NATIONAL WATER RESOURCE INFRASTRUCTURE (NWRI)

# Resource Management Plan BLOEMHOF DAM



WATER IS LIFE - SANITATION IS DIGNITY





Water and Sanitation REPUBLIC OF SOUTH AFRICA



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- Department of Public Works (Provincial and National Office);
- Department of Water and Sanitation;
- Dr Ruth Segomotsi Mompati District Municipality;
- Free State Department of Economic, Small Business Development, Tourism and Environmental Affairs;
- Lekwa-Teemane Local Municipality;
- North West Parks Board;
- The community members of Bloemhof, Coverndale; Reatlegile Stop 40 and Hoopstad.
- Tswelopele Local Municipality;
- Ward Councillors; and

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

### TITLE AND APPROVAL PAGE

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| Review Period   | Month    | Year              |      |      |      |      |
|---|----------|-------------------|------|------|------|------|
| Annual Review of Business Plan (BP)                         | December | 2020 <sup>1</sup> | 2021 | 2022 | 2023 | 2024 |
| Five (5) yearly Review of Resource<br>Management Plan (RMP) | December |                   |      | 2024 |      |      |

 $<sup>^{1}\</sup>mbox{The}$  implementation of the RMP and BP requires one financial year planning ahead.

### **AMENDMENTS PAGE**

| Revision No | Description                      | Date       |
|-------------|----------------------------------|------------|
| 1           | Draft RMP Report for DWS Review  | 23/03/2018 |
| 2           | Amended Draft RMP for DWS Review | 07/05/2018 |
| 3           | Draft RMP for public Review      | 20/06/2018 |
| 4           | Amended Draft RMP for DWS Review | 14/08/2018 |
| 5           | Final Draft RMP for DWS Approval | 27/09/2018 |

### **EXECUTIVE SUMMARY**

Purpose of the Resource Management Plan: A Resource Management Plan (RMP) provides the principles and guidance within which the dams must be used for recreational purposes. The principles and guidelines seek to promote community participation and beneficiation, environmental conservation and unlocking socio-economic opportunities associated with the recreational use of the dam. This RMP is for Bloemhof Dam, herein after referred to as the Dam, which is part of the National Water Resources Infrastructure (NWRI) Central Operations.

This RMP was developed in accordance with the Guidelines for the Compilation of Resource Management Plans (DWAF, 2006), to attain the objectives underlying sustainability in Section 2 of the National Water Act, 1998 (Act No. 36 of 1998) [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.

Mandate of Department of Water and Sanitation: 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 to ensure that the government waterworks (GWWs), including Bloemhof Dam, are protected, used, developed, managed and controlled in a sustainable manner, to the benefit of all, as contemplated in Section 2 of the NWA.

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 water resource located within or outside a protected area and if subject to protection by legislation.

- Invasive Alien species.
- Water quality issues.

#### Recreational Industry Involvement:

- Conflict between users in terms of Schedule (1) of the NWA due to no management tool in place.
- Public safety with regards to the use of inland vessels.
- Uncontrolled developments within the dam basin.

#### Community Participation and Beneficiation:

- Challenges of communities regarding physical access and access to the waterbased 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).
- 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.

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

**Description and Location of the Dam:** The Dam is an earth fill and gravity type of dam, which is located at the confluence of the Vaal River and Vet River. The surface area of the Dam is 23 066.5 hectares with a capacity of 1.2 million cubic meters. The Dam is situated on the border between two (2) provinces (North West and Free State). In the North West Province, it falls under Ward 4 of Lekwa-Teemane Local Municipality (LTLM), which forms part of the Dr Ruth Segomotsi Mompati District Municipality (DR RSM DM) and in the Free State Province; it falls under Ward 5 and 8 of Tswelopele Local Municipality (TLM), which forms part of the Lejweleputswa District Municipality (LDM). Its GPS coordinates are: 27°40'15" S 25°37'01"E.

**Purpose of the Dam:** The primary purpose of the Dam is to provide bulk raw water for irrigation. The Dam offers recreational activities (secondary use) such as fishing (subsistence and sports), picnic sites, braai area, caravan park, chalets and boating.

Dam Ownership and Management: DWS owns and operates the Dam for its primary purpose. The dam is located within two (2) protected areas (Bloemhof Dam Nature Reserve (BDNR) located in the North West Province and managed by the North West Parks Board (NWPB) and Sandveld Nature Reserve (SNDNR) located in the Free State Province and managed by the Free State Department of Economic, Small Business Development, Tourism and Environmental Affairs (DESTEA). Through the development of the RMP process, an appropriate Implementing Agency (IA), such as NWPB and DESTEA, shall be appointed by DWS to facilitate the implementation of the objectives and identified action projects in line with the requirements of the Bloemhof Dam RMP on behalf of DWS. The IA will sign a Memorandum of Agreement (MOA) with DWS, which shall be a legal 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 [Authorities and Interested and Affected Parties (I&APs)]. Authority and public meetings were

conducted to obtain inputs (challenges and objectives) regarding 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 have Bloemhof Dam free of alien invasive vegetation in order to support the existing recreational activities and to maintain the native ecological aspect of the area;
- To improve the water quality of the dam;
- To maximize the storage capacity of the Bloemhof Dam;
- To introduce aquaculture project at the dam;
- To promote subsistence fishing at the dam;
- To review the access fees to the dam;
- To upgrade the road from Hoopstad to the dam for ease of access;
- To establish more tourism facilities (B&Bs, resource centres, etc) and recreational activities (water sports, swimming pools, etc);
- To establish an effective institutional structure that can manage the use of water for recreational purpose in an acceptable manner where community members are represented, this will ensure equitable access and use of the dam; and
- Uplift the Local Economy and increase Benefit Flows to the surrounding communities through community empowerment.

A 20-year vision for the Dam, formulated from the objectives identified by stakeholders, is as follows: "To promote environmental conservation and uplift the socio economic potential of the area by ensuring that local community derive benefits from accessing and utilisation of the dam".

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

- Development of low impact luxury tourism facilities (i.e. chalets) within BDNR;
- Upgrading of recreational facilities such as braai stands, ablution facilities, etc; and
- Developments of resource centers.

#### The key challenges identified comprise:

- Bloemhof Dam is infested with aquatic alien invasive plant species (Water Hyacinth) and the terrestrial alien invasive plant species Opuntia (prickly pear).
- There are alien fish species at the dam such as Grass carp and Bass
- Poorly treated sewage effluent from the Vaal River system, which ends up in the dam.
- There is silt buildup in the dam, which is mainly caused by the structure of the soil that is sandy to clay, threatening the depth and storage capacity of the dam.
- Limited funding and resources within DESTEA for general management of the dam and to further develop recreational facilities.
- The road from Hoopstad to SNDNR is in bad condition and many incidents have been reported which is a safety risk for people who want travel to the dam.
- Owing to the absence of test samples for all water quality constituents (not only for pH) it is inconclusive if the water is fit for recreational use.

- There is a lack of environmental and tourism awareness for the community.
- There is currently no specific incident management system in place to ensure that incidents are recorded and responded to in a co-ordinated manner.
- There is no public transport to the dam, which makes the dam not easily accessible.
- The access fees on the North West side are pricey making it unaffordable for communities.
- Lack of facilities to accommodate locals during the festive seasons at the dam.

#### **Recommendations:**

This RMP recommends the following immediate actions:

- Appoint NWPB and DESTEA as 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.
- Removal of silt from the Dam in order to increase the water quantity.
- Water quality reporting and monitoring.
- Removal of aquatic alien invasive plant species (Water Hyacinth) and the terrestrial alien invasive plant species Opuntia (prickly pear).
- To establish more tourism facilities (B&Bs, resource centres) and recreational activities (water sports, swimming pools, etc).
- To upgrade the road from Hoopstad to the dam for ease access and use of the dam.
- The road from Hoopstad to SNDNR is in bad condition and many incidents have been reported which is a safety risk for people who want travel to the dam.

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### LIST OF ACRONYMS

| ATM                 | Automated Teller Machine  |
|---------------------|---|
| AtoN                | Aid (s) to Navigation   |
| B&Bs                | Bed and Breakfasts  |
| BBBEE               | Broad Based Black Economic Empowerment  |
| BDNR                | Bloemhof Dam Nature Reserve   |
| BID                 | Background Information Document   |
| BP                  | Business Plan   |
| CARA                | Conservation of Agricultural Resource Act, 1983 (Act No. 43 of 1983)                |
| CATHSSETA           | Culture, Arts, Tourism, Hospitality, Sport Sector, Education and Training Authority |
| <b>CD: IO MANCO</b> | Chief Director: Infrastructure Operations Management Committee                      |
| CIWSP               | Centre for Inland Waterways Safety Programme  |
| CoGTA               | Department of Corporative Governance and Traditional Affairs                        |
| CPSI                | Centre for Public Service Innovation  |
| CWBC                | Co-ordinated World Bird Counts  |
| DAFF                | Department of Agriculture, Forestry and Fisheries                                   |
| DEA                 | Department of Environmental Affairs   |
| DESTEA              | Free State Department of Economic, Small Business Development, Tourism and          |
|                     | Environmental Affairs   |
| DHS                 | Department of Human Settlement  |
| DMC                 | Dam Management Committee  |
| DMR                 | Department of Mineral Resources   |
| DoT                 | Department of Transport   |
| DPW                 | Department of Public Works  |
| DR RSM DM           | Dr Ruth Segomotsi Mompati District Municipality                                     |
| DRDLR               | Department of Rural Development and Land Reform                                     |
| DSR                 | Department of Sports and Recreation   |
| DWAF                | Department of Water Affairs and Forestry  |
| DWS                 | Department of Water and Sanitation  |
| ECC                 | Effective Carrying Capacity   |
| EPWP                | Expanded Public Works Programme   |
| FP                  | Financial Planning  |
| FSARD               | Free State Department of Agriculture and Rural Development                          |
| GDP                 | Gross Domestic Product  |
| GIAMA               | Government Immovable Asset Management Act, 2007 (Act No. 19 of 2007)                |
| GPS                 | Global Positioning System   |
| GWWs                | Government Waterworks   |
| I&APs               | Interested and Affected Parties   |
| IA                  | Implementing Agency   |
| IDP                 | Integrated Development Plan   |
| IEE                 | Integrated Environmental Engineering  |
| IMP                 | Integrated Management Plan  |
| IRMP                | Integrated Resource Management Planning   |
| КРА                 | Key Performance Areas   |
| LAAP                | Local Accountable Aton Parties  |
| LDM                 | Lejweleputswa District Municipality   |

