regulations.

The applicable agreements for the implementation of RMP are as follows:

Memorandum of Agreement (MOA):
MOA is a legally binding document that outlines the roles, responsibilities and conditions to be followed for the management of the water resource for recreational use. An MOA will be signed in an event where the DWS is tasking another organization with its function of managing the Dam for recreational purposes.

Safety of Navigation Agreements:
The purpose of this agreement is to allow access of boating vessel to government waterworks. This agreement to be concluded between SAMSA, the DWS and other relevant parties or bodies to allow them to:

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

Access Agreements:
All access points to the Dam and surrounding State Land must be authorised. Accessing the Dam through unauthorised access points is an illegal activity. Therefore, a formal agreement with DWS will be required for all adjacent landowners and recreational clubs that have direct access to the Dam and surrounding State Land.

A formal agreement on building, management and maintenance of the wash bay is necessary between the DWS and DEA. A wash bay must be built on State Property as part of the Cooperative for Inland Watercourse Safety Programme (CIWSP).

Event Applications:
All events at the Dam and surrounding state land must be managed through an event application process. The events application will be submitted to DWS for approval through the IA. These applications must follow a specific template and will include amongst others 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.

All events will be expected to meet the requirements of the Safety at Sports and Recreation Act, 2010 (Act No. 2 of 2010).

4.1.4 Operations Management Committee (OMC)

There is an existing Chief Directorate: Infrastructure Operations Management

Committee (CD: IO MANCO) within the DWS IBOM which comprises of directors of the IBOM's four (4) operations (Northern, Southern, Eastern and Central) and is chaired by the Chief Director: Infrastructure Operations within the IBOM as illustrated in **Figure 10**.

The committee shall meet quarterly to discuss matters relating to operations and maintenance of all GWWs. An RMP must be a standard agenda item. Any matters relating to the RMP that are outside the scope of the DWS will be escalated to the NPSC (described in detail in **4.1.5**).

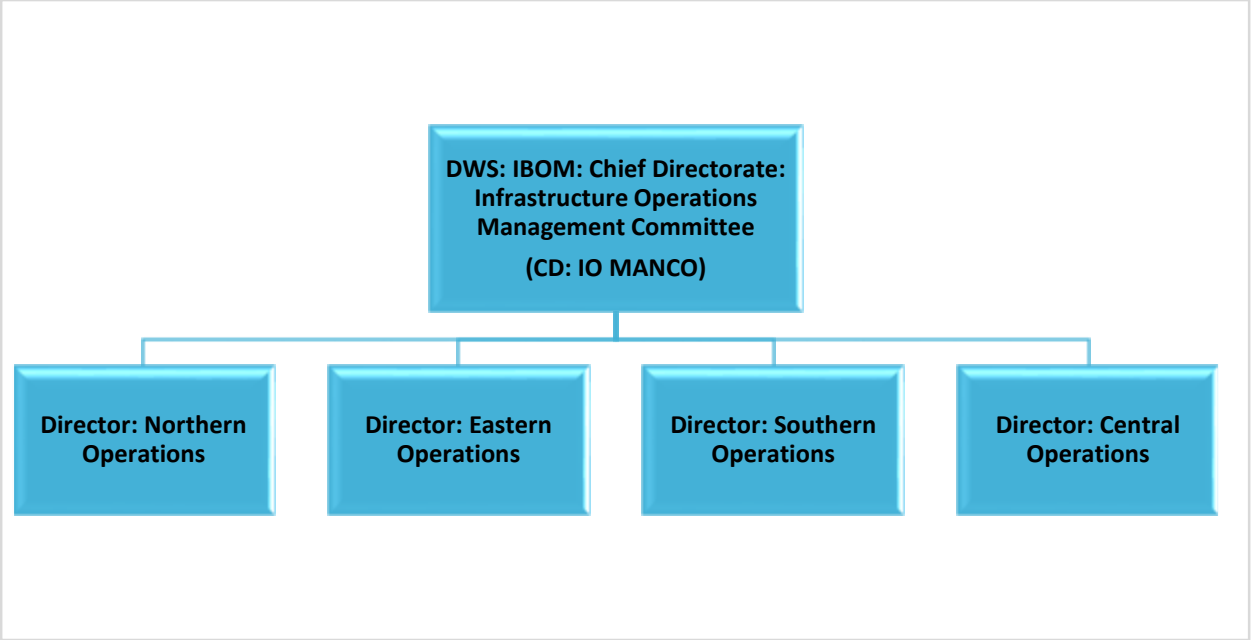

Figure 10: Existing CD: IO MANCO

4.1.5 National Project Steering Committee (NPSC)

The NPSC is formed by the DWS and is made up of representatives from national government departments and their agencies (also referred to as planning partners) that have direct and/or indirect mandate in managing the water resource. The function of the NPSC is to provide guidance and support to DWS on recreational water use in terms of their respective mandates with the aim of achieving sustainable utilisation of the Dam. The NPSC shall meet twice a year. **Figure 11** shows government departments (also referred to as planning partners and/ or authorities) and agencies that will form part of the NPSC:

Figure 11: Proposed NPSC

4.2 ZONING PLAN[3]

The purpose of the zoning plan is to demarcate permissible and non-permissible activities on the water surface and the shoreline to avoid conflict amongst users, uncontrolled development and to protect the water resource. In order to determine the extent of possible recreational use on the water surface, the carrying capacity of the water surface was calculated.

