Department of Water and Sanitation

NATIONAL WATER RESOURCE INFRASTRUCTURE (NWRI)

Resource Management Plan NOOITGEDACHT DAM

REPORT – Volume 4 of 5

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WATER IS LIFE - SANITATION IS DIGNITY



water & sanitation

Department: Water and Sanitation REPUBLIC OF SOUTH AFRICA



NOOITGEDACHT DAM RESOURCE MANAGEMENT PLAN

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- All stakeholders who contributed in the development of the RMP for the dam;
- Chief Albert Luthuli Local Municipality;
- Department of Environmental Affairs (Working for Water);
- Department of Water and Sanitation;
- Gert Sibande District Municipality;
- Komati Yacht Club;
- Mpumalanga Tourism Parks Agency;
- Rotary International; and
- The Ward councillor who represented the community.

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

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Review:

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

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

AMENDMENTS PAGE

| Revision No | Description | Date |
|-------------|--------------------------------|------------|
| 1 | Draft RMP for DWS Review | 02/12/2015 |
| 2 | Draft RMP for DWS Review | 12/12/2015 |
| 3 | Final Draft RMP for DWS Review | 14/03/2016 |
| 4 | Final RMP for DWS Approval | 31/08/2016 |
| 5 | Final RMP for DWS Approval | 30/11/2016 |
| 6 | Final RMP for DWS Approval | 14/12/2016 |

LIST OF ACRONYMS

| ADU | Animal Demography Unit |
|--------------|---|
| AGIS | Agriculture Geo Referenced Information System |
| AtoN | Aid(s) to Navigation |
| BID | Background Information Document |
| BOD | Biological Oxygen Demand |
| BP | Business Plan |
| CATHSSETA | Culture, Arts, Tourism, Hospitality, Sports Sector, Education and Training |
| | Authority |
| CD: IO MANCO | Chief Director: Infrastructure Operations Management Committee |
| CIWSP | Cooperative Inland Waterway Safety Programme |
| CoGTA | Corporative Governance and Traditional Affairs |
| CPSI | Centre for Public Services Innovation |
| DAFF | Department of Agriculture, Forestry and Fisheries |
| DEA | Department of Environmental Affairs |
| DEDET | Department of Economic, Development, Environment and Tourism |
| DHS | Department of Human Settlement |
| DMC | Dam Management Committee |
| DMR | Department of Mineral Resources |
| DoT | Department of Transport |
| DPW | Department of Public Works |
| DRDLR | Department of Rural Development and Land Reform |
| DSR | Department of Sports and Recreation |
| DWAF | Department of Water Affairs and Forestry |
| DWS | Department of Water and Sanitation |
| EIA | Environmental Impact Assessment |
| EMF | Environmental Management Framework |
| GIAMA | Government Immovable Asset Management Act |
| GWWs | Government Waterworks |
| I&APs | Interested and Affected Parties |
| IA | Implementing Agency |
| IALA | International Association of Marine Aids to Navigation and Lighthouse Authorities |
| IDP | Integrated Development Plan |
| IRMP | Integrated Resource Management Plan |
| КРА | Key Performance Areas |
| MFMA | Municipal Finance Management Act |
| MPRDA | Mineral and Petroleum Resource Development Act |
| MSA | Municipal Systems Act |
| MIPA | Mpumalanga Tourism and Parks Agency |
| NEMA | National Environmental Management Act |
| NGDNR | Nooitgedacht Dam Nature Reserve |
| NPSC | National Project Steering Committee |
| | National Water Act |
| | Operations Management Committee |
| PFIVIA | Public Finance Management Act |
| PP | Public Participation |

NOOITGEDACHT DAM RESOURCE MANAGEMENT PLAN

| Public Private Partnership |
|--|
| Professional Service Provider |
| Resource Management Plan |
| South African Maritime Safety Authority |
| South African Police Service |
| South African Sports Confederation and Olympic Committee |
| Spatial Development Framework |
| Strengths, Weaknesses Opportunities and Threats |
| Total Alkalinity |
| Working for Water |
| Water Use License |
| Wastewater Treatment Works |
| |

EXECUTIVE SUMMARY

Mandate: The Department of Water and Sanitation (DWS), through the National Water Act, 1998 (Act No. 36 of 1998), is mandated to protect aquatic and associated ecosystems and their biological diversity. The Minister of Water and Sanitation, as the custodian of the nation's water resources must ensure that the Government Waterworks (GWWs), including Nooitgedacht Dam, are protected, used, developed, managed and controlled in a sustainable manner, for the benefit of all. To assist the Minister in attaining the mandate, and to ensure that access to, and use of, the dam is equitable, the DWS initiated and commissioned the development of the Resource Management Plan (RMP) for Nooitgedacht Dam.

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

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

Location of the dam: Nooitgedacht Dam is an earth-fill type of a dam which impounds the Komati River. The dam is located within the Nooitgedacht Nature Reserve which is widely known as Nooitgedacht Dam Nature Reserve (NDNR). It falls under Ward 21 within the jurisdiction of Chief Albert Luthuli Local Municipality (CALLM) which forms part of the Gert Sibande District Municipality GSDM) in Mpumalanga Province, South Africa. Its Global Positioning System (GPS) coordinates **25°58'37,01"S 30°4'25,41"E.** **Purpose of the dam:** The primary purpose of Nooitgedacht dam to provide raw water for irrigation purposes as well as municipal and industrial use.

The dam also currently offers recreational a wide variety of recreational activities due to its location within a nature reserve. Such activities include boating and fishing. The dam is renowned for access to great fishing opportunities and hosts the annual Morula Fishing festival.

Damownershipandmanagement:Nooitgedacht Dam is owned and operated by theDWS.Mpumalanga Tourism and Parks Agency(MTPA)manages the dam for recreationalpurposes as part of the NDNR.

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

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

DWAF's Guidelines for Public Participation (2001) outlines three (3) broad phases for public participation namely the **Planning**, **Participation** and **Exit phase**. During the **Planning Phase** a site inspection and literature review was conducted to gather baseline information about the dam. A process was also established to get into contact with the I&APs and relevant authorities to ensure cooperative interests and support in the RMP project.

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

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

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

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

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

The identified key common objectives are:

- To ensure that the lease agreement are reviewed and promote regular monitoring of the leased property;
- To preserve and maintain the water quality of the dam and promote sustainable utilization and protection of the water resource;
- To have the dam free of alien invasive vegetation in order to allow possible recreational activities such as swimming

and boating in the dam. To further maintain the ecological value of the water resource and surrounding state land;

- To promote equitable access to the dam;
- To introduce water sports that are regulated and meet the user satisfaction at the dam. Further introduce the previously disadvantaged to water based recreational activities;
- To ensure that the local communities participate and benefit from economic development occurring within and around the dam;
- To improve the lives of communities by implementing skills development and training. Moreover this will ensure safety of community members at the dam; and

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

"To maintain the biodiversity, ecological processes, and the sustainable utilisation of the water resource whilst ensuring substantial socio-economic benefits and also avoiding the deterioration of the water quality at the dam".

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

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

- Introduction of an eco-school at the dam to educate the local community about the importance of the water resource and nature conservation; and
- Introduction of water sports like sailing and canoeing.

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CHAPTER 1: INTRODUCTION

1.1 BACKGROUND OF NOOITGEDACHT DAM

The Nooitgedacht Dam is an earth-fill type of a dam located on the Komati River in Mpumalanga Province. The dam is positioned approximately 10km north west of Carolina at Global coordinates Positioning System (GPS) 25°58'37,01"S 30°4'25,41"E under the jurisdiction of Chief Albert Luthuli Local Municipality (CALLM) (Ward 21) of Gert Sibande District Municipality (GSDM) (IDP, 2013-2014). The dam was established in 1962 and is supported by three important tributaries which Boesmanspruit, Witkloofspruit are and Vaalwaterspruit. The dam is situated in the grassland and wetlands region of Mpumalanga (WSDP, 2011).

The dam is owned and maintained by the DWS and the task of managing the dam is delegated to Mpumalanga Tourism and Parks Agency (MTPA). The dam is located within the Nooitgedacht Dam Nature Reserve which is renowned for its access to great fishing opportunities and it also has the opportunity to host recreatinal Festivals. Presently Eskom Komati Power Station is the major abstractor of water from the dam.

Abstraction by Eskom is about ± 104 million m³ per annum for the power stations on the highveld. According to the Quaternary Catchment Map, the dam falls within four (4) quaternary catchments of the Komati Catchment Management Area. The following are the quaternary catchments that the dam falls under: Vaalwater Spruit (X11A), Boesmanspruit (X11B), Wildoofspruit (X11C)and Komati (X11D).

The dam supports important ecosystem, and wildlife within the Nooitgedacht Nature Reserve. The activities currently taking place at the dam and its surrounding environment have been identified as fishing, boating, bird watching, accommodation in a form of chalets, picnic sites and conservation including game.



Figure 1: Activities around the dam (camping sites and chalets)

The dam is habitat to various fish species mainly yellow bass and carp. The water birds such as the African fish eagle are also found in and around the dam. The wetlands complex within the surrounding environment protects a number of rare and endemic bird species (Steyn, 2003).

The dam is a significant asset as it serves mainly for irrigation purposes as well as municipal use and supply to Eskom. The dam is also renowned for its access to great fishing opportunities. **Table 1** depicts the profile of the dam while**Figure 2 - 3** shows locality map and quaternarycatchment area map respectively.

 Table 1: Nooitgedacht Dam Profile

| Nooitgedacht Dam Profile | | | | |
|----------------------------|---|--|--|--|
| Height | 41.8m | | | |
| Location | South Africa | | | |
| Province | Mpumalanga | | | |
| District Municipality | Gert Sibande District Municipality | | | |
| Local Municipality | Chief Albert Luthuli Local Municipality | | | |
| Nearest Town | Carolina | | | |
| Completion Year | 1962 | | | |
| Coordinates | 25°58'37.01"S 30°4'25.41"E | | | |
| Purpose | Irrigation, industrial & Municipal | | | |
| Owner | Department of Water and Sanitation | | | |
| Water Management Area | Inkomati-Usuthu CMA | | | |
| Quaternary Catchment | X11A, X11B, X11C | | | |
| Catchment Area (km²) | 1 588 | | | |
| River | Komati River | | | |
| Capacity (m ³) | 78.4 Million | | | |
| Surface Area (ha) | 763 | | | |
| Wall type | Earth fill type | | | |
| Wall height (m) | 41.8 | | | |
| Length (m) | 1053 | | | |



Figure 2: Nooitgedacht Locality Map



Figure 3: RMP Focus Area



Figure 4: Quaternary Catchment Area Map

1.2 BIOPHYSICAL DATA

Provided below is the bio-physical factors under various subsections including climate, topography, geology, fauna, vegetation etc. Each section summarises the status quo regarding the bio-physical factors.