| LED    | Local Economic Development  |
|--------|---|
| LTLM   | Lekwa-Teemane Local Municipality  |
| MOA    | Memorandum of Agreement   |
| N.D    | Not Dated   |
| NEMA   | National Environmental Management Act, 1998 (Act No. 107 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) |
| NGO    | Non-Government Organization   |
| NPSC   | National Project Steering Committee   |
| NT     | National Treasury   |
| NWA    | National Water Act, 1998 (Act No. 36 of 1998)                                     |
| NWRI   | National Water Resource Infrastructure  |
| NWPB   | North West Parks Board  |
| ОМС    | Operations Management Committee   |
| PCC    | Physical Carrying Capacity  |
| PFMA   | Public Finance Management Act, 1999 (Act No. 29 of 1999)                          |
| PP     | Public Participation process  |
| PPP    | Public Private Partnership  |
| RCC    | Real Carrying Capacity  |
| READ   | North West Department of Rural, Environment and Agricultural Development          |
| RF     | Rotation Factor   |
| RMP    | Resource Management Plan  |
| SA     | South Africa  |
| SAMSA  | South African Maritime Safety Authority   |
| SANBI  | South African Biodiversity Institute  |
| SAPS   | South African Police Service  |
| SASCOC | South African Sports Confederation and Olympic Committee                          |
| SETA   | Sector Education and Training Authority   |
| SNDNR  | Sandveld Nature Reserve   |
| SWOT   | Strengths, Weaknesses, Opportunities and Threats                                  |
| TLM    | Tswelopele Local Municipality   |
| ToR    | Terms of Reference  |
| WfW    | Working for Water   |
| 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 to ensure that the government waterworks (GWWs), including the Bloemhof Dam, are protected, used, developed, managed and controlled in a sustainable manner and to the benefit of all as contemplated in Section 2 of the NWA.

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

#### Resource Management:

- Whether the water resource is located within or outside of a protected area and if subject to protection by legislation.
- Invasive Alien species.
- Water quality issues.

#### Recreational Industry Involvement:

- Conflict between users in terms of Schedule (1) of the NWA due to no management tool in place.
- Public safety with regards to the use of inland vessels.
- Uncontrolled developments within dam basin.

#### Community Participation and Beneficiation:

- Challenges of communities regarding physical access and access to the waterbased 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).

• 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.

To assist the Minister in fulfilling this mandate, the DWS initiated and commissioned the development of the RMP and its Business Plan (BP) for Bloemhof Dam, hereafter referred to as the Dam.

#### 1.2 PURPOSE OF THIS RMP

A Resource Management Plan (RMP) provides the principles and guidance within which the dams must be used for recreational purposes. The principles and guidelines seek to promote community participation and beneficiation, environmental conservation and unlocking socio-economic opportunities associated with the recreational use of the dam. This RMP is for Bloemhof Dam, herein after referred to as the Dam, which is part of the National Water Resources Infrastructure (NWRI) Central Operations.

This RMP is developed in accordance with the Guidelines for the Compilation of Resource Management Plans (DWAF, 2006) for the Bloemhof Dam, and 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.

#### 1.3 DESCRIPTION AND LOCATION OF THE DAM

The Bloemhof Dam is an earth fill and gravity type of dam, which is located at the confluence of the Vaal River and Vet River. Bloemhof Dam is situated on the border between two (2) provinces (North West and Free State). In the North West Province, it falls under Ward 4 of Lekwa-Teemane Local Municipality (LTLM), which forms part of the Dr Ruth Segomotsi Mompati District Municipality (DR RSM DM) and in the Free State Province; it falls under Ward 5 and 8 of Tswelopele Local Municipality (TLM), which forms part of the Lejweleputswa District Municipality (LDM). Its GPS coordinates are: 27°40'15"S 25°37'01"E. (Refer to **Figure 1**).

#### 1.4 PURPOSE OF THE DAM

The primary purpose of the Dam is to provide bulk raw water for irrigation. The Dam offers recreational activities such as fishing (subsistence and sports), picnic sites, braai area, caravan park, chalets and boating.

#### 1.5 DAM OWNERSHIP AND MANAGEMENT

DWS owns and operates the Dam for its primary use. The dam is located within two (2) protected areas Bloemhof Dam Nature Reserve (BDNR) located in the North West Province and managed by the North West Parks Board (NWPB) and Sandveld Nature Reserve (SNDNR) located in the Free State Province and managed by the Free State Department of Economic, Small Business Development, Tourism and Environmental Affairs (DESTEA).Through the development of the RMP, NWPB and DESTEA are proposed as the Implementing Agencies (IA) for the management of recreational use for this Dam.

| Bloemhof Dam Profile       |   |  |  |  |
|----------------------------|---|--|--|--|
| Location                   | South Africa                                |  |  |  |
| Province                   | North West and Free State                   |  |  |  |
| District Municipalities    | Dr Ruth Segomotsi Mompati and Lejweleputswa |  |  |  |
| Local Municipalities       | Lekwa-Teemane and Tswelopele                |  |  |  |
| Nearest Towns              | Bloemhof and Hoopstad                       |  |  |  |
| Completion Year            | 1970  |  |  |  |
| Coordinates                | 27°40″15′ <b>S</b> 25°37″01′ <b>E</b>       |  |  |  |
| Purpose                    | Irrigation                                  |  |  |  |
| Owner                      | DWS   |  |  |  |
| Quaternary Catchment       | C91A, C43D and C25F                         |  |  |  |
| Water Management Area      | Vaal  |  |  |  |
| River                      | Vaal and Vet                                |  |  |  |
| Capacity (m <sup>3</sup> ) | 1 269 000                                   |  |  |  |
| Surface area (ha)          | 23 066.5                                    |  |  |  |
| Wall type                  | Earth fill & Gravity                        |  |  |  |
| Wall Height (m)            | 33.7  |  |  |  |
| Crest Length (m)           | 4 270                                       |  |  |  |

Table 1: Bloemhof Dam Profile

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



Figure 1: Locality Map for Bloemhof Dam

#### 1.6 LEGISLATIVE FRAMEWORK

The table below list the key data sources used to develop the RMP.

 Table 2: Key Data Sources Used to Develop the RMP

| Guidelines   | Description   |
|--|---|
| 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.                                     |
| Guidelines for Compilation of Resource<br>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.  |
| Consideration on Institutional Arrangement for<br>Managing Use of Water for Recreational<br>Purposes (DWAF, 2003)                    | It outlines some of the institutional issues at a local level and makes recommendations about the conditions under which different Institution Management arrangements may be considered.   |
| Methodology for Carrying Capacity Assessment<br>for the Use of Water for Recreational Purposes<br>(DWAF, 2003)                       | The carrying capacity of a water resource represents the maximum level of visitor/recreational use and related infrastructure that the water resource and surrounding area can accommodate, without diminishing user satisfaction or adverse impacts upon the local or host community, the economy and culture of the area. |
| Operational Policy: Using Water for<br>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.   |
| Guidelines for Compilation of Zoning Plans for Government Waterworks (DWAF, 1999)  | It provides direction on the compilation of zoning plans for government waterworks (within DWS purchased boundary).   |
| National Treasury Public Private Partnership<br>(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.                                |
| Government Notice R654 dated 1 May 1964, in<br>terms of the Water Act, 1956 (Act No. 54 of<br>1956)                                  | Regulates access and use of government waterworks for recreational purposes.  |
| 1st Draft National Inland Fisheries Policy<br>Framework for South Africa. Department<br>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.  |

The legislative framework applicable to the management and use of the Dam for recreational purposes is summarised 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,<br>1996 (Act No. 108 of 1996), Environmental<br>Rights (Section 24) | <ol> <li>Section 24 - Everyone has the right:</li> <li>to an environment that is not harmful to their health or wellbeing,</li> <li>to have an environment protected for the benefit of present and future generations, through reasonable legislative and other measures that-</li> <li>a. prevent pollution and ecological degradation</li> <li>b. promote conservation and secure ecologically sustainable development and use natural resources while promoting justifiable economic and social development.</li> </ol> |  |  |
| National Legislation  | Significance to the RMP:  |  |  |
| Conservation of Agricultural Resource Act,<br>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.<br>Regulation 7 and 8 within the same Act deals with the protection of wetlands and water courses, while regulations 15 and 16 deals with Alien Invasive Plant Species and bush encroachment.  |  |  |
| National Environmental Management Act,<br>1998 (Act No. 107 of 1998) [NEMA]                                       | NEMA serves as South Africa's Environmental Framework Legislation. It was designed to provide for co-<br>operative and Integrated Environmental Governance by establishing a general framework for decision-<br>making on matters affecting the environment.  |  |  |
| National Environmental Management:<br>Biodiversity Act, 2004 (Act No. 10 of 2004)<br>[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.<br>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:<br>Protected Areas Act, 2003 (Act No. 57 of 2003)<br>[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<br>Act, 2014 (Act No. 59 of 2008)  | Provides for the national domestic waste collection standards and national norms and standards for the storage of waste.  |  |  |

| Legislation: Acts, ordinances, bylaws   | Relevance: Description   |
|---|--|
| [NEWA]  |  |
| National Heritage Resources Act, 1999 (Act No.<br>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)<br>[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 state owned land may be made available for recreational purposes, subject to controls determined by the Minister and regulations made by the Minister.  |
|   | Using water for recreational purposes is a water use under Section 21K and can be exercised as permissible use of water under Schedule 1 of the Act. However, this provision does not cater for commercial use hence the RMP should be implemented in line with General Strategic Plan for commercialisation of Tourism Public Private Partnerships at Government Waterworks, 2009 and PFMA Treasury Regulation 16. Once the RMP has been approved, the RMP will regulate access and use of the dam. It is important to note that users will need to comply with other relevant legislation. |
| Broad-Based Black Economic Empowerment<br>Act, 2003 (Act No. 53 of 2003)        | It aims to address inequities 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.  |
| Government Immovable Asset Management<br>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 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,<br>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.   |