The proposed zoning plan integrates conservation, recreation and development ensuring not to negatively interfere with the primary functions of the Dam. This RMP and /or zonation plan does not legitimise nor does it authorise any exiting built structures, infrastructure or services within the government waterworks (in both the water surface and shoreline).

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 zonation map is a desktop exercise and must not be used for navigational purposes. DWS and SAMSA will update the zonation map to be used for navigational purposes. The water surface is zoned as follows:

Safety and Security Zone:

This zone covers a minimum area of 100m from the wall and outlet works indicated by demarcation markers and AtoN. This area is reserved for the 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 Zone:

The aim of this zone is to conserve and protect sensitive aquatic habitation at the inlet of the Dam. Access to this area 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
- The area would be used by aquatic birds and fish species as habitat, refuge and breeding areas.

Low Impact Activity Zone:

This zone acts as a buffer between high impact activity zones and conservation zones. The low impact activity zone allows for low intensity activities, i.e. activities associated with little or no wake. It includes activities such as wind surfing, kayaking, swimming, rowing, sailing, paddle boating, float tubes, canoeing, angling, yachting, and small-scale fishing.

Table 9 and **Figure 12** shows the proposed water surface zoning for Buffeljags Dam.

[3] The current and proposed activities at the Dam will be affected by the raising of the Dam wall.

Table 9: Proposed Water Surface Zoning Description

Zone Description	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 Zone.	• None.	• Public activities (to prevent disturbance of aquatic habitats disturbance).	• Area should be demarcated by demarcation makers and AtoN. • Strict management and control of these areas.

• Low Impact Activity Zone.	• Activities associated with no or little water wakes such as:
	  ○ Angling from a boat
	  ○ Boat cruise
	  ○ Slipway
	  ○ Floating Jetty
	  ○ Float tubes
	  ○ Paddling boat
	  ○ Kayaking
	  ○ Rowing
	  ○ Canoeing
	  ○ Swimming (shallow areas of the dam with supervision)
	• Aquaculture facilities
		• Motorised boating
		• Water skiing
		• House boats
		• Para-sailing
		• Kite-surfing
		• Wind surfing
		• Floating chalets
		• Jet skiing
		• Motorised boating
			• Area should be demarcated by demarcation markers and AtoN.
			• No private slipways/ floating jetties to be built without approval from DWS.
			• Launching and mooring of vessels should take place at this zone.
			• Motorised boating are allowed to launch at this zone but no water wake should be formed until the designated area for motorised recreational boating is reached.