1.2.1 Climate

The dam area normally receives about 614mm of rain per year, with most rainfall occurring during summer. The area receives the lowest rainfall (1mm) in July and the highest (119mm) in November. The monthly distribution of average daily maximum temperatures shows that the average midday temperatures for the area range from 15.4°C in June to 23.4°C in January. The region is the coldest during June when the mercury drops to 0.9°C on average during the night (Nooitgedacht Nature Reserve Weather forecast, 2014).

1.2.2 Flora

The surrounding environment is typically of the Grassland Biome. The high rainfall, type of soils gives the area the veld type it has. The largest portion of the Nooitgedacht area is covered by

the Piet Retief Sourveld and the north eastern sandy Highveld is only covered by small patches (Steyn, 2003). The grassland Highveld around the dam is known for its large flocks of Spurwing geese, Egyptian Geese, as well as the blue cranes (Acocks, 1975). About 61 bird species have been recorded at the NDNR. The reserve is a breeding house to the fish eagle and also have approximately 1000 spur wing geese observed on the dam (Steyn, 2003).

This important grassland biome is threatened by the spread of Alien Invaders like the black wattle and grey poplar (Steyn, 2003). Currently the DEA (working for water) has Alien Plant Control Programs around Mpumalanga Province which includes the NDNR.

Wetlands exist within the NDNR which is also indicated by the bird live at the dam. According to Steyn 2003 most wetlands surrounding the dam are under pressure and rehabilitation programmes need to be initiated. See **Figure 5 for Land Cover Map**.



Figure 5: Nooitgedacht Dam Land Cover Map

1.2.3 Fauna

1.2.3.1 Amphibians

According to Animal Demography Unit, 2015 a total of Eleven (11) frog species have been recorded in the 2530CC Quarter Degree Square (QDS). All the 11 species are of least concern Table 2: Some of the Frog Species occurring within 2530CC

with regard to red list category. According to Steyn, 2013 a total of fifteen (15) amphibians have be recorded at the reserve which also includes endemic species. Some of the frog species listed in the 2530CC QDS are tabulated below in **Table 2**.

| Genus | Species | Common Name | Red List Category |
|---------------|--------------|----------------------|-------------------|
| Breviceps | mossambicus | Mozambique Rain Frog | Least concern |
| Amietophrynu | gutturalis | Guttural Toad | Least concern |
| Amietophrynus | rangeri | Raucous Toad | Least concern |
| Kassina | senegalensis | Bubbling Kassina | Least concern |
| Semnodactylus | wealii | Rattling Frog | Least concern |
| Amietia | fuscigula | Cape River Frog | Least concern |

1.2.3.2 Reptiles

According to Animal Demography Unit, 2015 reptiles are common in 2530CC QDS. Approximately ten (10) reptile species have been recorded. According to Steyn, 2013 a total of twenty six (26) reptile species have been recorded for the Nooitgedacht Dam Reserve. Spotted endemic species includes dwarf gecko, montane dwarf burrowing skink, Legless skink; Warren's girdled lizard, and the Southern brown egg-eater. Tabulated below in **Table 3** are reptile species.

Table 3: Reptile species occurring within 2930AD

| Genus | Species | Common Name | Red List Category |
|----------------|----------------|-------------------------------|-------------------|
| Aparallactus | capensis | Black-headed Centipede-eater | Least Concern |
| Duberria | lutrix | South African Slug-eater | Least Concern |
| Philothamnus | hoplogaster | South Eastern Green Snake | Least Concern |
| Philothamnus | semivariegatus | Spotted Bush Snake | Least Concern |
| Pseudaspis | cana | Mole Snake | Least Concern |
| Cordylus | vittifer | Common Girdled Lizard | Least Concern |
| Pseudocordylus | melanotus | Common Crag Lizard | Least Concern |
| Scelotes | mirus | Montane Dwarf Burrowing Skink | Least Concern |
| Trachylepis | varia | Variable Skink | Least Concern |
| Afrotyphlops | bibronii | Bibron's Blind Snake | Least Concern |

1.2.3.3 Mammals

According to Animal Demography Unit, 2015 a total of twenty five (25) mammal species were recorded. Steyn, 2013 also recorded a list of threatened /priority game species which are as

follows *Ourebia ourebi* (Oribi), *Connochaetes gnou* (Black wildebeest) and *Damaliscus dorcas phillipsi* (Blesbuck). Some of the mammals are in **Table 4**.

Table 4: Endangered Mammal Species

| Genus | Species | Common Name | Red List Category |
|-------------|-----------|---------------------------|-------------------|
| Ourebia | ourebi | Oribi | Endangered |
| Atelerix | frontalis | Southern African Hedgehog | Near Threatened |
| Rhinolophus | clivosus | Geoffroy's Horseshoe Bat | Near Threatened |
| Kerivoula | anosa | Lesser Woolly Bat | Near Threatened |

1.2.3.4 Fish

According to Steyn, 2013 a total of seven (7) fish species have been recorded. The species include exotic species such as (*Cyprinus carpio* (carp), *Micropterus salmoides* (largemouth bass) and *Ctenopharyngodon idella* (grass carp), which may influence the sustainability of indigenous species.

1.2.3.5 Birds/Avifauna

A total of sixty one bird species have been recorded on the reserve. Some of the species recorded are the White Stork, Yellow-billed Stork, Bald Ibis, Stanley's Bustard and fish eagles which breed annually.

1.2.4 Topography

Topography plays a major role in the distribution or zoning of recreational activities on the environment, therefore it is crucial to consider topography during the allocation of activities in and around the dam. The topography of Nooitgedacht area can be described as hilly with slightly sloping valley sides, gently undulating between 1560 and 1720m above sea level. The area around the dam is at height of approximately 1600m towards the northern side of the dam and 1560m on the southern, eastern and western sides of the dam. The highest point at the dam is approximately 1 720m above sea level. **See Figure 6 for Slope Map**.

1.2.5 Geology and Soils

The underlying geology at the dam consists mainly of shale² and quartz arenite, with patches of tillites and dolerite on the western and south eastern sides of the dam. **See Figure 7** for **Geological Map**. The Geology give rise to deep, red to yellow, sandy soils. The area is surrounded by grasslands and wetlands.

fissile and laminated. "Laminated" means that the rock is made up of many thin layers. "Fissile" means that the rock readily splits into thin pieces along the laminations.

² Shale is a fine-grained sedimentary rock that forms from the compaction of silt and clay-size mineral particles that are commonly call "mud". This composition places shale in a category of sedimentary rocks known as "mudstones". Shale is distinguished from other mudstones because it is



Figure 6: Nooitgedacht Dam Slope Map



Figure 7: Nooitgedacht Dam Geological Map

1.2.6 Historical, Archaeological and Cultural Resources

Research conducted by Archaeo-info 1997 contained a substantial number of valuable Sixty-three cultural resources. (63) archaeological sites were located and documented: Iron Age (35 sites), Historical Period (colonial) (16) and Both Iron Age and Historical (12). Although no Stone Age sites as such could be found, small scatters of stone tool, especially that of the Late Stone Age, were located.

The Iron Age is very well represented and the Sotho-speaking peoples constructed most of the stone ruins. These sites would not appear to have been occupied for long periods of time. The historical period is also represented to some degree on the reserve, some of which might be very recent in origin.

The large number of sites found that relate to both the Iron Age and the Historical Period, with

the latter built on top of the former with stone robbed from it, would seem to suggest that building stone is not particularly abundant in the area.

The single most important discovery in terms of the Iron Age relates to the different engraved sites. Only a few similar sites have ever been recorded in South Africa, as agriculturist rock engravings have been neglected in terms of academic rock art research (Archaeo-Info, 1997).

1.2.7 Hydrology

1.2.7.1 Surface Water

The dam falls within four quaternary catchment of the Komati catchment management area. The following are the quaternary catchment that the dam falls under: Vaalwater Spruit (X11A), Boesmanspruit (X11B), Wildoofspruit (X11C) and Komati (X11D). **Figure 8** illustrates the fluctuations of the dam's water level over a year (DWS, Mpumalanga Province State of Dams).



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

1.2.7.2 Water Quality

The dam was built on the Komati River. The water is pumped from Jericho Dam then discharged into the upper catchment of the Boesmanspruit Dam and then flows to the Nooitgedacht Dam. In 2012 one of the tributaries of the Nooitgedacht Dam underwent rapid deterioration following a large rainstorm event. A sudden drop in pH to 3.7, including

elevated levels of iron, aluminium, manganese and sulphate rendered the water toxic and unsuitable for use (McCarthy, 2012). The condition was highly influenced by mining activities upstream. According to results illustrated in **Table 5** obtained or supplied by DWS, it clearly indicates that the water quality of the dam meet the basic requirements for water based recreational activities.

| Characteristic | Tests Results | Water Quality Target Range (Recreational Purposes) | Description |
|--|------------------|--|---|
| Clarity (Secchi disc, m) | 2.0 | 3.0 | No health effects |
| pH (pH units) | 7.861 | 6.5 - 8.5 | Minimal eye irritation occurs. The pH of water is well within Quality Range and the buffering capacity of the lachrymal fluid of the human eye. Skin, ear and mucous membrane irritation absent. |
| Algae (Chlorophyll- a method, μg/chl- a) | N/A | 0 - 15 | No nuisance conditions may be encountered. |
| Ammonia (mg/L) | 0.002 | 0-1.0 | No health and or Aesthetic effects can occur. |
| Magnesium (mg/L) | 9.737 | 0 - 30 | No health effects |
| Potassium (mg/L) | 3.082 | 0 - 50 | No aesthetic or health effects |
| Sulphate (mg/l) | 26.98 | 0 - 200 | No health or aesthetic effects are experienced |
| Electrical Conductivity (mS/m) | 26.98 | 0 - 70 | No health effects associated with electrical conductivity of water are expected < 45 mS/m |

 Table 5: Water Quality Variables

Source: Water Quality Standards (Department of Water Affairs, Water Quality Guideline for Recreational Water Use, 1996).

1.3 USES AND USERS OF THE DAM

1.3.1 Industrial Use

Eskom is a major registered water user from Nooitgedacht Dam for its power station in the Highveld area. The average transfers out of the dam is 24.4 million m3/a. The operating rules of the dam are such that water is released downstream into the Vygeboom Dam from where it is then transferred for power generation. The release pattern is dependent on the water levels of Vygeboom Dam.

1.3.2 Recreational Use

The dam is also used for water based recreation activities such as boating and fishing.