| Legislation: Acts, ordinances, bylaws   | Relevance: Description   |  |  |  |  |  |
|---|--|--|--|--|--|--|
| Merchant Shipping (National Small Vessel<br>Safety) Regulations (2007)            | These Regulations provide <i>inter alia</i> 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. |  |  |  |  |  |
| Occupational Health and Safety Amendment<br>ActAct181 of 1993G.15369GoN 2471      | t requires the employer to bring about and maintain, as far as reasonably practicable, a work environment<br>that is safe and without risk to the health of the workers. The workers and the employer must share the<br>responsibility for health and safety in the workplace.   |  |  |  |  |  |
| Public Finance Management Act, 1999 (Act No.<br>29 of 1999) [PFMA]                | Section 76 of the Act secures transparency, accountability and sound management of the revenue,<br>expenditure, assets and liabilities of government departments. The Act promotes the objective of good<br>inancial management in order to maximise service delivery. The Act allows DWS to enter into PPP<br>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 <i>inter alia</i> responsibility for safety and security at the events, risk categorization of events and safety certificates.  |  |  |  |  |  |
| South African Maritime Safety Authority Act,<br>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.   |  |  |  |  |  |
| Provincial Legislation  | Significance to the RMP:   |  |  |  |  |  |
| Free State Nature Conservation Ordinance 8 of 1969                                | The administration of the whole of this Ordinance has under Proclamation 113 of 1994, published in<br>Government Gazette 15813 of 17 June 1994, been assigned to Free State Province with effect from 17 June<br>1994.] The main purpose of this ordinance is to provide for the conservation of fauna and flora and the<br>hunting of animals causing damage and for matters incidental thereto.  |  |  |  |  |  |
| North West Strategic Environmental Assessment (2004).                             | Aims at ensuring that environmental and possibly other sustainability aspects are considered effectively in policy, plan and programme making within the north west province.  |  |  |  |  |  |
| Municipal Policy, By-Laws, Reports &<br>Guidelines                                | Significance to the RMP:   |  |  |  |  |  |

| Legislation: Acts, ordinances, bylaws   | Relevance: Description   |  |  |  |
|---|--|--|--|--|
| Tswelopele Local Municipality, 2016-2017<br>Integrated Development Plan   | Bloemhof Dam and Vaal River banks are identified as having tourism potential. The SDF identified the area around the Bloemhof dam and along the Vaal River for nature reserves and as tourism node where the attractiveness of these areas need to be enhanced and their marketing receive special attention.  |  |  |  |
| Lekwa-Teemane Local Municipality, 2017-2022<br>Integrated Development Plan  | Bloemhof and Bloemhof Dam Nature Reserve have been identified as having tourism potential and will be developed to become one of the major tourist attraction in the area.   |  |  |  |
| Lejweleputswa District Municipality, 2016 -<br>2017, Final Integrated Development Plan  | Sandveld Nature Reserve is one of the best tourist attraction reserve in the Free State, it also has the potential to attract tourists in the district.  |  |  |  |
| Dr Ruth Segomotsi Mompati District<br>Municipality, 2017-2022, Integrated<br>Development Plan   | Bloemhof dam has been identified as having tourism potential and will be developed to be one of the best tourist's attraction.   |  |  |  |
| Lejweleputswa District Municipality, LED Core<br>Functions, 2016  | Their overall core mandate is to facilitate, support and coordinate all LED & SMMEs initiatives in the Lejweleputswa District Municipality by Promoting and supporting tourism products and destinations in the Lejweleputswa District Municipality.   |  |  |  |
| Lekwa-Teemane Local Municipality, / Dr Ruth<br>Segomotsi Mompati District Municipality,<br>Integrated Waste Management Plan: Water<br>By-Laws, 2009 | The DRSMDM is responsible for provision of waste management services within its area of jurisdiction. The provision of waste management services (refuse collection services, management of landfill sites etc.) is typically a local municipality function; however, in 2008 these powers were transferred to the DRSMDM by the North West Provincial Government for four of the five local municipalities. |  |  |  |

### **CHAPTER 2: ENVIRONMENTAL ANALYSIS**

#### 2.1 **BIOPHYSICAL ENVIRONMENT**

#### 2.1.1 Climate

According to Climate-data.org (2017), the areas where the dam is, situated (Bloemhof and Hoopstad) there is not much rainfall in Bloemhof and Hoopstad all year long. This climate is considered to be BSk according to the Köppen-Geiger climate classification. The average annual temperature is 17.2°C to 7.9°C. About 492 mm -517 mm of precipitation falls annually.

The driest months of the year is June, with an average of about 7 mm. Most of the rainfall is received between January and March with an average rainfall of about 87 mm.

The average annual temperatures for these areas is 19°C. The warmest month are January with an average temperature of about 23.6°C. The months which experience the lowest temperatures is June with an average of 1°C.

#### 2.1.2 Topography

The topography of SNDNR area is relatively flat and due to the flat topography of the area, the dam wall is very long with a total crest length of 4270 m and a maximum wall height of only 35.2 m above deepest foundation level (SNDNR IMP, 2011).

#### 2.1.3 Geology and Soil

The geology of the area is under Karoo Supergroup, mostly the Ecca Group. The Ecca Group is a group of sedimentary geological formations found in southern Africa and it consists mainly of shales and sandstones, laid down in the sandy shorelines of swamplands during the Permian Period. Bloemhof Dam consists of rocks such as basement gneiss, andesite, dolerite, arenite and shale (Mucina and Rutherford, 2006). Refer to **Figure 2** for the Geological Map.

The soil around the dam is deep sandy, loamy to clay but mostly coarse alluvial soil (Acocks, 1953).



Figure 2: Geological Map for Bloemhof Dam

#### 2.1.4 Hydrology

#### Water Surface

The dam lies within the C91A, C43D and C25F quaternary drainage that forms part of the Vaal Water Management Area (WMA). The dam impounds the Vaal and Vet Rivers. The Vaal River system is the main tributary of the Orange River, which is the most important water resource system in South Africa, as it provides water to

approximately 40+ % of South Africa's inhabitants and supports the production of approximately 50% of the country's gross domestic product.

The catchment area contains six (6) large dams and supplies major urban areas such as Johannesburg and Pretoria. It also supplies large industries such as SASOL, ESKOM and a multitude of gold and other mines (DWS, 2012).



Figure 3: Fluctuations of Bloemhof Dam water level over a year Source: DWS, 2018

#### Water Quality

According DWAF (1996), the following constituents are the indicators of the water quality to determine its suitability for recreational use; pH, algae, odour, turbidity, floating matter and indicator organisms (*E.coli*, faecal coliforms, total coliforms).

At the time of developing this report, the only indicator results available were for pH, which was found to be within the acceptable Target Water Quality Range (TWQR) (6.5-8.5), indicating that minimal eye irritation might occur once in contact with water. However, owing to the absence of test samples for water quality constituents (not only pH) in the Water Management System (WMS), it is inconclusive if the water is fit for recreational use. As such, DWS should conduct tests of those other indicators including algae, odor, turbidity, floating matter and indicator organisms (*E.coli*, faecal coliforms, and total coliforms) in order to make a conclusive decision on the suitability of the water for recreational use. Hence, precautionary measures should be exercised for contact sports at the Dam.

#### 2.1.5 Protected Areas

The Dam is located within two (2) areas that is protected, namely the Sandveld Nature Reserve and the Bloemhof Dam Nature Reserve, refer to **Figure 4**. Therefore, the Dam is governed by two

(2) main Acts, the National Water Act (NWA) and National Environmental Management Protected Area Act (NEMPAA) which needs to be taken into consideration throughout the planning process.



Figure 4: Sandveld Nature Reserve and the Bloemhof Dam Nature Reserve Source: SANBI BGIS Map Viewer

#### 2.1.6 Flora

The dam falls within two (2) protected areas, BDNR in the North West province and SNDNR in the Free State as declared on section 23 of the National Environmental Management: Protected Areas Act, 2014 (Act No. 21 of 2014) as amended.

The dam is infested with water hyacinths, which are alien aquatic weeds, and Opuntia (prickly pear) which are terrestrial alien weeds found within the nature reserve. Forty-one (41) plant species have been recorded by the BDNR.

It is recognized that alien plants are a significant part of the South African landscape. The

following species historically occurred and still occur in the reserve bluegum *Eucalyptus grandis*, prickly pear *Opuntia ficus-indica*, imbricate cactus *Opuntia imbricate*, and mesquite *Prosopis glandulosa* occur across the reserve.

According to Regulation 15 of the Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983), category 1 species e.g. Opuntia species shall not occur in any piece of land in South Africa but imbricate cactus was found to have infested the reserve and falls within category 1 and 2 of declared weeds. The findings were brought forward by Department of Agriculture through a site inspection (BDNR Ecological Status Report, 2015).

#### 2.1.7 Fauna

#### <u>Birds</u>

There are approximately 286 birds' species that have been recorded within the Bloemhof Dam Nature Reserve.

SNDNR is designated internationally as an Important Bird Area (Birdlife International, 2003) with 296 species being recorded to date. Birds associated with grassland are common and the larger bird species include White back Vulture (Gyps *africanus*), Fish eagle (Haliaeetus *vocifer*), Martial eagles (Polemaetus *bellicosus*) as well as Blue Cranes and bustards (SNDNR IMP, 2011).

Large concentrations of various species of waterfowl have been recorded during the winter months. Biannual, summer and winter, Coordinated Water bird Counts [CWBC] are conducted on the major water bodies associated with the reserve (SNDNR IMP, 2011).

#### **Mammals**

There are approximately 38 mammals, which have been recorded within the Bloemhof Dam Nature Reserve and nine (9) of these mammals' falls within the Red list.

#### **Reptiles**

There are approximately 29 reptiles, which have been recorded within the Bloemhof Dam Nature Reserve.

There are 11 reptiles, which have been recorded by SNDNR and are as follows: brown house snake, cape wolf snake, mole snake, common egg-eater, herald snake, bloomslang, cape cobra, puff adder, fork-marked sand snake, montane grass snake and delalande's blind snake (DESTEA, n.d).

#### <u>Fish</u>

Nine (9) fish species have been recorded in the dam of which two, the Large-mouth and Small-mouth yellow fish (Barbus Kimberleyensis and

Barbus aeneus) are red data species (SNDNR IMP, 2011).

