DEPARTMENT OF WATER AFFAIRS

PROJECT 2006-303a

RESOURCE MANAGEMENT PLAN FOR

REPORT 4: Resource Management Plan- March 2011

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This Resource Management Plan for Metsimatsho Dam was compiled and is recommended by a Technical Task Team (TTT), a multi-disciplinary team consisting of stakeholder representatives from *inter alia* Government; the local communities; user groups and the business sector. Contributions made by the larger stakeholder group as indicated in Appendix A are also recognized.

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EXECUTIVE SUMMARY

This Resource Management Plan (RMP) is the management, development and institutional plan for Metsimatsho Dam and has been compiled based on the framework set out in page v. It is to be reviewed annually and updated every five years.

Metsimatsho Dam consists of the water surface as well as the surrounding State land, utilised by the Department of Water Affairs (DWA).

The plan compiled through the RMP process is based on the principles of sustainability, addressing environmental and community involvement aspects. It will guide the management of Metsimatsho Dam and is based on the inputs of all stakeholders. The plan also serves as the base document for monitoring both performance and compliance regarding the various Key Performance Areas (KPAs) with respect to the National Water Act, (Act No. 36 of 1998) and other applicable legislation.

The primary purpose of the Metsimatsho Dam is to provide potable water to the surrounding urban areas. However, the need to realise the full potential of the dams including recreational use and tourism related development required the compilation of a RMP.

Land and water use options identified as possibilities at Metsimatsho Dam include:

- Conservation;
- Accommodation and leisure activities, and
- Tourism activities.

The RMP consists of three principal sections:

1) *The Place* which addresses the background; encumbrances to the plan, and challenges facing the management authority (institution responsible for managing recreational water use as delegated).

2) *The People* outlines the stakeholders and associated relationships for the dams.

3) *The Plan* comprises an integrated environmental management plan and a conceptual zoning plan. This section incorporate four key KPAs, namely resource management, utilization, benefit flow management (community involvement and beneficiation) and institutional arrangements for implementation of the RMP. Within each key KPA area, the plan provides insight into the specific rationale regarding the KPAs, the objectives, the policy and strategies, as well as operational guidelines and action projects which will focus the management decisions, actions and initiatives.

A conceptual zoning plan has been developed as part of this RMP and should be updated subsequent to the availability of outstanding of data and as required.

Various zones have been proposed in the conceptual zoning plan for Metsimatsho Dam and include management interventions pertaining to access, utilisation and development. The zoning plans are depicted diagrammatically in Figure 10 and are summarised as follows:

	Metsimatsho Dam
Water Surface Zones	Low impact activity zone
	Conservation zones
Water Front Zones	Low impact development zone
	Medium impact development zone

To effectively and efficiently manage the implementation of the plan, an institutional structure is proposed. The proposed institution is a public sector agent, supported by an advisory committee comprising interested and affected parties. It should be noted though that the ultimate responsibility regarding the implementation of the RMP will remain with DWA.

Additionally, a business plan is provided based on tasks identified through the planning process. For each task, an indication is provided as to whether the task should be outsourced or executed by the management authority. Timeframe and budgetary requirements are also highlighted.

Operationalisation of this RMP will facilitate the sustainable utilisation and development of Metsimatsho Dam. It is imperative that the RMP informs and is incorporated into the Integrated Development Planning process of the local and district municipalities and other provincial and national planning frameworks.

The process for the compilation of the RMP is summarised in Figure 1.

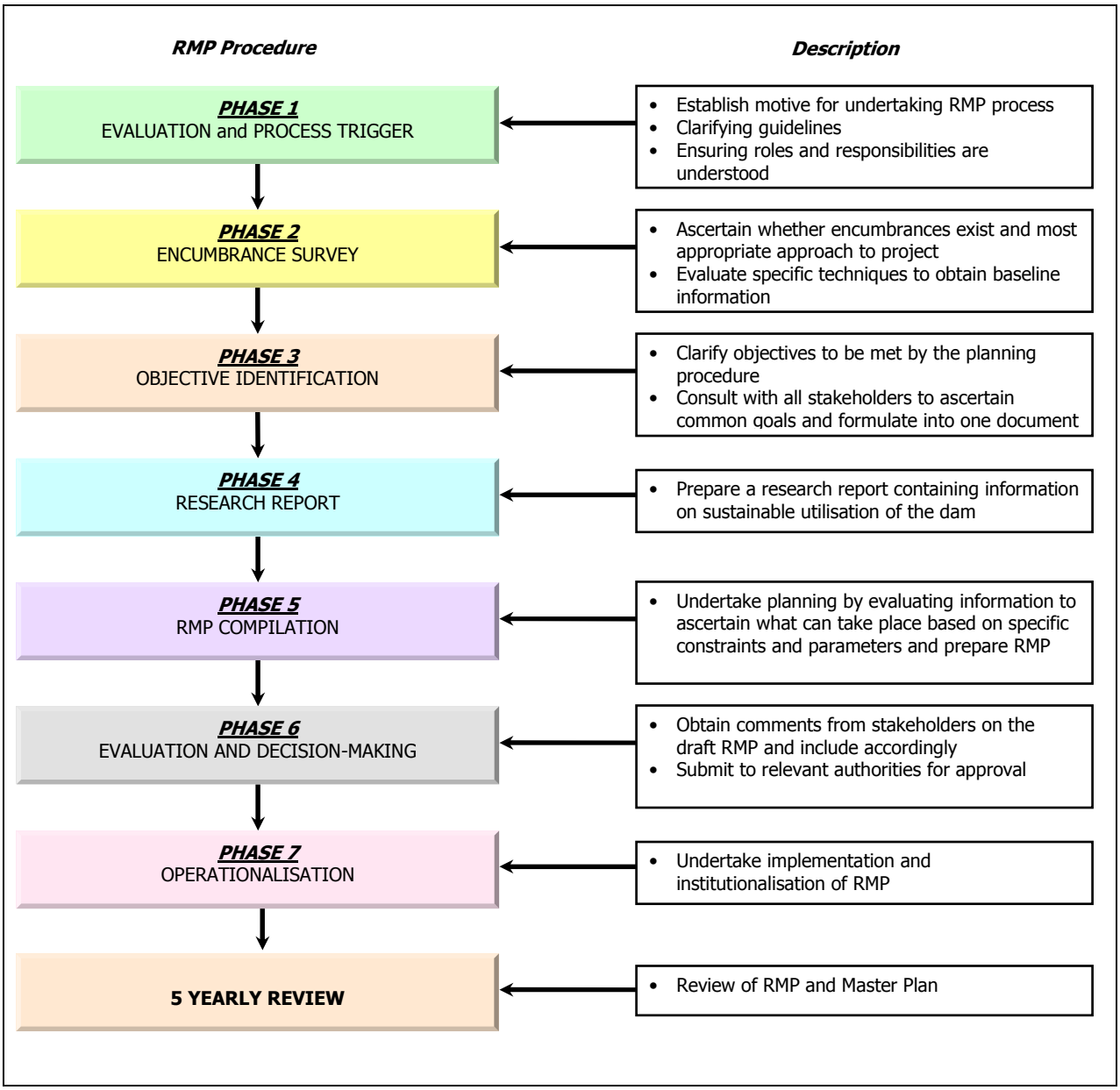

Figure 1: RMP Compilation Procedure

RMP REVIEW FRAMEWORK

Overview

The RMP process has an integrated planning component and operational planning component, each with a five year time frame for review.

Integrated Planning Components

A RMP is the primary overarching planning document that describes the administrative and legal framework, contextual background, public participation process followed, vision/mission statements, prioritised management objectives, zoning as well as management policy framework and guidelines. The RMP forms the framework within which all the other planning components are developed. Within the framework of the RMP, a *Zoning Plan* provides a strategic guideline for the utilisation and development of the water resource and water resource infrastructure within the constraints of the receiving environment. The Business Plan to give effect to the RMP is contained herein and it will form part of the agreement between DWA and the management authority for implementation.

Authorisation of RMPs

These plans are authorised by the relevant Regional Chief Director of the DWA in terms of Section 113 of the National Water Act (Act No. 36 of 1998) and operationalised through the following two operational planning components.

Operational Planning Components and Business Plans

A five-year *Business Plan* is included in the RMP that operationalises (or actions) the management authority's management objectives and any projects identified in the RMP. The actions identified in the business plan are operational management components that identify the activities and tasks that need to be undertaken in the achievement of the RMPs objectives and attaches responsibilities, timeframes, budgets and resources to each activity. The action projects are key planning actions that also inform the management authority's annual budgeting estimates and provide information for annual reports. Once the business plan has been approved by DWA, the action projects are finalised according to the committed budget allocations and other expected financial income.

RMP Planning & Review

The RMP requires both annual and five-yearly revisions to ensure that management objectives remain relevant and management actions are continually improved. Figure 2 illustrates the annual and five-yearly planning and review cycles.

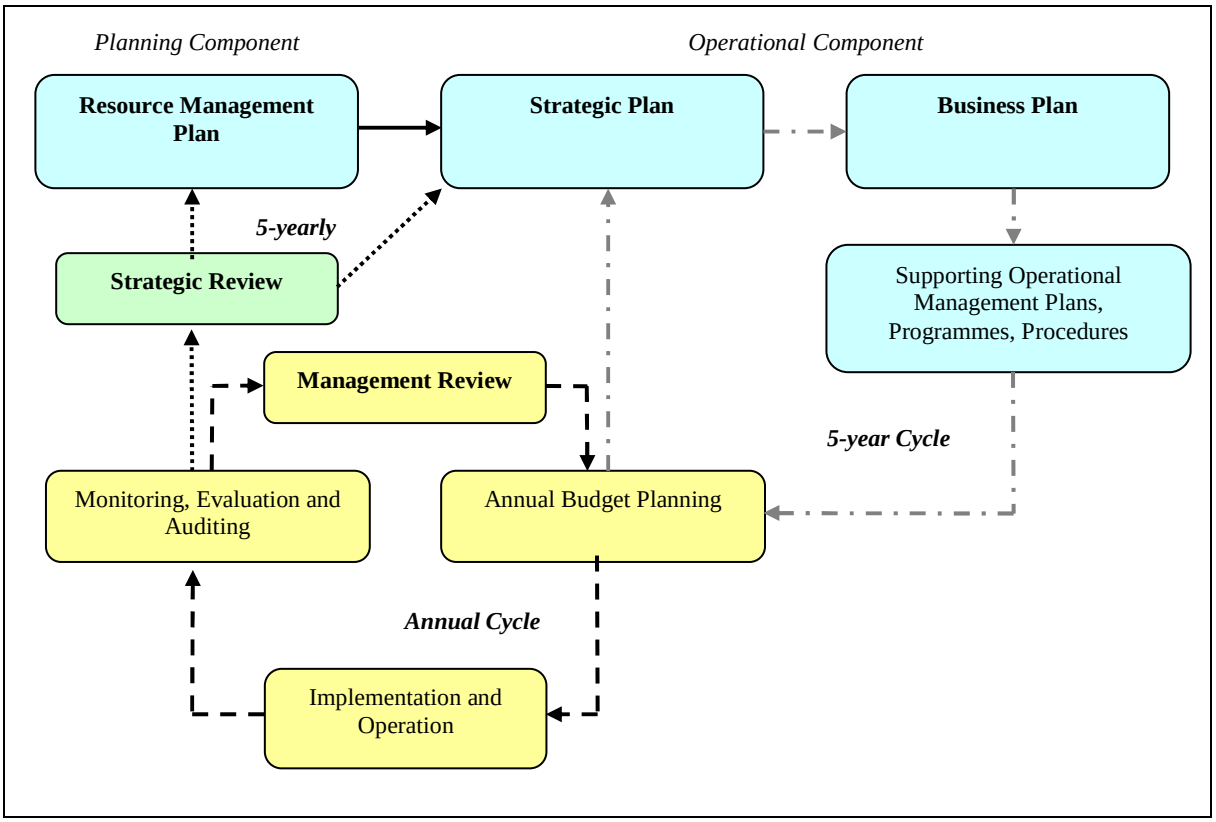

Figure 2: RMP Review Framework

Planning Process

The rationale of a RMP is to assist DWA and the management authority in ensuring sustainability by protecting the integrity and value of water resources, providing measurable benefits to host communities, and enhancing the satisfaction of users.

DWA and the management authority can ensure that their objectives, as well as those of relevant stakeholders are attained in an acceptable and appropriate manner by addressing the needs and expectations of resource managers, communities, and users by defining the processes that contribute to sustainability and monitoring the performance of these processes.

Continual improvement can be achieved by using an ISO 9000 based management system as a framework, and the system provides DWA and the management authority with confidence that their policies are relevant and acceptable to all stakeholders.

The procedure used during the planning process is based on DWA's *Guidelines for the Compilation of Resource Management Plans* ensuring the involvement of all stakeholders, as well as interested and affected parties. Opportunity was provided to all participants to actively participate in the planning, discussions and compilation of the management plan, compliant to the prescripts of the National Environmental Management Act (Act 107 of 1998), as well as Chapter 3 of the Constitution of South

Africa (Act No. 108 of 1996). This approach ensures inclusivity, transparency and builds trusts between all participants.

The planning procedure for the dams' proposed RMP consisted of three distinct phases, namely:

Phase 1: The first phase aimed at ensuring the support of key stakeholders. This phase mainly addressed the encumbrances to the process, attaining institutional support and identifying participants to the process.

Phase 2: The second phase aimed at ensuring broad stakeholder involvement, building capacity within the stakeholders and providing the stakeholders with relevant information to assist in decision making.

Phase 3: The third aimed at achieving recommendation for the RMP, prior to submitting the plan to DWA for approval.

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LIST OF ACRONYMS AND ABBREVIATIONS

BBBEE	Broad Based Black Economic Empowerment
BEE	Black Economic Empowerment
DAFF	Department of Agriculture Forestry and Fisheries
DEA	Department of Environmental Affairs
DLA	Department of Land Affairs
DPLG	Department of Provincial and Local Government
DPW	Department of Public Works
DST	Department of Science and Technology
DWA[1]	Department of Water Affairs
ECA	Environment Conservation Act (Act No. 73 of 1989)
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
DETEA	Department of Economic Development, Tourism and Environmental Affairs (Free State)
I&AP	Interested and Affected Party
IDP	Integrated Development Plan
IGF	Intergovernmental Forum
IRFA	Intergovernmental Relations Framework Act (Act No. 13 of 2005)
KPA	Key Performance Area
LED	Local Economic Development
MAP	Maluti-a-Phofung
MFMA	Municipal Finance Management Act (Act No 56 of 2003)
NEMA	National Environmental Management Act (Act No. 107 of 1998)
NHRA	National Heritage Resources Act (Act No. 25 of 1999)
NGO	Non-Governmental Organisation
NWA	National Water Act (Act No. 36 of 1998)
PFMA	Public Finance Management Act (Act No. 1 of 1999)
PPP	Public Private Partnership

[1] Some functions and responsibilities may be delegated to the proposed South African National Water Resources Infrastructure Agency.