1.3.3 Conservation

The dam is within the Nooitgedacht Dam Nature Reserve which was proclaimed as a "Nature Reserve". Proclamation number still to be obtained. The following farms form part of the reserve: Boesmanspruit 9IT; Wintershoek 451JT

"Although originally bought for the building of the dam and the protection of the immediate catchment area, the reserve has several important conservation features. The greatest conservation value of this reserve lies in its protection of a significant area of North-eastern Sandy Highveld grassland that is in a good condition. It represents the only official conservation area for this Highveld veldtype, of which 55 % of the surface area has already been transformed (with only 0.67 % conserved).

This vegetation type is under tremendous pressure from a forestation and the spread of alien plant invader species such as black wattle. Investigations as to increase the reserve area are included as an objective for the reserve. The other land uses that presently impact are maize cropping, livestock grazing and coal mining" (Steyn, 2013).

The area is in grassland species that harbours a characteristic assemblage of Highveld game species. it includes many endemic species of interest is the occurrence of Oribi (Endangered) and common reedbuck, which are both species under pressure from habitat transformation, loss of wetlands and competition by more common herbivores.

1.4 RECREATIONAL INSTITUTIONAL STRUCTURE

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

1.4.1 Management of Water Surface

The management of the surface water in terms of operation of the Dam is done by DWS.

In addition to the DWS, Local Accountable AtoN Parties (LAAP) and other Bodies providing access to Government waterways and watercourses have a responsibility to ensure that the required fixed and/or floating AtoN are provided after obtaining the necessary support from DWS and thereafter the permission by SAMSA.

1.4.2 Access

The dam is within a reserve which is completely enclosed with approximately 40km of fence. Nine entrances to the reserve exists but only one for public access with an entrance fee attached.

1.4.3 Facilities

The facilities in and around the dam includes buildings at the Komati Yacht club, the ablution and picnic areas. There are newly constructed chalets on the eastern side of the dam managed by MTPA.

Rowing boats, sailing boats and boats powered by electric or motors are allowed in the Public access zone. No swimming and jet skiing is allowed.

1.5 LAND OWNERSHIP

1.5.1 Land Claims

During the site inspection on **30 May 2014** at the dam and also according to the condensed Management Plan for the Nooitgedacht Dam Nature Reserve (2003), it was brought forth that there are existing land claims lodged with the Department of Rural Development and Land Reform (DRDLR) (Mpumalanga Regional Land Claims Commission). Information about the land claims was requested from the Land Claims Commission regional office in Mpumalanga Province.

1.5.2 Lease Agreements

The dam is owned by the DWS. A lease agreement was concluded between DWS and the Komati Yacht Club in 1990. According to the agreement, the club leased eleven (11) hectares on the north eastern site of the dam. The lease agreement endured for three years and is currently expired and will be reviewed after the implementation of the RMP. According to the Constitution of the club it appears that this is a private club which was founded in 1966 and whose member are only group of families.

1.6 SAFETY

There is currently no adequate, standardised and harmonised fixed and floating Aids to Navigation (AtoN) and Demarcation Markers in place. There is an already existing zoning plan which encourages the safety of the dam and users. The purpose of this zoning is to ensure the physical safety of the dam and the safety of the visitors. Access to some areas around the dam are restricted to DWS officials and MTPA.

1.7 SOCIAL- ECONOMIC ENVIRONMENT

The main purpose of social audit is to examine the general status of the study area and to determine issues that need to be addressed when developing the RMP in order to overcome potential difficulties in an area.

The study area falls within Ward 21 of the CALLM. An understanding of socio-economic conditions of Ward 21 can be used at a later stage to determine the impact of a RMP in the area in terms of changed socio-economic conditions.

A social Audit which focused on the population composition of the ward, Education level, employment status and monthly income was undertaken and is presented in section 1.7.1.1 to 1.7.1.4, respectively.

1.7.1 Population Dynamics

The majority of the total population is from previously disadvantaged groups. This implies that there is a dire need to address issues of disparities in terms of social facilities, skills development, educational facilities, physical infrastructure, spatial planning and other related issues.

1.7.2 Education Level

The Census (2011) breaks down educational levels into each year of study. The educational levels are grouped into primary, Secondary, higher educational and no schooling levels. As indicated by **Table 6** and **Figure 9**, only a small percentage of the population has furthered their studies in higher institutions. It further illustrates

that a large percentage of the population only pass matric as the highest obtained qualification.

Table 6: Education level of ward 21

| Description | Ward 21 (2011) | Percentage |
|---------------------------|-------------------|------------|
| Primary level | 505 | 15.20% |
| Secondary level | 1464 | 44.07% |
| Higher education level | 46 | 1.39% |
| No schooling | 1307 | 39.34% |
| Total | 3322 | 100% |



Figure 9: Education Level for Ward 21

1.7.3 Employment Status

In terms of employment levels within Ward 21, the majority of residents are employed with 53.66% employment with unemployment rate of 1.3%. A greater amount of 37.82% of the residents are not economically active whereas 7.21% of them are discouraged work-seekers. This strongly signifies that there is low unemployment rate (Census, 2011). Refer to **Table 7 and Figure 10**.

| Description | Ward 21 (2011) | Percentage |
|------------------------------|-------------------|------------|
| Employed | 3021 | 53.66% |
| Unemployed | 74 | 1.31% |
| Discouraged work- seekers | 406 | 7.21% |
| Not economically active | 2129 | 37.82% |
| Total | 5630 | 100% |

Table 7: Employment Level for Ward 21

Figure 10: Employment Status for Ward 21

1.7.4 Community Beneficiation

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

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

The community will benefit in amongst others the following ways:

• By having equitable access to the dam;

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

The Nooitgedacht area carries high conservation value with different flora and fauna common at the area. There are endemic threatened species such as *Aloe grassiniflora*, *Oribi* which carry high conservancy value. Nine important wetlands have been identified some originating outside the NDNR. Rehabilitation work on most must be done. With 53% of the wetlands under pressure, it is of great importance that rehabilitation programmes should be initiated.

1.9 EXISTING PLANS

Currently the operations and maintenance of Nooitgedacht Dam are managed by DWS and the surrounding state land including the management of the dam for recreational purposes is managed by MTPA. Therefore it is clear from the information gathered from the existing Condensed Management Plan (CMP) that Nooitgedacht Dam has an existing management structure and a Zoning plan.

1.9.1 Institutional Plan

The success of the development and implementation of the RMP is dependent on the level of involvement by stakeholders.

1.9.2 Zoning Plan

According to the CMP (2003) to avoid conflict between users and to reach sustainable management, the reserve was zoned. The dam

NOOITGEDACHT DAM RESOURCE MANAGEMENT PLAN

area was zoned in the following major zones: high density/ public access zone, conservation/wildlife zone, security zones and no anchorage zone. The zones were developed in order to manage the recreational activities at the same time not to compromise the primary purpose of the dam (Steyn, 2003).

CHAPTER 2: LEGISLATIVE FRAMEWORK

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

- The Constitution of the Republic of South Africa, 1996 (Act No. 108 of 1996), Section 24: Provides that, everyone has a right to an environment that is not harmful to their health or well-being.
- II. Conservation of Agricultural Resource Act, 1983 (Act No. 43 of 1983): Provides for control over the utilization of the natural agricultural resources of the Republic in order to promote the conservation of the soil, the water sources and the vegetation and the combating of weeds and invader plants; and for matters connected therewith. Regulation 7 and 8 within the same Act deals with the protection of wetlands and water courses, while regulations 15 and 16 deals with Alien Invasive Plant Species and bush encroachment.
- III. Consideration on Institutional Arrangement for Managing Use of Water for Recreational Purposes (DWAF, 2003): It outlines some of the institutional issues at a local level and makes recommendations about the conditions under which different Institution Management arrangements may be considered.
- IV. General Public Participation Guidelines (DWAF, 2001): Public Participation refers to the ongoing interaction between Role Players and all stakeholders that is aimed at improving decision making during planning, design,

implementation and evaluation of all projects within the state, this includes the proposed development of the RMP.

- V. Government Immovable Asset Management Act, 2007 (Act No. 19 of 2007): To provide for a uniform framework for the management of an immovable asset that is held or used by a national or provincial department; to ensure the coordination of the use of an immovable asset with the service delivery objectives of a national or provincial department; to provide for issuing of guidelines and minimum standards in respect of immovable asset management by a national or provincial department; and to provide for matters incidental thereto.
- VI. Government Notice R654 dated 1 May 1964, in terms of the Water Act, 1956 (Act No. 54 of 1956): Regulates access and use of government waterworks for recreational purposes.
- VII. Guidelines for Compilation of Resource Management Plans (DWAF, 2006): Directs and guides the development of RMPs by providing insight into the purpose and objectives of these plans, the procedure for its compilation and structure of such documents.
- VIII. Merchant Shipping (National Small Vessel Safety) Regulations (2007): These Regulations provide *inter alia* for:
 - Requirements for vessel safety;
 - Crewing requirements and responsibilities;
 - Controlled events such as competitions and regattas; and
 - Responsibilities of authorised agencies (governing

boards/clubs/organisations and regulating authorities).

These Regulations apply to the Department of Water and Sanitation as they are applicable to all inland and sheltered waters and as the Department and its agencies are allowing access to government waterworks for recreational boating vessels.

- IX. Methodology for Carrying Capacity Assessment for the Use of Water for Recreational Purposes (DWAF, 2003): The carrying capacity of a water resource represents the maximum level of visitor/recreational use and related infrastructure that the water resource and surrounding area can accommodate, without diminishing user satisfaction or adverse impacts upon the local or host community, the economy and culture of the area.
- X. National Environmental Management Act, 1998 (Act No. 107 of 1998): NEMA serves as South Africa's Environmental Framework Legislation. It was designed to provide for co-operative and Integrated Environmental Governance by establishing a general framework for decision-making on matters affecting the environment.
- XI. National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004) and Related Regulations: This Act aims to provide the framework, norms and standards for the conservation, sustainable use and equitable benefitsharing of South Africa's biological resources.

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

- XII. **National Environmental Management:** Protected Area Act, 2003 (Act No. 57 of 2003): The aim of this Act is to provide for the protection and conservation of ecologically viable areas, which are representative of South Africa's Biodiversity, as well as natural landscapes and seascapes.
- XIII. National Treasury Public Private Partnership (PPP) Toolkit for Tourism, 2005: This toolkit assist the process of development of tourism-based businesses on State-owned Land. The Toolkit make it easier for Institutions and the Private Sector to enter into tourism related partnerships on State Property managed by National and Provincial Government Institutions.
- XIV. National Water Act, 1998 (Act No. 36 of 1998): The purpose of the Act is to ensure that the nation's water resources protected, used, developed, are 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 available for made recreational purposes, subject to controls determined by the Minister and regulations made by the Minister.

