NATIONAL WATER RESOURCE INFRASTRUCTURE (NWRI)

Resource Management Plan MIDDLE LETABA (STERK RIVIER) DAM



WATER IS LIFE - SANITATION IS DIGNITY





Department: Water and Sanitation REPUBLIC OF SOUTH AFRICA



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ACKNOWLEDGEMENTS

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

- Department of Environmental Affairs: Working for Water;
- Department of Public Works: National and Provincial;
- Department of Transport;
- Department of Water and Sanitation;
- Greater Giyani Local Municipality;
- Limpopo Department of Agriculture and Rural Development;
- Limpopo Department of Economic Development, Environment and Tourism;
- South African Maritime Safety Authority; and
- The community members of Phikela, Mavhusa, Ka-Ndengeza, Nwamatatane RDP and Babangu.

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

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Review Period	Month			Year		
Annual Review of Business Plan.	December	2019 ¹	2020	2021	2022	2023
Five (5) Yearly Review of RMP.	December			2023		

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

AMENDMENTS PAGE

Revision No	Description	Date
01	Draft RMP for DWS to Review	15/12/2016
02	Draft RMP for DWS to Review	28/03/2017
03	Final Draft RMP for DWS to Review	16/05/2017
04	Final RMP for DWS to Approve	28/06/2017
05	Final RMP for DWS Sign off	15/08/2017

LIST OF ACRONYMS

AtoN	Aid/a) to Nevigation				
ALON	Alu(s) to Navigation				
BID	Background Information Document				
	Business Plan				
CATHSSETA	Authority				
CD: IO MANCO	Chief Director: Infrastructure Operations Management Committee				
CIWSP	Co-operative Inland Waterways Safety Programme				
СМА	Catchment Management Agency				
DAFF	Department of Agriculture. Forestry and Fisheries				
DEA	Department of Environmental Affairs				
DHS	Department of Human Settlement				
DMC	Dam Management Committee				
DoT	Department of Transport				
DPW	Department of Public Works				
DRDLR	Department of Rural Development and Land Reform				
DSR	Department of Sports and Recreation				
DWA	Department of Water Affairs				
DWAF	Department of Water Affairs and Forestry				
DWS	Department of Water and Sanitation				
ECC	Effective Carrying Capacity				
EMF	Environmental Management Framework				
FSL	Full Supply Level				
GGLM	Greater Giyani Local Municipality				
GIAMA	Government Immovable Asset Management				
GPS	Global Positioning System				
GWW	Government Waterworks				
I&APs	Interested and Affected Parties				
IA	Implementing Agency				
IDP	Integrated Development Plan				
IEE	Integrated Environmental Engineering				
IRMP	Integrated Resource Management Plan				
ISP	Internal Strategic Perspective				
КРА	Key Performance Area				
LAAP	Local Accountable AtoN Parties				
LED	Local Economic Development				
LEDET	Limpopo Department of Economic Development, Environment and Tourism				
MC	Management Capacity				
NDT	National Department of Tourism				
NEMA	National Environmental Management Act				
NEMPAA	National Environmental Management: Protected Areas Act				
NPSC	National Project Steering Committee				
NT	National Treasury				
NWA	National Water Act				
OMC	Operations Management Committee				
PCC	Physical Carrying Capacity				
PP	Public Participation				
PPP	Public Private Partnership				
QDS	Quarter Degree Square				
RCC	Real Carrying Capacity				

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MIDDLE LETABA DAM RESOURCE MANAGEMENT PLAN

RF	Rotation Factor
RMP	Resource Management Plan
SAMSA	South African Maritime Safety Authority
SASCOC	South African Sports Confederation and Olympic Committee
SDF	Spatial Development Framework
SWOT	Strengths, Weaknesses, Opportunities and Threats
WfW	Working for Water
WMA	Water Management Area

EXECUTIVE SUMMARY

Mandate: The Department of Water and Sanitation (DWS), through the National Water Act, 1998 (Act No. 36 of 1998), is mandated to protect aquatic and associated ecosystems and their biological diversity. The Minister of Water and Sanitation, as the custodian of the nation's water resources must ensure that the Government Waterworks (GWWs), including Middle Letaba 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) Middle Letaba Dam.

Purpose of the 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 to unlock socio-economic potential of the water resource.

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

Location of the dam: The dam is popularly known as Sterk River Dam or Ten High and is an earth-fill type which impounds the Middle Letaba River. It is located in Ward 2 and 3 of the Greater Giyani Local Municipality (GGLM) within the Mopani District Municipality in Limpopo Province, South Africa. It was primarily built to provide raw bulk water to the municipality for domestic use.

In addition to the dam's primary purpose for water provision, it also offers the use of water for recreational activities. The water based activities taking place at the dam includes fishing and boating. There are also recreational facilities such as caravan park, camping sites, and picnic sites for day visiting.

Dam ownership and management: Middle Letaba Dam is owned and operated by DWS. There are two controlled access points to the dam, the first one is located at the Middle Letaba Dam Resort and the second one is at Cosmos.

A survey to determine the extent of the DWS purchased boundary was conducted recently, however it is not finalized as yet. All the formal and informal agreements between DWS and the adjacent recreational clubs will be reviewed as part of the RMP process.

There is no formal institutional structure at the dam for recreational purposes and as part of the RMP process an institutional structure has been proposed for the dam. The proposed structure aims to involve a representative of all relevant role players; and it is envisaged to assist in effectively managing the dam.

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

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

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

The **Participation phase** entailed three (3) important aspects, namely:

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

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

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

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

- To maintain the water quality of Middle Letaba Dam;
- To maximize the storage capacity of the Middle Letaba Dam;
- To have the dam and its surrounding environment free of alien vegetation;
- To promote equitable public access and use of the dam;
- To establish access control and also formalize the existing access points to the dam;
- To promote public safety for local communities and tourists when accessing the dam for recreational purposes;
- To develop Middle Letaba Dam into a tourists attraction point;
- To formalize the recreational facilities which are already operating at the dam;
- To promote sustainable harvesting of fish at the dam;

- To ensure that local communities participate and benefit in local development initiatives taking place in and around the dam. This can be done through development of eco-tourism and recreational opportunities;
- To establish capacity building and training for youth within the local communities; and
- To establish an appropriate institutional structure which will effectively manage the recreational use of the water resource and the surrounding environment in accordance with the RMP. The appropriate powers and delegations must be clear.

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

"To elevate tourism amenities at the dam whilst conserving the biophysical environment and to ensure that the dam becomes the tourist destination of choice as it has a maximum socio economic potential".

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 Middle Letaba Dam that could enhance tourist attraction:

- Establishment of small scale fishery.
- Establishment of picnic sites or resort at the dam.
- Opportunity for scientists to conduct different research at the dam.
- Establishment of crocodile breeding.
- Establishment of community hall or conference hall.
- Development of a swimming pool.
- Establishment of chalets or guest houses.

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CHAPTER 1: INTRODUCTION

1.1 BACKGROUND OF MIDDLE LETABA DAM

Middle Letaba Dam (popularly known as Sterk Rivier or Ten High) is an earth-fill type which impounds the Middle Letaba River. The dam is located in Ward 2 and 3 of the Greater Giyani Local Municipality (GGLM) within the Mopani District Municipality in Limpopo Province, South Africa. Its GPS coordinates are: 23°16'26.51"S 30°24'11.25"E (See **Figure 1** for Locality Map). Middle Letaba Dam is owned and operated by DWS. There is currently no formal institutional structure to manage the dam for recreational use. The dam was completed in 1984 and its primary purpose is to provide bulk raw water to the municipality for domestic use.

The dam falls under B82D Quaternary catchment under the Luvuvhu/Letaba Water Management Area (See **Figure 2** for Hydrology Map).