It is also known that alien fish species i.e bass (Micropterus spp.) and Grass carp (Ctenopharyngodon idella) were introduced at the dam (SNDNR IMP, 2011).

#### 2.2 BUILT ENVIRONMENT

The aspects that have been investigated consist of and are presented under the following subheadings:

- Roads and land-based transportation;
- Non-land-based transportation;
- Bulk services;
- Other on-site facilities;
- Fencing;
- Management and operation; and
- Safety.

#### 2.2.1 Roads and Land-Based Transportation

**Surrounding Roads:** The Dam can be accessed via the R34 Road from Bloemhof Town and Hoopstad Town.

**Internal Road and Circulation:** There are several internal gravel roads that leads to the DWS offices, BDNR and SNDNR.

**Parking:** There is no demarcated area for parking, however, there is sufficient undeveloped space to provide parking.

#### 2.2.2 Non-Land Based Transportation

**Air Transport:** The dam is located 196 Km from Bram Fisher International Airport. **Figure 5.** 



Figure 5: Google Maps - Bloemhof Dam

#### 2.2.3 Bulk Services

**Solid Waste:** Waste bins were visible when conducting site inspection but there were waste materials which were visible in the dam such as plastics, bottles, etc. The management of the reserves should ensure tourists are adhering to the dam rules and also using waste bins to dispose waste materials.

#### 2.2.4 Other On-site Facilities

The main facilities at the BDNR includes:

- Three (3) chalets each with 3 bedrooms;
- Three (3) sleeping halls with six (6) single beds each;
- A lapa for braaing; and
- Log cabin with two (2) bunk beds.

Main facilities at SNDNR includes:

- Eighteen (18) chalets;
- Twenty (20) caravan sites with power points and five (5) ablution facilities;
- Camping and cavaran site without power which can accommodate approximately 200 campers;
- Recreational Hall with ablution facilities;
- Three (3) shoreline ablution facilities;
- Office complex; and
- Staff housing complex.

#### 2.2.5 Management and Operation

The management and operation of the Dam is done by the DWS. Through the development of this RMP process, NWPB and DESTEA are proposed as IA for the management of recreational use for this Dam.

There are currently no fixed and floating Aids to Navigation (AtoN) and demarcation markers in place. 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).

#### 2.2.6 Safety

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

#### 2.3 SOCIO-ECONOMIC ENVIRONMENT

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 area falls within two (2) municipalities LTLM (Ward 4) under the Dr RSM DM and TLM (Ward 5 and 8) under LDM, refer to **Figure 6 and Figure 7** for the municipal ward boundaries.

A social audit was conducted for Ward 4 of LTLM and Ward 5 and 8 of TLM with the data from Stats SA Community Survey (2016) that focus on the socio-economic conditions of the area.

The socio-economic conditions within these wards is summarized in the sub-sections as follows:

- Population size;
- Education level;
- Employment status;

- Monthly income;
- Tourism potential; and
- Community beneficiation.



Figure 6: LTLM Ward 6 Delimitation Source: Municipal Demarcation Board (2016)



Figure 7: TLM Ward 5 and 8 Delimitation Source: Municipal Demarcation Board (2016)

#### **Population Size**

According to Census (2011), TLM has a total population size of 47 625 representing 79%, where ward 5 has 6797 people representing 11% and ward 8 having 5822 people representing 10% of the TLM population **Figure 8.** 



Figure 8: Population size of Ward 5& 8 TLM Source: Stats SA Community Survey (2016)

According to Census (2011), LTLM has a total population size of 53 248 representing 85% and ward 4 has 9115 people representing 15% of the LTLM population (refer to **Figure 9**).



Figure 9: Population size of Ward 4 LTLM Source: Stats SA Community Survey (2016)

#### **Educational Level**

As shown in **Figure 10**, 17% of residents in Ward 4 of LTLM have matriculated, and only 6% of the population has attained higher education.



Figure 10: Education Level of Ward 4 LTLM Source: Stats SA Community Survey (2016)

**Table 4:** Education Level of Ward 5 & 8 of TLM**Source:** Stats SA Community Survey (2016)

| Description                 | Ward 5 | Ward 8 |
|-----------------------------|--------|--------|
| Description                 | (2011) | (2011) |
| Primary Level               | 2614   | 1940   |
| Secondary Level             | 1699   | 1350   |
| Certificate with Grade 12   | 647    | 640    |
| Higher<br>Educational Level | 276    | 302    |
| No Schooling                | 648    | 477    |
| Other                       | 4      | 16     |
| N/A                         | 908    | 1097   |

#### Monthly Income

Ward 4 has 3041 individuals without a source of income representing 36% of the LTLM population receive no income and 25 %, which is equivalent to 2116 individuals, receive R1 to R4800. Ward 5 with 2120 who receives no income and 1843 in ward 8 (Census, 2011), (refer to **Figure 11 and 12**). Rigorous and integrated efforts are required by the municipalities to create work opportunities and sustainable livelihoods for the people.

The implementation of the RMP can contribute to the growth of the municipal economic sectors, and this can be in the form of fishing, finance, business services, catering and accommodation, transport and communication.



Figure 11: Monthly Income for Ward 4 LTLM Source: Stats SA Community Survey (2016)



Figure 12: Monthly Income for Ward 5 & 8 TLM Source: Stats SA Community Survey (2016)

#### 2.3.1 Community Beneficiation

It is the DWS's policy 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 waterbased recreation economy. This will ensure that water resource remain protected for future generations.

In terms of recreational angling, this 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 recognized as important stakeholders in South African inland fisheries and that their interests are recognized 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, recreational fishing is widely practiced by rural community members. Appropriate policies to promote greater participation by rural community members in the recreational angling value chain have the potential to create opportunities such as decent jobs and food security in rural areas. In terms of the 1<sup>ST</sup> Draft of the National Inland Fisheries Policy Framework for South Africa. Department of Agriculture, Forestry and Fisheries (2018), more can be done to ensure that this economic sector contributes to transformation and equitable socio-economic benefit from inland fish resources Involving the communities in the utilisation and management of the Dam will ensure that communities benefit through:

- Equitable 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 Dam Management Committee (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. Process triggers are 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 presented 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 action projects to attain community participation and beneficiation, environmental conservation and the unlocking of socio-economic potential of the water resource.

#### 3.2 PROCESS TRIGGERS

Process triggers are factors based on the principles underlying the integrated resource planning procedure for recreational waters.

| Triggers (s)                                 | Potential Challenges   |  |  |  |  |  |  |
|--|--|--|--|--|--|--|--|
| Resource Management:                         | <ul> <li>The water resource located within or outside a protected area and if subject to protection by legislation.</li> <li>Invasive Alien species.</li> <li>Water quality issues.</li> </ul>   |  |  |  |  |  |  |
| Recreational Industry<br>Involvement:        | <ul> <li>Conflict between users (in terms of Schedule (1) of the NWA due to no management tool in place.</li> <li>Public safety with regards to the use of inland vessels.</li> <li>Uncontrolled developments within dam basin.</li> </ul>   |  |  |  |  |  |  |
| Community Participation<br>and Beneficiation | <ul> <li>Challenges of communities regarding physical access and access to the water-based economy of the resource.</li> <li>Participation and beneficiation of surrounding communities remains a challenge.</li> <li>Unlocking the economic potential of the dam through the establishment of effective Public Private Partnerships (PPPs).</li> <li>Equitable and sustainable benefit flow into the community through the creation of appropriate institutional arrangements.</li> </ul> |  |  |  |  |  |  |
| 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.  |  |  |  |  |  |  |

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

#### 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 13.** 

| Phase 1:<br>Process Initiation  | <ul> <li>Establish motive for undertaking RMP process.</li> <li>Ensuring roles and responsibilities are understood.</li> </ul>  |
|---|---|
| Phase 2:<br>Project Outline and Encumbrance<br>Survey                   | •Ascertain whether any encumbrance exist and the most appropriate approach to the project.  |
| Phase 3:<br>Objective Identification                                    | •Consult with stakeholders to ascertain common goals and formulate into one document.   |
| Phase 4:<br>Research/ Information Generation                            | •Prepare a Research Report containing information on sustainable utilisation of the Dam.  |
| Phase 5:<br>Integrated Management, Zoning and<br>Institutional Planning | <ul> <li>Undertaking planning through a consultative process and<br/>by evaluating information to ascertain what can take<br/>place based on specific constrains and parameters.</li> <li>Outcome: Draft RMP</li> </ul> |
| Phase 6:<br>Evaluation  | <ul> <li>Obtain comments from stakeholders on the draft RMP<br/>and amend accordingly.</li> <li>Outcome: Approved RMP</li> </ul>  |
| Phase 7:<br>Decision making and<br>Operationalisation                   | <ul> <li>Obtain approvals and support from relevant Authorities.</li> <li>Undertake implementation and institutionalisation of the RMP.</li> <li>Outcome: Implementation</li> </ul>                                     |

Figure 13: 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, such as 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, Engineering Technician and the Central Operations Champion) on **18 July 2017.** 

During the site inspection, the following were observed: the water hyacinth and the blue green algae were spotted in various areas all around the dam, subsistence anglers and small-scale fishers were spotted during the site inspection. On the North West side the facilities needs to be developed and upgraded e.g chalets; and the Free State side needs capacity in order to better manage and care for the area and also recreational users.

Additional background information was collated from consultation with different stakeholders. Potential Interested and Affected Parties (I&APs) were identified during the site inspection through liaison with the Dam Control Officer and reserve managers.

#### 3.4.3 Public Participation

The Public Participation (PP) process is a process in which potential Interested and Affected Parties (I&AP) 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&AP.

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&AP, which 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 is 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: Initial public meetings were advertised on Express and Stellalander Newspapers in English on 20 September 2017. For draft RMP presentation meetings were advertised on Express and Stellalander Newspapers in English on 04 July 2018,( refer to Appendix B).
- Flyers and Onsite Notices: The Flyers and Onsite Notices were compiled in English, Setswana and Sesotho and were distributed on 22 September 2017. For the draft RMP presentation, flyers were distributed on 03 July 2018. (Refer to Appendix C).