Using water for recreational purposes is a water use under Section 21K and can be exercised as permissible use of water under Schedule 1 of the Act. However, this provision does not cater for commercial use hence the RMP should be implemented in line with General Strategic Plan for commercialisation of Tourism Public Private Partnerships at Government Waterworks, 2009 and PFMA Treasury Regulation 16. Once the RMP has been approved, the RMP will regulate access and use of the dam. It is important to note that users will need to comply with other relevant legislation.

- XV. Operational Policy: Using Water for Recreational Purposes (DWAF, 2004): This policy is the main guideline in support of the RMP process with regards to the basic principles, policies, strategies and actions for regulating the use of water for recreational purposes.
- XVI. Public Finance Management Act (PFMA) (Act No. 29 of 1999): Section 76 of the Act secures transparency, accountability and sound management of the revenue, expenditure, assets and liabilities of government departments. The Act promotes the objective of good financial management in order to maximise service delivery. The Act allows DWS to enter into PPP agreements with the private sector for the commercial use of state assets.
- XVII. Safety at Sport and Recreational Events Act, 2010 (Act No. 2 of 2010): Events management is addressed by Safety at Sport and Recreational Events Act (Act No. 2 of 2010). This act deals with ensuring responsibility for safety and security at events. The act deals with among other things,
 - Responsibility for safety and security at the events;
 - Risk categorization of events; and
 - Safety certificates.
- XVIII. South African Maritime Safety Authority Act, 1998 (Act No. 5 of 1998): One of SAMSA's three legislative mandates is "to ensure safety of life and property at sea". The Act enables SAMSA to administer and execute the relevant maritime legislation.

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

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

- Broad-based Black Economic Empowerment Act, 2003 (Act No. 53 of 2003).
- Communal Land Rights Act, 2004 (Act No. 11 of 2004).
- Development Facilitation Act, 1995 (Act No. 67 of 1995).
- Intergovernmental Relations Framework Act, 2005 (Act No. 13 of 2005).
- Land Administration Act, 1995 (Act No. 2 of 1995).
- Local Government: Municipal Systems Act, 2000 (Act No. 32 of 2000).
- National Heritage Resources Act, 1999 (Act No. 25 of 1999).
- Occupation Health and Safety Act, 1993 (Act No. 85 of 1993).
- Restitution of Land Rights Act, 1994 (Act No. 22 of 1994).
- State Land Disposal Act, 1961 (Act No. 48 of 1961).
- Safety of Navigation: In addition to its common-law responsibility, DWS is, in terms of the requirements described in the National Water Act, Act No 36 of 1998, amongst others, responsible for the safety of GWWs. DWS, its delegated public sector partner, or a delegated water management institution, has therefore the responsibility to provide the required fixed and/or floating AtoN for general navigation.

In addition to the DWS, Local Accountable AtoN Parties (LAAP) and other Bodies providing access to Government waterways and watercourses have a responsibility to ensure that the required fixed and/or floating AtoN are provided after obtaining the necessary support from DWS and thereafter the permission by SAMSA. In order to demarcate specific zones/areas, standardised demarcation markers are to be used in conjunction with the relevant AtoN.

SAMSA Marine Notices and its Directive on the Standardisation of fixed and floating AtoN and Demarcation Markers on all navigable Inland Waterways in the Republic of South Africa. The aim is to enhance the development of a best practice model to ensure a safe and structured inland maritime environment and culture, whilst protecting the country's precious water resources.Not only do these Acts, Regulations and Frameworks guide specific decisions and actions, they also provide the framework for monitoring performance and compliance, and provide guidelines regarding contravention, offences and penalties. This list is not extensive, other legislation could be applicable.
CHAPTER 3: WHAT IS A RESOURCE MANAGEMENT PLAN

3.1. DEFINITION OF RMP

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

Recreational use includes activities ranging from leisure, sport to culture and religion. Although recreational use does not involve consumption of water, it is still a major water use and needs to be managed effectively with minimal environmental impacts and to ensure communities have access to water based economy.

3.2. PURPOSE OF THE RMP

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

Without approved management plans relating to water resources utilized for recreational

purposes, it is difficult for informed decisions to be made necessitating a precautionary approach to access, utilisation and development proposals.

One of the components of the RMP process is to implement an Institutional Plan for effective management of GWWs. The focus on the Institutional Plan is accompanied by a Zoning Plan which is influenced by current and potential recreational uses. The RMP also outlines the Strategic Plan for all the identified objectives for the dam In addition a Financial Plan is incorporated into the Business Plan (BP) and provides guidance on funding requirements and funding options to implement the potential recreational activities at the dam.

3.3. PROCESS TRIGGERS

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

A number of factors have been identified by DWS as process triggers that prompted the need for developing the RMPs, however the process Facilitator identified site specific trigger factors as illustrated by **Table 8**.

Table 8: Trigger Factors for the Development of Nooitgedacht Dam RMP

| Trigger Factors | Description | | | | |
|---------------------|--|--|--|--|--|
| | Water Quality | | | | |
| | • The water quality of the dam will be negatively | | | | |
| | impacted given that the required legislation and | | | | |
| | waste water discharges from the mining activities | | | | |
| | which is not treated accordingly. This will limit full | | | | |
| | contact recreational water activities such as | | | | |
| Resource Management | swimming. | | | | |
| | Alien Invasive Plant Species | | | | |
| | • The indigenous species will be negatively impacted | | | | |
| | by Invasive Alien Species if the Department of | | | | |
| | Environmental Affairs (DEA) (working for water) is | | | | |
| | not engaged. As a result recreational activities such | | | | |
| | as boating will be limited to some areas of the dam. | | | | |

| Trigger Factors | Description | | | | |
|--|---|--|--|--|--|
| | Community Beneficiation | | | | |
| | • The economic potential of the dam has already | | | | |
| | been identified. The dam can attract tourists as it | | | | |
| ommunity Participation and Beneficiation | is situated inside a nature reserve, therefore job | | | | |
| | opportunities should be created for the | | | | |
| | community through the expansion of chalets and | | | | |
| | maintenance work within the reserve. | | | | |
| | Local Planning Initiatives | | | | |
| Public Policy | • The Nooitgedacht Dam needs to be integrated in | | | | |
| | the Municipal Development Plans such as | | | | |
| | Integrated Development Plan (IDP), and Spatial | | | | |
| | Development Framework (SDF) to ensure proper | | | | |
| | protection and development of the resource. | | | | |

3.4 RMP DEVELOPMENT PROCESS

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

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

Figure 11: RMP Procedure

3.5 RMP PLANNING STAGES

3.5.1 Desktop Study

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

3.5.3 Site Inspection

A site inspection was conducted at Nooitgedacht Dam on **30 May 2014** to gather baseline information using a checklist questionnaire. The site inspection was undertaken with officials from DWS (Integrated Environmental Engineering IEE and the Northern Operations) and Mpumalanga Tourism and Parks Agency (MTPA). Photos of the study area were also taken during site inspection as illustrated in **Figure 12.**



Figure 12: Activities around the dam

3.5.3 Public Participation Process

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

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

A Public Participation was conducted in order to acquire information for Phase 2 (Encumbrance Survey), Phase 3 (Objective Identification) and Phase 4 (Research/ Information Gathering) from stakeholders, which was used to complete Phase 5 (Integrated Management, Zoning and Institutional Planning). In order to successfully complete the RMP, it is essential that the information obtained in the previous phases is utilised as planning input.

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

- The identification of role players;
- The introduction of the RMP project to role players and inform them about their roles and responsibilities;
- The engaging of the Stakeholders (Authorities and I&APs) in the planning process;
- The answering of questions and noting of concerns;
- The identification of important issues, problems, conflicts and alternatives;
- Identification of the overall vision of the dam;
- The elimination of false expectations and preconceptions; and
- The creation of awareness amongst users.

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

3.5.3.1. The Planning Phase

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

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

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

3.5.3.1.1. The Role Players

It is recognized that different roles and responsibilities of the stakeholders (Authorities and I&APs), and their relationship towards each other and the steps in the planning procedure are imperative in the successful development of the RMP. It is also important that proper consultation with the public is done in order to produce a credible RMP. As such, the success of the RMP is dependent on the level of involvement of the various stakeholders. Various stakeholders were identified and invited to participate in an open and consultative process. (See attached **Appendix A**). The stakeholder list is updated on a continuous basis throughout the RMP process.

3.5.3.2. The Participation Phase

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

- Informing stakeholders explained briefly under 3.5.3.4 Advertising Process.
- Meeting the stakeholders explained briefly under 3.5.3.5 Direct Communication.

 Feedback – it is of utmost importance that feedback is directed to and from stakeholders. In this project feedback thus far has been given in a form of minutes of the meetings and follow up emails.

3.5.3.3. The Exit Phase

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

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

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

3.5.3.4 The Advertising Process

3.5.3.4.1 Compilation and Distribution of Background Information Document (BID)

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

3.5.3.4.2 Newspaper Advert

A Newspaper advert regarding the RMP project was placed in the **Khanyisa Local Newspaper**. The advert invited the public to attend the Public Participation Meeting. The advert was published in English on **04 July 2014**. Furthermore, an advert for the draft RMP was advertised on **15 December 2015**. (See attached Appendix C).

3.5.3.4.3 Flyer Compilation and Distribution

Flyers were also used as a form of notification, they aimed at informing the I&APs about the public consultative meetings. The flyer detailed a brief description of the RMP, meeting date, time, venue and relevant contact details.

The flyers were compiled in English and were distributed on **04 July 2014.** Furthermore, the flyers for the draft RMP were distributed on **03 December 2015** (See attached **Appendix D**).

3.5.3.5 Direct Communication

3.5.3.5.1 E-mails

Meeting invitations were sent out to authorities and I&APs notifying them about the scheduled consultative meetings. The invitation entailed the BID, meeting venue and time. The email notification was sent out on **04 July 2014**. Moreover, the meeting invites for the draft RMP were sent out on **17 December 2015 (See attached Appendix E)**.

3.5.3.5.2 Authority Meeting

The initial authority meeting was held on **10 July 2014** at **Carolina Town Hall.**

The purpose of the meeting was:

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

The draft RMP was presented to the authorities on **27 January 2016**.

3.5.3.5.3 Public Meeting

The initial public meeting was held on **10 July 2014** at **Carolina Town Hall**. A platform was also given to I&APs to identify encumbrances/ challenges that might hinder with the progress of the RMP as well as to identify objectives and vision for the Nooitgedacht Dam. The draft RMP was presented to the public on **27 January 2016.** However, the public meeting was rescheduled to **03 March 2016** due to the changes on the venue.