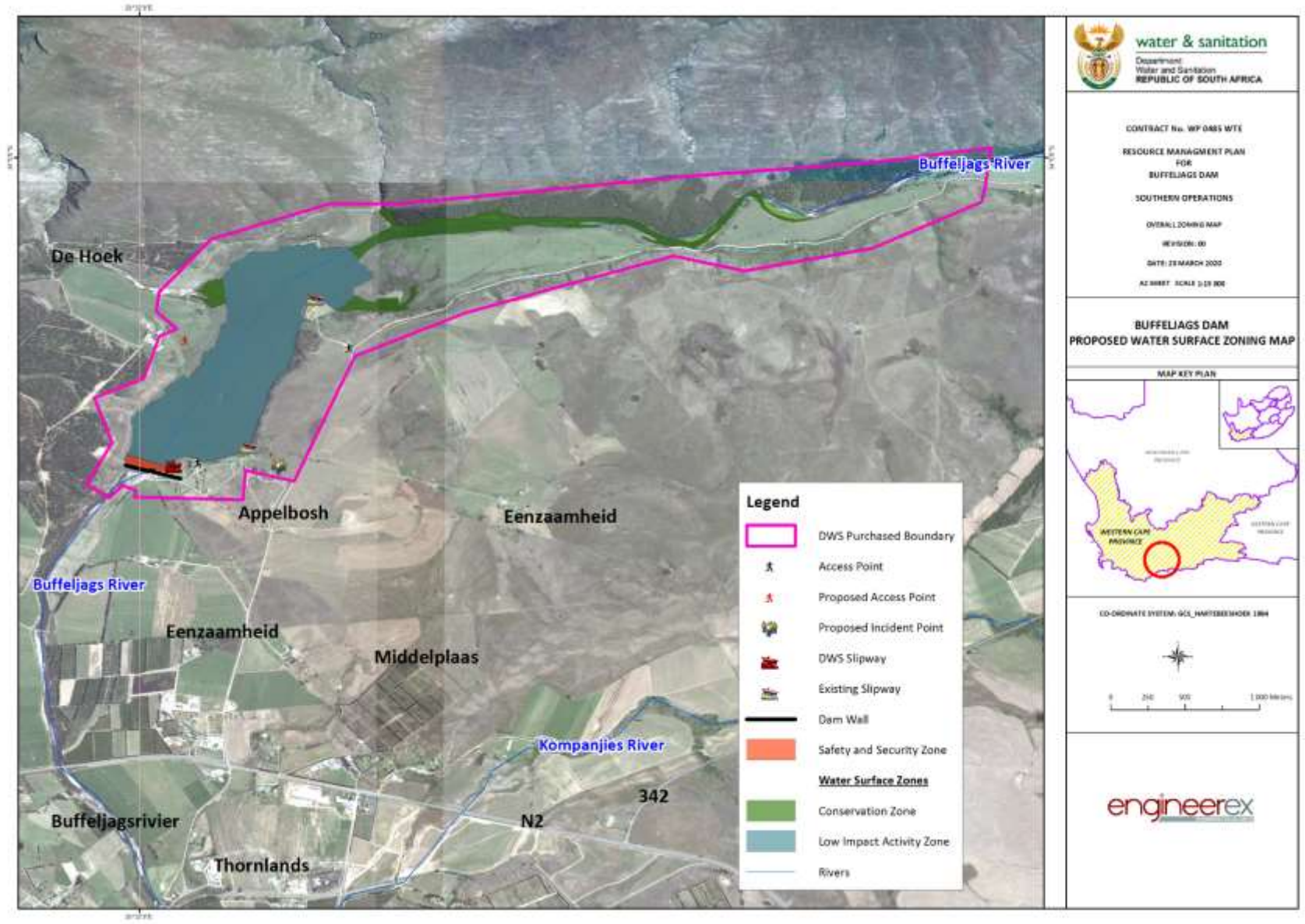

Figure 12: Proposed Water Surface Zoning

4.2.2 Shoreline Zoning[4]

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

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

This zone is applicable to the area surrounding the Dam wall and the outlet works. The extent of this zone is determined by the DWS and shall be no less than a 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 ensuring 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, and bird watching. This area is demarcated to prevent ecological Damage due to high density development activities.

Medium Density Activity Zone:

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

High Density Activity Zone:

A high density activity zone is demarcated 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 livelihoods are maintained and improved. Activities that may take place at this zone include subsistence fishing, Aquaculture, livestock watering points, and small-scale community gardens.

Table 10 and **Figure 13** and **14** shows the proposed shoreline and overall zoning for Buffeljags Dam.

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

Table 10: Proposed Shoreline Zoning Description

Zone Description	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	• Development	• Permissible activities may only be permitted provided that they are approved by the relevant Authorities and they are conduct as per the relevant legislations. • These zones should control access to ecological sensitive areas.

• Medium Density Activity Zone.	• Camping (tent and/or caravan)
	• Day visitors
	• Picnic
	• Braai facilities
	• Swimming pools
	• Ablution facilities
	• Aquaculture facilities
		• Accommodation facilities such as:
		  ○ Chalets
		  ○ Recreational club houses
		• Permanent Structures
		• Shoreline fishing
			• The management of this area should follow the PPP process in terms of National Treasury.
			• All developments must be approved by IA and DWS.
			• Requirements of NWA and NEMA must be taken into account in all developments.
			• 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
	  ○ Guesthouse
	• Recreational Boat House
	• Infrastructure for services
		• Hiking
		• Camping
		• Picnicking
		• Caravan park
		• Permanent structures
			• The management of this area should follow PPP process in terms of the National Treasury.
			• All developments must be approved by DWS.
			• Requirements of NWA and NEMA must be considered in all developments.

Zone Description	Permissible Activities	Non-permissible Activities	Recommendation
• Community Resource Zone	• Subsistence fishing; • Aquaculture; • Small-scale community gardens; and • Livestock watering points.	• Chalets; • Recreational club houses; • Braai facilities; • Camping and picnicking; and • Permanent Structures.	• No private slipways to be built without approval from the DWS. • Requirements of the NWA must be taken into account in all recreational activities.