#### **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 18 September 2017, notifying them about the scheduled consultative meetings. The draft RMP presentation was sent on 02 July 2018 (refer to Appendix D).
- Background Information Document (BID): The BID was sent to stakeholders via email with background information about the proposed RMP project (refer to Appendix E).
- Authority Meeting: The initial authority meeting was held on 05 October 2017 at Tswelopele Local Municipality Council Chamber and at the Lekwa-Teemane Local Municipality – Development Agency Board Room. The draft RMP was presented on 11 July 2018 at Lekwa-Teemane Local Municipality: Development Agency Board Room and at Tswelopele Local Municipality Council Chamber

The purpose of the meeting was:

- To present the RMP, its goal and the objectives of the project to the authorities; and
- To allow the authorities an opportunity to participate in the project by sharing information on their respective mandates.
- Public Meeting: The initial public meeting was held on 06 and 08 October 2017 at Coverndale Community Hall, Reatlegile Stop 40 Open Space and Relekile Public High School. The Draft RMP was presented on 12 July 2018 at Coverndale.
- Comments and Responses Register: A copy of the draft RMP report was circulated on 03 July 2018 for commenting. The commenting period lapsed on 20 July 2018. The comments received were documented in the Comments and Responses Register (refer to Appendix F).

#### 3.4.4 Planning Partners

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

| Department  | Functions / objections   |
|---|--|
| Lekwa-Teemane Local Municipality<br>/ Tswelopele Local Municipality | The Dam is within the jurisdiction of these municipalities.  |
| Department of Agriculture,<br>Forestry and Fisheries (DAFF)         | The purpose of the DAFF 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.<br>Operation Phakisa's expansion to inland dams is one of the DAFF'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<br>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.<br>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<br>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.   |
| Centre for Public Service<br>Innovation (CPSI)                      | The CPSI is supporting a multi-departmental working group that is developing an innovative approach to inland water<br>and safety integrity. The project, was initiated out of the need to find an innovative, practical and cost-effective way to<br>implement SAMSA' vessel safety regulations on inland waterways and to implement responsible water use within the<br>broader socio-economic context of the country.   |

| Department  | Functions / objections  |
|---|---|
|   | The CPSI is supporting a multi-departmental working group that is developing an innovative approach to inland water<br>and safety integrity. The project, was initiated out of the need to find an innovative, practical and cost-effective way to<br>implement SAMSA' vessel safety regulations on inland waterways and to implement responsible water use within the<br>broader socio-economic context of the country.  |
|   | The CIWSP is a project piloted by the CPSI that is a partnership between multiple government entities and between the Government and communities. The main aim of the project is to enhance the development of a best practice model to ensure safe and structured inland maritime environment and culture, whilst protecting the country's precious water resource.  |
| Culture, Arts, Tourism, Hospitality,<br>Sport Sector, Education and<br>Training Authority (CATHSSETA) | CATHSSETA deals with the approval and financing of training relating to the culture, hospitality, tourism and sport sectors.  |
| Department of Corporative<br>Governance and Traditional Affairs<br>(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<br>(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.   |
| South African Sports<br>Confederation and Olympic<br>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 encumbrances exist around the Dam and other factors that may influence the development and implementation of the RMP.

The survey also identifies the information that is required for effective decision-making regarding the RMP (DWAF, 2006).

The identified encumbrances are categorized into **Biophysical**, **Legal** and **Social**.

**Tables 7** summarises the identified biophysical, legal and social encumbrances/ limitations, respectively that might affect the development or implementation of the RMP for the Dam.

**Table 7:** Summary of Biophysical, Legal and Social Encumbrances

| Item             | Description   |  |  |  |  |
|------------------|---|--|--|--|--|
| Flora            | <ul> <li>Purpose of the protected areas are to conserve biodiversity; protect an area, which is vulnerable or ecologically sensitive, and to preserve the ecological integrity of the area, etc as such some high impact developments will be restricted.</li> <li>Water Hyacinth can disrupt water abstraction facilities, destroy fishing grounds, restrict water sports areas, obstruct navigation of boats, block up irrigation channels and watercourses causing siltation and flooding. The plants also provide breeding grounds for mosquito larvae and habitat for disease vectors such as the bilharzia snail. Water Hyacinth also devastates aquatic biodiversity.</li> </ul> |  |  |  |  |
| Geology and Soil | • There is silt buildup in the dam, which is mainly caused by the structure of the soil, which is sandy to clay, and this is threatening the depth and capacity of the dam.   |  |  |  |  |
| Water quality    | • Bloemhof Dam is polluted due to the effluents that are released from the Vaal River System, which is feeding into the dam. Blue green algae is visible at the dam and it is alleged that heavy metals have been detected in some of the fish and their eggs at the dam.   |  |  |  |  |
| Dam Boundary     | <ul> <li>The dam is situated in an area that is regulated by two (2) National Legislations (NWA and NEMPAA), two (2) districts and local municipalities, which have different plans and interests towards the dam. This will cause challenge when implementing the RMP, as a question will rise, who will be chairing the Dam Management Committee (DMC) for Bloemhof Dam and how many DMCs will this dam have.</li> </ul>  |  |  |  |  |
| Mobility         | • The condition of the road from Hoopstad to the dam might discourage tourists to visit the dam due to its bad condition.   |  |  |  |  |
| Expectations     | <ul> <li>The local communities, which are staying close to dam, are expecting job opportunities<br/>from projects emanating from the dam. The local communities also expect low or<br/>reasonable access fees to the dam for both subsistence fishing and recreational<br/>activities especially because the access fees from the Bloemhof Nature Reserve are<br/>high.</li> </ul>  |  |  |  |  |
| Social Audit     | <ul> <li>Most of the local community members within these two (2) municipalities do not have higher education and they will need training in order to be involved or engage in tourism related opportunities at the dam.</li> <li>The majority of residents receive no income, meaning they depend on social grants for children and old age grant. Most of these people are classified as poor because they fall under the minimum income bracket, which is R31 200 per annum or lower the people are the people and the people and the people are classified as poor because they fall under the minimum income bracket.</li> </ul>   |  |  |  |  |

#### 3.5.2 SWOT Analysis and Objective Identification

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

| Strengths   | Weaknesses   |
|---|--|
| <ul> <li>Bloemhof is a deep dam (15m) with a large surface area of approximately 24 000 km<sup>2</sup>.</li> <li>It is considered number 1 dam in the Free State in terms of fishing. All big fishing events are hosted at the dam up to world championship level.</li> </ul> | <ul> <li>There is lack of management capacity within the Sandveld Nature Reserve at the time of the SWOT analysis but has since been resolved.</li> <li>There is limited funding and resources within DESTEA for general management of the dam and to further develop recreational facilities.</li> <li>There are no officers at the dam to enforce rules.</li> <li>There is lack of awareness regarding the dam for the local community members.</li> <li>It is alleged that contractors appointed at the dam are not from the local communities.</li> <li>There is no public transport to the dam, which makes the dam not easily accessible.</li> <li>The access fees on the North West side are pricey making it unaffordable for communities.</li> <li>Lack of facilities to accommodate locals during the festive seasons at the dam.</li> <li>Local community does not have information regarding the dam, e.g. what the dam can offer or how they can utilize it.</li> <li>Local communities does not access the dam, only subsistence anglers go to the dam.</li> <li>Dam falls within a protected area and thus limits recreational developments.</li> <li>The community does not benefit anything from the national angling competitions that takes place at the dam.</li> <li>No safety officer (lifeguards) at the dam, if there is an incident at the dam the nearest South African Police Services (SAPS) water-wing</li> </ul> |
| Opportunities   | Threats  |
| • There is an opportunity for job creation through  | Poorly treated sewage effluent from the Vaal   |
| <ul> <li>aquaculture project at the dam.</li> <li>There is an opportunity for small-scale fishery for local community members.</li> <li>Swimming pools (currently it will be a challenge to have swimming pools at the reserve as it needs to be</li> </ul>                   | <ul> <li>River system, which ends up in the dam.</li> <li>Water pollution (blue green algae) at the dam.</li> <li>Majority of previously disadvantaged community members in North West Province are excluded from projects at the dam.</li> </ul>  |

 Table 8: SWOT Analysis for Bloemhof Dam

|   | maintained and Sandveld is understaffed, however, it might be considered in future).  | • | Access<br>provinc | road<br>e is ve | especially<br>ry bad and | on<br>not s | the<br>afe. | Free | State |
|---|---|---|-------------------|-----------------|--------------------------|-------------|-------------|------|-------|
| • | There is an opportunity for water sports activities such as rowing, sailing, canoeing, rafting, etc.                                  |   |                   |                 |                          |             |             |      |       |
| • | There is an opportunity for holiday homes.  |   |                   |                 |                          |             |             |      |       |
| • | There is an opportunity to host international angling competition at the dam.   |   |                   |                 |                          |             |             |      |       |
| • | Installation of solar lights on access road to the dam<br>will attract tourists and will ensure safety of the local<br>communities.   |   |                   |                 |                          |             |             |      |       |
| • | Development of animal centers such as zoo.  |   |                   |                 |                          |             |             |      |       |
| • | There is enough land for development.<br>Establishment of a community Hall, entertainment<br>area, chalets, picnic sites, braai area. |   |                   |                 |                          |             |             |      |       |

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.

#### **Objective Identification (Phase 3)**

The key objectives were evaluated and identified based on the following questions:

- **Objective** (What is envisaged for the Dam?)
- **Priority** (How significant is the objective?)
- **Motivation** (Why is it important to achieve this?)
- Management support (Who will be involved?)
- Guidelines and Policies (How to get there?)
- Action Projects (How to achieve this?).
- **Monitoring Guideline** (How will the action projects be monitored?)

The set of key objectives acknowledged were then categorised into three (3) Key Performance Areas (KPAs) as follow:

#### **KPA 1: Resource Management**

- To have Bloemhof Dam free of alien invasive vegetation in order to support the proposed recreational activities and to maintain the native ecological aspect of the area;
- To improve the water quality of the dam; and
- To maximize the storage capacity of the Bloemhof Dam.

#### **KPA 2: Resource Utilisation**

- To introduce Aquaculture project at the dam;
- To promote subsistence fishing at the dam;
- To review the access fees to the dam;
- To upgrade the road from Hoopstad to the dam for ease of access; and
- To establish more tourism facilities (B&Bs, resource centres, etc) and recreational activities (water sports, swimming pools, etc).