Middle Letaba Dam Profile			
Location	South Africa		
Province	Limpopo		
District Municipality	Mopani		
Local Municipality	Greater Giyani Local Municipality		
Nearest Town	Giyani and Elim		
Completion Date	1984		
GPS Coordinates	23°16′26.51″S 30°24′11.25″E		
Purpose	Domestic Use		
Owner	DWS		
Water Management Area (WMA)	Olifants		
Quaternary Catchment	B82D		
Catchment Area (km ²)	1 805		
River	Klein Letaba River		
Capacity (m³)	173 128 000		
Surface area (ha)	1 878.7		
Wall type	Earth-fill		
Wall Height (m)	38		
Length (m)	2 711		

Table 1: Middle Letaba Dam profile

Source: Department of Water and Sanitation (List of Registered dams, Feb 2016)



Figure 1: Locality Map for Middle Letaba



Figure 2: Hydrology Map for Middle Letaba Dam

1.2 BIOPHYSICAL ENVIRONMENT

1.2.1 Climate

Giyani is influenced by the local steppe climate. The warmest month of the year is January, with an average temperature of 26.0 °C. The lowest average temperatures in the year occur in July, when it is around 16.8 °C. The average annual temperature in Giyani is 21.8 °C. There is little rainfall throughout the year. The rainfall averages 600 mm. The driest month is June, with 4 mm of rainfall. The greatest amount of precipitation occurs in February, with an average of 140 mm.

Refer to **Figure 3** for the average temperatures and rainfall patterns for the area for the year 2016 (Climate data.org, 2016).



Figure 3: Average Temperature and Rainfall of the area (2016)

1.2.2 Flora

According to OLEMF, 2009, the dam falls within granite Lowveld. This vegetation type represents tall shrubland with few trees to moderately dense low woodland on the deep sandy uplands. Dense thicket to open savanna occur in the bottomlands with Acacia nigrescens, Dichrostachys cinerea, and Grewia bicolor in the woody layer.

The dense herbaceous layer contains the dominant Digitaria eriantha, panicum maximum and Aristida congesta on fine-textured soil, while brackish bottomlands support sporobolus nitens, Urochloa mosambicensis and chloris virgate.

Important taxa includes:

Tall trees: Acacia nigrescens and Sclerorya birrea subsp. caffra.

Small trees: Acacia nilotica, Albizia harveyi, ombretum apiculatum, C. imberbe, C. zeyheri, Ficus stuhlmanii, Peltophorum africanum, Pterocarpus rotundifolius, Terminalia sericea, Acacia exuvialis, A. gerrandi, Bolusanthus speciosus, Cassia abbreviate subsp. beareana, Combertum collinum subsp. sulunse, Dalbergia melanoxylon, Gymnosporia glaucophylla, Lannea schweinfurthii var. stuhlmannii, Pavetta schumanniana, Plectroniella armata, and Terminalia pruniodes.

Tallshrubs:Combretumhereoense,ichrostachyscinerea,Eucleadivinorum,Strychnosmadagascariensis,Gardeniavolkensii,Hibiscus micranthus and Tephrosiapolystachya.

Low shrubs: Abutilon austro-africanum, Agathisanthemum bojeri, Aptosimum lineare, Barlearia elegans, Clerodendrum ternatum, Commiphora africana, Grossypium herbaceum subsp. africanum and Panvonia burchellii.

Woody climber: Sphedamnocarpus pruiens subsp. pruriens.

Herbaceous climber: Rhynchosia totta; graminoids: Brachiaria nigropedatta, Digitaria eriantha subsp. eriantha, Eragrostis rigidior, Melinis repens, Panicum maximum, Pogonarthria squarrosa, Aristida congesta, Bulbostylis hispidula, Chloris mossambicensis, Enneapogon cenchroides, Heteropogon contortus, Leptochloa eleusine, Perotis patens, Schmidtia pappophoroides, Sehima galpinii, Tricholaena monachne and Urochloa mosambicensis.

Achyranthes Aspilia Herbs: aspera, mossambicensis, Becium filamentosum, Chamaecrista absus, Commelina benghalensis, C. erecta, Cucumis africanus, Evolvulus alsinoides. Heliotropium strigosum. Hermbstaedtia ororata, Hibiscus praeteritus, Indigofera filipes, I. Sanguinea, Kohautia Kyphocarpa angustifolia, Leucas virgata, glabrata, Ocimum gratissimum, Phyllanthus maderaspatensis, Pupalia lappacea, Vahlia capensis subsp. vulgaris and Waltheria indica.

Succulent herbs: Orbea rogersii and Stapelia leendertziae.

The dam also falls within the critical biodiversity area that has been recognized by LEDET and documented on the Limpopo Conservation Plan.

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

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

- **Category 1a:** Invader plants species which must be combatted or eradicated.
- **Category 1b:** Invader plants species which must be controlled.
- **Category 2:** Invader plants species which require a permit to carry out a restricted activity within an area specified in the Notice or an area specified in the permit, as the case may be.

• **Category 3:** Invader plants species which are subject to exemptions in terms of section 71(3) and prohibitions in terms of section 71A of Act.

The most common Terrestrial Alien Plants in South Africa are the Black Wattle (*Acacia Mearnsii*), Mauritius Thorn (*Caesalpinia Decapetala*), Guava (*Psidium Guajava*), Castor Oil plant (*Ricinas Communis*), Blue Gum (*Eucalyptus globulus*), Pine Trees, Bug weed (*Solanum Mauritinum*), Port Jackson willow (*Acacia Saligna*), weeping willow (*Salix Babylonica*), Tick berry (*Lantana camara*, blackwood (*Dalbergia melanoxylon*) and the silver wattle (*Acacia dealbata*).

1.2.2.2 Aquatic Weeds

There are ten known aquatic weeds in South Africa. The known weeds include, among others, the Water Hyacinth (Eichhornia crassipes), Red water fern (Azolla filiculoides), Parrots feather (Myriophyllum aquaticum), Water lettuce (Pistia Stratiotes), etc.

During the research on the RMP process, no aquatic alien species were identified at Middle Letaba Dam.

There are different methods to control alien aquatic weeds at the dam which include:

- **Mechanical control** is the mowing or mechanical cutting of an invasive plant infestation to limit seed production.
- Manual invasive plant control is handpulling or digging of the aquatic weeds.
- **Biological control** often works best on large infestations, or infestations that are near the water.

The establishment of wash bays in dams where there are no alien aquatic weeds will prevent the introduction of these weeds into the dam from other dams.

1.2.3 Fauna

There are various fauna species in and around the dam. Below are some of the fauna species found in the area.

1.2.3.1 Frogs

According to the Frog Map 2016, there are fifteen (15) species recorded in locus 2330BC Quarter Degree Square (QDS) (Avian Demography Unit (ADU), 2015 around Giyani area and they all fall under the Least Concern on the Red Data List conservation status. See attached **Appendix A**: for Frog Species at the dam.

1.2.3.2 Reptiles

According to the Reptile Map 2016, there are thirteen (13) species recorded in locus 2330BC Quarter Degree Square (QDS), and they all fall under the Least Concern on SARCA, 2014. See attached **Appendix B**: for reptiles' species at the dam.

1.2.3.3 Dung beetles

According to the DungbeetleMap Map on locus 2330BC there are two (2) dung beetle which have been recorded, namely: Gymnopleurus humerali, Onitis mendax and they are both not listed on the Red List Category.

1.2.3.4 Butterflies

According to the LepiMap there are eleven (11) species recorded in locus 2330BC. There are ten (10) of the least concern on the SABCA, 2013 and one (1) is not listed. See attached **Appendix C**: Butterflies species which were recorded in Locus 2330BC.

1.2.3.5 Fish species

There are four (4) fish species which are dominant in the dam, namely, Tilapia, bream, bass and carp. These are more of the fish species that are found in the dam, Anguilla mossambica, Mesobola brevianalis. Opsaridium peringueyi, Barbus lineomaculatus, Barbus unitaeniatus, Barbus bifrenatus, Barbus viviparous, Barbus toppini, Barbus radiates, Barbus trimaculatus, Barbus paludinosus, Labeobarbus marequensis, Labeo rosae, Labeo ruddi, Labeo cylindricus, Labeo molybdinus, Cyprinus carpio, Micralestes acutidens, Amphilius uranoscopus, Schilbe intermedius, Clarias gariepinus, Chiloglanis pretoriae, Synodontis zambezensis, Micropterus salmoides, Pseudocrenilabrus

philander, Tilapia rendalli, Oreochromis mossambicus, and Glossogobius giuris.