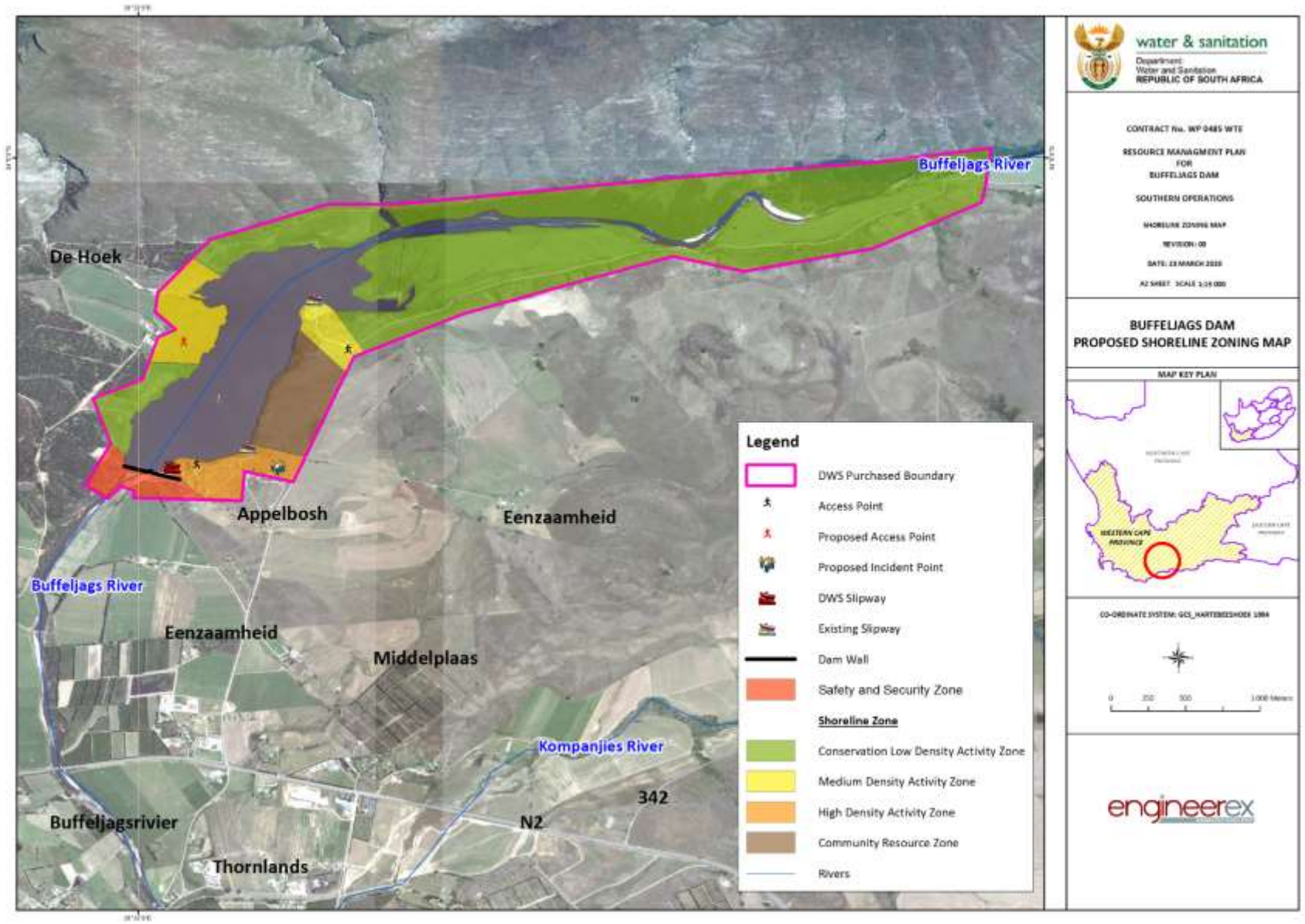

Figure 13: Proposed Shoreline Zoning Map

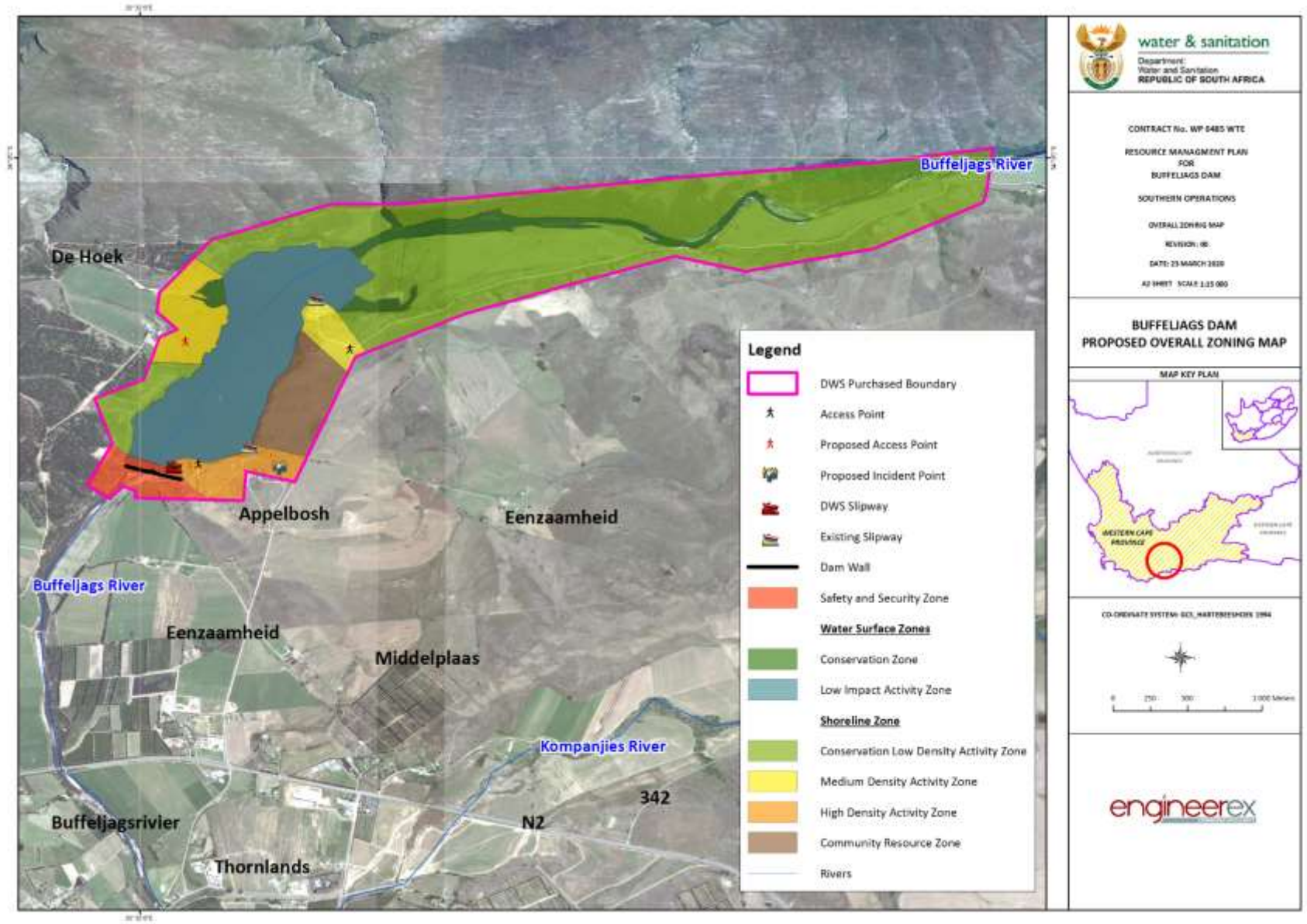

Figure 14: Proposed Overall Zoning Map

4.2.3 Carrying Capacity

The carrying capacity provides a guideline for recreation to ensure that the Dam is safe, that users do not feel crowded and that they enjoy the use of the Dam.

The Methodology for Carrying Capacity Assessment for the use of water for Recreational purposes was used as a guideline to determine the maximum level of visitor/recreational use and related infrastructure that the water resource and surrounding area can accommodate (DWAF, 2003).

There are three levels of carrying capacity:

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

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, i.e.: **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)

Formula: PCC = A x U/a x Rf

Where:

A = available Surface area for public use
U/a = area required per user
Rf = rotation factor (number of visits/day)

Table 11 shows the type of craft and the required area for use.

Table 11: Area required per user

Craft	U/A (ha/craft)
Boat cruise	2.0
Angling	3.0
Canoe	1.0
Paddle boating	1.0
Float tubes	1.0
Rowing	0.5
Average	**1.4**

Based on the table above the average hectare per user is 1.4 ha (14 000 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 available surface area for Buffeljags Dam is **129 ha** whereas ***U/a*** is assumed to be the average which was calculated as 1 craft/5 ha. And again the rotation factor (*Rf*) is assumed as 1 visit per day.

Therefore: **PCC =** A ÷ U/a x Rf
=129 x 1/5 x 1
= 25 crafts on the Dam

Real Carrying Capacity (RCC)

RCC = PCC x (100 – Cf1) % x (100 – Cf2) % x … (100 – Cfn) %

Where:

Cf = a corrective factor expressed as a percentage.

The RCC takes into account factors that limit recreation use (craft based) of the Dam. For Buffeljags Dam, these factors includes sensitive areas, such as conservation areas (20 ha) as well as aspects regarding the safe operation and management of the Dam (3 ha).

These factors accounts for 23 ha, that is 18% of the area that is not available for recreational use.

Therefore: RCC = **PCC x (100 – cf1) % x (100 – cf1) % x (100 – cf1) %**

=25 x (100 – 18) %

=20 crafts

Effective Carrying Capacity (ECC)

ECC = [Infrastructure Capacity x Management Capacity] x 100/ RCC

The ECC is currently 0. Once a proposed recreational Institutional Structure and infrastructure capacity is in place, the ECC can be recalculated to verify if the RCC can be possible.