3.5.3.5.4 Comments and Responses Register A copy of the draft report was circulated on **09 November 2015** for commenting. The commenting period was to elapse on **05 February 2016. (See Appendix F)**.

3.5.4. Planning Partners

RMPs are developed through a process of cooperative governance and Stakeholder participation. The distinctly different roles and

responsibilities of the stakeholders, and their relationship towards each other and the steps in the planning procedure are imperative in the success compilation of the RMP.

The RMP provides for coordination between different governments and agencies to ensure that not only the objectives of DWS are attained, but also the objectives of other relevant Government Departments are attained. Such Departments includes among others as outlined in **Table 9**.

| Department/ Agency | Mandate |
|---|---|
| Gert Sibande District Municipality/Chief Albert Luthuli Local Municipality. | The dam is within the jurisdiction of the municipality and is mandated to provide bulk water services. |
| Mpumalanga Tourism and Parks Agency (MTPA). | To grow tourism and manage bio-diversity to stimulate sustainable economic growth that is inclusive and creates decent employment. MTPA currently manages Nooitgedacht Dam for recreational activities. It will also assist in issuing fishing permits. |
| | The purpose of DAFF includes sustainable development and management of resources to maximizing the economic potential of the fisheries sector while protecting the integrity and quality of the country's aquatic ecosystems. |
| Department of Agriculture, Forestry and Fisheries (DAFF) | Operation Phakisa expansion to inland dams is one of DAFF initiative aimed at unlocking economic potential of fisheries sector within the inland water. The latter programme will be used as benchmark for implementation of conservation policies while implementing job creation within fishery and fish processing market. |
| Department of Rural Development and Land Reform (DRDLR) | As part of the RMP process the Department will assist in terms of Land Claims/Ownership issues. |
| Department of Environmental Affairs (DEA) | Responsible for Biodiversity Management within the dam including Invasive Alien Species. |
| Department of Public Works (DPW) | Has the power to regulate and control the use of state land outside the GWWs. In this regard, lease agreements or permits will be required from the department as some of the recreational activities will overlap into the state land. |
| Department of Transport (DoT) | Responsible for legislation, policy and regulations for all transportation in South Africa, including shipping and other transport by water or sea also inland waterways. |
| National Treasury (NT) | The use of State assets is governed by National Treasury Regulations, requiring DWS to plan concessions in compliance or association with National Treasury, guided by the Tourism Public Private Partnership (PPP) Toolkit of 2005. |

Table 9: Planning Partners and their Respective Mandates

| Department/ Agency | Mandate |
|--|---|
| South African Maritime Safety Authority (SAMSA) | One of SAMSA's three legislative mandates is "to ensure safety of life and property at sea". The Act enables SAMSA to administer and execute the relevant maritime legislation. |

3.4. RMP DATA ANALYSIS

3.4.1. Encumbrance Survey (Phase 2)

The purpose of the Encumbrance Survey is to investigate/ ascertain whether any encumbrances exist around the dam and other factors that may influence the development and implementation of the RMP. The survey also identifies the information that is required for effective decision-making regarding the RMP (DWAF, 2006). The identified encumbrances will assist DWS to identify hindrances and other factors that may influence the development and implementation of the RMP. The identified encumbrances are broken down into **Biophysical**, Legal, Social and **Existing Plans**.

Tables 10 - 13 outline the summary of limitationsthat might affect the development orimplementation of the RMP for the dam.

Table 10: Summary of Biophysical Encumbrances

| Item | Description | | | | |
|---------------|---|--|--|--|--|
| Climate | The area has a short summer season. The Nooitgedacht area reaches about 0.9°C in winter which will hinder swimming and fishing activities. All fish are more sluggish in the cold, so they follow slower trolling baits and bite less often. | | | | |
| Topography | • Hilly area around the Nooitgedacht Dam can restrict some activities and infrastructure developments which might cost a substantial amount of money to construct. Furthermore hilly areas can affect access to the dam. | | | | |
| Geology | There might be an unstable rock type which might hinder the erection or development of infrastructure. The development of infrastructures without relevant authorization from the relevant authority might course harm to the environment and land users. Infrastructural development might cause significant changes in the function and quality of wetlands. | | | | |
| Water quality | The dam is surrounded by various mines and wastewater treatment plants which might affect the water quality of the dam. Septic tanks within the purchased boundary might overflow or leak into the dam and impact on the water quality. | | | | |
| Biodiversity | The spread of alien plant invader species such as black wattle can pose negative impact on native species as they are able to consume abundant sunlight and use nutrients essential for survival leading to competition between native species. Submerged weeds can hinder activities like swimming because users can be trapped and lead to drowning. The dam is within a nature reserve and there might be sensitive areas which binders on some of the douglenments within the dam. | | | | |
| | The area has a high ecological value and unauthorized activities this can devalue or negatively affect the ecological site. The dam is within a nature reserve and there are animals and also migratory bird nesting sites which might be an environmental constraint which can influence future development. | | | | |

| Item | Description | | |
|-----------------------|--|--|--|
| Lease agreements | • Within 30m of the dam the leaser has developed permanent structures which might impact on the water quality given if untreated sewage outflows into the dam. | | |
| Legislative framework | • The developments around the dam without following legislative requirements can negatively impact on the water quality of the water body. | | |

Table 11: Summary of Legal Encumbrances

Table 12: Summary of Social Encumbrances

| Item | Description | | | |
|----------|--|--|--|--|
| Mobility | • There is limited access to the dam by local communities due to the distance to the dam as well as the entrance fee. Furthermore there is no route for public transport to the dam. | | | |

Table 13: Summary of Existing Plans

| Item | Description | | | | |
|--------------------|---|--|--|--|--|
| Institutional Plan | • The institutional plan of the dam functions in isolation from other stakeholders (e.g. municipality), therefore resulting in lack of integrated management. | | | | |
| Zoning Plan | • The existing plan only focuses on the land zoning excluding the water zoning therefore sensitive sites inside the dam such as fish breading sites can be threatened by fishers. | | | | |

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

3.6.2 SWOT Analysis and Objective Identification

The SWOT Analysis was conducted to gather Strengths and Opportunities that define the potential of the dam whereas the challenges regarding the dam where identified through Weaknesses and Threats. The common key objectives were formulated and identified from the Strengths and Opportunities of the dam. Moreover, the vision for the dam for a period of 20 years was formulated by stakeholders from the identified objectives.

3.6.2.1 SWOT Analysis Approach

There were issues of concerns that were raised in the stakeholder engagement meetings prior to conducting the SWOT Analysis. Other challenges or encumbrances that may hinder the progress of the dam's RMP process were identified by the stakeholders following the SWOT analysis approach as illustrated in **Table 14**.
 Table 14: SWOT Analysis for Nooitgedacht Dam

| | Strengths | Weaknesses | | | | |
|---|---|---|--|--|--|--|
| The dam is suitable for recreational activities especially boating, fishing and sailing. It is a big dam which support major tourism (ecotourism) of the municipality. The dam has good water quality. The dam is still able to support its primary purpose. The dam support wildlife conservation. | | The dam is far away from the local communities. Access roads to the dam are not in a good condition. There is limited access to the dam for the local community who want to fish for survival (subsistence fishing). The area has short summer season (cold region). | | | | |
| | Opportunities | Threats | | | | |
| • • • | There is an opportunity to introduce hydro- power generation at the dam. Extraction of water from the dam to supply the local community. Job opportunities during the rehabilitation of the access roads at the dam. Introduction of an eco-school at the dam to educate the local community about the importance of the water resource and nature conservation. Introduction of water sports like sailing and canoeing. | The dam is threatened by sewage discharge from upstream waste water treatment plant and potential pollution from mine. Submerged Water plants (Alien Invasive Species) might alter water activities. | | | | |

3.6.2.2 **Objective Identification (Phase 3)**

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

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

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

KPA 1: Resource Management

• To ensure that the lease agreement is reviewed and promote regular monitoring of the leased property;

- To preserve and maintain the water quality of the dam and promote sustainable utilization and protection of the water resource; and
- To have the dam free of Alien Invasive Vegetation in order to allow possible recreational activities such as swimming and boating in the dam. To further maintain the ecological value of the water resource and surrounding State land.

KPA 2: Resource Utilisation

- To promote equitable access to the dam;
- To introduce water sports that are regulated and meet the user satisfaction taking into consideration that the dam is within a nature reserve;
- To improve safety of navigation; and
- To introduce small scale fishery at the dam.

KPA 3: Benefit Flow Management

- To ensure that the local communities participate and benefit from economic development occurring within and around the dam;
- To improve the lives of communities by implementing skills development and training. Furthermore this will ensure safety of community members at the dam; and
- To update the institutional structure to ensure effective management of the dam.

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

A vision for the dam for a period of 20 years was formulated from the key common objectives identified by the stakeholders and stands as follows: "To maintain the biodiversity, ecological processes, and the Sustainable utilization of the water resource whilst ensuring substantial socio-economic benefits and also avoiding the deterioration of the water quality at the dam".

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

3.6.3 Research/ Information Generation (Phase 4)

The aim of undertaking the research process was to collect the relevant data about the dam. This will serve as a decision-making guideline tool, guided by the objectives set for the dam and any limitations due to encumbrances. The report documents the following data as illustrated in **Figure 13**.



Figure 13: Research Data

The main aim of the research was to identify the dam tourism development potential and also to evaluate the practicability/feasibility of the potential objectives identified.

3.6.3.1. Tourism Development Potential

The dam is the location for the annual Morula Fishing Festival and is thus a popular attraction among the fishing community of South Africa. The Nooitgedacht Dam, and the reserve is also popular for its birding opportunities. The wetland complex within the reserve protects a number of rare and endemic bird species.

The Nooitgedacht Dam is popular among locals and visitors alike for picnicking, swimming, hiking and boating, and is a must-visit on any trip into this spectacular area of Mpumalanga.

The dam and surrounding environment offers a combination of open Highveld grassland, a rich archaeological heritage, an extensive diversity of both fauna and flora, and angling and recreational opportunity for local tourists. Tourism opportunities at the dam are as follows: **Nature tourism** (Wildlife safari and Birding),

Activity tourism (Fishing, boating, kayaking and sailing).

3.6.3.2 Feasibility of Identified Potential Objectives

According to DWAF (2006), the feasibility of the proposed objectives needs to be determined in light of the local environmental conditions.**Table 15** shows the practicability of all proposed recreational objectives.