RMP	Resource Management Plan
ROD	Record of Decision
SAHRA	South African Heritage Resources Agency
SDF	Spatial Development Framework
SPC	Strategic Plan for Commercialisation
TTT	Technical Task Team
WMA	Water Management Area
WTW	Water Treatment Works

1. THE PLACE

1.1 *INTRODUCTION*

The Minister of the DWA, as the public trustee of the nation's water resources, must through the department ensure that the Metsimatsho Dam basin is protected and managed in a sustainable and equitable manner, for the benefit of all persons and in accordance with its constitutional mandate (see NWA, section 3).

The decision to undertake the compilation of a RMP for Metsimatsho Dam was triggered by various factors summarised in Table 1.

Table 1: RMP Triggers

Water Quality
20% of the MAP Local Municipality's potable water is supplied by Metsimatsho Dam. DWA is aware of several development and utilisation applications that have been submitted to DETEA (Free State Province). DEA has poverty relief programs planned for the dams and land surrounding the dams, such as aquaculture projects and a hotel at Metsimatsho Dam. Proactive management of the proposed developments are necessary to ensure that the water quality is maintained to provide potable water to Qwa-Qwa. It is hence essential that the environmental constraints in relation to utilisation and development are thoroughly investigated and stipulated.
Water resource conservation value
This water resource has conservation value and it is essential that the resource is effectively and efficiently managed. The RMP, together with DWA's Geographic Decision Support System will provide resource managers with a platform to effectively and efficiently manage this water resource.
Zoning Plans
An integral component of water resource management is the development of new zoning plans of the water resource. The current zoning plan compiled for the dam is outdated and due for review.
Recreational Industry Involvement
It is essential that DWA and other State Departments create an environment that is conducive to controlled commercial development. There were requests for development and such development has the potential for revenue generation as well as the promotion of job creation, black economic empowerment and local community participation.
Community Participation and Beneficiation
As part of the RMP, an institutional plan has been developed. This plan proposes an institutional structure for the management of the water resource and implementation of the RMP. The proposed formal structure will ensure that local communities have access to the water-based economy of the dam as well as the non-commercial recreational use of the dam.

In an effort to ensure that the biodiversity and resources of Metsimatsho Dam are protected, used, developed, conserved, managed and controlled in a sustainable and appropriate manner, and to ensure that the access to and use of the dam and

surrounding land is equitable, the DWA commissioned the compilation of an integrated RMP for Metsimatsho Dam.

DWA has appointed Vela VKE Consulting Engineers (supported by the MSA Group) as sub-consultants through Aurecon to update a RMP previously prepared for Metsimatsho Dam as part of DWA Project 2006-303.

The procedure applied during the planning process was designed and based on the Draft Guidelines for the Compilation of Resource Management Plans (DWA 2006), ensuring the involvement of all stakeholders, as well as interested and affected parties. Opportunity was provided to all participants to actively participate in the planning, discussions and compilation of the management plan, compliant to the prescripts of the NEMA as well as Chapter 3 of the Constitution of South Africa (Act No. 108 of 1996). This approach ensures all-inclusiveness, transparency and builds trusts among all participants. Refer to Appendix A for a stakeholder list.

The purpose of the RMP for Metsimatsho Dam is to ensure the attainment of the NWA Section 2 objectives, including that:

- access to water is equitable;
- past gender and racial discrimination is redressed;
- the utilisation of the water is efficient, sustainable and beneficial;
- social and economic development is facilitated;
- provision is made for the growing demand for water use, in particular the use of water for recreational purposes;
- both the aquatic and associated ecosystems, inclusive of their biodiversity, are protected;
- pollution and degradation of the water resource is reduced and prevented;
- international obligations can be met;
- dam safety is promoted, and
- a suitable institution to implement the RMP is proposed that is representative of the stakeholders and host community of Metsimatsho Dam, both in racial and gender terms.

The aim thus of the Metsimatsho Dam' RMP is to provide a broad policy framework, setting out key objectives, defining responsibilities and operational guidelines for sustainable management and development of the water resource and surrounding State owned land. As a planning tool the management authority[2] for Metsimatsho Dam will use this plan for decision-making purposes, as well as an awareness tool for staff, neighbours and water users as to the vision and operational guidelines of the dams.

Additionally, the RMP for Metsimatsho Dam will serve as regulation in terms of Section 26 and guide the management authority in its provision of general access to and use of the dams, while DWA will be responsible and accountable for specific approvals such as water use authorisations; PPPs and management contracts.

The intention is also that the Metsimatsho Dam RMP informs and is incorporated into the IDP process of the local and district municipalities as well as provincial and national planning frameworks. The RMP could serve as a management area plan, ensuring that

[2] The management authority is an institution that is delegated the responsibility for managing recreational water use based on the RMP and associated Recreational Water Use Policy. KPA4 in section 3 of this document provides further detail regarding the management authority.

development objectives are attained in a sustainable and co-operative manner; including projects such as the proposed DEA poverty relief projects.

1.2 *PURPOSE, SIGNIFICANCE AND CHALLENGES*

1.2.1 Purpose and Significance of Metsimatsho Dam

Metsimatsho Dam was initially constructed for the storage of water and supply of potable water (DWA 2006a, Chris Wilcock *pers. comm* 2007) to the densely populated Qwa-Qwa region.

Metsimatsho Dam, previously called Swartwater Dam, currently provides the MAP Local Municipality with 20% of its potable water.

Because of the pristine environment the dam is being targeted for commercialisation in the form of aquaculture as well as tourism development.

1.2.2 Challenges at Metsimatsho Dam

Sustainability is a term that is often used, yet seldom understood in terms of its complexity and implications and is the overarching challenge facing the management authority of Metsimatsho Dam. Without focus on sustainability, the dams will neither reach their optimal potential nor contribute to the attainment of the objectives set out in the RMP and applicable legislation such as the NWA. Through the protection and sustainable utilisation of the resources at Metsimatsho Dam, it is believed that substantial financial, social and environmental benefits could be generated, making the management thereof both meaningful and viable.

The following broad encumbrances, as listed in Table 2, exist and will have to be overcome in the planning and operation of the RMP:

Table 2: Summary of Encumbrances

Encumbrance	**Description**
Biophysical	Lack of data on water quality.
Species of Concern	Red Data listed species may occur at sites identified for proposed developments.
Environmental Impact Assessment Regulations	Certain activities require authorisation, which will lead to a regularisation process for proposed projects being undertaken.
Cooperative governance	In order to undertake an activity, the proposed activity must comply with all pieces of legislation. This may be a cumbersome task.
Political	The relationship between the local government and the traditional leaders might result in setbacks for future development.
Community Expectations	Benefits emanating from tourism are expected from surrounding traditional communities.
Operational Requirements	Risk of development compromising water quality of resource

1.3 ADMINISTRATIVE AND LEGAL FRAMEWORK

1.3.1 Administrative

The NWA recognises the use of water for recreational purposes as a water use and provides the legislative framework enabling the Minister of DWA, as custodian of the water resources, to ensure that Metsimatsho Dam is protected, used, developed, conserved, managed and controlled in a sustainable and equitable manner, for the benefit of all the people and users and in accordance with its constitutional mandate.

1.3.2 Legal Requirements

The principles underlying the RMP for Metsimatsho Dam are based on general principles guiding the attainment of sustainability – sound resource management; equitable and appropriate community involvement and beneficiation; the creation of viable and sustainable business opportunities, and clear policies, objectives and operational guidelines.

A legal survey illustrated that within the South African context, ensuring compliance with relevant legislation is pivotal to the attainment of sustainability. At Metsimatsho Dam, not only the NWA is applicable, and is it imperative that all actions are compliant with relevant legislation, regulations and planning frameworks such as:

- **National Water Act:** The National Water Act recognises that water is a scarce resource: it is a natural resource that belongs to all of South Africa's people. The National Government is responsible for the nation's water resources and their use, which the ultimate aim of water resource management is to achieve sustainable utilization of water.
- **National Environmental Management Act:** The principles underpinning environmental management contained in the National Environmental Management Act, must be taken into account by any organ of state in the exercise of any power that may impact on the environment.
- **National Environmental Management: Biodiversity Act:** The aim of this act is to provide for the management of South Africa's biodiversity with NEMA's framework.
- **National Environmental Management: Protected Areas Act:** The Protected Areas Act provides for the protection and conservation of ecologically viable areas, which are representative of South Africa's diversity, as well as natural landscapes and seascapes.
- **Conservation of Agricultural Resources Act:** Regulations 7 and 8 deals with the protection of wetlands and water courses, while regulations 15 and 16 deals with invasive plant species and bush encroachment.
- **Convention of Biological Diversity:** South Africa is a signatory of the Convention on Biological Diversity, and therefore has a duty to conserve and rehabilitate biological resources which are considered important for the conservation of biological diversity.
- **Species of Concern:** The IUCN has a system in place which classifies species as threatened. Threatened species are those that are in danger of becoming extinct and the protection of these species is vital.
- **Environmental Impact Assessment Regulations:** The process required for obtaining environmental authorization in terms of the National Environmental Management Act involves one of two pathways. Depending on the regulation the

activity is listed under, the authorization process will either follow the Basic Assessment Process or the Scoping/Environmental Impact Assessment Process.

- **Operational Policy Document on Using Water for Recreational Purposes:** This policy is the main guideline in support of the RMP process with regards to the basic principles, policy, strategies and actions for regulating the use of water for recreational purposes.
- **Guidelines for the Compilation of Zoning Plans for Government Waterworks:** The Policy is a framework policy designed to establish the objectives and principles regarding the recreational water use of government waterworks as well as the various tools for policy implementation.
- **Decision Support System for the Policy on Development at State Dams**: Uncontrolled development increasingly takes place at Government Dams, which affects the operation of the dams in respect of the yield, water quality and safety and places the Department at risk to claims for damages and loss of life.
- **Merchant Shipping (National Small Vessel Safety) Regulations, 2007:** The Department of Transport has published the said regulations during August 2007, to regulate inland motor vessels, regarding aspects such as classification, vessel safety and certification, authorization, enforcement etc.
- **National Treasury PPP Toolkit for Tourism (December 2005):** This toolkit is to assist the process of development of tourism-based businesses on state-owned land. The Toolkit should make it easier for institutions and the private sector to enter into tourism-related partnerships on state property managed by national and provincial government institutions.
- **General Public Participation Guidelines:** Public participation refers to the ongoing interaction between role-players, such as interested and affected parties, stakeholders and compliance organisations in order to achieve informed decision making during the RMP process.
- **Considerations on the Institutional Arrangements for Managing Use of Water for Recreational Purposes:** This paper outlines some of the institutional issues at a local level and makes recommendations about the conditions under which different institutional management arrangements may be considered.
- **Methodology for Carrying Capacity Assessment for the Use of Water for Recreational Purposes (April 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.
- **National Water Resource Strategy:** The First Edition of the National Water Resource Strategy (NWRS) describes how the water resources of South Africa will be protected, used, developed, conserved, managed and controlled in accordance with the requirements of the policy and law. The central objective of managing water resources is to ensure that water is used to support equitable and sustainable social and economic transformation and development.
- **Government Notice R 654 of 1964**: Regulations framed in terms of paragraph the Water Act, 1956 (Act No. 54 of 1956) to regulate access and use of government waterworks for recreational purposes.

The RMP process also takes cognizance of the following legislation:

- Broad-based Black Economic Empowerment Act (Act No. 53 of 2003).
- Communal Land Rights Act (Act No. 11 of 2004)
- The Constitution of South Africa (Act No. 108 of 1996).
- Department of Water Affairs: Authorisation Protocol on the Use of Water for Aquaculture (Draft: November 2006).

- Department of Water Affairs: Guideline for Authorising the Use of Water For Aquaculture (Draft: March 2007),
- Development Facilitation Act (Act No. 67 of 1995),
- Environmental Conservation Act (Act No. 73 of 1989),
- Free State: State of the Environment Report,
- Intergovernmental Relations Framework Act (Act No. 13 of 2005),
- Land Administration Act, 1995 (Act 2 of 1995),
- Local Government: Municipal Systems Act (Act No. 32 of 2000),
- National Heritage Resources Act (Act No. 25 of 1999),
- Human Tissue Act (Act 65 of 1983 as amended),
- Intergovernmental Relations Framework Act, 2005 (Act 13 of 2005),
- Disaster Management Act (Act No. 57 of 2002),
- Merchant Shipping Act, 1951 (Act no. 57 of 1951) – National Small Vessel Safety Regulations (2007),
- Municipal By-laws,
- Municipal Demarcation Act (Act No. 27 of 1998), especially Sections 24 and 25,
- Municipal Finance Management Act (Act no. 56 of 2003),
- Municipal Systems Act (Act No. 32 of 2000),
- Municipal Structures Act (Act No. 117 of 1998),
- National Heritage Resources Act (Act No. 25 of 1999),
- Occupational Health and Safety Act (Act No. 85 of 1993),
- Policy for the Development of a Sustainable Freshwater Aquaculture Sector in South Africa,
- Public Finance Management Act (Act No. 1 of 1999),
- Relevant Integrated Development Plans (Thabo Mofutsanyana District Municipality's IDP; Maluti-a-Phofung Local Municipality's IDP),
- Restitution of Land Rights Act (Act No. 22 of 1994),
- State Land Disposal Act (Act No 48 of 1961),
- Traditional Leadership and Governance Framework Act (Act No. 41 of 2003),
- Water Services Act (Act No. 108 of 1997).

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 exhaustive and other legislation could be applicable.

1.3.3 Regional Planning Concepts

Metsimatsho Dam falls within the jurisdiction of the MAP Local Municipality and Thabo Mofutsanyana District Municipality. There are also four tribal/traditional community structures in the vicinity of the dams, details of which can be found in 'THE PEOPLE' section of this document.

National legislation has the highest priority, followed by provincial and then the local government. Traditional leaders play a role in South Africa, especially within the Qwa-Qwa area. The Traditional Leadership and Governance Framework Act (Act No. 41 of 2003) states that the institution of traditional leadership must be transformed to be in harmony with the government as to ensure democratic governance as well as gender equality within the institution.

Metsimatsho Dam has historically been the focus of three DEA funded poverty relief projects.

From the above, it is clear that the necessary linkages must be established with relevant local, provincial and national government departments. The RMP must inform and be incorporated into local, provincial and national planning frameworks.

1.4 *BACKGROUND TO METSIMATSHO DAM*

A comprehensive Research Report has been prepared during the RMP Process and has been reviewed during the Research Phase of this process. Provided below is a summary of this information.

Metsimatsho Dam is located in the Qwa-Qwa district (previously known as Witsieshoek) in the eastern Free State, south east of the town of Phuthaditjhaba. This area is located west of KwaZulu-Natal and north of Lesotho. Qwa-Qwa is located approximately 45 km southwest of Harrismith and 30 km south east of the town Kestell.

Qwa-Qwa has a rural setting, where villages are remotely located and are connected to the core by a system of rudimentary roads. People in this area rely on small-scale subsistence farming and the population density is low (MAP Local Municipality IDP 2007/2008). The dam is located within the jurisdiction of the MAP Local Municipality which is in turn within the jurisdiction of Thabo Mofutsanyana District Municipality. Census 2001 data indicates that within the MAP Local Municipality boundaries, the total population is approximately 360 790. The ethnic profile indicates that of the 360 790 people, 98, 51% are black, 0, 12% are coloured, 0, 11% are Asian and 1, 26% are white.