4.3 STRATEGIC PLAN

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

- Objective (What is envisaged for the Dam?);
- Motivation (Why is it important to achieve this?);
- Action Projects (How to achieve this?); and
- Management support (Who will be involved?).

In **Tables 12** to **14**, the strategic plan on how to achieve the objectives identified for the Dam is outlined.

4.3.1 KPA 1: Resource Management

Table 12: Strategic Plan for 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)
Alien Plants: • To prevent the regeneration of alien plants species within the Dam's surrounds.	• The Dam and its surrounds had alien plants species such as black wattle which were removed / cleared through the Working for Water programme under the Expanded Public Works Programme.	• Monitor the areas which were infested by Alien Invasive plants for regrowth. • Rehabilitate invasive alien vegetation infested areas with suitable species indigenous to the area.	• Western Cape Department of Environmental Affairs and Development Planning (DEADP) • DWS • IA (SLM) with the support of the DMC
Recreational Institutional Structure: • To establish an effective and functional institutional structure inclusive of community representation to manage recreational activities and access.	• There is no access point for day visitors and as such an impartial recreational structure to manage the recreational use of the Dam is needed. • According to the RMP guidelines, an effective institutional structure must be established. In terms of DWS considerations on the Institutional Arrangements for Managing Use of Water for Recreational Purposes guideline, 2003.	• DWS to appoint SLM as a proposed IA to oversee the implementation of the Buffeljags Dam RMP. • Establish a Dam Management Committee (DMC) to serve as an advisory committee to the IA. • DWS and IA to enter into a MOA where roles and responsibilities are clearly outlined.	• DWS
Storage capacity: • To raise the Dam wall.	• The Dam is silted and gradually the storage capacity of the Dam is reduced. • WCDoA wants to raise the Dam wall for the Dam to increase the storage capacity of the Dam, which will also assist downstream farmers and subsequently create employment.	• Conduct a feasibility study of raising the dam wall and acquiring relevant permits and licenses. • Raise the dam wall for Buffeljags Dam.	• WCDoA • DWS • IA (SLM) with the support of the DMC