Table 15: Feasibility of Potential Recreational Objectives

| | KPA 1: Resource Management | | | | | |
|---|---|---|---|---|--|--|
| | Objectives | | Status Quo | | Practicability | |
| • | To ensure that the lease agreements are reviewed in order to be in line with the RMP. | • | The dam is owned by DWS and eleven (11) hectares of land on the eastern side of the Nooitgedacht Dam is leased to Komati Yacht Club. The agreement was concluded between DWS and the Komati Yacht Club in 1990. The lease agreement was for three (3) years and has expired. | • | Coordination between DWS and lessee will assist in the faster processing of agreements. All the lease agreements should be in accordance with National Treasury Regulation (Public Finance Management Act No. 1 of 1999) and the implemented RMP | |
| • | To preserve and maintain the water quality of the dam. | • | The dam is surrounded by various mines and wastewater treatment plants which are currently discharging effluent that eventually flow into the Komati catchment. The effluent will in turn lead to algal blooms and destabilized aquatic ecosystems. | • | Water quality management lies within multiple institutions as well as on the dam users themselves, as such cooperation between all Stakeholders will ensure the possibility of maintaining the high water quality standard of the dam. Enforcement of all relevant environmental legislations (e.g. NWA and NEMA) at the dam can always keep the dam's water quality in good condition. The use of wash bays can assist to prevent the spread of Aquatic Alien Invasive plants. | |
| • | To control the Alien Invasive Vegetation in the area. | • | The dam and its surrounding environment is infested with Alien Plant Species such as Black Wattle which has negative impact on native species and the ecology of the area. There are also submerged weeds that can negatively affect water based activities such as boating. The dam currently does not have a wash bay to clean boats before launching. | • | The objective can be achieved taking in account the current Legislations and Regulation in place. Alien invasive control falls within the Working for Water Programme of DEA as well as Land Use Management Section with Department of Agriculture, Forestry and Fisheries (DAFF). The use of wash bays can assist to prevent the spread of Aquatic Alien Invasive species. | |

| | KPA 2: Resource Utilisation | | | | | |
|---|---|---|--|---|---|--|
| | Objective | | Status Quo | | Practicability | |
| • | To promote equitable access to the dam. | • | The dam is within a nature reserve and the community pay an entrance fee to the dam. The fee is considered to be high. Furthermore, it makes it difficult for the community to access the dam. | • | The dam rules relating to the dam, use, fees payable for access, safety measures, speed limits and the time in which the dam will be open to the public should be determined. The Business Plan will incorporate the objective and will include a cost structure that is market related and will be affordable to local visitors and tourists. | |
| • | To introduce water sports at the dam which are regulated and meet the user satisfaction, and further consider that the dam is within a Nature Reserve. | • | The dam is used by various users including the adjacent land owners and the Komati Yacht Club for various recreational activities, such as picnicking, swimming, hiking and boating. The dam is also a well-known location for the Morula Fishing Festival which take place annually. | • | As part of the RMP process a functional and suitable Institutional Structure will be established to ensure the effective management of the dam and further educate users of the importance of the nature reserve. The BP will assist in identifying the marketing strategies and funding mechanisms that can successfully implement the activities at the dam. | |
| • | To improve safety of navigation. | • | There is no adequate standardised and harmonised AtoN and demarcation markers available on the dam. | • | To improve safety of navigation through the implementation of standardised and harmonised AtoN and demarcation markers as directed by SAMSA. | |
| • | Introduction of small scale fishery | • | People are not involved in fishing in the dam. | • | One of the function of the proposed Institutional Structure should be to oversee the fishing practices at the dam. Permit system should also be established in order to manage within the dam. Provincial Environmental departments of will issue licenses. | |
| | | | KPA 3: Benefit Flow Management | | | |
| | Objective | | Status Quo | | Practicability | |
| • | To improve the livelihood of the local communities. | • | Nooitgedacht Dam (Nature Reserve) offers job opportunities for the greater number of people in the local communities in order to assist in poverty | • | DEA has implemented community programmes such as rehabilitation of roads and construction of accommodations | |

| | | | alleviation in Carolina area. Various recreational facilities and access roads are being refurbished by DEA to suit user standards. First preference for job opportunities went to local communities. | • | within NDNR which makes provision for community beneficiation. Similar programmes that assist in community development and beneficiation should be supported. The BP will assist in identifying the marketing strategies and funding mechanisms that can assists the local communities to invest in the recreational industry at the dam. |
|---|---|---|--|---|--|
| • | To establish capacity building and training within the local communities. | • | The educational level within the municipality is very low. Most of the surrounding villages are from previously disadvantage communities as such would lack funds and skills to invest in tourism developments. There are no restaurants and hotels within the immediate vicinity of the dam, which lead to short stay at the dam as results of lack of refreshments places. | • | Establishment of functional Institutional Structure with sufficient power to manage the recreational use of the dam, as well as encourage local economic initiatives and participation with regards to the use of the dam. The implementation of the RMP will guide the training of the locals to equip themselves and become actively participates in the tourism sector. The community should be informed about the programmes offered by the clubs around the dam (i.e. sailing training programmes at MYC (affiliated to South African Sailing). These programmes should be subsidized for the Local Communities. The BP will discuss in details how the previously disadvantaged communities can economically benefit from recreational opportunities. |
| • | To develop and implement an effective Institutional Plan to assist in effectively managing the recreational utilization of the dam and the surrounding environment. | • | Currently, DWS operates the dam for its primary function which is the release of water and measurement of the water level whereas MTPA manages the secondary use of the dam (the dam for recreational and tourism related activities). | • | As part of the RMP process a functional and suitable Institutional Structure will be established to ensure the effective management of the dam. |

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

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

- Biophysical, cultural and socio-economic and user needs constraints;
- Development potential and requirements;
- Site planning and Zonation;
- Programmes and plans that will unlock the potential of the water resource; and

• Institution options and legal aspects required to create these programmes and plans.

The IRMP is broken down into four (4) main plans namely the **Institutional Plan**, **Zoning Plan**, **Strategic Plan** and **Financial Plan** as illustrated by **Figure 14**.



Figure 14: Integrated Resource Management Plan

4.1. INSTITUTIONAL PLAN

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

4.1.1 Dam Management Committee (DMC)

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

One of the main functions of the DMC is to give support to Implementing Agency (IA) in the management of the dam for recreational purposes. Moreover, to assess commercial opportunities at the dam. As such, an agenda item related to the Strategic Plan for commercialization is required. In addition, changes in water quality, developments in the area, status of Aquatic Invasive Species and education and information programmes should be discussed. The DMC must meet quarterly.

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

- Seeking resolution for general management issues;
- Monitoring the practical implementation of the RMP and BP;
- Reviewing the feedback received from I&APs;
- Operational management of recreational activities such as ensuring the floating AtoN and demarcation markers are in place and setting times for use of the dam (no recreational activities can take place between sunset and sunrise);

- Conveying the Management Objectives and decisions pertaining to the dam to the relevant stakeholders; and
- Management of the incident management system and wash bays.

Figure 15 illustrates the proposed user groups that will form part of the DMC.



Figure 15: Proposed DMC

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

4.1.1.1 Management Tools

Terms of Reference

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

- Roles and Responsibility of chairperson;
- Roles and Responsibilities of an IA;
- Minutes and attendance requirements;
- Reporting requirements;
- Management of agreements;
- Management of access objectives;
- Management of development targets;
- Management of water quality monitoring;
- Management of the control of aquatic Invasive species;
- Management of development pressure;
- Management of incident management system and wash bays; and
- Management of AtoN and demarcation markers.

Agreements

One of the main management tool available is the use of agreements to ensure proper use of the dam in line with the RMP vision and objectives.

There is a recreational club agreement which has which leased eleven (11) hectares on the north eastern site of the dam. However, the agreement term has lapsed.

Agreements between DWS and Implementing Agency

MTPA will be appointed as an Implementing Agency (IA) for the RMP of Nooitgedacht Dam. MTPA and DWS will sign a Memorandum of Agreement (MOA), which is a legal binding document which will outline the roles and

The minimum requirements of an IA includes the following:

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

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

- Management of public access area;
- Management of incident management system;
- Management of community skills and training programmes;
- Management of commercial activities (in line with Treasury Requirements); and
- Management of AtoN and demarcation markers.

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

Recreational Use Agreements

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

Safety of Navigation Agreements

In addition to its common law responsibility, DWS is, in terms of the requirements described in the National Water Act, 1998 (Act No. 36 of 1998), amongst others, responsible for the

safety of GWWs and watercourses, including its dams. DWS, its delegated public sector partner, or a delegated water management institution, has therefore the responsibility to provide the required fixed and/or floating Aids to Navigation (AtoN)³ for general navigation.

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

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

Access Agreements

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

All adjacent landowners and clubs must be made aware that access to the surface water as well as shoreline should only be through authorised access points. Accessing the surface water through unauthorised access points is an illegal activity unless they enter into a formal agreement with IA. Further, a formal agreement with IA will be required for all adjacent landowners and recreational clubs that have direct access to the water surface of the dam through constructed slipways, natural slipways or jetties for angling and/or launching of vessels.

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

Event Applications

The dam can be used for a number of competitive events such as fishing competition.

All events must be managed through an event application process. The events applications will be submitted to IA for approval and to DWS for commenting. These applications must follow a specific template and will include the following:

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

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

National Affiliations

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

4.1.2 Operations Management Committee (OMC)

There is an existing Chief Director: Infrastructure Operations Management Committee (CD: IO MANCO) within Infrastructure Operations which comprises of all directors of four (4) operations (Northern, Southern, Eastern and Central) and is chaired by the Chief Director: Infrastructure Operations within NWRI as illustrated by **Figure 16.**

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

nautical or aviation travel, common types of such aids include lighthouses, buoys, fog signals and day beacons.

³ AtoN refers to any sort of marker which aids the traveler in navigation; the term is most commonly used to refer to



Figure 16: Existing CD: IO MANCO

4.1.3 National Project Steering Committee (NPSC)

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

The primary function of the NPSC is to provide guidance on recreational water use in terms of their respective mandates as well as to ensure that continuous support by different Government Sectors is provided to the dam with the aim of achieving sustainable utilisation of the dam for recreational purposes. The NPSC should meet twice a year. **Figure 17** illustrates a typical example of Governmental Departments that will form part of the NPSC:



Figure 17: Proposed NPSC

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

Centre for Public Service Innovation (CPSI):

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

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

Culture, Arts, Tourism, Hospitality, Sport Sector,

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

<u>Department of Agriculture, Forestry and</u> Fisheries (DAFF):

The purpose of DAFF includes sustainable development and management of resources to maximizing the economic potential of the fisheries sector while protecting the integrity and quality of the country's aquatic ecosystems.