Metsimatsho Dam was initially constructed for the storage of water and supply of potable water (DWA 2006a, Chris Wilcock *pers. comm* 2007). The dam, previously called Swartwater Dam, currently provides 20% of potable water to the MAP Local Municipality. Since 1978 a filter system was in place at the dam. Currently there is Makwane Water Treatment Works at Makwane Village, downstream of the dam. The local communities utilise the dam for fishing and drinking water for their livestock (MAP Water Official pers. com 2007).

1.4.1 Bio-physical

1.4.1.1 Topography

The topography of the Qwa-Qwa region consists of mostly steep slopes of the Drakensberg and Maloti mountain ranges. The dam is elevated higher than 1 800m above sea level. Due to the steepness of the slopes near the dam wall, construction costs for bulk services such as road infrastructure, electricity and sewage for potential future developments and tourist facilities will be relatively high. The slopes along the upper reaches of Metsimatsho Dam and along the western boundaries of the dam are slightly gentler, providing potential areas for recreational and or tourist facilities.

1.4.1.2 Geology and Erodable Soils

The dams are located within the Karoo Sequence, Drakensberg Formation. This formation's rocks cap the highlands of Lesotho and the neighbouring areas. The dam's geology consists of arenite and basalt.

A number of small terraces occur on the slopes surrounding the dam. These terraces are formed by the freezing of the top layer of soil in winter, causing the soil structure to

change. This weakens the stability of the soil and the top layer (subjected to freezing) slips down slope (Bredenkamp pers. com, 2007). These terraces increase the possibility of erosion around the dam and further limit development potential within these areas. There is existing evidence of soil erosion on the slopes surrounding the dam. This may be aggravated by overgrazing and future activities surrounding the dam. Erosion on the slopes will eventually contribute to sedimentation within the dam, which could influence the water quality.

1.4.1.3 Loss of Vegetation and Centre of Endemism

Metsimatsho Dam is located within the Northern Drakensberg Highland Grassland (Mucina and Rutherford, 2006) and also within the Drakensberg Alpine Center of plant endemism. Van Wyk and Smith (2001) have classified the entire mountainous area above 1 800m as being part of the Drakensberg Alpine Centre. Even though the Northern Drakensberg Highland Grassland is considered least threatened, the dam and surrounding vegetation are considered as areas having a high biodiversity and a high number of endemic species. Conservation of this area is therefore very important for biodiversity planning. The wetlands surrounding the Metsimatsho Dam further increase the conservation value of the surrounding vegetation and these wetlands should be delineated to ensure that all the proposed activities stay outside the buffer zone of the temporary zone of the wetlands. Proposed activities such as construction of resorts and lodges will result in loss of vegetation and ultimately biodiversity. These activities could have a high impact on the potential red data listed species.

1.4.1.4 Problem Plants

According to Mucina and Rutherford (2006), alien plant invasions are generally localised, but can be severe. Some important problem species that is found in this vegetation type include: *Acacia dealbata, A. mearnsii, Hypericum perforatum, Pinus patula, Populus canescens, Pyracantha angustifolia, P. crenulata, Robinia pseudoacacia, Rubus cuneifolius and Salix fragilis.*

Acacia mearnsii (Category 2: Declared invader plant) was observed at the dam during site visits. When activities are planned surrounding the dam, care should be taken to prevent further alien infestations.

1.4.2 Hydrological Information

1.4.3 Water Sources

Metsimatsho Dam is located within the Quaternary Catchment C81F, as illustrated in Figure 3. Due to the steep slopes in the Qwa-Qwa region run-off water concentrates in streams and water courses, and eventually ends up in the Wilge River and Upper-Vaal system. Water can only be abstracted via the outlets of the dam walls; and the potential for ground water as a primary water source in this region is low. Ground water is also limited due to the scattered dolerite dykes (MAP Local Municipality & Miletus Consulting Engineers, 2006).

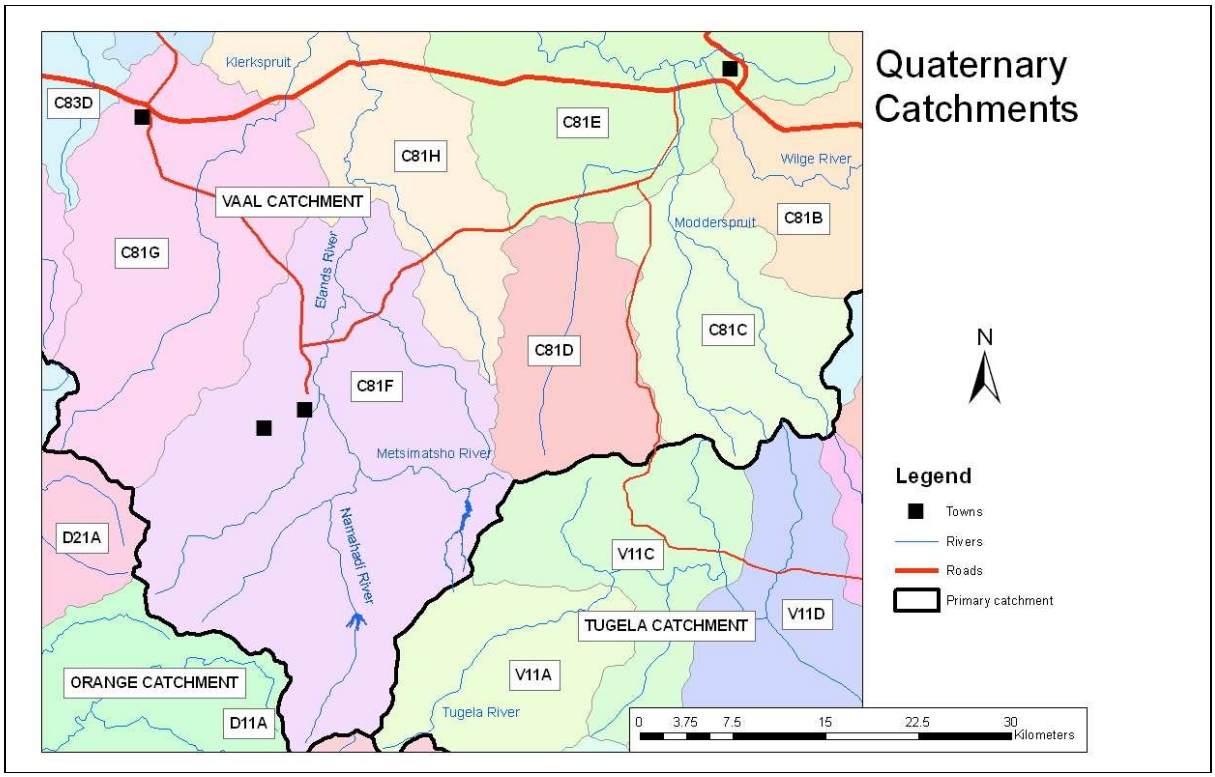

Figure 3: Quaternary Catchments of the Area

The Metsimatsho River flows into the Metsimatsho Dam. Details of the water resource are included in Table 3.

Table 3: Water Resource Details

Dam	Capacity (m^3)	Catchment area (km^2)	Mean annual run-off (m^3)	Assured yield (m^3/year)	Top water level (m.a.s.l)
Metsimatsho Dam	4,5 million	146	4,85 million	2,95 million	1 855

Source: MAP Local Municipality & Miletus Consulting Engineers, 2006.

1.4.3.1 Water Quality

Limited water quality data was available at the time of compilation of this report.

During June 2007, the pH for Metsimatsho Dam was 7.46, which implies the following:

- Within the water quality range for Aquatic Ecosystems. According to the SA Water Quality Guidelines an un-impacted system will have a pH value of between 6 – 8 (DWA, 1996b, South African Water Quality Guidelines (second edition), Volume 7 Aquatic Ecosystems);
- Within target water quality range for Domestic Use (6.0 - 9.0). Water Quality Guidelines for Domestic Use (DWA, 1996e. South African water Quality Guidelines (second edition) Volume 1; and

The water quality objectives for this catchment follow those of the Wilge River Catchment and are indicated in Table 4 below.

Table 4: Water Quality Objectives - Elands River below Qwa-Qwa

Variable Abbreviation	Units	Limit name	Value
pH-Diss-Water	pH units	Lower Limit	6.4
pH-Diss-Water	pH units	Upper Limit	8.5
NH4-N-Diss-Water	mg/L	Upper Limit	0.05
F-Diss-Water	mg/L	Upper Limit	0.05
PO4-P-Diss-Water	mg/L	Upper Limit	0.05
SO4-Diss-Water	mg/L	Upper Limit	5
CI-Diss-Water	mg/L	Upper Limit	5
EC-Phys-Water	mS/m	Upper Limit	10
COD	mg/L	Upper Limit	5
HCO3-Diss-Water	Mg/g	Upper Limit	30
NO3-N-Diss-Water	mg/L	Upper Limit	0.25

Source: DWA 2007.

The raw water quality of the dam is good and variation is minimal during the year. The pH of the raw water is within the standards of SABS 241 (MAP Local Municipality & Miletus Consulting Engineers, 2006).

1.4.3.2 Sterkfontein Dam Water Supply Scheme – Water Master Plan

Metsimatsho Dam supplies 20% of MAP Local Municipality's potable water while Fika Patso Dam (a dam situated within the same municipal boundary) supplies the remaining 80% (Chris Wilcock pers. com 2007). There is no alternative source for bulk water for the Qwa-Qwa region. Fika Patso WTW and Makwane WTW can only meet the current average annual daily demands of 41.50 Mℓ/day for this region, with the assumption that the water levels are high enough. During the winter months of 2004/05 and 2005/06 the levels at Fika Patso Dam were below 50% capacity and water restrictions for this area had to be implemented (MAP Local Municipality & Miletus Consulting Engineers, 2006).

A feasibility study was conducted to determine possible alternative water sources and the most feasible was found to be the Sterkfontein-Qwa-Qwa Water Supply Scheme. This scheme will assist in providing potable water to the northern parts of Qwa-Qwa region. It will primarily provide water for residential use, especially for the new residential developments and still expanding residential areas including Bluegum Bosch, Mphatlatatsane, Phuthaditjhaba and Kestell (MAP Local Municipality & Miletus Consulting Engineers, 2006). Fika Patso Dam will remain the primary water source for the southern, central and western rural areas of Qwa-Qwa (Dries Lategan pers. com 2007). Figure 4 indicates the locality of the Sterkfontein Dam in relation to Metsimatsho Dam and Fika Patso Dam.

The other activities planned to implement the scheme are the construction of supply pipelines between Sterkfontein Dam and the northern regions of Qwa-Qwa. The time it will take to set the new supply system into place poses a constraint on the water quantity being supplied to Qwa-Qwa. To optimise the supply from Metsimatsho Dam, an additional gravity main from the dam to Makwane WTW is proposed and the capacity of the treatment plant will therefore have to be increased. The aim is that Metsimatsho Dam should remain the primary water source for the eastern rural areas of Qwa-Qwa (Dries Lategan pers. com 2007).

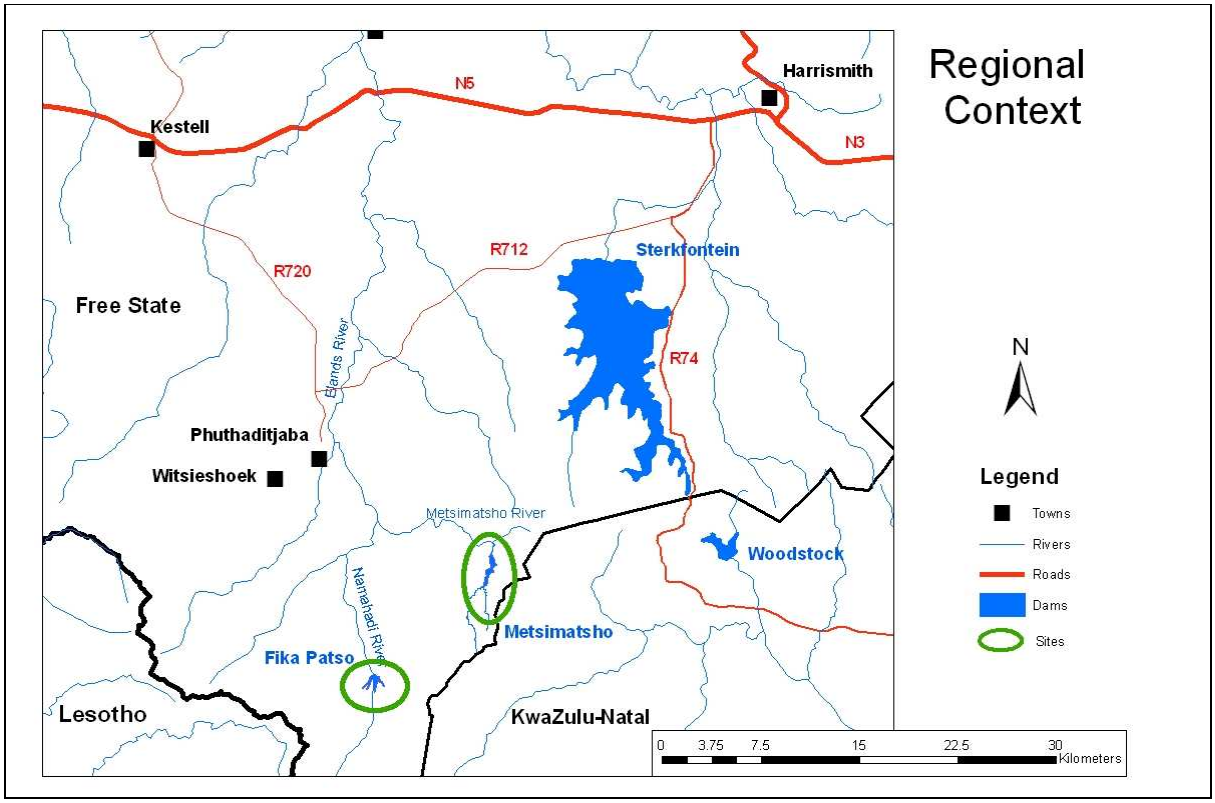

Figure 4: Locality - Sterkfontein, Metsimatsho and Fika Patso Dams

1.4.3.3 Water Treatment

DWA is the custodian of Metsimatsho dam but the water service provider for this area is MAP Water who is responsible for the water and sanitation services in the MAP Local Municipality.

Water samples are taken twice a week up- and downstream of Metsimatsho Dam. The Tuesday and Thursday samples are taken to a registered laboratory to determine the levels of PO_4 (Phosphates), NO_3 (Nitrates), NH_4 (Ammonia), PH, EC (Solids), COD of Dissolved Oxygen and VOC (Volatile Organic Compounds). A monthly summarised report of the status of the water quality is prepared at MAP Water.

Water from Metsimatsho Dam is treated at Makwane WTW at a capacity rate of 5.1 Mℓ/day. The treatment for raw water from Metsimatsho Dam includes flocculation, flotation, filtration (sand), chlorination and stabilization with lime stone (Sylvia Tshivhunge *pers. comm* 2008). The water is effectively treated and the purified water complies with Class I water. The dam is however very vulnerable to deterioration. If the

water quality of Metsimatsho Dam deteriorates the treatment process might not be able to produce SANS 241 compliant water.