4.3.2 KPA 2: Resource Utilisation

Table 13: Strategic Plan for KPA 2: Resource Utilisation

Objective (What do we want)	Motivation (Why do we want to achieve this)	Action Projects (How do we achieve this)	Management Support (Who will be involved)
Public access: • To cater and make provision of public access for day visitors at the Dam.	• Local community members do not have access to the Dam for day visit due to the exclusive use of the Dam.	• Open a new access point for the day visitors. • Establish recreational facilities to cater for the day visitors such as braai facilities, picnic site, swimming pools, fishing area, conference hall and or lapas. • Appoint local community members as gatemen, caretakers, life guards, etc at the Dam.	• DWS • IA (SLM) with the support of the DMC
Subsistence Fishing: • To promote subsistence fishing at the Dam.	• There is an interest of fishing at the Buffeljags Dam to sustain livelihood. however, there is no desiganted area for fishing or day visit at the Dam.	• Permits (fishing license) must be obtained and the use of gill nets must be prevented, as it has significant negative impact on fish population within the Dam. • Educate and train community members on fishing methods that are safe and sustainable. • Preserve the core habitats for nesting, resting, feeding and breeding of fish within the inlets, by demarcating areas for subsistence fishing. • Management authority or DWS must develop a communication signage in order to effectively inform angling groups regarding Dam fishing rules. • Appoint and train safety officers from the communities to monitor compliance of the Dam fishing rules.	• Western Cape Department of Agriculture (WCDoA). • Department of Environment, Forestry and Fisheries (DEFF). • IA (SLM) with the support of the DMC • DWS
Aquaculture: • To investigate the feasibility of introducing Aquaculture project at the Dam.	• To promote sustainable harvesting of fish at the Dam. • Fisheries have the opportunity to provide nutrition, food security, sustainable livelihoods and	• Conduct a feasibility study to gather information on the viability of the project e.g the soil type for its stability in cases ponds are to be constructed, water	• WCDoA • DEFF • IA (SLM) with the support of the DMC • DWS

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)
	poverty alleviation to the local community.	quality parameters, size to be demarcated for aquaculture, targeted production etc. • Incorporate the objective in a Business Plan to determine projected costs for the implementation of the action projects required to introduce aquaculture at the Dam.	
Swimming pools • To construct swimming pools at the Dam for day visitors.	• Local community members do not have access to the Dam for day visit and as such children in the Buffeljasrivier area swim in the canal due to lack of recreational facilities. • Swimming is allowed at the shallow areas of the dam with strict supervision due to the dark colour of the water in the dam.	• To construct swimming pools at the dam. • Appoint safety officers to monitor access to the Dam and to ensure that the swimming safety rules are adhered to at all times. • Develop information material (i.e. signage and pamphlets, etc.) to convey safety rules at the Dam.	• IA (SLM) with the support of the DMC • SwimSA.
Recreational Facilities: • To establish tourism facilities such as B&Bs, conference centres and recreational activities including hiking, bird watching, and other water sports at the dam for day visitors.	• Local community members are interested in various recreational activities at the Dam as they is exclusive use of the Dam. • The Dam is located 14km from Swellendam and if it developed it can attract tourists who are visiting or passing through the area. • To encourage people with arts and craft talent to display and market their work to visitors at the Dam.	• Implement the RMP to regulate development within DWS purchased boundary. • Restrict permanent structures within the DWS purchased boundary. • Explore Public Private Partnerships (PPPs). • Establish conference centres at the Dam. • Market the Dam for recreational use and tourism.	• IA (SLM) with the support of the DMC

4.3.3 KPA 3: Benefit Flow Management

Table 14: Strategic Plan for 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)
Skills Development Programmes: • Uplift the Local Economy and increase Benefit Flow to the surrounding communities through meaningful community empowerment.	• Tourism sector has been identified as a vehicle for skills development, job creation, Broad-based Black Economic Empowerment (BBBEE), etc. it is imperative that the local communities derive benefits from recreational activities conducted at the Dam. • High level of unemployment in the area.	• Implement skills development programmes where opportunities exist. • Implementation of environmental awareness within local communities and ensuring continous updated with environmental information. • Educate and train the community on utilising the Dam for other recreational activities besides fishing. This will assist in terms of uplifting the surrounding local community. • Extend awareness to the communities on project management skills. • Prioritise the local community if job opportunities arise.	• IA (SLM) with the support of the DMC

4.4 FINANCIAL PLAN

A Financial Plan provides guidance on how revenue can be generated through recreational use of the Dam and how it should be used to ensure community participation and beneficiation. It also ensures the sustained and improved management of the Dam.

The proposed IA for this Dam can explore the various streams of generating revenue as presented below:

4.4.1 Potential Sources of Revenue

Access Fees: Potential revenue can be generated from access fees paid by visitors. A standard access fee can be charged per person based on their age group. The determination of access fees should take into consideration the socio-economic profile of the area so as to cater for the local communities. The access fees cannot be used for rent or to make profit. Additional fees can also be charged for the following services:

- **Parking Fees:** Motorists can be charged extra fees for parking.
- **Event and Service Based Fees:** These are extra fees that can be charged for the following:
    - Fishing (sports);
    - Private boating;
    - Functions (festivals, weddings, conferences and cultural activities); and
    - Caravan/ outdoor camping.