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

Department of Corporative Governance and Traditional Affairs (CoGTA):

Its function is to develop national policies and legislation with regard to Provinces and Local government, and to monitor their implementation. Other function of the Department is to support Provinces and Local Government in fulfilling their constitutional and legal obligations.

Department of Environmental Affairs (DEA):

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

Department of Public Works (DPW):

DPW has the power to regulate and control the use of state land outside the GWWs. In this regard, lease agreements or permits will be required from the Department as some of the recreational activities will overlap into the State Land, e.g. trail running, biking and running.

Department of Rural Development and Land Reform (DRDLR):

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

Department of Sports and Recreation (DSR):

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

Department of Tourism (NDT):

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

Department of Transport (DoT):

Responsible for legislation, policy and regulations for all transportation in South Africa, including shipping and other transport by water or sea, including small vessels and inland waterways.

Department of Water and Sanitation (DWS):

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

National Treasury (NT):

The Department is mandated to support the optimal allocation and utilisation of financial resources in all spheres of government. As part of the RMP, The National Treasury Public Private Partnership (PPP) Toolkit for Tourism (2005), will assist the process of tourism-based businesses development on State-owned Land. The Toolkit make it easier for Institutions and the Private

Sector to enter into tourism related partnerships on State Property managed by National, Provincial and Local Government Institutions.

South African Maritime Safety Authority (SAMSA):

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

South African Police Service (SAPS):

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

South African Sports Confederation and Olympic Committee (SASCOC):

SASCOC is mandated to promote and develop high performance of sports as well as to act as a controlling body for sports in South Africa. It can also assist to coordinate organise events at the dam.

4.2 ZONING PLAN

According to DWAF (2006), a site specific master planning and zoning which describes a framework for the allocation of zones needs to be undertaken based on the results of the Encumbrance Survey and basic Research regarding the Bio-physical, Social and Cultural environment as well as the objectives set by the Stakeholders (refer to section 3.6).

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

4.2.1 Water Surface Zoning

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

Safety and Security Zone:

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

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

Conservation Zones:

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

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

Low Impact Activity Zone:

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

High Impact Activity Zone:

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

The water surface zoning colour coding means the following:

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

Table 16: Proposed Water Surface Zoning Description

| | Zone Name | Permissible Activities | Non-Permissible Activities | Recommendation |
|---|-------------------------------|--|--|--|
| • | Safety and Security Zone. | Alien invasive species clearing. Management of dam infrastructure. Management and maintenance activities by DWS and authorised personnel. | Public access | Area should be demarcated by AtoN and demarcation markers |
| • | Conservation Zone. | • None | Public activities (to prevent aquatic habitats disturbance) | Area should be demarcated by AtoN and demarcation markers. Strict management and control of these areas, especially with regards to illegal fishing and dumping. |
| • | Low Impact Activity Zone. | Activities associated with no or little water wakes such as: Angling Rowing Canoeing Sailing Kayaking Wind surfing Paddling boat Float tubes | Motorised boating Water skiing House boats Para-sailing Kite-surfing tiller-bar operated Jet Skis | Area should be demarcated by AtoN and demarcation markers. |
| • | High Impact Activity Zone. | Motorised boating Water skiing House boats Para-sailing Kite-surfing tiller-bar operated Jet Skis | Angling Rowing Canoeing Sailing Kayaking Wind surfing Paddling boat Float tubes | Area should be demarcated by AtoN and demarcation markers. No speeding of vessels within 70m from the shoreline will be permitted Activities within this zone must be evaluated to determine their impact on the water resources and other dam users before they are allowed into the dam. |



Figure 18: Proposed Water Surface Zoning Map

4.2.2. Shoreline Zoning⁴

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

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

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

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

<u>Conservation / Low Density Activity Zone:</u>

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

Medium Density Activity Zone:

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

High Density Activity Zone:

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

Community Resource Zone:

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

The shoreline zoning colour coding means the following:

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

 $^{^{\}rm 4}$ Permanent structures within the purchase line are not allowed. All developments should be outside 1:100 year floodline.

Table 17: Proposed Shoreline Zoning Description

| Zone Name | | Permissible Activities | Non-Permis Activitie | ssible Recommendation |
|-----------|--|--|--|---|
| • | Safety and Security Zone. | Fire management Alien invasive species clearing. Management of dam infrastructure Management and maintenance activities by DWS and authorised personnel | Public acces | A minimum area of 100m wide downstream the dam wall should be demarcated preventing public access and use. |
| • | Conservation/ Low Density Activity Zone. | Conservation management activities: Bird watching Hiking | Developm | Permissible activities may only be permitted provided that they are approved by relevant authorities and they are conducted as per the relevant Legislations or Regulations, such as National Hiking Way Rules. |
| • | Medium Density Activity Zone. | Camping (tent and/or caravan) Day visitors Picnic areas Shoreline fishing Braai facilities Swimming pools Ablution facilities Infrastructure for services | Accommodiation facilities subserved facilities subserved facilities subserved facilities subserved facilities subserved facilities for the second facilities of the second facilities o | the management of this area should follow the PPP process in terms of National Treasury. All developments must be approved by IA and DWS. All developments should have an approved Environmental Management Plan (EMP) to ensure construction does not impact on dam and must blend in with the natural environment. Camping, picnicking, shoreline fishing and access to the water must be done in accordance to access agreements. Camping and picnicking are allowed only in designated areas. Noise levels to be kept at a minimum. No littering at Camping and Picnic spots. |
| • | High Density Activity Zone | Accommodation facilities: Chalets Resorts Recreational club houses Infrastructure for services Ablution facilities Shoreline fishing | Day visitor Picnic area Hiking Permanen structures | The management of this area should follow the PPP in terms of National Treasury. All developments must be approved by IA and DWS. Requirements of NWA and NEMA must be taken into account in all developments. |



Figure 19: Proposed Shoreline Zoning Map



Figure 20: Proposed Overall Zoning Map

4.2.3 Carrying Capacity

The carrying capacity of a water resource represents the maximum level of visitor use and related infrastructure that the water resource and surrounding area can accommodate, without diminishing user satisfaction or adverse impacts upon the Local Communities, the economy and culture of the area.

In order to determine the degree of recreational use possible on the water surface, the Methodology for Carrying Capacity Assessment: Recreational Water Use (DWAF, 2006) was used as a guideline to determine the level of activity that would be sustainable at Nooitgedacht Dam.

Determining the carrying capacity ensures that recreational use of the dam is safe and that users do not feel crowded and enjoy their use of the dam. There are three kinds of carrying capacity, namely:

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

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

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

- Analysis of recreation and water resource management policies;
- Analysis of objectives of the water resource;

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

Physical Carrying Capacity (PCC)

PCC is calculated using the formula: PCC = A x U/a x Rf

- Where: A = Area of the water surface available for recreational use
- The U/a = area required for each user.
- Rf = Rotation factor (the number of visits per day) and is assumed to be 1.

The area of the water surface available for recreational use: **763 ha**.

| Craft | U/A (ha/craft) |
|--------------|----------------|
| Sailing | 6.0 |
| Boating | 1.0 |
| Water skiing | 16.0 |
| Fishing | 3.0 |
| Canoeing | 1.0 |
| Swimming | 1.0 |
| Rowing | 0.5 |
| Average | 4.6 |

Based on the table above the average hectare per user is **4.0 ha**, the value of **6.0 ha** can be acceptable area per user. This has been estimated in order to ensure that the dam is not overcrowded and leading to conflict between users.

Therefore: PCC = A x U/a x Rf = 763 ha x (1 craft/6 ha) x 1 = 127 vessels

Real Carrying Capacity

Formula: RCC = PCC x $(100 - Cf_1) \% x (100 - Cf_2) \%$ x ... $(100 - Cf_n) \%$

• Where: Cf = a corrective factor expressed as a percentage.

Real capacity is the PCC, taking into account factors that limit recreation. In this case limiting factors include:

- Biophysical, such as terrain and sensitive environments
- Safety No Go Zones
- One of the main limiting factors in regards to recreational use is the number of picnic spots. Currently there are no formalised picnic spots at the dam.

Calculating the area of the surface of the dam, adding a buffer-zone at the dam wall and the restricting factors outlined above, allowed for determination of the real carrying capacity of the water surface with approximately 694,6 ha (763 ha-68,4ha) of the water surface remaining available for recreation. This means that 11, 16% of the dam is not available for recreational use.

These factors accounts for 68, 4 ha, which is 11, 16%

RCC = PCC x (100 - Cf1) % x (100 - Cf2) % x ... (100 - Cfn) % = 127 x (100 - 11 - 16) % (100

= 127 x (100 – 11, 16) %/100 =113 boats

Effective Carrying Capacity

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

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

Infrastructure Capacity

It takes approximately 20 minutes to launch or retrieve a boat during the day. There is currently 3 slipway at the dam; = [12 hours available per day/20 min] x 3 slipway for public use, therefore:

[720/20] x 3 = 108

As 20 minutes would apply either to entering or retrieving of vessel from the water, 108 would need to be halved: 108/2 = 54. This is the maximum amount of boats that can be launched on a given day.

The current management capacity consists of 16 people. The required management capacity for safe functioning of the dam would include 18 people.

Management Capacity

- = current capacity/ required capacity x 100
- = 16/18 x 100
- = 88.88%

Therefore:

ECC = (54x 0.88) x 100/RCC = (54 x 0.88) x 100/ 113 = 42

Therefore the ECC is 42 of the RCC given the current management and infrastructural development which is **42** Boats allowed at the dam.

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

4.3 STRATEGIC PLAN

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

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

In **Table 18** - **20**, the Strategic Plan on how to achieve the identified objectives identified regarding the dam is outlined.