The water treatment capacities at both dams are however not adequate for the Qwa-Qwa region, especially during winter months (Maluti-a-Phofung Local Municipality & Miletus Consulting Engineers, 2006). Fika Patso and Metsimatsho Dam have a total capacity of 32 500 Mℓ when the dams are at full capacity. The daily average use for the Qwa-Qwa supply system was estimated in 2006 as 41.5 Mℓ/day. The total capacity of potable water supplied by Fika Patso WTW and Makwane WTW on a daily basis is currently only 41.3 Mℓ/day (MAP Local Municipality & Miletus Consulting Engineers, 2006).

The water quality of Sterkfontein Dam is very high, due to the dam acting as a sedimentation tank. Small variance in the water quality is expected when the Sterkfontein-Qwa-Qwa Water Supply Scheme goes ahead and therefore the purification costs are expected to be low (MAP Local Municipality & Miletus Consulting Engineers, 2006).

1.4.3.4 Water Levels

The water level of Metsimatsho Dam usually only varies between 80-100% and it does not pose a risk to the water supply of the Qwa-Qwa region. As a result, the water level of the dam is not sampled.

1.4.3.5 Possible Impacts on Water Quality

The primary objective of the dam is to provide good quality drinking water, at the lowest possible cost, to end users. Any form of development which may occur in the catchment area may potentially have a detrimental impact on water quality.

In terms of utilisation, aquaculture was considered an initiative which may potentially occur at the dam. Apart from access constraints presented by steep slopes
, aquaculture is not feasible at this dam due to unsuitable water quality and quantity conditions. Further to this, the introduction of aquaculture projects will result in deterioration of water quality (in particular increasing phosphate levels), which will affect water treatment and the supply of good quality potable water to the region.

1.4.4 Culture and Heritage

All archaeological, heritage and cultural resources must be conserved and managed in accordance with the relevant legislation.

1.4.5 Socio-economic Environment

1.4.5.1 Local Economic Development

The fact that the MAP area is rural in nature poses several challenges for socio-economic development. In terms of the IDP (2007/8), the MAP area is classified as the poorest in the Free State Province. Through public consultation during the RMP process, it became clear that many stakeholders are interested in job opportunities and skills development.

To promote socio-economic development, it is hence imperative that the true recreational potential of the dams is realised. The dams should be managed and utilised in a manner that would contribute positively to the challenges faced by the communities in the region.

1.4.5.2 Proposed Initiatives

The MAP Local Municipality states in its LED Strategy (no date) that the vision of the local municipality includes becoming a "*tourist destination"* through creating an enabling environment that provides for economic growth and employment. Several tourist opportunities have been identified, e.g. Golden Gate Highlands National Park and the N3 route passing through the local municipality.

Opportunities for job creation, poverty alleviation, beneficiation to the community at large and LED strategies can be applied. These include attracting investment into a local area, developing infrastructure and retaining existing business. Summarised below are government and private sector proposed initiatives for the area which will promote local economic development.

1.4.5.2.1 Aquaculture Project Proposals

The provision of good quality potable water to the Qwa-Qwa region is the main priority for Metsimatsho Dam. Although aquaculture projects were previously considered at the Dam, i.e. the DEA Poverty Relief Project and the DWA/DAFF/DST aquaculture proposal, these projects were terminated due to unsuitable water conditions.

1.4.5.2.2 DEA funded poverty relief projects

During the RMP process, it became apparent that for Metsimatsho Dam, there are three poverty relief projects funded by the DEA, as summarised in Table 5. Note that these initiatives fall outside of the area as defined in terms if the RMP, however, have been included purely for information purposes.

None of the proposed developments in Table 5 have received approval from DWA for the proposed activities. Consultation with DWA is proposed to determine which applications or licenses should be applied for.

Table 5: DEA funded poverty relief projects in the vicinity of the Metsimatsho Dam (refer to Conceptual Zoning Plan – Figure 13)

Project name	DEA ref number	Proposed activity	Legislation and Concerns	Implementer
Black water Fly Fishing and Trout breeding (Aquaculture) at Metsimatsho Dam (Project Terminated as stated above)	14/14/4/142	Fly fishing resort and trout hatchery. Trout hatchery, annual production of less than 7 tons. Total transformed area less than 1 hectares.	EIA approval is not required if the development stays within mentioned limits. But approval should be obtained from DWA regards to the utilisation of the dam. PPP tender must be submitted to utilise a state dam. Activities must stay outside the temporary zone of the wetlands and must comply with applicable legislation (NEMA, NWA and NHRA).	River Rangers Management Section 21.
Maluti Thusa Bato Trail at Metsimatsho Dam	15/14/2/127	Accommodation including 6x4 bed chalets, 1x20 bed chalet restaurant, conference and administration centre and kitchen.	ROD in terms of NEMA was issued on 8 May 2007 and conditions apply. Concerns were raised during the TTT meetings, that the public participation process was inadequate according NEMA Regulation 385. No application has been submitted to DWA in terms of NWA for the usage of dam or any listed activities. Activity must also comply with NHRA in terms of Section 38.	Nambo Property & Project Manager CC t/a Nomba Mabh.
Accommodation facilities at Metsimatsho Dam	15/14/2/834	Self catering accommodation, overnight accommodation and restaurant.	The proposed site falls within the purchase line of Metsimatsho Dam and consultation with DWA is proposed to establish a site outside the boundary. No application in terms of NEMA or NWA has been submitted. The activity must also comply with NHRA in terms of Section 38.	Se Yana Marena Trading Enterprises CC.

1.4.5.2.3 Metsimatsho Dam Resort

As part of the tourism programmes/projects, the establishment of the Metsimatsho Dam Resort has been identified in the local municipality's IDP. In the 2007 budget, a value of R2 million has been allocated to this project. It is stated that this facility will include accommodation facilities, hiking trails, and a trout breeding facility and fly fishing. Further budget has been allocated to the grading of tourism establishments. The idea is for all tourism establishments to be graded in accordance with the requirements set down by the Tourism Grading Council. An overall budget of R100 million has been identified for the upgrading of the tourism routes to KwaZulu-Natal.

It is essential that DWA is consulted with respect to authorisation for use of the dam, where applicable.

1.4.5.3 Tourism Public Private Partnerships

The public private partnership mechanism is an effective procurement strategy and can be utilised to engage the private sector, attract investment and simultaneously promote local economic development. Tourism PPPs can be effectively implemented through the use of National Treasury's PPP Toolkit for Tourism, ensuring poverty alleviation, skills development, BBBEE and overall local economic development within the MAP area.

1.4.5.4 Skills development

The nature of bringing investment into the MAP area and implementing the programmes and projects as articulated in the Municipality's LED strategy will require investment in human capital. An investment into skills development will provide an opportunity for the unskilled and semi-skilled to participate meaningfully in the mainstream economy. Existing and potential opportunities are missed out due to lack of knowledge and information. Appropriate skills will ensure that communities are empowered to identify opportunities and have the capability to create wealth for themselves and their families.

1.4.5.5 Infrastructure development

Without investment in infrastructure, in particular improving accessibility, tourism based development around the Dam will not reach its full potential.

There is a need for infrastructure such as roads, telecommunications, electricity, sewerage and water to be developed for land based tourism to be viable. However, steep slopes around the dam provide limited opportunities for the development of land based tourism. Currently the dam is only accessible from the western side and no infrastructure is available on the eastern side of the dam. The possibility for the construction of infrastructure on the eastern side of the dam is slim due to the wetlands and steep slopes. Illustrated in Figure 5 is the road and river infrastructure surrounding the dam.

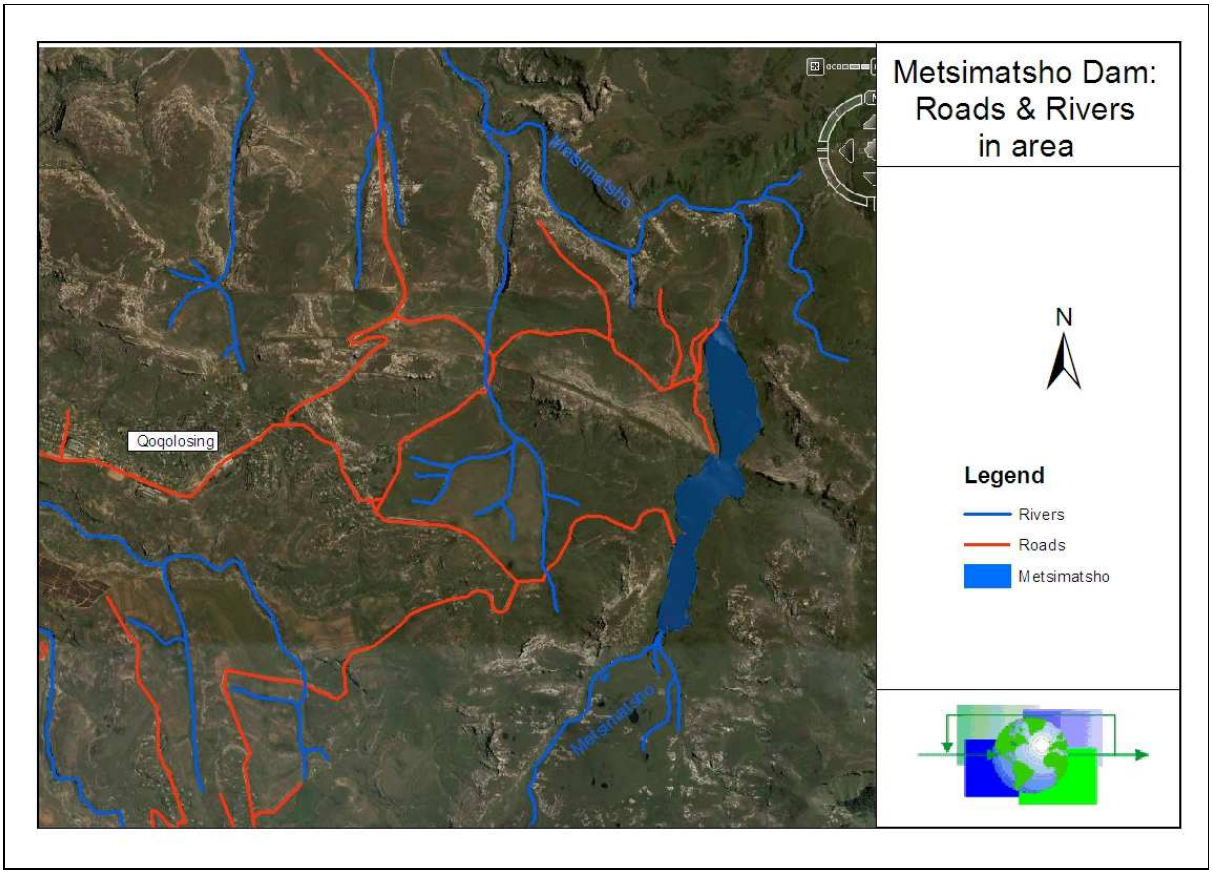

Figure 5: Metsimatsho Dam - River and Road infrastructure

2. THE PEOPLE

2.1 Current Institutional and Operational Arrangements

Metsimatsho Dam falls within the jurisdiction of the MAP Local Municipality and Thabo Mofutsanyana District Municipality. In areas adjacent to the dam, there are also traditional community structures in place. The Dinkweng and Thaba Bosiu Tribal Councils operate in the vicinity of Metsimatsho Dam. Illustrated Figure 6 is the relationship between the traditional leaders.

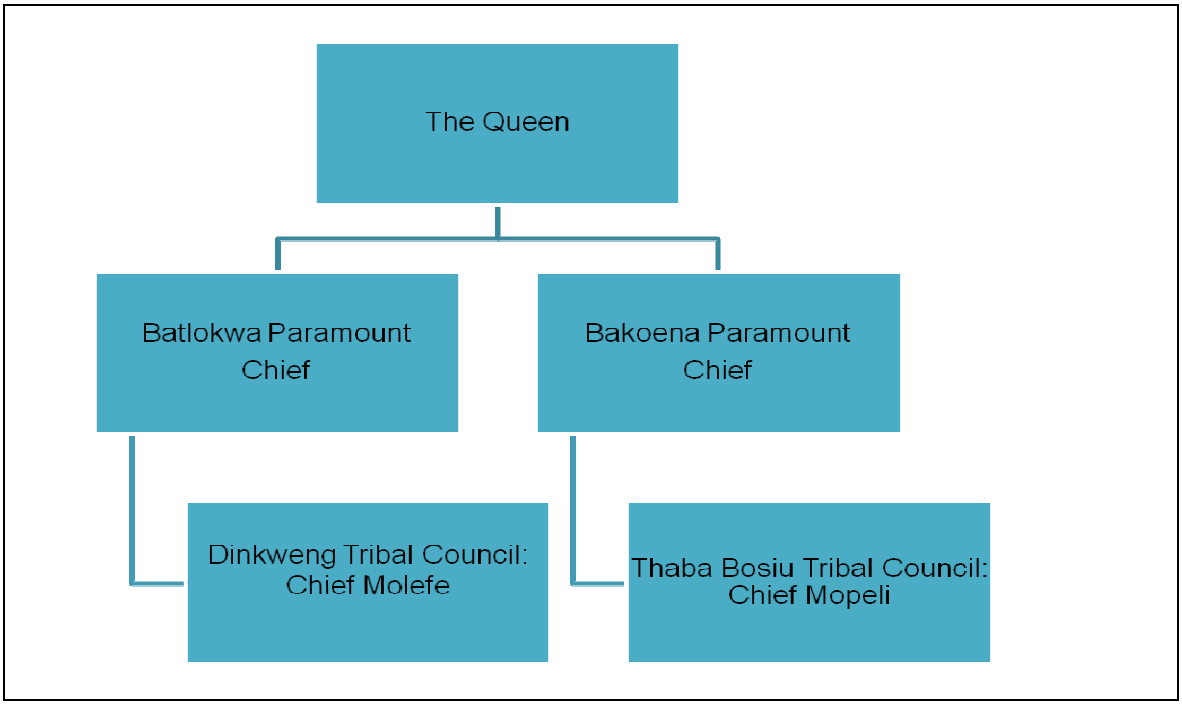

Figure 6: Relationship between Traditional Leaders

At the commencement of the RMP process, tensions between public sector representatives, traditional leaders and private parties were observed regarding the utilisation of the dam for recreational and commercial purposes. Subsequent to phases of the RMP process, relations have improved amongst most stakeholders as there is recognition that the RMP will be used as a guiding document for the management, utilisation and conservation of the water resources.

The DWA is ultimately the custodian of the dams and adjacent State-owned land within the dam boundary line. The DLA is in the process of vesting this land with DWA. The DLA is the custodian of the State-owned land external to the dam boundary line.

MAP Water, the water and sanitation service provider for the MAP area, operate the dams on behalf of the DWA. Current operational activities include the weekly monitoring of water levels and release of water when necessary.

2.2 Stakeholder Engagement Process

The success of the RMP for Metsimatsho Dam and its implementation is dependent on the level of involvement by stakeholders and beneficiation and as such, the dam should not function in isolation from these stakeholders.