It is important that the identified events above be established at the Dam for the realisation of the identified fees.

Rental Charges: Potential source of revenue can also be explored on rental fees, *inter alia,* boat clubs operating from the Dam should pay the leasing fees. The terms of payment will be stipulated in the lease agreement between DWS through the IA (leaser) and the lessee.

4.4.2 Target Market

To realise the above-mentioned revenue the following will be the target:

- Swellendam Town;
- Buffeljagsrivier Township;
- Barrydale Township;
- Suurbraak Township;
- Farmers;
- Churches;
- Schools;
- Institutions;
- Group tourists; and
- Government Departments.

In light of the above mentioned, there should be sources of capital for initial investment for the upgrading of existing infrastructure as well as setting up of new facilities. The proposed DMC can consider the following sub-sections as a source of capital.

4.4.3 Co-Funding

The project can leverage its existence in the local Integrated Development Plan (IDP) to harness funding. Co-funding is also viable where DMC is appointed to manage recreational use of the Dam. Examples of projects of similar nature which were successfully co-funded are Roodeplaat Dam Nature Reserve and Nonoti Beach Resort Development (Coastal Marine Tourism Project). Details in this regard are attached as **Appendix G**.

Government Departments can fund the DMC to supplement operational costs and other scenarios by co-funding identified objectives that are related to their mandate. It is recommended that an appropriate DMC be appointed to manage recreational use of the Dam on behalf of DWS. Examples of potential co-funders are:

- The Department of Tourism;
- Industrial Development Corporation (IDC); and
- InvestSA.

More information on the co-funders is attached in **Appendix H.**

A more detailed Financial Plan (FP) is contained in the Business Plan (refer to **Appendix I**), which will facilitate the implementation of the RMP by providing an implementation program and cost

estimates for all possible economic recreational activities.

The information acquired from the RMP will be used to produce the Business Plan (BP) 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 the Buffeljags Dam RMP. It also describes the financial management and operational requirements to implement the objectives of the RMP.

CONCLUSION AND WAY FORWARD

This RMP comprehensively covered inter alia the environmental analysis (biophysical, built and socio-economic environment) of the Dam, RMP data analysis (encumbrance survey, objective identification and research/ information generation) as well as the integrated resource management planning which consists of the institutional plan, zoning plan, strategic plan and the financial plan.

The key challenges identified include:

- Children in the Buffeljagsrivier area swim in the canal due to lack of access to the Dam;
- The Dam is silted;
- The water in the Dam has a dark 'coffee' colour;
- No day visitors are allowed at the Dam;
- Exclusive access within the recreational club;
- No day visitors are allowed at Umshanti Resort;
- Local community members are not safe when they access the Dam for recreational use (previously mistaken for baboons);
- There are incidences where people have been denied access to the dam due to their race;
- Drought threatens recreational activities on the water surface;
- Flashfloods threaten the use of the Dam for recreational activities during rainy seasons;
- Constant change in the wind direction will restrict zoning of the water surface for activities which depend on the wind for movement such as wind surfing;
- The possible regrowth of the AIPs in the area will threaten the indigenous plants species;
- There are baboons in the Buffeljagsrivier area which threatens the safety of the people when accessing the Dam for recreational purposes;
- Alien fish species such as barbel and black bass are present in the Dam;
- There are cattle from a private farmer which graze and drink water from the banks of the Dam;
- There is no public transportation to shuttle people from the communities to the Dam and most people do not have private cars,
- The area where the Dam is located has a steep slope which pose as a safety concern within Umshanti Resort as well as retricts access to the water surface in other parts of the Dam;
- The DWS purchase boundary is land locked by private properties restricting access to this area;
- Majority of the local community members in Ward 3 do not have higher education and they will need training in order to be involved or engage in tourism related opportunities at the Dam;
- Majority of the local community members in Ward 3 do not have higher education and they will need training in order to be involved or engage in tourism related opportunities at the Dam; and
- Local community members are expecting immediate access to the Dam for fishing and other recreational use.

Recommendations:

This RMP recommends the appointment of an IA with the mandate to:

- To manage recreational use of the Dam on behalf of DWS;
- To cater and make provision of public access for day visitors at the Dam;
- To ensure public access for day visitors at the Dam;
- Establishment Dam Management Committees (DMC) to serve as an advisory committee to the proposed IA;

- To avoid conflict amongst users, uncontrolled development and to protect the water resource, the permissible and non-permissible activities on the water- and shoreline surface are delineated in the Zoning Plan and covered under Section 4.2; and
- To ensure public safety with regards to the use of inland vessels, the maximum level of recreational use the water resource can accommodate is covered under Carrying Capacity in section 4.2.3.

Way Forward:

According to DWAF (2006), the RMP may be 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 15** illustrates the RMP & BP review framework.