1.2.4 Geology and Soils

According to (OLEMF, 2009), the dam is situated on the Lowveld Rugged Mopaneveld geology which is mostly underlain by Goudplaats Gneiss and Makhutswi Gneiss, with some ultramafic metavolcanics (rocks rich in chlorite, amphibole, talc and serpentine) and metasediments of the Giyani Greenstone Belt, all of the Swazian Erathem.

In the lowlands Granite Lowveld occurs on clayey soils with a high content of sodium,

while soils in the uplands are sands derived from Archean granite and gneiss. Greenstone belts are zones of variably metamorphosed mafic to ultramafic volcanic sequences with associated sedimentary rocks that occur within Archaean and Proterozoic cratons between granite and gneiss bodies. (OLEMF, 2009).

Lowveld Rugged Mopaneveld soils are redyellow apedal, shallow, stony, freely drained soils. Soil forms are mainly Hutton, Mispah and Glenrosa. (*Strategic Plan (SP) for the Letaba Ranch Nature Reserve, March 2013*). (See **Figure 4** for Geology Map).



Figure 4: Geology Map for Middle Letaba Dam

1.2.5 Hydrological Information

1.2.5.1 Surface Water

The water in the Letaba catchment is of good quality. Although water quality parameters (with the exception of phosphate) generally do not exceed the South African Water Quality Guidelines, there is evidence of deterioration of quality over time (*DWA ISP, 2004*).

The river which feeds the dam is small and can only meet the requirements of the dam during floods or rainy seasons which has resulted in the dam having fluctuation water levels. Due to the fact that there is currently no water at Nsami Dam, water is being released from Middle Letaba Dam to Nsami Dam making Middle Letaba Dam to be under stress as it was reported to be 23% of full supply level on the 26 July 2016.

According to DWS (29/08/2016), Middle Letaba Dam water level is at normal with +-20%. When comparing 2016 water level which is 21% and that of 2015 which was 35%, it shows a decline in the water level. The decline of water level is caused by the drought which affected most of the dams in South Africa in 2015 and 2016. **Figure 5** shows the fluctuations of water level over a yearly period.



Figure 5: Fluctuations of the dam's water level over a year (DWS, 2015)

1.2.5.2 Water Quality

The water quality of the dam is being threatened by dumping of disposable nappies in and around the dam. It is also threatened by the agricultural practices going on upstream of the dam. These activities might lead to agricultural runoff into the dam and negatively affect the water quality. **Table 2:** illustrates variables which were tested by DWS to check the quality of water in the dam. The information was retrieved from DWS's Water Quality Management System.

Characteristics	Test Results	Water Quality Target Range (Recreational Use)	Description
рН (pH units)	8.3	6.5-8.5	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 is absent.
Electrical; Conductivity in mS/m	22.2	0-70	No health effects associated with electrical conductivity of water are expected < 45 mS/m.
Sulphate (mg/l)	2.9	0-200	No health or aesthetic effects can occur.
Chloride (mg/l)	13.7	0-100	No health or aesthetic effects can occur.
Nitrate (mg/l)	0.06	0-6	No health or aesthetic effects can occur.
Free and Saline Ammonia (mg/l)	0.09	0-1.0	No health or aesthetic effects can occur.
Turbidity (NTU)	N/A	3.0	N/A

Table 2: Water Quality variables at Middle Letaba Dam (DWS RQS, 2016)²

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

1.3 BUILT ENVIRONMENT

1.3.1 Transport Networks

The dam is strategically located on the main road (R578 road) between Giyani and Makhado. The road is on top of the dam wall and as a result the dam is easily accessible.

1.4 USES AND USERS OF THE DAM

1.4.1 Primary Function

1.4.1.1 Domestic Use

The primary purpose of the dam is to supply bulk raw water to the Greater Giyani Local Municipality for domestic use to the community in and around the Giyani area.

1.4.2 Secondary Function

1.4.2.1 Recreation Use

Recreational activities which are currently taking place at the dam are fishing and boating. There are also recreational facilities such as Middle Letaba Dam Resort which offers accommodation, events venue, fishing and picnic sites. Cosmos is another facility where they have chalets, caravan park and camping sites.

1.4.2.2 Agriculture Use

There are commercial farmers which depend on the water from Middle Letaba River and the local community also use water from the dam for irrigation and watering of livestock.

1.5 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.

1.5.1. Management of Water Surface

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

In addition to 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.

² N.B: During the time when the study was conducted, the analytical results for turbidity were not recorded on the DWS water quality management system.

1.5.2. Event Management

Permits should be issued by DWS prior to any event undertaken at the dam.

1.6. LAND OWNERSHIP

DWS is the owner of Middle Letaba Dam and has conducted a survey to determine the extent of the purchased boundary, however, the survey has not been finalized as yet It is important to note that the land adjacent the dam still falls under the custodianship of the Minister of Rural Development and Land Reform and there is no formal lease agreements in place. (DWS, Land Matters, 2016).

1.7. LAND CLAIMS

There are no registered land claims with regards to the dam. However, when the dam was built some local community members were relocated from the land expropriated for the construction and management of the dam. It is alleged that some of the people were not compensated. During public participation meetings, people were encouraged to come forward and report their issues relating to compensation to DWS, so that they can look into the matter.

1.8. ACCESS AND USE AGREEMENT

1.8.1. Middle Letaba Dam Resort and Cosmos

There is no formal lease agreement between the Middle Letaba Dam Resort, Cosmos and DWS. However, DWS is still in the process of determining the purchased boundary and the land adjacent to the dam still falls within the custodianship of the Minister of Rural Development and Land Reform.

1.9. SAFETY

There are two (2) access controlled points at the dam, which are at the Middle Letaba Dam Resort and Cosmos.

The dam is not fenced and can be accessed from any point including the dam wall. The dam wall is being accessed via a bridge, where some local community members climb the bridge and conduct fishing near the dam wall.

1.9.1. Safety of Navigation

There is currently no adequate, standardised and harmonised fixed and floating Aids to Navigation³ (AtoN) and Demarcation Markers in place.

1.9.2. Incident Management

There is no specific incident management system in place to ensure that incidents are responded to in a co-ordinated manner.

1.10.SOCIO-ECONOMIC DEVELOPMENT

1.10.1 Social Audit

The main purpose of social audit is to examine the general status of the study area and to determine issues that need to be addressed when developing the RMP in order to overcome potential difficulties in an area. The study area falls within Ward 2 and 3 of the GGLM. An understanding of socio-economic conditions of Ward 2 and 3 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 1.10.1.1 to 1.10.1.3, respectively.

external to vessels that is designed and operated to enhance the safe and efficient navigation of vessels and/or vessel traffic"

³ A maritime Aid to Navigation (AtoN) is defined by the international Association of Marine Aids to Navigation and Lighthouse Authorities (IALA) as "A device or system

1.10.1.1 Population Dynamics

GGLM has a population size of 244 217, which makes it the second largest municipality in terms of population contribution (22%) in the Mopani District. According to (Census, 2011), 99. 5% of the population are black African, with the other population groups making up the remaining 0.5%. For every 100 women there are 79 men. Most of the people (90.5%) speak Xitsonga as their first language, followed by Sepedi (3.8%). Refer to **Table 3**.

Table 3: Population group for GGLM

Language	Percentage
Afrikaans	0,1%
English	0,8%
IsiNdebele	0%
IsiXhosa	0%
IsiZulu	0,1%
Sepedi	3,8%
Sesotho	2,6%
Setswana	0,1%
Sign Language	0,1%
SiSwati	0,2%
Tshivenda	0,6%
Xitsonga	90,5%
Other	0.7%
Not Applicable	0,3%

The dam is located in Ward 2 and 3 with a total of five (5) villages. The first village is Babangu with a population size of 1 745, Ka-Ndengeza (including Mavhusa) with 4 637, Nwamatatane with 872 and Phikela with 1 671 people.



Figure 6: Population Dynamics for GGLM, Ward 2and 3

1.10.1.2 Education Level

According to (Census, 2011), only 9% people have managed to complete their secondary education whereas 0.8% have qualifications in higher education. In Babangu 26.6% have matric whereas 2.6% have higher education qualifications, Ka-Ndengeza only 16.5% have matric and 4.2% have higher education, Nwamatatane 17.5% matric and 1.1% higher education and Phikela 12.8% matric and 2% higher education. These percentages are not impressive as it shows that the majority of people in these villages do not reach matric and has led to a low percentage of people obtaining their higher education qualifications.