#### **KPA 3: Benefit Flow Management**

 To establish an effective institutional structure that can manage the use of water for recreational purpose in an acceptable manner where community members are represented, this will ensure equitable access and use of the dam;

- The structure must ensure that local community members derive benefits from the utilisation of the dam; and
- Uplift the Local Economy and increase Benefit Flows to the surrounding communities through community empowerment.

Action 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 promote environmental conservation and uplift the socio economic potential of the area by ensuring that local community derive benefits from accessing and utilisation of the dam".

# 3.5.3 Research/ Information Generation (Phase 4)

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

#### **Tourism Potential:**

The 5<sup>th</sup> administration of LTLM has identified Agriculture, Culture and Tourism as the three anchors of economic growth especially in rural areas where poverty, unemployment and inequality is very high (LTLM IDP, 2016 -2017).

Furthermore, the SDF identified the area around the Bloemhof dam and along the Vaal River for

nature reserve and as tourism, node where the attractiveness of these areas need to be enhanced and their marketing receive special attention. These include areas around the dams, nature reserves (including Bultfontein and Hoopstad Nature Reserves), and conservancies. The SDP also notes that marshes (wetlands / pans) should also be preserved and make special mention of those around Wesselsbron that are environmentally sensitive (LTLM IDP, 2016 - 2017).

Bloemhof Dam is one of the biggest dams in South Africa and falls within the top nine (9) dams in the country, it offers a variety of recreational activities, and most importantly, it falls within two (2) nature reserve.

It offers activities such as fishing (subsistence, sports and commercial), boating, picnicking, braaing and there are caravan parks, chalets, camping sites (electrified and non-electrified).

Bloemhof Dam offers nature feeling as it is located within two (2) nature reserves and it has variety of biodiversity, game animals such as elands, kudus, monkeys, impala, zebra, etc and it is known for its renowned birding and fishing spot in South Africa.

#### <u>Practicability/ Feasibility of Potential</u> <u>Objectives:</u>

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, 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 the 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 14** shows the plans and their components.



Figure 14: 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 Implementing Agency (IA) is an institution that implements a programme or project on behalf of DWS.

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

- An IA can 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 programmes or action projects identified in the RMP for Bloemhof Dam. The IA and DWS will sign a Memorandum of Agreement (MOA), which is a legal binding document that outlines the roles and responsibilities and conditions to be followed by both parties when entering into agreement(s) and/or when in terms of managing the Dam/ water resource 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;
- Management of incident management system;

- Management of community skills and training programmes;
- Management of commercial activities (in line with Treasury Requirements); and
- Management of AtoN and demarcation markers.

#### 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 unresolved issues relating to the Dam are escalated to OMC (described in detailed in **4.1.3**). 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;
- 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;
- Conveying the management objectives and decisions pertaining to the Dam to the relevant stakeholders; and
- Management of the incident management system and wash bays.

**Figure 15 and 16** shows the proposed parties to form part of the DMC for Bloemhof Dam.



Figure 15: Proposed DMC for North West Province



Figure 16: Proposed DMC for Free State Province

#### Management Tools:

The DMC will have 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*.

Terms of Reference (ToR) defines 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 an IA;
- Roles and responsibilities of members;
- Minutes and attendance requirements;
- Reporting requirements;
- Management of agreements;
- Management of access objectives;
- Management of development targets;
- Management of water quality monitoring;
- Management of the control of aquatic invasive species;
- Management of development pressure;
- Management of incident management system and wash bays; and
- Management of AtoN and demarcation markers.

#### 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)<sup>2</sup>:

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 unless a formal agreement with the DWS is concluded. 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 Centre for Inland Waterways 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

<sup>&</sup>lt;sup>2</sup> The Department of the Water and Sanitation reserves the right to appoint the Implementing Agency at their own discretion.

• Access points to be used.

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

#### **National Affiliations:**

All recreational clubs (i.e canoeing and fishing) must be affiliated to a South African Sports Confederation and Olympic Committee (SASCOC) affiliated organisation.

# 4.1.3 Operations Management Committee (OMC)

There is an existing Chief Directorate: Infrastructure Operations Management Committee (CD: IO MANCO) within the DWS NWRI which comprises of directors of the NWRI's four (4) operations (Northern, Southern, Eastern and Central) and is chaired by the Chief Director: Infrastructure Operations within the NWRI as illustrated in **Figure 17**.

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 **4.1.4**).



Figure 17: Existing CD: IO MANCO

# 4.1.4 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 18** shows government departments (also referred to as planning partners and/ or authorities) and agencies that will form part of the NPSC:



Figure 18: Proposed NPSC

#### 4.2 ZONING PLAN

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, whilst not retarding the primary functions of the Dam.

#### 4.2.1 Water Surface Zoning

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

#### Safety and Security Zone:

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(s) 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
- They are 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, such as wind surfing, kayaking, swimming, rowing, sailing, paddle boating, float tubes, canoeing, angling, yachting, aquaculture<sup>3</sup> and small-scale fisheries.

#### High Impact Activity Zone:

This zone is demarcated where the Dam is at its deepest level. It caters for high impact activities associated with high speed, wake and noise activities such as motorised boating, house-boating, water-skiing, and para-sailing.

**Table 9** and **Figure 19** shows the proposed watersurface zoning for Bloemhof Dam

<sup>&</sup>lt;sup>3</sup> The final location of the aquaculture will be dependent on the outcome of a feasibility study.

#### Table 9: Proposed Water Surface Zoning Description

| Zone Description                                  | Permissible Activities   | Non Permissible Activities   | Recommendation  |
|---|--|--|---|
| <ul> <li>Safety and<br/>Security Zone.</li> </ul> | <ul> <li>Alien invasive species clearing</li> <li>Management of Dam infrastructure</li> <li>Management and maintenance activities by the DWS and authorised personnel</li> </ul> | Public access  | <ul> <li>Area should be demarcated by demarcation makers and AtoN.</li> </ul>   |
| Conservation Zones.                               | • None   | <ul> <li>Public activities (to prevent aquatic habitats disturbance)</li> </ul>  | <ul> <li>Area should be demarcated by demarcation makers and AtoN.</li> <li>Strict management and control of these areas, especially with regards to illegal fishing and dumping.</li> </ul>  |
| • Low Impact<br>Activity Zone.                    | <ul> <li>Angling</li> <li>Rowing</li> <li>Paddle boating</li> <li>Float tubes</li> <li>Canoeing</li> <li>Aquaculture facilities</li> </ul>                                       | <ul> <li>Swimming</li> <li>Motorised boating</li> <li>Water skiing</li> </ul>  | <ul> <li>Area should be demarcated by demarcation makers and AtoN.</li> <li>No private slipways/ floating jetties to be built without approval from the DWS.</li> <li>Launching and mooring of vessels should take place at this zone.</li> <li>Motorised boats are allowed to launch at this zone but no water wake should be formed until the designated area for motorised recreational boating is reached.</li> </ul> |
| <ul> <li>High Impact<br/>Activity Zone</li> </ul> | <ul> <li>Motorised boating</li> <li>Water Skiing</li> <li>Aquaculture facilities</li> </ul>  | <ul> <li>Swimming</li> <li>Angling</li> <li>Rowing</li> <li>Paddle boating</li> <li>Float tubes</li> <li>Yachting</li> <li>Canoeing</li> </ul> | <ul> <li>Area should be demarcated by demarcation makers and AtoN.</li> <li>All activities within the high impact zone shall take place beyond 70m from the shoreline.</li> <li>Activities within this zone must be evaluated to determine their impact on the water resources and other Dam users before they are allowed into the Dam.</li> </ul>   |



Figure 19: Proposed Water Surface Zoning

#### 4.2.2 Shoreline Zoning<sup>4</sup>

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

## <u>Safety and Security Zone (Dam wall and associated DWS infrastructure):</u>

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 not be less than 100m from the Dam wall and downstream. This area is reserved for DWS management purposes.

Management of this zone is aimed at protecting the Dam wall and outlet works, as well as 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:

This zone is demarcated for large-scale activities including chalets, recreational club houses, infrastructure for services, and land based aquaculture.

#### Grazing Zone:

This zone is reserved for the grazing of livestock.

Table 10 and Figure 20 shows the proposedshoreline zoning and Figure 21 shows the overallzoning plan for Bloemhof Dam

<sup>&</sup>lt;sup>4</sup> Permanent structures within the purchase line are not allowed. All developments should be outside 1:100 year floodline.

| Zone Description                                  | Permissible Activities  | Non-permissible Activities   | Recommendation   |
|---|---|--|--|
| <ul> <li>Safety and Security<br/>Zone.</li> </ul> | <ul> <li>Fire management</li> <li>Alien invasive species clearing</li> <li>Management of Dam infrastructure</li> <li>Management and maintenance activities by DWS and authorised personnel</li> </ul>                                       | <ul> <li>Unauthorised public access</li> </ul>   | <ul> <li>A minimum area of 100m wide downstream of the Dam wall<br/>should be demarcated preventing public access and use.</li> </ul>  |
| Conservation/ Low<br>Density Activity<br>Zone     | <ul> <li>Conservation management<br/>activities</li> </ul>  | Development  | <ul> <li>Permissible activities may only be permitted provided that<br/>they are approved by the relevant Authorities and they are<br/>conduct as per the relevant legislations.</li> <li>These zone should control access to ecological sensitive areas.</li> </ul>   |
| Medium Density<br>Activity Zone                   | <ul> <li>Shoreline fishing</li> <li>Day visitors</li> <li>Picnic areas</li> <li>Braai facilities</li> <li>Camping site (tents and caravans)</li> <li>Swimming pools</li> <li>Ablution facilities and infrastructure for services</li> </ul> | <ul> <li>Accommodation facilities<br/>such as</li> <li>Chalets</li> <li>Recreational club houses</li> <li>Permanent structures</li> </ul>                      | <ul> <li>The management of this area should follow PPP process in terms of the National Treasury.</li> <li>Requirements of the NWA and NEMA must be taken into account in all recreational activities.</li> <li>All developments must be approved by the DWS.</li> <li>No private slipways to be built without approval from DWS.</li> </ul>   |
| High Density<br>Activity Zone.                    | <ul> <li>Recreational clubs</li> <li>Chalets</li> <li>Ablution facilities</li> <li>Infrastructure for services</li> </ul>   | Permanent Structures   | <ul> <li>The management of this area should follow PPP process in terms of the National Treasury.</li> <li>Requirements of the NWA and NEMA must be taken into account in all recreational activities.</li> <li>Noise level to be kept at a minimum.</li> <li>All developments must be approved by the DWS.</li> <li>No private slipways to be built without approval from the DWS.</li> </ul> |
| • Grazing Zone                                    | • Grazing of livestock  | <ul> <li>Chalets;</li> <li>Recreational club houses;</li> <li>Braai facilities;</li> <li>Camping and Picnicking; and</li> <li>Permanent Structures.</li> </ul> | <ul> <li>No private slipways to be built without approval from DWS.</li> <li>Requirements of NWA must be taken into account in all recreational activities.</li> </ul>   |



Figure 20: Proposed Shoreline Zoning Map



Figure 21: 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 <u>resource</u> <u>over a particular time;</u>
- 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 \geq ECC**.