To meaningfully engage stakeholders, a public participation process was formulated to objectively identify the needs and expectations of all I&APs. The process included the following phases:

- **Planning Phase:** The first phase was aimed at ensuring the support of key stakeholders. This phase mainly addressed the encumbrances to the process, attaining institutional support and identifying participants to the process.

- **The Participation Phase:** The second phase was aimed at ensuring broad stakeholder involvement, building capacity within the stakeholders and providing the stakeholders with relevant information to assist in decision making.

- **The Exit Phase:** The third phase was aimed at achieving recommendation for the RMP, prior to submitting the plan to DWA for approval and implementation.

A detailed description of the entire public participation process is contained in the Objective Definition Report, prepared during the Objective Identification Phase of the project.

It should be noted that the process of public input and participation will undoubtedly continue to reveal needs, expectations and issues, even beyond the approval of the RMP. Every effort should be made to ensure that these are acknowledged and addressed through the management authority. Ongoing public interest, support and engagement are vital to unlock the true potential of the dam.

2.3 The Stakeholders

At the initial public meetings on 3 April 2007 and 19 April 2007, different user groups were identified and representatives of each group were identified to participate in Technical Task Team (TTT) meetings, where specific objectives for each group were developed. These user groups are summarised below:

1) Federations and Operators;
2) Aquaculture;
3) Thaba Bosiu Tribal Council (Metsimatsho);
4) Dinkweng Tribal Council (Metsimatsho);
5) Hospitality Industry;
6) Government Department and Initiatives ; and
7) PSP‘s and other.

Appendix A contains the Stakeholder list for Metsimatsho Dam and indicates the user group for each entry.

The objectives set by the user groups 1-7 above are contained in the following section of this document.

3. THE PLAN

3.1 *STRATEGIC FRAMEWORK*

DWA is the custodian of South Africa's water and forestry resources. It is primarily responsible for the formulation and implementation of policy governing these two sectors. It also has override responsibility for water services provided by local government.

While striving to ensure that all South Africans gain access to clean water and safe sanitation, the water sector also promotes effective and efficient water resources management to ensure sustainable economic and social development.

3.1.1 DWA's Vision

DWA has a vision of being: "a country that uses water and forests productively and in a sustainable manner for social and economic activities; in a manner that promotes growth, development and prosperity of all people to achieve social justice and equity."

3.1.2 DWA's Mission

As sector leader, the mission of DWA is to serve the people of South Africa by:

- guiding, leading, developing legislative framework, regulating and controlling the water sector;
- conserving, managing and developing our water resources in a scientific and environmentally sustainable manner in order to meet the social and economic needs of South Africa, both now and in the future;
- ensuring that water services are provided to all South Africans in an efficient, cost-effective and sustainable way;
- educating the people of South Africa on ways to manage, conserve and sustain our water resources;
- cooperating with all spheres of Government, in order to achieve the best and most integrated development in our country and region; and
- creating the best possible opportunities for employment, the eradication of poverty and the promotion of equity, social development and democratic governance.

3.1.3 Key Objectives of the Department

The DWA's key focus areas and strategic objectives are as follows:

- Ensure reliable and equitable supply of water for sustainable economic and social development including the eradication of poverty;
- Ensure the protection of water resources;
- Develop effective water management institutions;
- Align staff, stakeholders and general public to a common vision for Integrated Water Resource Management and develop, capacitate and empower them in best practices thereof;
- Ensure provision of basic water supply & sanitation for improved quality of life and poverty alleviation;
- Ensure effective & sustainable delivery of water services to underpin economic & social development;
- Ensure effective Water Services Institutions;

- Ensure effective local-level operations and management of DWA water services schemes;
- Promote & support sound policy & practice of water services to achieve millennium targets in Africa;
- Promote Integrated Water Resource Management in Africa in support of the New Partnership for Africa's Development;

To guide initiatives aimed at attaining DWA's vision, mission and objectives, an operational policy regarding the use of water for recreational purposes has been developed. This policy addresses planning, safety, authorisation, equity, communication, capacity building, institutions and linkages, legislative and legal framework, and monitoring and information management, and provides strategic direction to this RMP.

3.2 *VISION AND OBJECTIVES FOR METSIMATSHO DAM*

3.2.1 Vision for the Dam

The vision for Metsimatsho Dam was formulated and acknowledged by the stakeholders to be as follows:

A commitment to managing Metsimatsho Dam through communication between role players and taking legislation and safety into account. The purpose of managing the dams is to meet user needs and improve/uplift recreational use at Metsimatsho Dam as well as encouraging tourism in the area by sustaining the following key factors:

- Water quality and quantity;
- The right to have access to clean water;
- Monitoring;
- A safe and healthy environment;
- Access to the dam;
- Equity;
- Benefits / royalties to the community and Tribal Councils;
- Clarity on rights / clarity on Tribal Council rights; and
- Infrastructure and facilities (quality and standards).

This will result in economic upliftment in the area from which the community will ultimately benefit. Maintenance and training/education of the community is an ongoing process that is necessary for the success of managing Metsimatsho Dam.

In short the vision for Metsimatsho Dam is a commitment to manage, conserve, develop and utilise the resource in a sustainable, equitable and appropriate manner in order to maximise the potential of the dam.

3.2.2 Objectives for the Dam

The set of common key objectives for the dam, as developed by the stakeholders, is summarised below:

Common Key Objectives:

- To *involve government* in the management and operation of the dam while taking government's requirements (i.e. Legislation) into consideration and to ensure access to the dam;
- To *ensure safety* of the dam while taking user needs and clarity on rights around the dam into consideration;
- To sustain the *quality of the water* in the dam as well as the environment around the dam and to maintain the *quantity* since it provides drinking water to the broader Qwa-Qwa population;
- To ensure *high standards* and maintenance of facilities and infrastructure surrounding the dam;
- To *improve commercial and recreational use* as well as tourism in and around the dam;
- To improve/encourage *economic upliftment* in the area and to allow the communities around the dam to benefit from activities around the dam; and
- *Management*, *communications* as well as *monitoring* and *education and training* programs should be visible from where government is involved all the way down to where the community benefits from Metsimatsho Dam.

The above common key objectives were used to guide the continued planning exercise in order to ensure that all planning decisions strive to fulfill these objectives for the dam.

3.3 *MANAGEMENT APPROACH*

To ensure that the RMP contributes to the attainment of the objectives set by its stakeholders, a process approach based on the ISO 9000 management system forms the basis of the management approach for Metsimatsho Dam. The rationale for this approach is to assist DWA and the management authority in ensuring sustainability by protecting the integrity and value of environmental resources, providing measurable benefits to host communities, and enhancing the satisfaction of users.

Without a plan it will be impossible to co-ordinate and manage the activities required to unlock the potential of the dam. Only by measuring the performance of specific actions and operational guidelines against objectives will it be possible to effectively manage the water resource. The structure of the plan is based on KPAs, aimed at attaining the management objectives set for Metsimatsho Dam by the stakeholders. The management framework is illustrated in Figure 7 below.

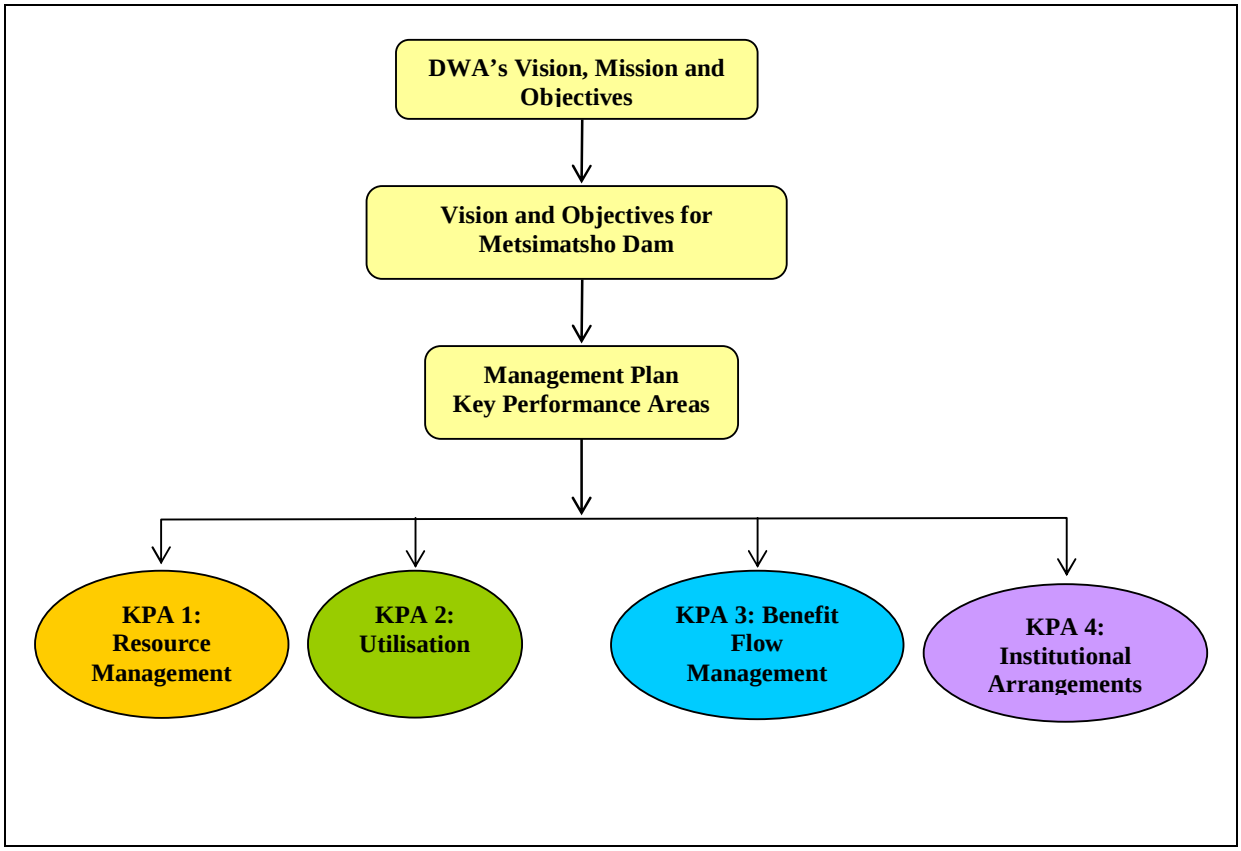

Figure 7: Management Framework

3.4 *KEY PERFORMANCE AREAS*

Each KPA is divided into management fields, which are structured in tabular format for ease of reference. The tables are to be understood as follows:

- The **Objective** represents the desired state or outcome. The question that needs to be asked is: *What do we want?*
- The **Rationale** is the motivation for striving towards a specific objective. It can be based on an issue or could give insight to the current state. The question that needs to be asked is: *Why?*
- **Management Support** refers to the required resources that would be needed. These could be internal or external. The question that needs to be asked is: *What support do we need in order to implement?*
- **Policies and Guidelines** are the vehicle that provides direction on how to achieve the objective. This can imply reference to existing legislation, regulations and policies or may in many cases offer specific guidance. The question that needs to be asked is: *How do we get there?*
- **Tasks** are deeds which are quantifiable and can be carried out. For business planning purposes it is then possible to specify each action in terms of responsibility, schedule, budget and monitoring. The question that needs to be asked is: W*hat do we need to do?*
- **Indicators** are used to measure the effectiveness of the action projects. The question that needs to be asked is: *Has it worked?*

Documented below in this section are the KPAs for the dam, developed to attain the defined common objectives.

3.4.1 KPA 1: Resource Management

Table 6: Biodiversity

Objective
To maintain eco-system composition, functioning, integrity and character surrounding the dam, aimed at sustaining the natural resource base, to enhance potential future tourism development in the area.
Rationale
The natural resource base provides the foundation for tourism development in the area, therefore, the conservation value of the dam and its surrounding area should be emphasized. The dam is located within the Drakensberg Alpine Center of Plant Endemism, which is characterized by sensitive features such as wetlands. This increases the conservation value of the area. The importance of maintaining the existing natural resource base should be recognised by potential future development.
Management and Other Support
• Management authority; • FSDTEEA; • MAP Local Municipality; and other government departments such as the DAFF.
Policy and Guidelines
<u>Conservation</u> • Strategically important habitats (inlets, wetlands and shorelines) need to be protected and managed to ensure their ecological functioning. As such the conservation focus should be on these areas. Wetlands should be delineated and future developments and activities surrounding the dams should stay outside of the buffer of the temporary zone of

the wetlands.

Soil

- The soil resource needs to be conserved by prevention of erosion caused by developments and activities surrounding the dams. In most cases this can be achieved by maintaining a healthy and diverse cover of indigenous vegetation and management of livestock grazing.
- The condition of the soil and the rate of erosion and/or rehabilitation should be monitored closely and actions should be taken to prevent damage caused by erosion.

Vegetation

- The endemic vegetation of the area should be conserved. The unsolicited collection, harvesting, destruction and removal of plant material must be prevented. Removal of plant material should only take place if this is in terms of a rehabilitation programme, for an authorised construction activity or for general veld management purposes (fire breaks, bush encroachment, etc).
- Rare and endemic plant species or those found to be increasingly rare must be adequately protected.
- Where present, alien invasive species should be removed and affected areas rehabilitated and monitored to prevent future invasion. The control of invasive plant species is addressed under the Conservation of Agricultural Resources Act (CARA, Act No 43 of 1983, Regulations 15). Relevant legislation as well as municipal by-laws must be complied with.
- The planning and execution of alien invasive eradication programs must be done in cooperation with Working for Water. If possible, eradication project should be synchronised with projects in the catchment area, by engaging adjacent landowners. It is important that:-
  - ✓ Eradication methods must be approved by Working for Water.
  - ✓ Combating must be based on the latest alien plant control technology and knowledge. Preference should be given to non-chemical eradication methods wherever possible.
  - ✓ Allow only weed free vessels to enter and exit the dam area.
  - ✓ Only indigenous vegetation should is introduced should new developments or initiatives occur within the catchment area, and in particular within the Dam Boundary Line or area managed by DWA / Municipality.
  - ✓ The management authority, in association with Working for Water, must ensure that proposed new developments adhere to the Alien Invasive Eradication Programme.

Fauna

- Consumptive utilisation at the dam should be limited to angling.
- It has been reported that local communities utilize the dam for fishing, especially during the breeding season (October / November), when fish move to the inlets of the dam where water temperatures are suitable for breeding. In order to maintain sustainable fish populations and ecosystem health, fishing should be strictly controlled, limited and policed during the breeding season, at the inlets of the dam.
- An Aquatic Monitoring Programme should be established to assess fish population composition and lifecycles, to determine whether current use has and/or will result in changes/variation to existing fish populations. The findings of the aquatic assessment will feed into a Sustainable Livelihood Plan which should be developed in consultation with the communities.
- Hunting and / or capturing of terrestrial animals is not permitted.
- Rare animal species or those found to be increasingly rare and their associated breeding sites must be adequately protected.

General

- The management authority must ensure compliance with the NEMA and promulgated

EIA Regulations (2010), where applicable, for development projects.