Table 4: Educational Level for GGLM

Description	Percentage
No Schooling	2.5%
Some Primary	45.4%
Completed Primary	6.4%
Some Secondary	35.7%
Completed Secondary	9%
Higher Education	0.8%
Not Applicable	0.2%

1.10.1.3 Employment Level

In the entire population of GGLM only 18% is employed with 16% being unemployed, 8% being discouraged work seekers and 68% not economically active (Census, 2011). According to (Census, 2011), almost half of people in these villages are working, Babangu with 56.3%, Ka-Ndengeza with 55.8%, Nwamatatane with 53% and Phikela with 54.3%. This is also not an impressive statistics as it indicates that only 55% on average of the people are working at these villages and the other half is not working, this brings a conclusion that there is a high rate of unemployment in the area.

Table 5: Employment Status of GGLM

Description	Number
Employed	25 469
Unemployed	22 596
Discouraged Work Seeker	10 846
Not Economically Active	81 315

MIDDLE LETABA DAM RESOURCE MANAGEMENT PLAN





1.10.2 Community Beneficiation

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

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

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

CHAPTER 2: LEGISLATIVE FRAMEWORK

The RMP forms the overarching framework for the management of Middle Letaba Dam. It is informed by relevant policy, legislation and planning documents administered by other government departments, most of which are herein under discussed. 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 а national provincial or 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).

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

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

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

- XII. National Environmental Management: Protected Area Act, 2003 (Act No. 57 of 2003): The aim of this Act is to provide for the protection and conservation of ecologically viable areas, which are representative of South Africa's Biodiversity, as well as natural landscapes and seascapes.
- XIII. National Treasury Public Private Partnership (PPP) Toolkit for Tourism, 2005: This toolkit assist the process of development of tourism-based businesses on State-owned Land. The Toolkit make it easier for Institutions and the Private Sector to enter into tourism related partnerships on State Property managed by National and Provincial Government Institutions.
- XIV. National Water Act, 1998 (Act No. 36 of 1998): The purpose of the Act is to ensure that the nation's water resources are protected, used. developed, conserved, managed and controlled in a sustainable and appropriate manner, for the benefit of all. Furthermore Section 113 of the Act states that the water of a government waterworks and surrounding state owned land may be made available for recreational purposes, subject to controls determined by the Minister and regulations made by the Minister.

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

Once the RMP has been approved, the RMP will regulate access and use of the dam. It is important to note that

users will need to comply with other relevant legislation.

- XV. Operational Policy: Using Water for Recreational Purposes (DWAF, 2004): This policy is the main guideline in support of the RMP process with regards to the basic principles, policies, strategies and actions for regulating the use of water for recreational purposes.
- XVI. Public Finance Management Act (PFMA) (Act No. 29 of 1999): Section 76 of the Act secures transparency, accountability and sound management of the revenue. expenditure, assets and liabilities of government departments. The Act promotes the objective of good financial management in order to maximize 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).
- Disaster Management Act, 2002 (Act No. 57 of 2002).
- Environmental Conservation Act, 1989 (Act No, 73 of 1989).
- 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).
- Sustainable Development Goals (2015)
- National Development Plan (Vision for 2030).
- National Heritage Resources Act, 1999 (No. 25 of 1999)
- National Veld and Forest Fire Act, 1998 (Act No. 101 of 1998)
- 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).
- Tourism Act, 1993 (Act No. 72 of 1993).
- 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 Government's waterways and watercourses, including its dams. DWS, its delegated public sector partner, or a delegated water management has institution, 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 complete and other legislations could be applicable.

CHAPTER 3: WHAT IS A RESOURCE MANAGEMENT PLAN

3.1 DEFINITION OF RMP

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

Recreational use includes activities ranging from leisure, sport to culture and religion. Although recreational use does not involve 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 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) guidance and provides on funding requirements and funding options to implement the potential recreational activities at the dam.

3.3 PROCESS TRIGGERS

Triggers Factors are factors that have encouraged DWS to initiate and commission the development of RMPs.

A number of generic factors have been identified by DWS for the development of RMPs, however, the Process Facilitator identified site specific trigger factors for Middle Letaba Dam, as illustrated in **Table 6**. Table 6: Trigger Factors for the Development of Middle Letaba Dam RMP

Trigger Factors	Description	
	Water quality	
	 Communities around the dam tend to dispose used nappies in and around the dam, which poses a threat to the water quality of the dam as it may increase the Ecoli and faecal Coliforms count of the water. It is alloged that there are needed from other communities who come 	
	with vehicles and dump disposable nappies near the dam.	
Resource Management	Water quantity	
	 Middle Letaba Dam only reaches full capacity during floods. It is alleged that there are agricultural activities upstream which have partially blocked the Middle Letaba River, resulting in reduced supply of water to the dam. There are reports of a proposed canal from Klein Letaba River to supplement the dam. 	
	 There are plants which are currently growing below the FSL of the dam. This is due to the drop in dam level as a result of the current drought. 	
	Public safety	
	• There are drowning incidents reportedly caused by net fishing which is practiced mostly at night.	
	There are unauthorised access to dam.	
Recreational Industry	Unlawful activities within the dam	
Involvement	• Community members are practising unsustainable and unlawful net fishing which may lead to the depletion of fish species within the water resource.	
	Unauthorised development at the dam	
	There are unauthorised permanent structures at the dam.	
Community Participation and Beneficiation	Public Private Partnership	
	 Middle Letaba Dam has a potential to attract tourists which in turn will unlock the economic potential of the dam. 	
	Local Planning Initiatives	
Public Policy	• The dam is not included in the Greater Giyani Local Municipality	
	planning initiatives such as IDP, SDF, EMF, etc.	
	 The dam can be a tourist attraction centre, but it is not developed nor utilised to its full potential. 	

3.4 RMP DEVELOPMENT PROCESS

The RMP will be developed in accordance with the RMP guideline procedure (DWAF, 2006) as illustrated in **Figure 8**.

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 ascertain 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 8: 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 Middle Letaba Dam. This was done through literature review. This study provided information such as the location of the dam, user groups, current activities, previous studies conducted for the dam.

3.5.2 Site Inspection

A site inspection was conducted on **24 November 2015** to gather baseline information using a checklist questionnaire. The site inspection was undertaken with the DWS delegates (DWS IEE, Northern Operations, champion, Water control officer and the dam operator) The dam wall, cosmos and Churchill were visited as part of the information gathering process. Photos of the study area were also taken during site inspection.

3.5.3 Public Participation

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

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

A Public Participation was conducted in order to acquire information for Phase 2 (Encumbrance Survey), Phase 3 (Objective Identification) and Phase 4 (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 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 D**). The stakeholder list is updated on a continuous basis throughout the RMP process.

3.5.3.2 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 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 (Authorities and I&APs) with the background information about the proposed RMP project and to introduce the processes to be followed in developing the RMP plan. It also aimed to inform authorities and I&APs on how to fully participate in the process and encouraged active attendance in Stakeholder engagement meetings. The BID was compiled from the information collated through the desktop study and site inspection (See attached **Appendix E**).

3.5.3.4.2 Newspaper advert

Newspaper advert regarding the RMP project was placed in the **Nthavela** Newspaper. The advert invited the public to attend the Public Participation Meeting. The advert was published in Xitsonga on **01 June 2016**. Furthermore, an advert for the draft RMP was advertised on **03 April 2017**. (See attached **Appendix F**).

3.5.3.4.3 Flyers 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 distributed on **28 May 2016**.

The flyers for the draft RMP were distributed on **06 April 2017** (See attached **Appendix G)**.

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 invitations included the BID, meeting venue and time. The email notifications were sent out on **30 May 2016** and **08 July 2016 2014**. Moreover, the meeting invites for the draft RMP were sent out on **03 April 2017** (See attached **Appendix H).**

3.5.3.5.2. Authority Meeting The authority meeting was held on **26 July 2016** at **Giyani Information Centre**.

The purpose of the meeting was:

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

The draft RMP was presented to the authorities on **21 April 2017.**

3.5.3.5.3. Public Meeting

The initial Public Meetings were held on **25** and **26 July 2016** at Mavhusa Visiting Point, Ngceche Primary School, Ndengeza Tribal Office, Babangu Khorweni and Rivoningo Project. A platform was also given to I&APs to identify encumbrances/ challenges that might hinder the progress of the RMP as well as to identify objectives and vision for the Middle Letaba Dam.