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

- Analysis of recreation and water resource management policies;
- Analysis of objectives of the water resource;
- Analysis of current recreational water use;
- Definition, strengthening or modification of policies regarding recreational water use management;

- Identification of factors influencing recreational water use; and
- Determination of the recreational water use carrying capacity.

#### Physical Carrying Capacity (PCC)

#### **PCC** = $A \times U/a \times Rf$

#### 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 therequired area for use

Table 11: Area required per user

| Craft          | U/A (ha/craft) |
|----------------|----------------|
| Angling        | 3.0            |
| Canoe          | 1.0            |
| Paddle boating | 1.0            |
| Float tubes    | 1.0            |
| Rowing         | 0.5            |
| Sailing        | 5.0            |
| Water-Skiing   | 2.0            |
| Powerboats     | 4.0            |
| Average        | 2.2            |

Based on the **Table 11**, the average hectare per user is 2.2 ha (22 000 m<sup>2</sup>), 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 Bloemhof Dam is **23 066.5 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 =23 066.5 x 1/5 x 1 = 4 613 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 Bloemhof Dam, these factors includes sensitive areas, such as conservation areas (5 512 ha) as well as aspects regarding the safe operation and management of the Dam (500 ha).

These factors accounts for 6 012 ha, that is 26% of the area that is not available for recreational use.

Therefore: RCC = PCC x (100 - cf1)% x (100 - cf1)% x (100 - cf1)%

#### = 4613 x (100 – 26) %/100 = 3 413 crafts

#### Effective Carrying Capacity (ECC)

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

Given that there is no adequate recreational infrastructure facilities and no management capacity at the Dam, 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?)
- Priority (How significant is the objective?)
- Motivation (Why is it important to achieve this?)
- Management support (Who will be involved?)
- Guidelines and Policies (How to get there?)
- Action Projects (How to achieve this?).
- Monitoring Guideline (How will the action projects be monitored?)

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

#### Table 12: Strategic Plan for KPA 1: Resource Management

| Objective  | Motivation & Strategy  | Action Plans  | Management Support   |
|--|--|---|--|
| (What do we want)  | (Why do we want to achieve this)   | (How do we achieve this)  | (Who will be involved)   |
| Alien Plants Control:<br>• To have Bloemhof<br>Dam free of alien<br>invasive plants and<br>animals in order to<br>support the proposed<br>recreational activities<br>and to maintain the<br>native ecological<br>aspect of the area. | <ul> <li>Bloemhof Dam is infested with aquatic alien invasive plant species (Water Hyacinth) and the terrestrial alien invasive plant species Opuntia (prickly pear). The further spreading of these species can have a detrimental effect on the ecology of the dam and the natural aesthetic of the area in general. They can also lower the diversity of both aquatic and terrestrial alien species within and around the dam as well as hindering other proposed recreational activities such as boating.</li> <li>There are alien fish species at the dam such as Grass carp and Bass. The occurrence of alien fish species will threaten indigenous fish population, resulting mainly from predation by carp.</li> </ul> | <ul> <li>Remove all alien invasive plants and animals within<br/>the purchased boundary and the surrounding<br/>adjacent area. Manual removal is more<br/>environmental friendly and can create<br/>employment opportunities for local community<br/>members.</li> <li>Put in place a cable to catch the hyacinths at the<br/>inflow; this can help to prevent the spreading of<br/>the plant into the dam.</li> <li>Rehabilitate areas infested with invasive alien<br/>vegetation with suitable species that are<br/>indigenous to the area.</li> <li>State poverty relief programs such as 'Landcare',<br/>'Working for Water', "Working on Fire' and<br/>'Working for Wetlands" should be used to full<br/>effect to complement the Nature Reserve budget<br/>for this management task.</li> <li>Develop an inspection and cleaning mechanism<br/>(Wash bay) to ensure that vessels entering the dam<br/>do not contaminate it with alien vegetation.</li> <li>Methods that can assist to eliminate alien fish<br/>species can be provincial angling competition<br/>where anglers are only required to catch alien fish<br/>species, the competition should be an ongoing<br/>activity to control alien fish species and the caught<br/>fish could be donated to local communities.</li> </ul> | <ul> <li>DEA [Working for Water<br/>(WfW) programmes]</li> <li>DAFF (Soil Management<br/>section)</li> <li>Expanded Public Works<br/>Programme (EPWP)</li> <li>South African Biodiversity<br/>Institute (SANBI)</li> <li>READ</li> <li>DESTEA</li> <li>IA with the support of the<br/>DMC</li> </ul> |
| <ul> <li>Water quality</li> <li>To improve the water<br/>quality of the dam.</li> </ul>  | <ul> <li>The water quality is a key issue that<br/>needs to be addressed to ensure<br/>sustainable use of the dam by all. There<br/>is presence of excessive algae and<br/>poorly treated sewage effluent.</li> </ul>  | <ul> <li>Water samples (upstream and downstream) must<br/>be taken to determine sources of pollution.</li> <li>Enforcement of all relevant environmental<br/>legislations (e.g. NWA and NEMA) at the dam can<br/>assist to improve the dam's water quality.</li> <li>Monitoring to ensure compliance of all the relevant<br/>legislation and recommendations.</li> </ul>  | <ul> <li>DWS</li> <li>READ</li> <li>DEA</li> <li>DESTEA</li> <li>LTLM</li> <li>TLM.</li> <li>DAFF</li> </ul>   |

| Objective<br>(What do we want)  | Motivation & Strategy<br>(Why do we want to achieve this)   | Action Plans<br>(How do we achieve this)  | Management Support<br>(Who will be involved)      |
|---|---|---|---|
|   |   | • The components of Co-operative Inland<br>Waterways Safety Programme (CIWSP) such as<br>Incident Management System in reporting<br>pollution incidents should be implemented at the<br>dam to achieve this objectives.   |   |
| <ul> <li>Water quantity</li> <li>To maximize the storage capacity of the Bloemhof Dam.</li> </ul> | • There is silt buildup in the dam, which is<br>mainly caused by the structure of the<br>soil that is sandy to clay, threatening<br>the depth and storage capacity of the<br>dam. | <ul> <li>Develop a Sedimentation Management, which will describe the Remedial Action Plan for removing silt from the dam.</li> <li>Determine the necessary permits from Department of Mineral Resources (DMR) to mine sand at the dam and Water Use Licence, Section 21(c&amp;i) for impeding or diverting the flow of water in a watercourse and altering the bed, banks, course or characteristics of a watercourse.</li> </ul> | <ul><li>DWS</li><li>DESTEA</li><li>READ</li></ul> |

#### Table 13: Strategic Plan for KPA 2: Resource Utilisation

| Objective   | Motivation  | Action Projects  | Management Support   |
|---|---|--|--|
| (What do we want)   | (Why do we want to achieve this)  | (How do we achieve this)   | (Who will be involved)   |
| Aquaculture<br>• To implement<br>Aquaculture project at<br>the dam. | <ul> <li>Dr Ruth Segomotsi Mompati District<br/>Municipality (Dr RSM DM) have<br/>identified aquaculture as a viable<br/>project at the dam.<br/>Tswelopele Local Municipality is also<br/>interested in the aquaculture project at<br/>the dam.</li> </ul> | <ul> <li>DR RSM DM has already conducted a feasibility study and Business Plan for aquaculture project in the Vaal River downstream of Bloemhof Dam but they are now interested in conducting aquaculture at the dam and they should conduct another feasibility study at the dam.</li> <li>All necessary or required authorization or permits must be obtained prior to undertaking aquaculture project.</li> <li>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.</li> <li>Feasibility study will be undertaken on the Free State side of the dam, to determine the feasibility of an aquaculture project.</li> </ul> | <ul> <li>DAFF</li> <li>DR RSM DM</li> <li>LTLM</li> <li>TLM</li> <li>LDM</li> <li>DWS</li> </ul> |