Tasks	Indicators
i. Commission a Biodiversity Management Plan, aimed at the following:- a. The identification and management of sensitive areas, with specific reference to wetlands, within the Dam Boundary Line (DBL), once the DBL is mapped. b. The identification and management of rare, threatened and endangered plant and animal species. c. An Alien Invasive Eradication and Monitoring Programme d. Erosion Control Programme ii. Establish an Aquatic Monitoring Programme aimed at determining the status of fish populations in the Dam.	i. Biodiversity Management Plan in place within one year of operationalisation. ii. Aquatic Assessment in place within one year of operationalisation. Aquatic Assessment requires water quality data. This assessment should be commissioned subsequent to initiation of weekly water testing and monthly water quality reporting.

Table 7: Water Quality

Objective
To maintain the current high water quality standard for the Metsimatsho Dam.
Rationale
Metsimatsho Dam currently provides 20% of potable water to the Qwa-Qwa region. Due to the good water quality of the Dam, water treatment requirements at the WTWs are minimal. Deterioration of water quality may not only result in potential non-compliance with the specific water quality standards as set out in the South African Water Quality Guidelines: Domestic and/or Recreational Use, but will require upgrades to the WTWs to ensure that water is treated to acceptable standards prior to distribution.
Management and Other Support
• Water Quality is monitored on a daily basis by MAP Water and samples are tested at an accredited laboratory twice a week. The monthly summarised report compiled by MAP Water should be made available to DWA, the Catchment Management Agency for the Upper Vaal Catchment, Wilge River Forum as well as the management authority as part of feedback. The management authority must ensure that relevant information reaches the water users. • MAP Water and MAP Local Municipality must ensure that water monitoring at the Dam is aligned with DWA's Water Quality Monitoring Programmes.
Policy and Guidelines
• NWA and its regulations; • NEMA (Regulations 386 and 387); • Water Quality Objectives as stated in the Internal Strategic Perspectives for the Central Region Upper Vaal Management Area. • Water Services Act; and • South African Water Quality Guidelines. • All new developments must comply with the regulations as stipulated in the NWA and must apply for authorisation as required by NEMA Regulations 386 and 387. • EMP must be compiled for the construction and operational activities surrounding the dams. The EMP must address issues such as stormwater management and pollution

prevention due to effluent and other run-off water.

Use

- The South African Water Quality Guidelines constitute the primary reference when determining the water quality requirements of water consumption.
- With the National Water Act, 1998 (Act No. 36 of 1998), the concept of Resource Quality Objectives were introduced. Resource Quality means the quality of all the aspects of the water resource, which includes water quality, water quantity, as well as the aquatic ecosystem quality. Thus, water quality management now also takes responsibility for in-stream and riparian habitat, as well as aquatic biota. The purpose of Resource Quality Objectives is to establish clear goals relating to the quality of the relevant water resource and to be able to use this as a benchmark.

Pollution

- Pollution sources within the catchment will inevitably affect water quality of the dam. Pollution sources situated outside the area of jurisdiction of the management authority (i.e. outside of the Dam Boundary Line) should be dealt with via cooperative linkages with environmental initiatives as well as through appropriate government channels. An integrated management approach is required to ensure that the resource is not adversely affected by activities within the catchment.
- An increase of development surrounding the dam will result in the construction of standalone sewerage systems in the area as no municipal lines exist in close proximity of the dam. Care should be taken to prevent pollution through sewerage spillage and leakages and DWA should be consulted to prevent pollution possibilities. Sewage systems have to be licensed in terms of the NWA.
- An increase of development surrounding the dam may also increase the intensity of stormwater runoff. Of concern are not only the sediment volumes, but also other pollutants contained in the stormwater such as nutrients, toxic chemicals and bacteria. All development proposals should include a stormwater management plan aimed at minimizing run-off and preventing pollutants from entering the dam.
- Prevailing water conditions in terms of both water quality and quantity are such that it does not support aquaculture projects at the Dam. Initiatives to introduce aquaculture projects at the Dam are therefore not feasible. It is imperative that the existing water quality of the Dam is maintained to ensure the sustained distribution of good quality potable water, with minimal treatment required, to the end user.

Monitoring

- Regular water testing will reveal trends and will enable the management authority to manage water quality at the dam.
- Intervention will be required if monitoring indicates a trend of deterioration in the water quality.
- Management authority to ensure that all the users of the dams as well activities surrounding the dams comply with guidelines and regulations with regards to maintaining the water quality of the dams.

Tasks	**Indicators**
i. Ensure that water monitoring points at the dam are sufficient and map key monitoring points upstream and downstream of the dam. ii. Continuation of daily water quality monitoring by MAP Water, weekly testing of the water up- and down stream of Metsimatsho Dam by an accredited laboratory and generation of	i. Formalised Water Quality Monitoring Programme, including a map showing monitoring points, in place within six months from operationalisation ii. Records of daily water monitoring and weekly water testing in place. iii. Records of monthly Water Quality Reporting to DWA and other key water users in place.

monthly summarised water quality report. iii. Ensure that monthly summarised water quality reports are submitted to DWA, the Catchment Management Agency for the Upper Vaal Catchment, Wilge River Forum. iv. Initiate quarterly meetings with the Wilge River Forum to discuss and action issues pertaining to water quality. v. Establish links between the RMP and other projects aimed at the improvement of water quality within the Upper Vaal Catchment to ensure that water quality objectives are met.	iv. Records of meetings with Wilge River Forum in place. v. Proceedings of meetings with key stakeholders in place to ensure links with other projects aimed at the improvement of water quality within the Upper Vaal Catchments.

Table 8: Cultural Heritage Resource Management

Objective	
To identify, acknowledge and conserve resources of palaeontological, archaeological, historical, cultural and religious significance.	
Rationale	
Tourism development proposals within the greater region should capitalise on the rich cultural and heritage resources characteristic to the area. In caves surrounding the Fika Patso dam, rock paintings have been discovered. It is possible that rock paintings may occur in caves and/or sheltered areas in the vicinity of the Metsimatsho Dam. Although the management of these resources currently falls outside of the Scope of the RMP, the Local Municipality should ensure that all heritage and cultural resources in the region are conserved and managed in accordance with the relevant legislation.	
Management and Other Support	
• SAHRA, • Management authority and relevant government departments, • Donor organisations, • Research institutions, and • Community based organisations.	
Policy and Guidelines	
• SAHRA manages a National Heritage Resource Fund aimed at providing financial assistance for any project which contributes to the conservation and protection of South Africa's Heritage Resources. • All heritage and cultural resources must be conserved and managed as required by the NHRA and applicable regulations. • All new proposed developments and infrastructure should adhere to Regulation 38 of NHRA. • If any archaeological sites or graves are exposed during construction work, construction work should be stopped immediately and the findings should be reported to a museum or SAHRA for further investigations. • A relationship should be established between SAHRA and the management authority in order to ensure that the proposed developments adhere to Regulation 38 of NHRA and to proactively manage cultural and heritage resources.	
Action Projects	
i. Investigate the extent of the rock paintings within the caves/and or	i. Archaeological Assessment in place within 5 years of operationalisation of

sheltered areas occurring in proximity to the Dam and ensure that these resources are protected and managed appropriately. Consider the potential of these resources to be incorporated into regional tourism plans and/or initiatives.	RMP.

3.4.2 KPA 2: Utilisation

Table 9: Public Access, Use and Development

Objective
The primary objective of the Dam remains the provision of good quality potable water to the region. Maintaining water quality to a standard suitable for domestic use is priority. All potential future development initiatives should be evaluated taking cognisance of its potential to contribute to the deterioration of water quality. Optimal utilisation and development of the MetsiMatsho Dam is entirely dependent upon the provision of suitable access routes and services infrastructure. There are currently two gravel access routes, unsuitable for sedan type vehicles, providing access to the western side of the Metsimatsho Dam. It is important that these roads are upgraded to acceptable standards in order to unlock the potential for tourism development at the western side of the Dam. The eastern side of the Dam is inaccessible, posing significant constraints in terms of potential future tourism based development and the overall commercialisation of the Dam. However, the objective in terms of use and development is to create an environment that facilitates controlled tourism development and recreational use by ensuring safe and legal access to the water surface and the sustainable use of the resource and surrounding State-owned land.
Rationale
There are currently existing proposals which have the potential to unlock the recreational potential of the dam and surrounding State-owned land. These initiatives include proposed tourism developments and poverty relief projects funded by DEA. In light of the development potential that exists for low – medium impact tourism initiatives, it is important that an environment conducive to controlled commercial development is created. All initiatives which may contribute to potential deterioration of the water resource should be prevented to ensure sustainable supply of good quality drinking water to the region. Provided DWA's primary objective for the Dam and access constraints, there is currently limited potential for commercialization at the Dam, especially on the eastern side. It is important that the Dam remains accessible for use by the local communities.
Management and Other Support
• Linkages must be established with relevant government departments where appropriate.
Policy and Guidelines
<u>Access and Use</u> • Public access and use should be equitable, compatible and safe. • There are currently two public access points provided at the western side of the Dam. At this stage, these accesses constitute gravel roads. The dam is inaccessible from the east. In order to unlock the potential for the future development and use of the Dam, the existing gravel roads should be upgraded and alternative accesses and associated infrastructure should be developed. This will require capital investment. This aspect is

further dealt with in Table 12.

- Due to the steep slopes surrounding the dam, potential for infrastructure development and development in terms of recreational use is limited, especially on the eastern side of the Dam.
- The dam must remain available for broad public recreational access and use.
- The Dam is currently accessed via informal pathways (not mapped) by local communities utilizing the Dam for fishing. In addition, the steep slopes surrounding the Dam are currently accessed by livestock owned by the local communities. Grazing surrounding the Dam should be managed pro-actively and in consultation with the local communities, to prevent environmental degradation, erosion and sedimentation.
- The dam must remain accessible for use by local communities, in a controlled manner.
- Entry fees may be levied for public access and use. However, fees need to be reasonable to ensure the dam remains an affordable destination.
- The safety and security zone will be protected and secured by appropriate method, to ensure that safety of the public and livestock. Appropriate warning signs should also be erected at relevant locations.
- Access and use must be in accordance with the conceptual zoning plans contained herein.
- Provided current access constraints, as well as the primary use of the Dam being to provide good quality potable water to the region, aquaculture will not be permitted at the Dam.

Existing Use

- The local communities make use of the dam for fishing and the area surrounding the dam (waterfront zone) provides grazing for livestock.
- There is currently, within the dam boundary line, an unauthorised building that has been erected by a private individual. DWA, as the responsible government department must regularise this use in accordance with its development policy.

Commercialisation

- Unlocking the potential of commercial recreation at the dam will promote socio economic development within the surrounding areas.
- National, provincial and local government identifies the tourism sector as a vehicle for job creation, skills development, SMME development and BBBEE. Furthermore, there is opportunity for private sector involvement through the PPP mechanism.

Development

- Any development within the dam basin is subject to relevant legislation and policies.
- Where applicable, all development must conform to the zoning plan contained herein.

Operation

- All uses and operations must be in accordance with DWA and other government norms and standards.
- Subsequent to the finalisation of the zoning plans, a detailed operational plan should be developed and implemented.

Action Projects	
i. The local communities and key stakeholders such as the Conservation Authority must be engaged with the management authority to discuss grazing and the utilisation of the dam, in order to ensure that the dam remains a sustainable source of food and/or livelihood. An environmental education programme should be developed and implemented as part of	i. Sustainable Livelihood Plan, including Environmental Education Programme in place, within one year of operationalisation and Records of engagement with local communities and key stakeholders such as conservation authorities regarding the sustainable utilization of the dam ii. Finalised development and operational

a Sustainable Livelihood Plan, in consultation with the community. ii. Develop a detailed operational plan for the Dam subsequent to finalising the zoning plans. iii. The existing unlawful structure located within the boundary line must be regularised in accordance with DWA policy.	plan on record. iii. Unlawful structure within the dam boundary line regularised.

Table 10: Physical Carrying Capacity

Objective
To promote, accommodate and manage a variety of low impact activities and facilities at the dam in a manner that enhances the user experience and minimises the impact on the resource.
Rationale
Carrying capacity is an effective management tool to control access, utilisation and development at the dam. The Concept Zoning Plan makes provision for Low and Medium Impact Development Zones on the waterfront and provides for low impact activity zones associated with zero – no wake on the water surface. Low – medium impact tourism-based activities / development may therefore be considered at the Dam, within the Dam Boundary Line (DBL). However, excessive use of the resource will not only impact detrimentally on the environment (i.e. water quality, pollution, litter, soil compaction, destruction of vegetation etc.), but will also affect user safety and satisfaction. In addition, too many visitors will introduce negative social impacts such as overcrowding, accidents, conflicts, noise, etc. The introduction of recreational use will inevitably have an adverse effect on water quality. As far as proposed developments are concerned, adequate measures must be in place to protect water quality, to ensure that the primary objective of the Dam is upheld. If water quality is compromised, sustainable supply of good quality drinking water to the region will not be possible.
Management and Other Support
• The management authority must establish the necessary linkages with the relevant industry to finalise the physical carrying capacity. • Relevant government departments must be consulted where applicable.
Policy and Guidelines
• DWA's guideline 'Methodology for Carrying Capacity Assessment for the Use of Water for Recreational Purposes (April 2003)' must be utilised to determine the physical carrying capacity. • As an interim measure one non-motorised vessel (canoes and/or rowing boats only) per hectare will be allowed on the water surface. This equates to 44 non-motorised vessels (canoes and/or rowing boats) on the water surface at a given time. • Calculations are based using data pertaining to the Full Supply Level (Reservoir area at full supply level equals 44 ha). • As the water level drops, pro rata changes would need to be made based on available water surface area of the Low Activity Zones • Policies and guidelines for various industries must be adhered to.

Tasks	Indicators
None	None

Table 11: Aquaculture

Objective
Water conditions in terms of both water quality and quantity are such that it does not support aquaculture production.
Rationale
Initiatives to introduce aquaculture projects at the Dam are not feasible. In addition, the existing water quality of the Dam should be maintained to ensure that good quality potable water can be distributed, with minimal treatment required, to the end user.
Management and Other Support
• DWA; • DEA; • Management authority; • MAP Water; • DAFF; and • DTEA.
Policy and Guidelines
• Aquaculture Policies and Guidelines as stipulated under Section 1.3.2. • South African Water Quality Guidelines.

Tasks	Indicators
None	None

Table 12: Infrastructure and Services

Objective
To ensure that necessary services (such as roads, water and sanitation, electricity, roads, telecommunication, and waste disposal) and associated infrastructure are provided to facilitate controlled development of the water resource and surrounding State land.
Rationale
Optimal utilisation and development of the Metsimatsho Dam is entirely dependent upon the provision of suitable access routes and services infrastructure. There are currently two gravel access routes, unsuitable for sedan type vehicles, providing access to the western side of the Metsimatsho Dam. It is important that these roads are upgraded to acceptable standards in order to unlock the potential for tourism development at the western side of the Dam. Substantial capital investment is required in terms of the development of access roads and water, sanitation, electricity and telecommunication networks, in order to facilitate the development of the Dam as a tourist destination. Any proposed development, including infrastructure development, should take cognizance of the conceptual zoning plan and must progress in an environmentally sound and controlled manner.
Management and Other Support

- Local, provincial and national government departments are responsible for providing services and associated infrastructure in accordance with their mandates.
- The management authority is responsible for ensuring the co-ordination of relevant government departments and other stakeholders.