Table 7: Planning Partners and their Respective mandate

The draft RMP was presented to the public on **22** and **23 April 2017**.

3.5.3.5.4 Comments and Responses Register

A copy was circulated on **06 April 2017** and the commenting period was to elapse on **04 May 2017.** (See attached **Appendix I**).

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 7.**

Department/ Agency	Mandate
Mopani District Municipality	The dam is within the jurisdiction of the municipality and is mandated to provide bulk water services.
Department of Agriculture, Forestry and	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.
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	The department will assist in terms of Land Claims/Ownership
Land Reform (DRDLR)	issues.
Department of Environmental Affairs	Responsible for Biodiversity Management within the dam including
(DEA)	Invasive Alien Species.
Department/ Agency	Mandate
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Department of Public Works (DPW)	Has the power to regulate and control the use of state land outside the GWWs. In this regard, lease agreements or permits will be required from the department as some of the recreational activities will overlap into the state land.
Department of Transport (DoT)	Responsible for legislation, policy and regulations for all transportation in South Africa, including shipping and other transport by water or sea also inland waterways.
National Treasury (NT)	The use of State assets is governed by National Treasury Regulations, requiring DWS to plan concessions in compliance or association with National Treasury, guided by the Tourism Public Private Partnership (PPP) Toolkit of 2005.
South African Maritime Safety Authority (SAMSA)	One of SAMSA's three legislative mandates is "to ensure safety of life and property at sea". The Act enables SAMSA to administer and execute the relevant maritime legislation.

3.6 RMP DATA ANALYSIS

3.6.1 Encumbrance Survey (Phase 2)

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

Tables 8 - 10 outline the summary of limitationsthat might affect the development orimplementation of the RMP for the dam.

Item	Description	
Vegetation	 The dam falls within the critical biodiversity area, which might have implications regarding developments 	
Climate	No staftha ting the sure is developments.	
Climate	 Most of the time the area is dry which has a negative impact on the water level of the dam. 	
Geology and • During development it must be noted that the soil is erodible and this might hinder some the developments around the dam.		
Hydrology	• Water quality is under threat due the fact that local and neighbouring communities are disposing used nappies into the dam.	
	• The dam water level is low most of the time during the year which will limit water sports at the dam.	
	• The water level will continue to drop as water is released to the dry Nsami Dam.	
Siltation	• Siltation reduces the storage capacity of the dam. If the siltation problem is not addressed,	
	it will limit water sports at the dam due to low water volumes	
Fauna	• The presence of crocodiles in the dam pose a danger to the local community and tourists	
	and it will also prevent some of the activities to be undertaken at the dam.	

Table 8: Summary of Biophysical Encumbrances

Table 9: Summary of Legal Encumbrances

Item	Description
Lease Agreements	 Without a clearly marked DWS purchased boundary it is difficult to manage, enforce and monitor what is happening around the dam with regards to recreational activities. Lack of compliance and monitoring at the dam has resulted to the public building permanent structures adjacent to the dam.
DWS Agreements	• The absence of management structure for recreational use of the dam has led to unauthorized development, access (e.g. people are accessing the dam at the dam wall) and illegal activities such as net fishing.
Land Claims	• There are no registered land claims with regards to the dam. However, when the dam was built some members of the local communities were relocated from the land earmarked for the construction of the dam. It is alleged that some of these people were not compensated and as such the RMP process will be affected either in the development or implementation phase.
Land Ownership	 DWS purchased boundary is not clearly marked, which makes it very difficult to know which land belongs to whom. Due to the fact that the dam is located within traditional land, the local communities believe that the dam belongs to them and they also indicated that they are aware that some part of the land belongs to DWS.

Table 10: Summary of Social Encumbrances

ltem	Description			
Tourism	• There is no proper marketing for Middle Letaba Dam to attract tourists at the dam.			
	The dam is under developed and underutilised.			
	There is no institutional structure to manage the dam for recreational use.			
Expectations	 People expect employment opportunities at the dam and this might affect the process in a negative way as the RMP is not a project with guaranteed employment opportunities. 			
Safety	• Accessing the dam through unauthorized access points lead to people engaging in unlawful activities and criminal activities at the dam.			
	• The absence of AtoN demarcation markers led to people accessing the dam at no go areas putting their lives at risk.			
Social Audit	• Due to the fact that there is a low percentage of people who completed their matric and their higher education qualification, this has led to only 50% of the community being employed.			

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 11**.

Table	11: Trigger	Factors f	or the	Develop	oment of	f Middle	Letaba	Dam	RMP
	00-								

	Strengths		Weaknesses
•	The dam is strategically located on the main road between Giyani and Makhado. Food security through fishing in the dam. Livestock drink water from the dam.	•	The water level can drop and reach less than 20% and during the site visit it was at 23%. The dam is not fenced and people have easy access to the dam. There are agricultural activities going on upstream of the dam, giving stress to the river feeding into the dam. The dam can only reach full capacity during floods due to the fact that the river feeding it is small. The dam is underdeveloped and underutilised.
	Opportunities		Threats
• • • • • • • • • •	There is a potential for small scale fishery at the dam. Establishment of picnic sites or resort at the dam. Youth empowerment through skills and employment opportunities. There is an opportunity for scientists to conduct their research at the dam. Crocodile breeding. Community hall or conference Hall. Development of a swimming pool. Airport (not part of the RMP scope but it has been noted). To build a canal from Klein Letaba River which will channel water to the dam. Tourist attraction point. Chalets or guest houses. Recycling of water. Employment opportunities. Adopt a River project. Working for Water project	•	The road is on top of the dam wall and during rainy and windy times the bridge shakes. Siltation at the dam threatens the capacity of the dam. Water pollution caused by dumping of disposable nappies is a threat on the water quality. Climate change is a threat to water quantity as the dam is not getting enough rain water. Net fishing threatens fish species in the dam. There are crocodiles in the dam. Historical Issues e.g it is alleged that people were not compensated during relocation and alleged graves under water.

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

KPA 1: Resource Management

- To maintain the water quality of Middle Letaba Dam;
- To maximize the storage capacity of the Middle Letaba Dam; and
- To eliminate the introduction and spread of alien aquatic weeds in and around the dam to support recreational activities at the dam.

KPA 2: Utilisation

- To promote equitable public access and use of the dam;
- To establish alternative access control and also formalize the existing access points to the dam;
- To promote public safety for local community and tourists when accessing the dam for recreational purposes;
- To develop Middle Letaba Dam into a tourists attraction point;
- To formalize the recreational facilities which are already in operation at the dam;
- To promote sustainable harvesting of fish at the dam;
- To introduce fisheries which have the opportunity to provide nutrition, food security, sustainable livelihoods and poverty alleviation to the local community; and

• To determine the carrying capacity of the dam to ensure that the dam is utilised in a sustainable manner.

KPA 3: Benefit Flow Management

- To ensure that local communities participate and benefit in local development initiatives taking place in and around the dam. This can be done through development of eco-tourism and recreational opportunities;
- To establish capacity building and training for youth within the local communities; and
- To establish an appropriate institutional structure which will effectively manage the recreational use of the water resource and the surrounding environment in accordance with the RMP. The appropriate powers and delegations must be clear.

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

A vision for the dam in a period of 20 years was formulated from the key common objectives identified by the stakeholders.

"To elevate tourism amenities at the dam whilst conserving the biophysical environment and to ensure that the dam becomes the tourist destination of choice as it has a maximum socio economic potential".

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

3.6.3 Research/ Information Generation (Phase 4)

The aim of undertaking the research process was to collect the relevant data about the dam to serve as decision-making guideline tool. The report will serve as a decision-making guideline tool, guided by the objectives set for the dam and any limitations due to encumbrances. The report documents the following data as illustrated in **Figure 9.**



Figure 9: 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

Middle Letaba Dam is strategically located on the R578 which connects Giyani and Makhado towns. The nearest town is Giyani which is situated at the intersection between R578 and R81 road.