Table 18: Strategic Plan for KPA 1: Resource Management

| KPA 1: Resource Management | | | | | | |
|---|--|--|--|--|--|--|
| Objective (What do we want) | Motivation (Why do we want to achieve this) | Action Projects (How do we achieve this) | Management Support (Who will be involved) | | | |
| Agreements: To ensure that the lease agreements is reviewed in order to be in line with the RMP. | The dam is owned by DWS and eleven (11) hectares of land on the eastern side of the Nooitgedacht Dam is leased to Komati Yacht Club. The agreement was concluded between DWS and the Komati Yacht Club in 1990. The lease agreement was for three (3) years and lease term has elapsed. | MTPA will be appointed as an IA to manage all recreational activities around the dam including entering into agreements with third parties e.g recreational club houses. All the lease agreements should be in accordance with National Treasury Regulation (Public Finance Management Act No. 1 of 1999) and the implemented RMP. | MTPA (IA) should ensure that there are formalized lease agreements and further manage and monitor the activities around the dam. | | | |
| Water Quality: To preserve and maintain the water quality of the dam. | The dam is surrounded by various mines and wastewater treatment plants which are currently discharging effluent that eventually flows into the Komati catchment. The effluent will in turn lead to algal blooms and destabilized aquatic ecosystems. | Establishment of the current aquatic resource and associated ecosystem and then develop a set of baseline data for future monitoring purposes. A management plan should be developed to address the management of waste within the dam and upstream. The use of fertilizers, herbicides and pesticides should be discouraged. Water quality monitoring to be linked to the UPN System to allow quick response. | All governmental departments and Agencies that concerns themselves with water quality and environmental health need to be involved. This will include IA, DWS, DEDET, GSDM and CALLM. Any prospecting or mining operation must be conducted in accordance with generally accepted principles of sustainable development by integrating social, economic and environmental factors into the planning and implementation of prospecting and mining projects in order to ensure that exploitation of mineral resources serves present and future generations. Furthermore the Department of Mineral Resource (DMR) and Department of Environmental Affairs (DEA) must ensure that the holder of the mining rights must manage all the environmental impact as contemplated in Section 38 (1) (c) of the Mineral and Petroleum | | | |

| KPA 1: Resource Management | | | | | | |
|---|--|--|--|--|--|--|
| Objective (What do Motivation (Why do we want to we want) achieve this) | | Action Projects (How do we achieve this) | Management Support (Who will be involved) | | | |
| | | | Resource Development Act, 2002 (Act No.28 of 2002). | | | |
| Alien Invasive Vegetation: • To control the Alien Invasive Vegetation in the area. | The dam and its surrounding environment is infested with Alien Plant Species such as Black Wattle which has negative impact on native species and the ecology of the area. There are also submerged weeds that can negatively affect water based activities such as boating. The dam currently does not have a wash bay to clean boats before launching. | Continuous removal of problem plants within the dam purchased boundary. Design and Construction of vessel and trailer wash-bays as per the CIWSP best practice model, to avoid introduction of Aquatic Alien Species from another dams. Provision of Spray Tanks, Herbicides and Training of Environmental Officer. Engage the Working for Water Programme further aid in the management of the Alien Species at the dam. Survey of the dam to identify any Alien Invasive Plants Species control. Development of educational programme regarding the negative impacts of Alien Invasive Plants on the dam. | MTPA, government departments and agencies such as Working for Water (WfW) programme of DEA and Land Use and Soil Management Section within DAFF and DEDET must be involved in order to reduce and control Invasive Alien Species at the dam. | | | |
Table 19: Strategic Plan for KPA 2 Resource Utilisation

| KPA 2: Resource Utilisation | | | |
|--|--|--|--|
| Objective (What do we want) | Motivation (Why do we want to achieve this) | Action Projects (How do we achieve this) | Management Support (Who will be involved) |
| Access: • To promote equitable access to the dam. | • The dam is within a nature reserve and the community pay an entrance fee to the dam. The fee is considered to be high. Furthermore, it makes it difficult for the community to access the dam. | Public access areas to be developed within the purchased line of the dam. An agreement needs to be entered into by DWS and the entity which will manage and operate public facilities. The entry fees need to be reasonable to ensure that the dam remains accessible and affordable to the local community. | MTPA to approve any kind of public access, use and development within the dam basin. MTPA with the support of the DMC should ensure that skills development programmes are initiated and implemented to stretch the local community's opportunities in the recreational industry. |
| Recreational Activities: To introduce water sports at the dam which are regulated and meet the user satisfaction, and further consider that the dam is within a Nature Reserve. | The dam is used by various users including the adjacent land owners and the Komati Yacht Club for various recreational activities, such as picnicking, swimming, hiking and boating. The dam is also a well-known location for the Morula Fishing Festival which take place annually. | The appointment of safety and enforcement personnel is imperative to ensure compliance of relevant legislations and rules of the dam. Develop a zoning map of feasible recreational activities. | The relevant authorities such as the MTPA, DMC and the Department of Sports and Recreation should ensure that relevant procedures are followed in implementing sports activities at the dam. SAMSA Enforcement Officer, DWS Blue Scorpions and DEA Green Scorpions should ensure routine inspections; investigations and enforcement. |
| Safety: Implement and Maintain Aids to Navigation and Demarcation Markers. | DWS is, in terms of the requirements described in the NWA, amongst others, responsible for the safety of Government's waterways and including its dams | Conclude agreements between SAMSA and DWS/other relevant Parties/Bodies to allow: Exhibit the relevant AtoN Establish or deploy the relevant fixed and/or floating AtoN. Obtain the best position to locate the AtoN, as well as the relevant coordinates and water depths, where applicable. | MTPA (IA) DMC SAMSA DWS |

NOOITGEDACHT DAM RESOURCE MANAGEMENT PLAN

| KPA 2: Resource Utilisation | | | |
|---|---|--|--|
| Objective (What do we want) | Motivation (Why do we want to achieve this) | Action Projects (How do we achieve this) | Management Support (Who will be involved) |
| Subsistence Fishing: To introduce subsistence fishing at the dam. | People living in the communities near Nooitgedacht Dam are not involved in fishing. Small scale fisheries will make an important contribution to nutrition, food security, sustainable livelihoods and poverty alleviation to the local community. | Compile AtoN plan, indicating where, what type of fixed, floating AtoN and demarcation markers should be positioned. Putting up the AtoN and relevant Demarcation Markers. Educate people on fishing methods that are sustainable, for example for subsistence consumption, they can use fishing lines and for commercial purpose, they can introduce small scale fishery. Management authority must develop a communication signage in order to effectively inform different angling groups about the dam fishing rules. Appoint Safety Officer that will monitor compliance of the fishing rules | MTPA with the support of the DMC together with Mpumalanga Department of Agriculture and Rural Development must be involved in introducing and issuing fishing permits Different government departments such as DWS, DEA and DAFF should work together into a management structure in order to assess the viability and possibility of introducing the small scale fishery as proposed by the local community. |

Table 20: Strategic Plan for KPA 3: Benefit Flow Management

| KPA 3: Benefit Flow Management | | | |
|---|---|--|---|
| Objective (What do we want) | Motivation (Why do we want to achieve this) | Action Projects (How do we achieve this) | Management Support (Who will be involved) |
| Sustaining Livelihood: To improve the livelihood of the local communities. | Nooitgedacht Dam (Nature Reserve) offers job opportunities for the greater number of people in the local communities in order to assist in poverty alleviation in Carolina area. Various recreational facilities and access roads are | DEA has implemented community programmes such as rehabilitation of roads and construction of accommodations within NDNR which makes provision for community beneficiation. Similar programmes that assist in | MTPA with the support of the DMC must guide the distribution of benefits and ensure public beneficiation. |

NOOITGEDACHT DAM RESOURCE MANAGEMENT PLAN

| KPA 3: Benefit Flow Management | | | |
|--|---|---|--|
| Objective (What do we want) | Motivation (Why do we want to achieve this) | Action Projects (How do we achieve this) | Management Support (Who will be involved) |
| | being refurbished by DEA to suit user standards. First preference for job opportunities went to local communities. | community development and beneficiation should be supported. The BP will assist in identifying the marketing strategies and funding mechanisms that can assists the local communities to invest in the recreational industry at the dam. | |
| Skills transfer: To ensure that local communities participate and benefit in local development initiatives happening in and around the dam. This can be through development of eco-tourism, recreational opportunities as well as subsistence fishing. To establish capacity building and training within the local communities. | The educational level within the municipality is very low. Most of the surrounding villages are from previously disadvantage communities as such would lack funds to invest in tourism developments at the dam. There are no restaurants and hotels within the immediate vicinity of the dam, which lead to short stay at the dam as results of lack of refreshments places. | DMC to develop and carryout awareness campaign focusing on the potential uses of the dam, importance of protecting infrastructures around the dam, dam safety and as well as possible danger associated with using the dam for swimming purposes. The potential for small scale fisheries projects for the local community to be considered. This should include training, provision of vessels and other required apparatus to be used. DWS in collaboration with the IA should compile a database of job seeking individual and small companies from local community. This database should be used for every project to be undertaken within the dam or linked to the dam itself. Develop a strategy on capacity building and training programmes at the dam and implement accordingly. The potential for nature sensitive overnight facilities to be considered. | • MTPA, DMC, and the Municipality. |

NOOITGEDACHT DAM RESOURCE MANAGEMENT PLAN

| KPA 3: Benefit Flow Management | | | |
|--|--|---|--|
| Objective (What do we want) | Motivation (Why do we want to achieve this) | Action Projects (How do we achieve this) | Management Support (Who will be involved) |
| Management Structure: To develop and implement an effective Institutional Plan to assist in effectively managing the recreational utilization of the dam and the surrounding environment. | Currently, DWS operates the dam for its primary function which is the release of water and measurement of the water level whereas MTPA manages the secondary use of the dam (the dam for recreational and tourism related activities). | Dedicated areas (Zoned as such) should be made available for investors in order to attract the investment in to the area. This exercise should be undertaken within the PPP principles. Discussion between the local schools and universities regarding possible use of the dam for educational purposes. Lifeguard skill training and first aid training to be provided to improve safety in regards to utilization of the dam, MTPA to be appointed as an Implementing Agency. Roles and responsibilities of the IA to be clear and well defined. | The relevant departments such as the DEA must be involved in training youth about biodiversity and its importance. As part of their training learn to identify different alien plant species in order to eradicate and control invasive alien plant species within and around the dam. DWS should also train different individuals on safety measure to ensure the safety of users. |

4.4 FINANCIAL PLAN

The RMP provides guidance on cost recovery mechanisms to ensure the sustained and improved management of the dam. There are opportunities for PPPs which could further unlock the economic potential of the dam. PPPs allows for DWS to make State Assets such as GWWs available to private parties who wish to engage in tourism related commercial operations (DWAF, 2009). PPPs should be established as per Regulation 16 of the National Treasury.

The dam is a State asset and as such all profits generated from the recreational use, should also be used to further develop the dam. People should not be denied access to the dam. All fees associated with the usage of the dam for recreation should take into account the socioeconomic status of the users. The access fees should make a provision for equitable access. The information acquired from the draft RMP will be used to produce the Business Plan based on the action projects for each objective as stipulated under the Strategic Plan. However, many of the identified objectives are not of commercial nature and as such these 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 Nooitgedacht Dam RMP. It also describes the financial management and operational requirements to implement the Objectives of the RMP

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

WAY FORWARD

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

Review of RMP

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

Figure 21 illustrates the RMP & BP review framework.



Figure 21: RMP and BP Review Framework

CONCLUSIONS

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

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

on funding requirements and funding options to implement the objectives of the RMP.

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

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APPENDICES