Policy and Guidelines

Infrastructure Development

- Infrastructure development must be authorised by DWA, aligned with the RMP and evaluated and recommended by the management authority. It must further comply with all regulatory requirements (NEMA, NWA, NHRA, etc), municipal planning ordinances and any other relevant regulatory requirements.
- Infrastructure needs to be developed according to spatial restrictions prescribed by the different zones, buffer lines, relevant flood lines as well as sensitive features such as wetlands and shore line vegetation, in accordance with the zoning plan contained herein.
- All planning, development and maintenance of infrastructure must conform to relevant industry legislation, policies and guidelines.

Services and Associated Infrastructure

- The management authority is responsible for ensuring the co-ordination of relevant government departments to ensure that adequate planning and development takes place to facilitate infrastructure development on the water surface and surrounding State land.
- All planning and development must conform to relevant industry legislation, policies and guidelines.
- MAP Local Municipality to include proposed road improvements and construction in its IDP, SDF and LED documents and ensure the implementation of articulated plans.
- Department of Provincial and Local Government's Municipal Infrastructure Grant to further assist in upgrading existing and construction of new roads around Fika Patso Dam.

Tasks	Indicators
i. Establish relationships with relevant government departments and explore the potential to obtain funding and assistance to develop infrastructure, particularly road infrastructure.	i. Attendance of meetings where applicable and records of discussions.

3.4.3 KPA 3: Benefit Flow Management

Table 13: Local Economic Development

Objective

To ensure that local communities participate and benefit in LED initiatives happening in and around Metsimatsho Dam.

Rationale

National, provincial and local governments identify the tourism sector as a vehicle for job creation, skills development, SMME development and broad-based black economic empowerment. It is essential that local communities derive benefits from tourism projects implemented.

Management and Other Support

- The management authority is responsible for overall co-ordination and ensuring benefit

flows.
- The local community user group must provide relevant input.
- Linkages must be established with relevant government departments.

Policy and Guidelines

- The management authority should work closely with the LED Unit of MAP Local Municipality and other relevant Government Departments with regard to the design, management and implementation of local economic development projects.
- LED is also given effect by National Treasury, through Regulation 16 of the Public Finance Management Act (PFMA). A PPP Toolkit for Tourism was developed as a guide especially for tourism related projects. This Toolkit is consistent with government strategy on the Tourism Charter and Broad Based BEE Scorecard as published by the then DEAT in 2005.
- Establish linkages with tourism initiatives.
- Recognise, train, capacitate and empower individuals from the surrounding communities with proven interest and entrepreneurial skills. Through regular communication with community institutions, it will be possible to become more sensitised to communities' perceptions, as well as to expose entrepreneurs to the opportunities that are available.

Tasks	Indicators
i. Implement skills development programmes where opportunities exist. ii. Ensure that BEE is attained in any PPP projects.	i. Measure capacitation of individuals and SMMEs where opportunities exist, including PPP projects mentioned previously.

3.4.4 KPA 4: Institutional Arrangements for Implementation

Table 14: Institutional Arrangements

Objective

To ensure that a suitable institutional structure with the appropriate powers delegations is in place to effectively manage the recreational use of the water resource in accordance with this RMP.

Rationale

To select an appropriate authority to manage recreational water use for this dam, consideration was given to various aspects, including legislation, DWA policies; DWA's planning frameworks and current institutional frameworks.

In terms of DWA's guideline, Considerations on the Institutional Arrangements for Managing Use of Water for Recreational Purposes (2003), potential management authorities include a management committee, private sector agent, public sector agent, component within DWA or a Water User Association.

Currently, operation of the dams, of which DWA is the custodian, is being done by MAP Water, the water and sanitation service provider in the MAP area. Furthermore, the primary use of both dams is water supply to the Qwa-Qwa area. Hence the most feasible option for the management authority would be a public sector agent, such as MAP or MAP Water. However in the event that this is not possible, a component within DWA (custodian of the dams) will assume the role of management authority. It should be noted that the management authority will be supported by an advisory committee These options are illustrated in Figure 8.

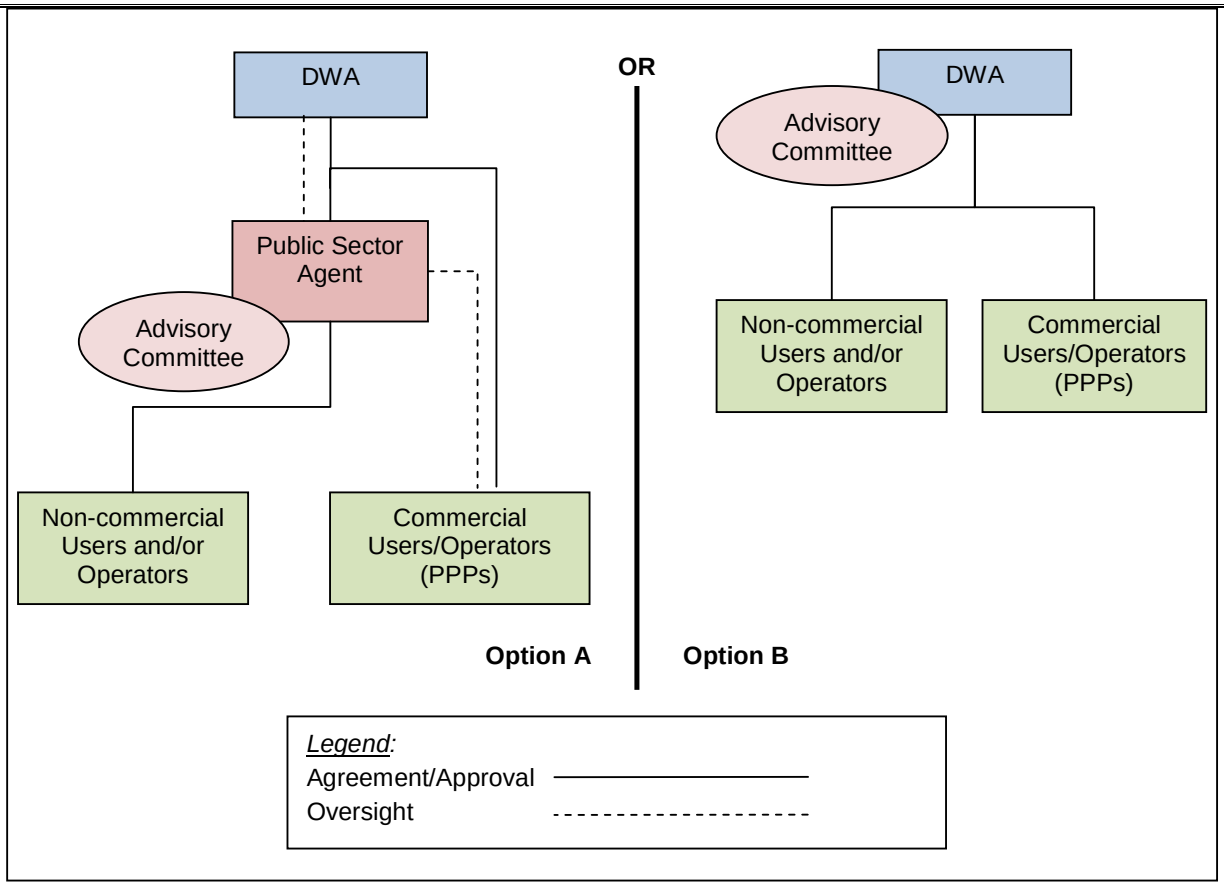

Figure 8: Institutional Proposals

Taking cognisance of overall operation, maintenance and management requirements of the Dam, the DWA has been proactive in developing a draft agreement between MAP and the DWA. The draft agreement is in respect of:

- Operation, maintenance and management of the Dam and associated works, and
- Control of recreational use of water surfaces and surrounding areas.

The draft agreement contains proposed roles and responsibilities with respect to the above.

Hence, the preferred institutional arrangement is Option A above, with MAP as the public sector agent.

Management and Other Support

- DWA;
- MAP;
- MAP Water;
- Stakeholders.

Policy and Guidelines

Management Authority

- The decision as to which institution assumes the role of management authority should be made subsequent to a meeting between the DWA and MAP. At this meeting, the roles and responsibilities of all parties w.r.t operational arrangements and recreational water use management should be established and appropriately documented. The outcome of the meeting should be the selection of the management authority and an agreement relating to operation of both dams.

Advisory Committee

- An advisory committee, consisting of representatives of the stakeholders, should be constituted.

The purpose of this committee will be to provide the DWA with insight into the needs and expectations of the host community and the various stakeholders while also serving as medium to convey DWA's objectives and decisions to community members.

- Additionally, the advisory committee will use the RMP as an accountability tool to measure the performance of DWA regarding the management of the dam and surrounding resources; the degree to which the economic potential has been unlocked; and, the benefits accruing to the stakeholders.
- The initial advisory committee should be established using the members of the RMP TTT. The needs and expectations of the community will continue to unfold and input from various stakeholders must be provided through the relevant institutional structures.
- The RMP TTT members should be consulted with regard to its structure and operational aspects.

Tasks	**Indicators**
i. A meeting between the DWA and MAP to discuss and establish which institution assumes the role of management authority; and ii. Finalisation of the agreement w.r.t operation, maintenance and management of the Dam and associated works. iii. Formally establish the management authority.	i. The meeting should take place upon the approval of the proposed RMP. ii. The agreement should be finalised and on record within three months of the operationalisation of this RMP. iii. The management authority formally established within six months of the operationalisation of this RMP.

3.5 *CONCEPT MANAGEMENT PLAN*

3.6 Process

To effectively zone a resource, an assessment of all relevant information must be undertaken to ascertain habitat and landscape sensitivity. Following this sensitivity analysis, an assessment of the environmental characteristic was undertaken. This assessment entails the determination of current environmental character status, opportunity for use, access and development based on a spectrum of the environmental limitations and stakeholder objectives.

Where relevant, aspects of the KPAs are spatially depicted in the Concept Zoning Plans. Figure 9 indicates the flow of the zoning process.

Figure 9

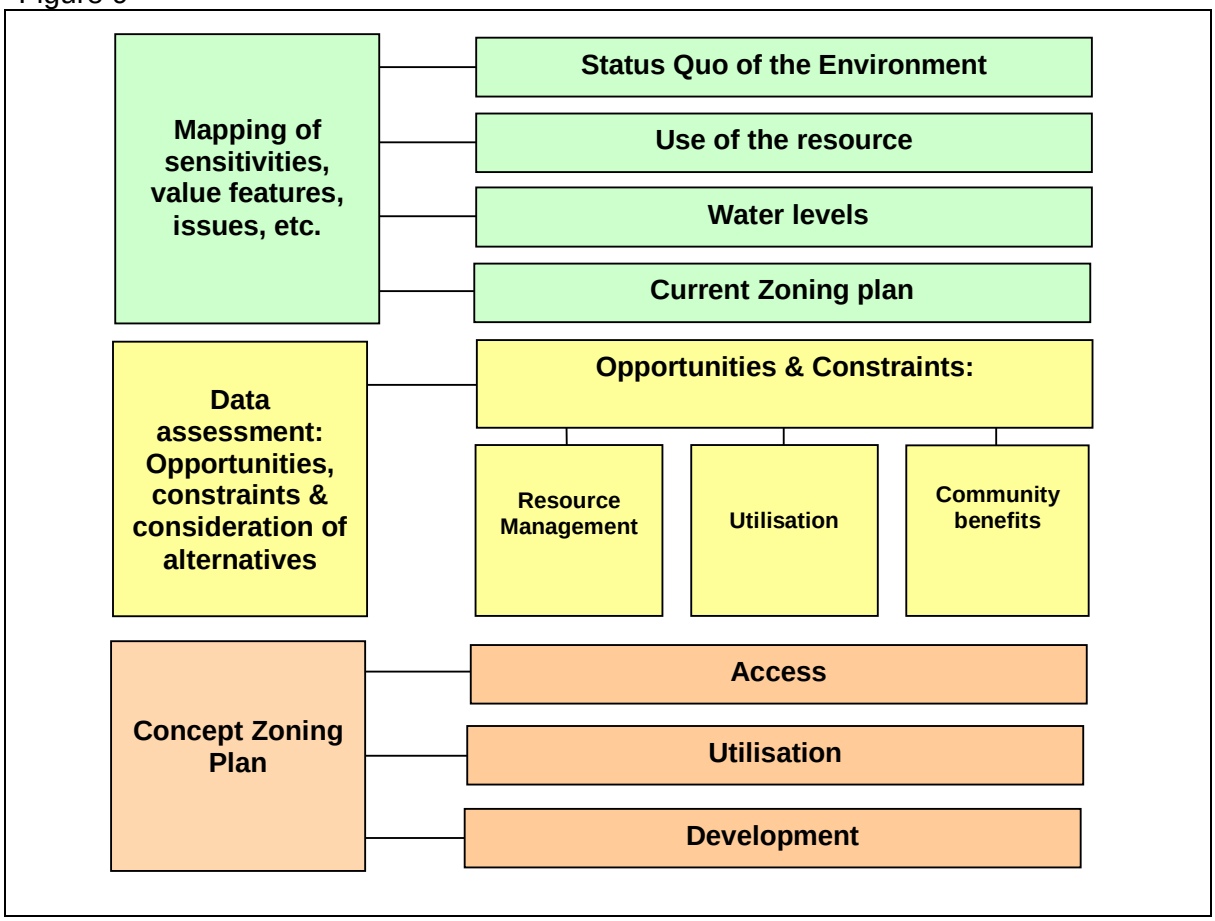

Figure 9: Zoning Process

Table 15: Conceptual Zoning Plans

Objective
To compile a zoning plan for the Metsimatsho Dam in order to determine and establish zones for specific uses in and around the dam to ensure the safe and optimal utilisation and management of recreational use at both dams.
Rationale
In 2005 DWA compiled schematic *'Concept Dam Zoning Diagrams'* for the Metsimatsho Dam. These diagrams have sufficed to date, however, with the current proposed

developments, it is necessary to revise the 2005 zoning plans. Through the RMP process, stakeholders were engaged and detailed research was conducted with view to ascertain the opportunities and constraints pertaining to access, use and development of the water resource and surrounding land. The 2005 zoning plans have been revised and are illustrated in Figure 10.

It should however be noted that to precisely map zones for the water surface and water front, the digital full supply levels, 1:100 Flood Level, Buffer Line and Dam Boundary Lines are required. At the time of compilation of the RMP, not all of the required data was available. Summarised in Table 16 is the status quo of the outstanding data:

Table 16: Level Data (Waterfront Zone)

Full Supply Level (1868m)	Digital contour data available at 20m intervals only. For precise mapping of FSL, contour survey to be completed.
High Flood Level (1:100 yr)	To be calculated upon development request.
Buffer Level	To be determined.
Dam Boundary Level	Available and mapped.

Should there be an application for development on land surrounding the dam, the 1:100 year flood level should be calculated, in accordance with zoning requirements as provided for in the concept zoning plan and other DWA safety requirements.

Based on the above, the data illustrated on the zoning plan is schematic. Hence, the zoning plan must be mapped and updated upon availability of the outstanding data.