There are recreational activities which are currently taking place at the dam which include fishing and boating. There are recreational facilities such as caravan park, chalets, resort and wedding venues.

Middle Letaba is a big dam and there is an opportunity to develop and utilize it to its maximum potential. Through the encouragement of best fishing models, develop a resort which will include world class chalets, swimming pools, picnic site, caravan park, camping sites, hall which will be used as wedding, parties and conference venue.

If the dam can be marketed it will be able to attract more tourists into the area and also encourage the local community to visit the dam instead of going to other dams which are far away when they need to engage in recreational activities.

3.6.3.1.1 Development Potential

The striking natural landscape and close proximity to Kruger National Park puts Greater Giyani in a good state to be a tourism destination of choice. Middle Letaba and Nsami Dams offer opportunities for water sports such as fishing and social activities. The statue of Nghunghunyani, which is situated at the banks of Letaba River and Maombe Nature Reserve offers some impetus to the tourism industry; and the proposed Shangoni gate to Kruger National Park, situated 40 km from Giyani, can also attract more tourists.

GGLM tourism strategy offers opportunities for investors to invest in tourism industry in Giyani because of its striking natural landscape and eco-cultural activities. 3.6.3.2 **Feasibility for Potential Objectives** According to DWAF (2006), the feasibility of the proposed objectives needs to be determined in light of the local environmental conditions. **Table 12** shows the practicability of all the proposed objectives.
 Table 12: Feasibility of Potential Recreational Objectives:

	KPA 1: Resource Management			
	Objective	Status Quo		Practicability
•	To maintain the water quality of Middle Letaba Dam.	 The water quality of the dam is threatened by the disposal of used nappies in and around the dam. There are agricultural practices going on upstream of the dam and might lead to agricultural runoff into the dam during raining seasons, especially if there are using artificial manure which are full of chemicals, these chemicals might negatively affect the water quality of the dam. 	•	Through monitoring of the water quality at the dam by taking water samples downstream and upstream of the water resource and the results should be made available for the dam operator. GGLM and DEA must also be involved on general waste management through awareness campaigns. Farmers upstream of the dam should be educated and/ or encouraged to use organic fertilizers other than artificial fertilizers to prevent chemicals emanating from the manure to flow into the dam and negatively affect the water quality of the dam. There should be proper waste management system at the dam to ensure that wastewater from the ablution facilities are handled in a proper and acceptable manner. Waste bins should be provided for people who visit the dam in order to avoid littering at the dam.
•	To maximize the storage capacity of the Middle Letaba Dam.	 The river feeding the dam is small and it cannot fill the dam to its full capacity. It is alleged that there are agricultural activities upstream of the dam which divert the flow of the water into the dam thus reducing the water volume that goes into the dam and this has led the dam to rely on rain water. There is siltation in the dam which reduces the storage capacity of the dam. 	•	There must be a Sedimentation Management Plan in place developed by DWS, which will describe the Remedial Action Work Plan for removing the silt from the dam. If there are proposals to mine the sand from the dam, the applicant should have all the necessary permits from the Department of Mineral Resources (DMR) to mine sand at the dam and Water Use License as per Section 21(c&i) for impeding or diverting the flow of water in a watercourse and altering the bed, banks, course or characteristics of a watercourse from DWS (regional office).
•	To eliminate the introduction and/or spread of alien aquatic weeds in and around the dam.	 There are no aquatic weeds which have been identified at the dam. However, aquatic weeds are a problem in most of the dams and they need to be prevented from entering Middle Letaba Dam. 	•	The construction of wash bays at the dam will assist in reducing the introduction of alien aquatic weeds from other dams through boating.

	KPA2: Resource Utilisation			
	Objectives	Status Quo		Practicability
•	To promote equitable access and use of the dam by the public. To establish alternative access control and also formalize the existing access to the dam.	• There are two controlled access areas at the dam which are privately owned. These include the Cosmos and Middle Letaba Dam Resort owned by Churchill. Other parts of the dam have no formal access control points.	•	 The establishment of more access control points for day visitors will ensure maximum utilisation of the dam and safety to the users. There should be a formal lease agreements between DWS and private properties owners who have access to the water resource. To appoint GGLM as IA to be appointed to manage the dam for recreational use.
•	To promote public safety for local community and tourists when accessing the dam for recreational purposes.	 The dam is not fenced and can be accessed from any point and the local communities are practicing illegal net fishing near the dam wall. There are crocodiles at the dam and these are dangerous aquatic animals. 	•	Implementation of standardised and harmonised AtoN and Demarcation Markers to ensure that the public are aware of the no-go areas at the dam. Implement aspects of the CIWSP best practice model to ensure the safe usage of the dam by the public. Educate the Local Communities about the importance of safety measures around the dam basin. Implementation of DWS Incident Management System. Visible warning signs should be erected alerting the visitors about the dangerous aquatic animals in the dam.
•	To develop Middle Letaba Dam into a tourists attraction point. To formalize the facilities which are already operating at the dam.	 The dam is situated in a strategic position between two towns namely Giyani and Makhado. If the dam can be developed to its maximum potential it will be able to attract tourists from various areas including the local communities as there are currently going to various dams such as Nandoni and Tzaneen Dams to engage in recreational activities. There is a potential to develop up market chalets, picnic sites or resort, community hall and etc. 	•	It will be practical if IA and DMC work together in order to recreationally market the dam. The existing recreational facilities at the dam should be formalized to ensure that they are in line with the RMP.
•	To promote sustainable harvesting of fish at the dam.	 People are practicing net fishing at night which is not a sustainable form of method to the fish species at the dam. Fisheries have the opportunity to provide nutrition, food security, sustainable livelihoods and poverty alleviation to the local community. 	•	DWS and DAFF should work together to determine the feasibility of small scale fishery and also educate the local community about sustainable fishing methods.

	KPA 3:Benefit Flow Management			
Objectives Status Quo				Practicability
•	To promote community Participation and Beneficiation	 There is a high rate of unemployment in the area and it will be vital if the community can benefit from tourism opportunities emanating from the dam. Local communities should be given first preference to opportunities emanating from the dam. 	•	 DWS, local, district municipality and all the relevant departments which are interested in empowering the community should work together to ensure that the local community benefit from the opportunities emanating from the dam. To establish capacity building and training for youth within the local communities. To ensure that local communities participate and benefit in local development initiatives taking place in and around the dam. This can be done through development of eco-tourism and recreational opportunities.
•	To establish an appropriate institutional structure.	 Currently there is no institutional structure for the management of secondary use (recreation) at the dam. There are unauthorized activities currently taking place at the dam such as net fishing. 	•	GGLM is being considered to be appointed as IA for the Middle Letaba Dam. Roles and responsibilities of the IA should be clearly defined.

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

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

- Biophysical, cultural and socio-economic and User needs constraints;
- Development Potential and requirements;

- Site planning and Zonation;
- Programmes and Plans that will unlock the potential of the water resource; and
- Institution options and legal aspects required to create these programmes and plans.

The IRMP is broken down into four (4) main plans namely the **Institutional Plan**, **Zoning Plan**, **Strategic Plan** and **Financial Plan** as illustrated by **Figure 10**.



Figure 10: Integrated Resource Management Plan

4.1 INSTITUTIONAL PLAN

The Institutional Plan provides a framework for the institutional arrangements at the dam. The proposed management systems includes three (3) committees namely; a Dam Management Committee (DMC), Operations Management Committee (OMC) and RMP National Project Steering Committee (NPSC).

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 provide support to the Implementing Agency (IA) with the management of the dam for recreational purposes and 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 11 illustrates the proposed user groups that will form part of the DMC.



Figure 11: Proposed DMC

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

4.1.1.1 Management Tools

Terms of Reference

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

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

Agreements

One of the main management tool available is the use of agreements to ensure proper use of the dam in line with the RMP vision and objectives. Although agreements with some recreational clubs exist there is no overarching agreement to manage recreational use at the dam.

All the facilities which are operating at the dam will be reviewed within the 12 months of the RMP being approved. This is to ensure that these facilities have valid agreements and are aligned with the objectives of the RMP.

Agreements between DWS and Implementing Agency

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

The minimum requirements of an IA include the following:

- An Implementing Agency can be a government entity or 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 the Department and other users of the water resource.