| Objective   | Motivation  | Action Projects  | Management Support  |
|---|---|--|---|
| (What do we want)   | (Why do we want to achieve this)  | (How do we achieve this)   | (Who will be involved)  |
| Subsistence Fishing:         • To promote sustainable subsistence fishing at the dam.   | <ul> <li>Local communities are currently accessing the dam for subsistence fishing using BDNR and SNDNR access points.</li> <li>Fishing must be regulated by relevant policy to avoid overfishing within the dam.</li> </ul>  | <ul> <li>Permits (fishing licence) must be acquired and the use of gill nets must be prevented, as it has significant negative impact on fish population within the dam.</li> <li>Educate people on fishing methods that are safe and sustainable.</li> <li>Preserve the core habitats for nesting, resting, feeding and breeding of fish within the inlets, by demarcating areas for subsistence fishing.</li> <li>Management authority or DWS must develop communication signage in order to effectively inform different angling groups about the dam fishing rules.</li> <li>Appoint and train safety officers within the communities to monitor compliance of the dam fishing rules.</li> <li>Generate the necessary infrastructure, such as banks to fish from in order to support the sustainable fishing.</li> <li>Incorporate the objective in a Business Plan for a feasibility study to evaluate the fish population in the dam and a possiblity of a fisheries project.</li> </ul> | <ul> <li>IA with the support of the DMC</li> <li>DESTEA</li> <li>READ</li> <li>FSARD (Free State Department of Agriculture and Rural Development)</li> <li>DWS</li> <li>Other relevant conservation NGOs within the area must be involved.</li> </ul> |
| <ul> <li>Access fees:</li> <li>To review the access fees to the dam.</li> </ul>   | • Currently the access fees at the dam are<br>very high and the local communities<br>cannot afford them, SNDNR is charging<br>R20 per person and BDNR is charging<br>R25 for children and R40 for adults, this<br>is high especially for subsistence fishers<br>who go to the dam on a daily basis.         | <ul> <li>Access to the dam must be accessible, equitable and safe to all users.</li> <li>Establishment of dam rules relating to access to the dam, fees payable for access, safety measures, speed limit applicable on the ring roads around the dam and the time in which the dam will be open to the public.</li> <li>The entry fee needs to be reasonable to ensure that the dam remains an affordable destination for all.</li> </ul>  | <ul> <li>READ</li> <li>DESTEA</li> <li>DWS</li> <li>TLM</li> <li>LTLM</li> </ul>  |
| <ul> <li>Access Road:</li> <li>To upgrade the road<br/>from Hoopstad to the<br/>dam for ease access<br/>and use of the dam.</li> <li>Recreational facilities:</li> <li>To establish more<br/>tourism facilities (B&amp;Bs.</li> </ul> | <ul> <li>The road from Hoopstad to SNDNR is in<br/>bad condition and many incidents have<br/>been reported which is a safety risk for<br/>people who want travel to the dam.</li> <li>Currently at BDNR the chalets needs<br/>refurbishment and the ablution<br/>facilities needs to be upgraded</li> </ul> | <ul> <li>To conduct a feasibility study that will entail how much it will cost to upgrade the road.</li> <li>Upgrade the road from Hoopstad to SNDNR for ease access and use of the dam for recreational and emergency purposes.</li> <li>Construction of recreational facilities:         <ul> <li>Outdoor and covered Braai Stands;</li> <li>Construction of Lapas;</li> </ul> </li> </ul>   | <ul> <li>TLM</li> <li>LDM</li> <li>DESTEA</li> <li>DWS</li> <li>READ</li> <li>DESTEA</li> <li>LTLM</li> </ul>   |

| Objective<br>(What do we want)  | Motivation<br>(Why do we want to achieve this)   | Action Projects<br>(How do we achieve this)  | Management Support<br>(Who will be involved)                                 |
|---|--|--|--|
| resource centres) and<br>recreational activities<br>(water sports, swimming<br>pools, etc). | <ul> <li>whereas at SNDNR the braai areas needs to be maintained for customer's satisfactory.</li> <li>If more tourism facilities are established this is likely to increase economic opportunities in the area.</li> <li>Facilities within SNDNR are not great and there is no luxury accommodation.</li> </ul> | <ul> <li>Non-permanent chalets and food stalls; etc.</li> <li>Should the design, development and operation of the public facility be outsourced, then contracts need to be obtained from local service providers.</li> <li>Implement a signage system that communicates relevant information, especially where this pertains to zoning restrictions and other rules and regulations.</li> <li>Market the dam properly for recreational use.</li> </ul> | • TLM<br>• DWS   |
| Swimming pools:<br>To construct swimming<br>pools at the dam.                               | <ul> <li>Local community members proposed<br/>swimming pools to be constructed at<br/>the dam.</li> </ul>  | <ul> <li>Appoint local contractors to construct swimming pools along the dam shoreline.</li> <li>Train youth as life guards, sportsman, administrators and facility managers.</li> <li>The IA to develop the pool rules and safety operating procedures.</li> </ul>  | <ul> <li>IA with the support of DMC</li> <li>DWS</li> <li>Swim SA</li> </ul> |

Table 14: Strategic Plan for KPA 3: Benefit Flow Management

| Objective   | Motivation   | Action Projects   | Management Support   |
|---|--|---|--|
| (What do we want)   | (Why do we want to achieve this)   | (How do we achieve this)  | (Who will be involved)   |
| Recreational Institutional<br>Structure:<br>• To establish an effective<br>institutional structure<br>that can manage<br>recreational use of the<br>dam in an acceptable<br>manner, which is also<br>representative of all the<br>Stakeholders. | <ul> <li>According to the RMP guidelines, an effective institutional structure must be established in terms of DWAF's considerations on the Institutional Arrangements for Managing Use of Water for Recreational Purposes guideline (2003).</li> <li>Currently the dam is managed and operated by DWS for primary use of the dam and for secondary use is managed by READ in the North West province and DESTEA in the Free State Province.</li> <li>An unbiased structure must be formed for Bloemhof Dam to oversee the recreational use of the dam.</li> </ul> | <ul> <li>Appoint DESTEA and NWPB as Implementing Agencies<br/>for the dam.</li> <li>The roles and responsibilities of the role players must<br/>be clearly defined and understood in the MOA.</li> </ul>  | • DWS  |
| Community Participation<br>and Beneficiation:<br>• To uplift the local<br>economy and increase<br>benefit flows to the<br>surrounding<br>communities through<br>community<br>empowerment  | <ul> <li>Tourism sector have been identified as<br/>a vehicle for skills development, job<br/>creation, BBBEE, etc. It is imperative<br/>that the local communities derive<br/>benefits from recreational activities<br/>conducted at the dam.</li> <li>This will assist in ensuring that the dam<br/>is utilised in a sustainable manner and<br/>in a way that fulfills the interests of the<br/>community.</li> </ul>  | <ul> <li>Implement skills development programmes where opportunities exist.</li> <li>Involve the local communities in angling competitions.</li> <li>Implementation of environmental awareness programmes to the local communities and ensure that they are always updated with environmental information.</li> <li>Open the dam for local schools environmental tour, as this can also have influence on career options.</li> <li>Educate the community on how to utilise the dam for other recreational activities besides fishing. This will assist in terms of uplifting the surrounding local community.</li> <li>First preference to be given to the local community members if any job opportunities arise.</li> </ul> | <ul> <li>IA</li> <li>DMC</li> <li>Sector Education and Training Authority (SETA)</li> <li>DWS</li> </ul> |

#### 4.4 FINANCIAL PLAN

A Financial Plan provides guidance on how revenue generated through recreational use of the dam should be used to ensure community participation and beneficiation, as well as to ensure the sustained and improved management of the Dam.

Currently, revenue at the dam is generated from access fees such as for picnicking, camping, fishing, accommodation facilities and boating. Access or entry fees to the Dam must be reasonable and cannot be used to generate profit. Access or entry fees must take cognizance of the socio-economic conditions of the area and its local communities to ensure that the dam remains an affordable destination for all.

The charges for recreational use of the dam (i.e events and/or advertising) can be used to generate income for dam operations and management.

There are also opportunities for PPPs which could further unlock the economic potential of the Dam in respect of recreation and tourism. PPPs are commercial in nature where a private party make use of state owned property to generate profit. PPPs should therefore contribute to the socio-economic growth and empowerment of local communities through job creation and upliftment of local Small, Medium and Micro-sized Enterprises (SMMEs).

Co-funding is also viable where an IA is appointed to manage recreational use of the dam. DWS and/or other relevant Government Departments can fund the IA, to supplement operational costs and other scenarios by co-funding identified objectives that are related to their mandate. It is recommended that ALM be appointed as an IA to manage recreational use of the dam on behalf of DWS. A more detailed Financial Plan (FP) is contained in the Business Plan (refer to Appendix G), which will facilitate the implementation of the RMP by providing an implementation program and cost estimate 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 noneconomic 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 Bloemhof Dam RMP. It also describes the financial management and operational requirements to implement the objectives of the RMP.

### **CONCLUSION AND WAYFORWARD**

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

#### **Key Challenges:**

The following key challenges were identified for Bloemhof Dam:

- Bloemhof Dam is infested with aquatic alien invasive plant species (Water Hyacinth) and the terrestrial alien invasive plant species Opuntia (prickly pear).
- There are alien fish species at the dam such as Grass carp and Bass
- Poorly treated sewage effluent from the Vaal River system, which ends up in the dam.
- There is silt buildup in the dam, which is mainly caused by the structure of the soil that is sandy to clay, threatening the depth and storage capacity of the dam.
- Limited funding and resources within DESTEA for general management of the dam and to further develop recreational facilities.
- The road from Hoopstad to SNDNR is in bad condition and many incidents have been reported which is a safety risk for people who want travel to the dam.
- Owing to the absence of test samples for all water quality constituents (not only for pH) it is inconclusive if the water is fit for recreational use.
- There is a lack of environmental and tourism awareness for the community.

- There is currently no specific incident management system in place to ensure that incidents are recorded and responded to in a co-ordinated manner.
- There is no public transport to the dam, which makes the dam not easily accessible.
- The access fees on the North West side are pricey making it unaffordable for communities.
- Lack of facilities to accommodate locals during the festive seasons at the dam.

#### **Recommendations:**

This RMP recommends the implementation of the following immediate actions:

- Appoint NWPB and DESTEA as 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.
- Removal of silt from the Dam in order to increase the water quantity.
- Water quality reporting and monitoring.
- Removal of aquatic alien invasive plant species (Water Hyacinth) and the terrestrial alien invasive plant species Opuntia (prickly pear).
- To establish more tourism facilities (B&Bs, resource centres) and recreational activities (water sports, swimming pools, etc).
- To upgrade the road from Hoopstad to the dam for ease access and use of the dam.
- The road from Hoopstad to SNDNR is in bad condition and many incidents have been reported which is a safety risk for people who want travel to the dam.

#### Way Forward:

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

#### **Review of RMP:**

According to the DWAF (2006), the RMP may be reviewed and updated every five (5) years to

ensure that the management objectives are relevant and that management actions are continually improved. The BP needs to be updated annually. **Figure 22** illustrates the RMP and BP review framework.



Figure 22: RMP and BP Review Framework

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### **APPENDICES**

- APPENDIX A : STAKEHOLDER DATABASE REGISTER
- APPENDIX B : NEWSPAPER ADVERT
- APPENDIX C : FLYERS
- APPENDIX D : EMAILS
- APPENDIX E : BACKGROUND INFORMATION DOCUMENT (BID)
- APPENDIX F : COMMENTS AND RESPONSES REGISTER
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