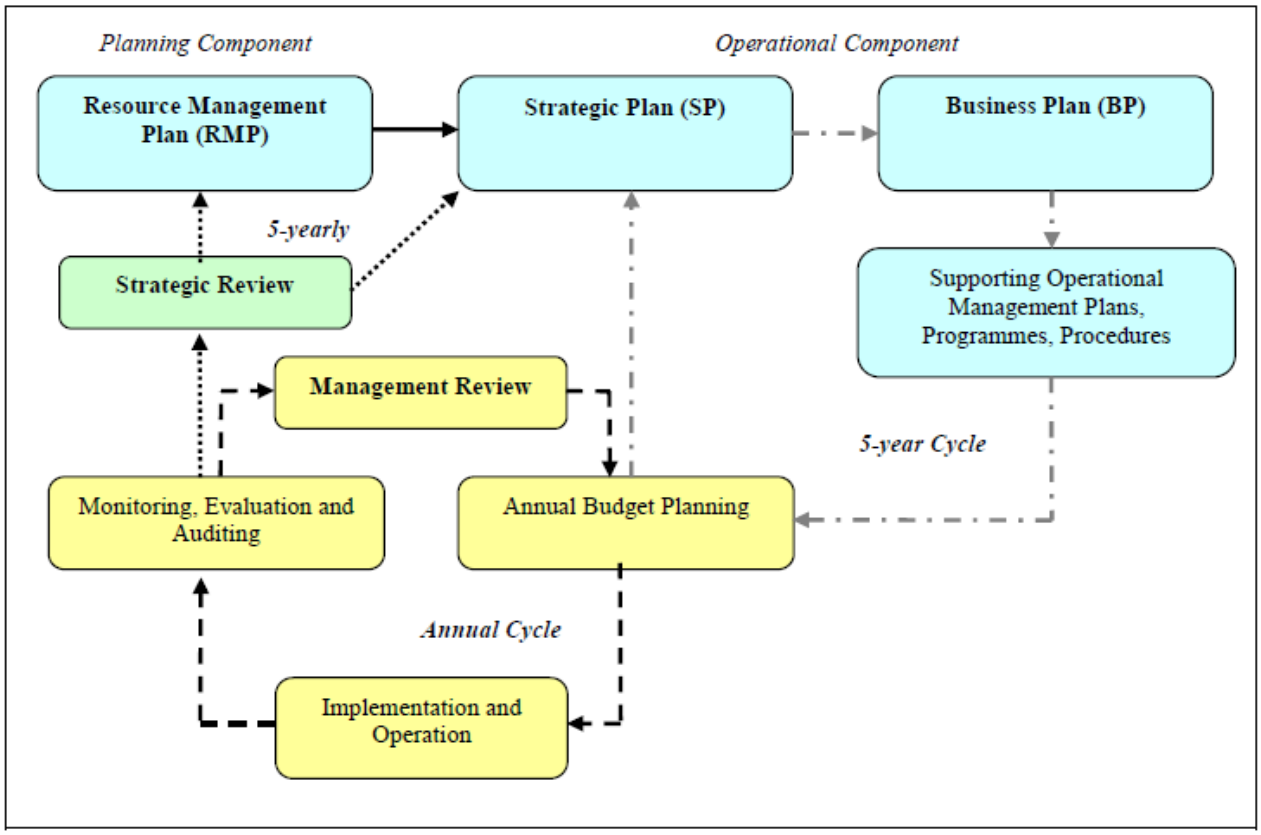

Figure 15: RMP and BP Review Framework

REFERENCES

Animal Demographic Unit, virtual Museum, viewed 13 January 2020. **(http://vmus.adu.org.za/vm_projects.php)**

Breede-Gouritz Catchment Management Agency, (2017) Catchment Management strategy for Breede-Gouritz.

Climate Data.ORG (2020), viewed on 13 December 2019, from http://www.climate-data.org

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

Department of Water Affairs and Forestry, (1999), Guidelines for the Compilation of Zoning Plans for Government Waterworks.

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

Department of Water Affairs and Forestry, (2003), Institutional Arrangements for Managing Use of Water for Recreational Purposes.

Department of Water Affairs and Forestry, (2003a). Draft Guideline. Methodology for Carrying Capacity Assessment for the Use of Water for Recreational Purposes.

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

Department of Water and Sanitation, (February, 2016), List of registered dams.

Department of Water and Sanitation, (September, 2008), Hydrological Services - Surface Water (Data, Dams, Floods and Flows).

Low, A.B. & Rebelo, A. (T.)G. (eds), (1996). Vegetation of South Africa, Lesotho and Swaziland. Dept of Environmental Affairs and Tourism, Pretoria.

Mucina, L and Rutherford, M.C, (2006), Vegetation of South Africa, Lesotho, and Swaziland. South African Biodiversity Institute, Pretoria, South Africa**.**

Overberg District Municipality, (2017/18 – 2021/22) IDP.

Statistics South Africa, (2016), Community Survey [data set].

Swellendam Local Municipality, (2017-2022). IDP Review.

Weather and climate.com (2020), viewed 20 March 2020, from https://weather-and-climate.com/average-monthly-Rainfall-Temperature-Sunshine-in-South-Africa

APPENDICES

APPENDIX A : STAKEHOLDER DATABASE REGISTER

APPENDIX B : BACKGROUND INFORMATION DOCUMENT (BID)

APPENDIX C : NEWSPAPER ADVERT

APPENDIX D : FLYERS

APPENDIX E : EMAILS

APPENDIX F : COMMENT AND RESPONSES REGISTER

APPENDIX G : EXAMPLES OF SUCCESSFULLY CO-FUNDED PROJECTS

APPENDIX H : POTENTIAL CO-FUNDERS

APPENDIX I : BUSINESS PLAN