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

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

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

Safety of Navigation Agreements

In addition to its common law responsibility, DWS is, in terms of the requirements described in the National Water Act, 1998 (Act No. 36 of 1998), amongst others, responsible for the safety of GWWs and watercourses, including its dams. DWS, its delegated public sector partner, or a delegated water management institution, has therefore the responsibility to provide the required fixed and/or floating Aids to Navigation (AtoN)⁴ for general navigation.

⁴ AtoN refers to any sort of marker which aids the traveler in navigation; the term is most commonly used to refer to

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

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

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

Access Agreements

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

All adjacent landowners 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 Al. Further, a formal agreement with Al 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 Department of Environmental Affairs (DEA) on the management and maintenance of the facility.

Event Applications

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

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

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

National Affiliations

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

4.1.2 Operations Management Committee (OMC)

There is an existing Chief Director Infrastructure Operations: Management Committee (CD: IO MANCO) within the NWRI which comprises of all directors of four (4) operations (Northern, Southern, Eastern and Central) and is chaired by the Chief Director of Operational Infrastructure within NWRI as illustrated by **Figure 12**.

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



Figure 12: 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 13** illustrates a typical example of Governmental Departments that will form part of the NPSC:



Figure 13: 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.

<u>Culture, Arts, Tourism, Hospitality, Sport</u> <u>Sector, Education and Training Authority</u> (CATHSSETA):

CATHSSETA deals with the approval and financing of training relating to culture, hospitality, tourism and sport sectors.

Department of Agriculture, Forestry and Fisheries (DAFF):

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

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

Department of Corporative Governance and Traditional Affairs (CoGTA):

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

Department of Environmental Affairs (DEA):

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

Department of Public Works (DPW):

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

Department of Rural Development and Land Reform (DRDLR):

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

Department of Sports and Recreation (DSR):

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

Department of Tourism (NDT):

The Department is mandated to create conditions for the sustainable growth and development of tourism in South Africa. The Tourism Act makes provision for the promotion of tourism to and in the Republic and for regulation and rationalization 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 rationalization 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 authorized.

Conservation Zones:

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

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

Low Impact Activity Zone:

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

High Impact Activity Zone:

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

The water surface zoning colour coding means the following:

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

Table 13: Proposed Surface Zoning Description

	Zone Name	Permissible activities	Non-Permissible activities	Recommendation
•	Safety and Security Zone.	 Alien invasive species clearing Management of dam infrastructure Management and maintenance activities by DWS and authorised personnel. 	Public access	 Area should be demarcated by demarcation markers and AtoN.
•	Conservation Zone.	 Access is limited to conservation and research personnel. 	 Public activities in order to allow for: Undisturbed fish and bird breeding habitats. To limit pollution potential. 	 These areas should be demarcated by demarcation markers and AtoN. Strict management and control of these areas are necessary, especially with regards to unlawful net fishing.
•	Low Impact Activity Zone.	 Activities associated with no or little wakes, such as: Canoeing Boat angling Sailing Development of sport with specific requirement for low wake water surface conditions. 	 High impact activities such as: Motorised boating Water Skiing Para-sailing Kite-surfing Jet skis Swimming in the dam. 	 Area should be demarcated by demarcation markers and AtoN. Launching and mooring of vessels should take place at this zone.
•	High Impact Activity Zone.	 Motorised boating Water-Skiing Para-sailing Kite-surfing jet ski 	 Low impact activities such as: Swimming Canoeing Boat Angling Sailing 	 Area should be demarcated by demarcation makers and AtoN. All activities within the high impact zone shall take place beyond 70m from the shoreline. Activities within this zone must be evaluated to determine their impact on the water resources and other dam users before they are allowed into the dam



Figure 14: Proposed Water Surface Zoning Map

4.2.2 Shoreline Zoning⁵

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</u> associated DWS infrastructure):

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

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

Conservation / Low Density Activity Zone:

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

Medium Density Activity Zone:

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

High Density Activity Zone:

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

Community Resource Zone:

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

The shoreline zoning color 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	

⁵Permanent structures within the purchase line are not allowed. All developments should be outside 1:100 year floodline.

Table 14: Proposed Shoreline Zoning Description

Zone Name	Permissible Activities	Non-permissible Activities	Recommendation	
 Safety and Security Zone. 	 Fire management Alien invasive species clearing Management of dam infrastructure Management and maintenance activities by DWS and authorised personnel 	Public access	 A minimum area of 100m wide downstream the dam wall should be demarcated preventing public access and use. 	
• Conservation/ Low Density Activity Zone.	 Conservation management activities: o Bird watching 	Development	• These zone should control access to ecological sensitive areas.	
• Medium Density Activity Zone.	 Day visitors Picnics Camping Caravan Park Shoreline fishing Swimming pools Small-scale fishery project Wash bay 	 Permanent structures Accommodation facilities such as: Chalets and Guesthouses 	 The management of this area should follow PPP process in terms of the National Treasury. All developments must be approved by IA and DWS. Requirements of NWA and NEMA must be taken into account in all developments. Camping, birding, picnicking, bank angling and access to the water must be done in accordance to access agreements. Camping and picnicking is allowed only in designated areas. Noise level to be kept at a minimum. No littering at Camping and Picnic spots. 	
 High Density and Activity Zone. 	 Accommodation facilities: Chalets Guesthouses Recreational Club House Infrastructure for services Ablution facilities Renovation of fisheries project facilities 	 Permanent Hiking Camping Caravan Park 	 The management of this area should be submitted for PPP in terms of National Treasury. All developments must be approved by IA and DWS. Requirements of NWA and NEMA must be taken into account in all developments. All developments should have an approved Environmental Management Plan (EMP) to ensure construction does not impact on dam and must blend in with the natural environment. Noise levels to be kept at a minimum. 	

			 No private slipways to be built without approval from DWS.
Community Resource Zone	 Subsistence fishing Livestock watering points Small scale community gardens 	 Chalets Recreational club houses Hiking Braai facilities Camping 	 Demarcation of the area by fence and provision of an access control.



Figure 15: Proposed Shoreline Zoning Map



Figure 16: Proposed Overall Zoning Map

4.2.3 Carrying Capacity

In order to determine the degree or possible recreational use on the water surface, the Methodology for Carrying Capacity Assessment: Recreation Water Use (DWS 2003) was used as guideline to determine the level of activities that would be sustainable at Middle Letaba Dam

Carrying capacity for recreation provides a guideline to ensure that recreation at the dam is safe, that users do not feel crowded and that they enjoy the use of the dam for leisure activities.

There are three kinds of carrying capacity:

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

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

According to DWS (2016), the average water level of the dam is usually at 28%, as such the carrying capacity for Middle Letaba Dam was calculated using the 28% water level.

Physical Carrying Capacity (PCC)

PCC is calculated as PCC = A ×U/a ×Rf

- Where A = Area available for public use;
- **U/a** = area required for each user; and
- Rf = Rotation Factor (the number of visits per day)

A is calculated as the area of the water surface available for public use: 1878.7 ha

The **U/A** = There is a range of literature regarding the area required for different recreational users.

Craft	U/A (ha/craft)	
Powerboats	4.0	
Angling	3.0	
Canoeing	1.0	
Average	2.7	

Based on the fact that most activities do not require much space, the average hectare per user is 2.7 ha (27 000 m²), the value of 5.0 ha (50 000 m²) can be acceptable area per user. This has been chosen in order to ensure that the dam is not overcrowded, as such impacting on the sense of the area.

The PCC for Middle Letaba Dam can further be calculated as:

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

- = =526 × 1/5 × 1
- = 105 vessels

Real Carrying Capacity

The RCC takes factors into account that limits recreation. The limiting factors include:

- Safety Areas/ No go Zones (1.9 ha); and
- Conservation Area (7 ha).

The above factors results in 0.5% decrease in water surface available for recreation at the dam, therefore 99.5% of the surface area of the dam is still available for recreation.

RCC for Middle Letaba Dam is therefore:

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

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

RCC = 105× (100 – 0.5) %/100 = 104 vessels

Effective Carrying Capacity

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

Currently there is no formal management structure in place, as such the ECC is 0. The ECC will be calculated after the proposed Institutional structure (as part of the RMP) have been implemented in order to manage the sustainable utilization of the dam for recreational purposes.

4.3 STRATEGIC PLAN

The Strategic Plan is informed by the objectives identified by 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 **Tables 15** - **17**, the Strategic Plan on how to achieve the identified objectives identified regarding the dam is outlined.

Table 15: Strategic Plan for KPA 1: Resource Management

KPA 1: Resource Management						
Objectives (What do we want)	Motivat	ion (Why do we want to achieve this)		Action Projects (How do we achieve this)	N ()	/lanagement Support Who will be involved)
 Water quality: To maintain the water quality of Middle Letaba Dam. 	The wat disposal There a dam and dam dur using ar these ch quality o	er quality of the dam is threatened by the of used nappies in and around the dam. re agricultural practices upstream of the d might lead to agricultural runoff into the ring raining seasons, especially if there are tificial manure which are full of chemicals, memicals might negatively affect the water of the dam.	•	Frequent monitoring of water quality. To educate and/ or encourage farmers to use organic fertilizers other than artificial fertilizers. Proper waste management system at the dam.	•	DWS, DAFF, DEA and the municipalities (local and district) GGLM and MDM, DMC
 Water quantity: To maximise the storage capacity of the Middle Letaba Dam. 	 The rive the dam There a dam wh dam an water to There is storage 	r feeding the dam is small and it cannot fill to its full capacity. re agricultural activities upstream of the ich reduce the water that goes into the d these has led the dam to rely on rain o fill it. s siltation which resulted in the reduced capacity of the dam.	•	There must be a Sedimentation Management Plan in place developed by DWS, which will describe the Remedial Action Work Plan for removing the silt from the dam. Mining of silt in the dam. The applicant should have all the necessary permits from Department of Mineral Resources (DMR) to mine sand at the dam and Water Use License, Section 21(c&i) for impeding or diverting the flow of water in a watercourse and altering the bed, banks, course or characteristics of a watercourse from DWS (regional office).	•	DWS, DMC, GGLM (IA) and DMR.
 Alien invasive plants species: To have the dam and the surrounding environment free of Alien Vegetation in order to support the proposed recreational activities. 	Aquatic and the Middle I There is vessels poses a weeds.	weeds are a problem in most of the dams y need to be prevented from entering .etaba Dam. no proper control and inspection of the before they launch into the dam, which threat of spread of aquatic alien invasive	•	Construct an inspection and cleaning mechanism such as wash bays to ensure that there is no spread of any alien invasive species. To regularly monitor the dam for alien invasive species.	•	DEA (Working for water), DWS, DMC and GGLM (IA).

Table 16: Strategic Plan for KPA 2: Resource Utilisation

KPA 2: Resource Utilisation					
Objectives (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)		
Equitable access: • To promote equitable access and use of the dam by the public.	 There are only two controlled access areas at the dam which are privately owned. These include the Cosmos and Middle Letaba Dam Resort owned by the Churchill. Other parts of the dam have no formal access control points. Local communities should be able to go to the dam and engage in recreational activities at a reasonable price. Local communities must be introduced to water recreational activities in order to redress the past imbalances and promote physical access to the water resource and its benefits. 	 To establish new access control points for the public and tourist. An agreement needs to be entered into by DWS and the entity which will manage and operate public access and facilities. Access fees must be affordable to the public. 	• DWS, GGLM (IA) and DMC.		
 Public safety: To promote public safety for local community and tourists when accessing the dam for recreational purposes. 	 The dam is not fenced and can be accessed from any point. The local community is practicing net fishing at the dam wall. Public safety is very important when implementing the RMP. There are crocodiles at the dam and these are dangerous aquatic animals. Currently there are no standardised and harmonised AtoN and Demarcation Markers at the dam. 	 Ensure that access to the dam is equitable and safe to all users. Implementation of DWS Incident Management System. Implementation of standardised and harmonised AtoN and Demarcation Markers. Establishment of fence around the hotspots at the canal to prevent people and livestock from drowning. Erection of big visible warning signs to alert visitors of crocodiles in the dam. 	 DWS, DMC, DEA: WFW, SAMSA, LEDET, DoT, GGLM (IA) and other departments which are concerned about public safety. 		
 To establish Middle Letaba Dam as tourists attraction point. 	• The dam is situated in a strategic position between Giyani and Makhado. If it can be developed to its maximum potential it will be able to attract tourists from various areas including the local communities as there are currently going to various dams such as Nandoni and Tzaneen to engage in recreational activities.	 The municipality must conduct a feasibility study to determine viable recreational and commercial opportunities Potential to formalise existing recreational facilities at the dam to be in line with the RMP and NWA. 	• IA and DMC.		

KPA 2: Resource Utilisation				
	• There is a potential to develop up market chalets, picnic sites or resort, community hall and etc.	 To establish swimming pool in order to introduce swimming activity at the dam. Establishment of a good marketing strategy to attract tourists in the area. 		

Table 17: Strategic Plan for KPA 3: Benefit Flow Management

KPA 3: Benefit Flow Management					
Objectives (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)		
 Institutional Plan: To establish an appropriate institutional structure which will effectively manage the recreational use of the water resource and the surrounding environment. 	 Currently there is no institutional structure for the secondary use of the dam, which is recreation. There are unauthorized activities currently taking place at the dam. 	 Formalization of the recreational Institutional Structure. To appoint GGLM as an IA to manage the dam for recreational use. To ensure that the roles and responsibilities of the role players are clearly defined on the RMP. Ensure that the following agreements are in place (as necessary): Agreements between DWS and IA; and Access Agreements with all dam users. 	 DWS and key stakeholders. 		
 Sustainable fishing: To promote sustainable harvesting of fish at the dam. 	 People are practicing net fishing at night which is not sustainable to the fish species at the dam. 	 People must obtain fishing permits. No net fishing at the dam. Preserve the core habitats for nesting, resting, feeding and breeding of fish within the inlets, by demarcating areas for subsistence fishing and by installing demarcation markers. 	 Different government departments such as DWS, DEA, DAFF, LDARD and DTI. 		
 Aquaculture: To introduce aquaculture at the dam. 	 Fisheries have the opportunity to provide nutrition, food security, sustainable livelihoods and poverty alleviation to the local community. 	• A feasibility study must be conducted to determine the viability of aquaculture project, as well as to demarcate suitable area for such project at the dam.	 Different government departments such as LDARD, LEDET and DWS. 		

KPA 3: Benefit Flow Management					
Objectives (What do we want)	Motivation (Why do we want to achieve this)	Action Projects (How do we achieve this)	Management Support (Who will be involved)		
		• Job opportunities arising should benefit all the community members and should be allocated fairly.			
 Community beneficiation: To promote community participation and beneficiation. 	 To ensure that local communities participate and benefit in local development initiatives taking place in and around the dam. This can be done through development of eco-tourism and recreational opportunities. To establish capacity building and training for youth within the local communities. There is a high rate of unemployment in the area and it will be vital if the community benefit from the dam. 	 Strengthening community participation and beneficiation (e.g. via Skill Development Programmes) Establishment of functional institutional structure that should have enough power to ensure that the Local Communities are benefitting from the economic benefits emanating from the dam use and development. The job opportunities that might arise from the implementation of the RMP should follow the PPP to ensure community beneficiation. 	 GGLM (IA), LEDET, DMC, DEA, SAMSA, LDARD and the involvement of the Ward councilors. 		

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. The public should not be denied access to the dam. All fees associated with the usage of the dam for recreation should take into account the socio-economic status of the users. The access fees should make a provision for equitable access. A more detailed Financial Plan (FP) is contained in the Business Plan (BP) (volume 5 of 5), which will facilitate the implementation of the RMP by providing implementation program cost estimate for all possible economic recreational activities.

The information acquired from the RMP will be used to produce the BP based on the action projects for each objective as stipulated under the Strategic Plan. However, many of the identified objectives are not of commercial nature and as such these non-economic objectives will not feature in the BP.

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

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 17** illustrates the RMP & BP review framework.



Figure 17: RMP and BP and Review Framework

CONCLUSIONS

The RMP documents the challenges that exists within the Middle Letaba 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 addressed before issues are 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 Middle Letaba 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