Management and Other Support

- DWA; and
- Management Authority.

Policy and Guidelines

- DWA Guidelines for the Compilation of Resource Management Plans.
- Guidelines for the compilation of Zoning Plans for Government Waterworks (DWA 1999).
- The zoning system should be based on the Ecotourism Characteristics Opportunity Spectrum (ECHOS) as set out in the DWA Guidelines for the Compilation of Resource Management Plans.

Tasks	Indicators
i. The outstanding digital and/or level data indicated in Table 16 must be obtained and the conceptual zoning plan (Figure 10) must be updated.	ii. Finalised Conceptual Zoning Plan included in RMP and signed off by the appropriate DWA representatives.

3.7 *The Zones*

As a result of the zoning process, the following zones have been identified:

Water Surface Zones

- Safety and Security Zone
- Low Impact Activity Zone
- Conservation Zone

Waterfront Zones

- Safety and Security Zone

- Conservation Zone
- Medium Impact Development Zone
- Low Impact Development Zone

It should be noted that the zones are defined in accordance with DWA's Guidelines for the compilation of Zoning Plans for Government Waterworks (DWA 1999). Each of the above-mentioned zones is described in a corresponding table in this section. The tables are to be understood as follows:

- **The Objective** represents the desired state for this zone. The question that needs to be asked is: What do we want?
- **The Character** describes the physical attributes of the zone. The question that needs to be asked is: What is there and what should it be like?
- **Spatial Guidelines** provides a framework for opportunities in terms of access, utilization and development. The question that needs to be asked is: Which activities are allowed where?

3.7.1 Water Surface Zones

Table 17: Safety and Security Zone

Objective
To protect the dam wall and outlet works, to ensure the safety of the public and to have sufficient area available for DWA's management purposes.
Character
• This zone is applicable to the area surrounding the dam wall and outlet works and hence applies to areas demarcated on the water surface and on adjacent land. • It is required that the security area boundary is a minimum distance of 100m from the dam wall and outlet works or spillway. • This zone is not affected by the water level.
Spatial Guidelines
<u>Access</u> • Access is limited to DWA and for management purposes only. • There will be no recreational access to this zone. Signage will clearly indicate this. <u>Utilisation</u> • No recreational use may take place in this zone. <u>Development</u> • There will be no recreational development in this zone. • Fences may be erected as required for safety, security and management control purposes.

Table 18: Low Impact Activity Zones

Objective
To provide designated, controlled and safe environment for low intensity use water sport activities. Low Impact Activity Zones allows for low intensity and or nature based leisure activities, i.e. activities associated with little or no wake, e.g. rowing, canoeing, angling and swimming.
Character
The larger part of the water surface has been zoned for low impact activity. Local

communities should be permitted to utilize the Dam for fishing / angling if need be, therefore, provision is made for a zone permitting low impact activities on the water surface. Low impact activities that may be allowed at the Dam include angling, canoeing, rowing and swimming. In terms of swimming, a safety buffer with a minimum practical width of 110m should be applied around the periphery of dam. It should be noted that the majority of stakeholders involved during the RMP process were not in favour of motorised boats and associated high impact activities.
Spatial Guidelines
Access to the water surface This zone will contain the following access facilities: i. One Launching Facility for small non-motorised vessels (such as canoes and rowing boats) will be situated on the western side of the dam in close proximity of the existing structure and road infrastructure. Utilisation • This zone caters for low intensity uses relating to non-motorised vessels. • A maximum of 44 vessels will be allowed within this zone at any given time (1 vessel per hectare at full supply level). • A 50m restriction is placed on vessels from the shoreline as a buffer. The purpose of this quasi-transition is for the safety of bathers, anglers and other vessel users as well as to protect the ecology of the shoreline. This Buffer Area is situated along the entire shoreline and may only be crossed for launching purposes. • A key element of the Operational Plan referred to in Table 10 is the continuous monitoring of utilisation of the water surface. In the event that certain trends are observed zones for particular activities should be defined and demarcated using buoys or appropriate infrastructure. Development • Launching facilities must consist of a demarcated 10m wide cleared shoreline area. Slipways and docking and mooring facilities will not be provided at the launching facility. Vessels which are not active on the water surface should be taken off the water. • This Zone must be clearly buoyed off from the Conservation Zones. • No facilities or infrastructure may be constructed within this Zone.

Table 19: Conservation Zones

Objective
To conserve and protect sensitive aquatic habitat at the inlets of the dam as well as associated wetland areas.
Character
The areas associated with the inlets at the dam are classified as conservation zones.
Spatial Guidelines
Access • Generally, access to conservation zones is not allowed. However, an agreement should be reached with local communities in this regard, subsequent to the development of the aforementioned Sustainable Livelihood Plan (refer to Table 10). Utilisation • Generally, no use is permitted within conservation zones. • Fishing is generally not permitted in conservation zones. However, an agreement should be reached with local communities in this regard.

Development

- Ecologically sensitive areas surrounding the inlets of the rivers surrounding the dam are classified as conservation areas, allowing for limited or no access.
- No facilities may be constructed within these Zones.

3.7.2 Waterfront Zones

Table 20: Waterfront Zones

Objective
To ensure that the area between the dam boundary line and the full supply level is managed and developed where appropriate based on the regulations and guidelines provided by DWA.
Character
DWA is ultimately responsible for the water surface and State-owned land within the purchase line, which is required to ensure safe operation of the dam. No structures are allowed between the dam boundary line and the full supply level.
Spatial Guidelines
The Waterfront Zone comprises of various terrestrial zones, which is defined by the dam boundary line, a buffer line, the high flood level and the full supply level. However, at the time of compilation of the concept zoning plan, the buffer line had not been determined, the high flood level was not finalised and the full supply level was not mapped. The dam boundary line had been surveyed and accurately mapped. This line, together with a schematic representation of the full supply level is illustrated on the conceptual zoning plan in Figure 10. Summarised below are the definitions and significance of the afore-mentioned levels and principles that should be applied when finalising the zoning with the appropriate mapped data. i. The Dam Boundary Line ▪ The dam boundary line defines the area required by DWA to ensure the effective management and safe operation of the dam. ▪ In order to determine the exact position of the dam boundary line, a State Land Survey was commissioned and has been signed off by the relevant authorities. ii. The Buffer Line ▪ The buffer line is situated below the dam boundary line. ▪ The area between the buffer line and the high flood line is referred to as the access and/or buffer zone. The entire waterfront area surrounding the dam is affected by this zone. This zone purely serves to provide access from adjacent land, over state land, to the water surface, if permitted by DWA. ▪ No structures for accommodation purposes or any other roofed structure will be allowed within the buffer zone. ▪ Approval needs to be obtained for all other structures (e.g. jetties, hides, braai facilities, hiking trails, etc.), should the need arise. Environmental Impact Assessments are a prerequisite for prospective development and all applications for development and activity relating to the dam will be subject to evaluation and approval by DWA and DEA. ▪ Camping and ablution facilities may only be provided in the area between the buffer line and the dam boundary line. iii. The High Flood Line ▪ The high flood level is defined by the 1:100 year floodline.

- No buildings and/or structures are allowed within the 1:100 year flood line, as these pose as safety risks and are a liability to DWA.
- If the existing structure which is located below the southern access road falls within the 1:100 year flood line, it must be removed and affected areas must be rehabilitated.
- Bank fishing is allowed within the high flood line outside the areas zoned as conservation. Local communities should be engaged in this regard.

iv. The Full Supply Line
- This line defines the maximum area occupied by the dam, at full capacity.

v. Conservation Zones
- The access/buffer zone surrounding the inlets at Metsimatsho Dam serves as a conservation area. These zones apply to ecologically sensitive areas. The shoreline area links the terrestrial and aquatic components, which need to be conserved as a single resource.
- Wetlands surrounding the dam are also included as conservation zones, any activities occurring within wetland areas require environmental authorisation from DWA and DETEA (Free State Province).
- Areas classified as conservation zones must remain undeveloped.
- Limited or no pedestrian access is allowed in these areas. Local communities should be consulted in this regard.
- Activities such as bird watching and hiking may be permitted, on defined hiking routes / tracks only set out by a qualified environmental scientist.
- In order to accommodate local communities, controlled fishing will be permitted within conservation areas surrounding inlets to the dam, at specified times.
- No vessel access to the water surface will be permitted via conservation zones, unless it is by DWA for management or research related purposes.

vi. Development Zones:

Two types of development zones could be considered in instances where there is land available above the buffer line and within the dam boundary line. Illustrated in Figure 10 are the development zones applicable to the Dam and summarised below is the allowable development for the zones:

i. Low Impact Zones

Low impact zones are demarcated primarily adjacent to conservation zones and on the eastern side if the Dam. This zone allows for sensitive development or low intensity use. These areas are ideal for braai and/camping facilities.

ii. Medium Impact Zones

Medium impact zones are demarcated strictly at the western side of the Dam. This zone allows for small scale development, for example low density chalet developments or day visitor sites.

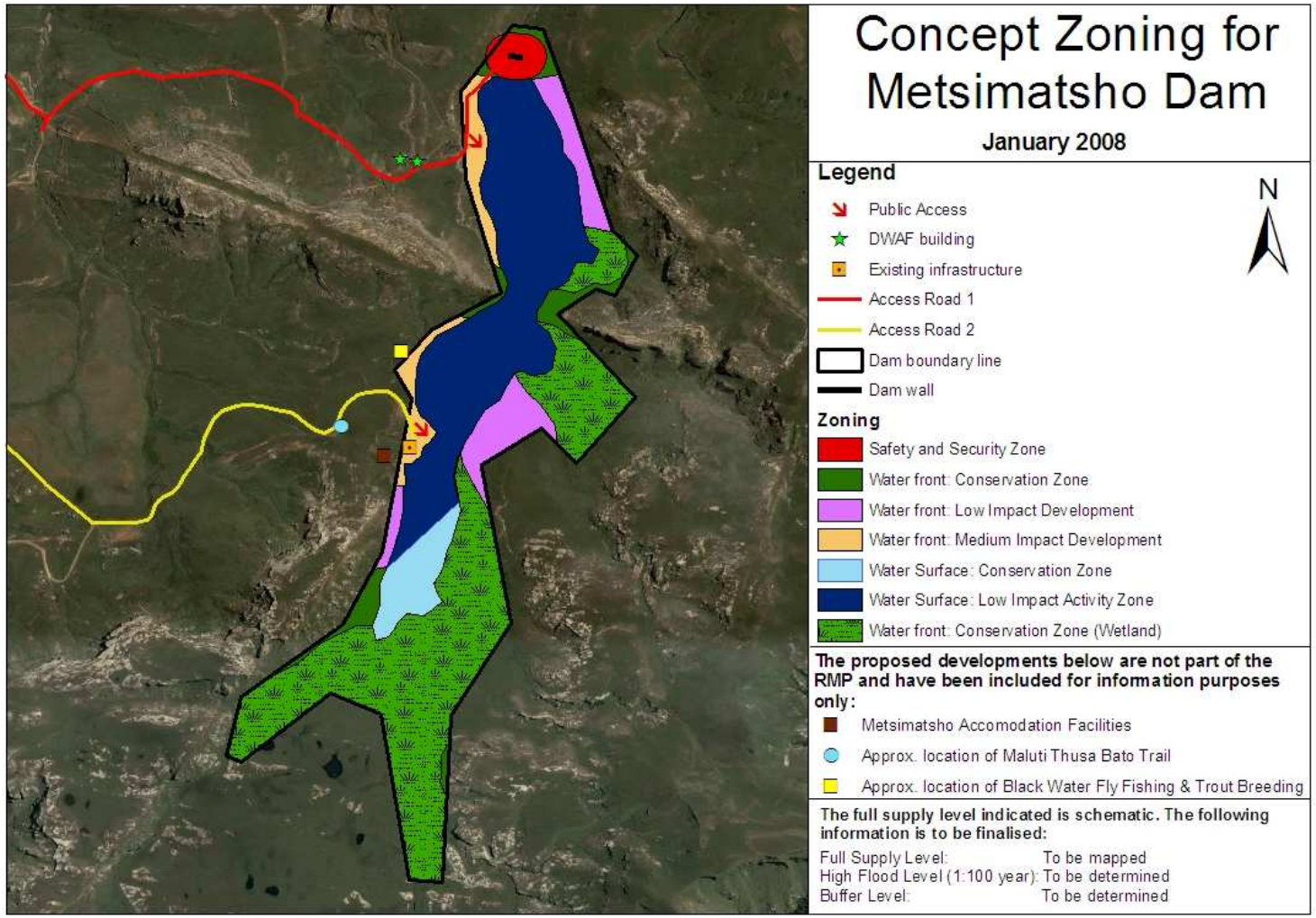

Figure 10: Conceptual Zoning Plan

3.8 BUSINESS PLANNING

Provided in Table 21 overleaf is the business plan developed based on the tasks identified as part of the planning process.

For the tasks, the following is provided:

- Rankings, based on assigned priorities, with '1' assigned the highest priority.
- KPA and table references to previous sections within this document.
- Frequency of tasks i.e once-off, ongoing or as-and-when required.
- Timeframe guidelines, indicating when tasks should be implemented.
- An indication as to whether tasks should be outsourced by the management authority or executed internally, based on skill and human resource requirements.
- Budgetary requirements over a 5 year period. Budgets are linked to task frequency, timeframe guidelines and the decision to outsource. The institutional proposal contained herein provides two options for the management authority – DWA or a public sector agent such as MAP. It is envisaged that the tasks not outsourced will be executed by staff members of the management authority within existing portfolios. For instances that staffing implications are to be considered by the selected management authority, budgetary requirements are marked with a MASC (Management Authority Staff Costs), highlighting that tasks are to be allocated by the management authority to existing portfolios.
- Detailed performance indicators for tasks are contained in the relevant KPA tables.

Table 21: Business Plan

Rank	KPA Ref	Table Ref	Task	Frequency	Timeframe Guideline	Outsource	Skills/Human Resources	Budget				
								Year 1	Year 2	Year 3	Year 4	Year 5
1.	4	14	A meeting between the DWA and MAP to discuss and establish which institution assumes the role of management authority.	Once-off	The meeting should take place upon the approval of the proposed RMP and business plans.	No	Management and legal. To be conducted by government officials (management) within their existing management mandate.	MASC				
2.	4	14	Finalisation of the agreement w.r.t operation, maintenance, management of the Dam and associated works and control of recreational use.	Once-off	The agreement should be finalised and on record within three months of the operationalisation of this RMP.	No	Management and legal. To be conducted by government officials within their existing mandate.	MASC				
3.	4	14	Formally establish the management authority.	Once-off	The management authority formally established within six months of the operationalisation of this RMP.	No	Management and legal. To be conducted by government officials within their existing mandate.	MASC				
4.	2	15	The outstanding digital and/or level data indicated in Table 16 must be obtained and the conceptual zoning plan (Figure 10) must be updated.	Once-off	As required.	Yes	Floodline to be determined and signed off by a qualified engineer. Surveys to be undertaken by registered land surveyor. Final Zoning Plan to be compiled by qualified, registered GIS Operator.		**R 110 000**			
5.	1	7	Ensure that water monitoring points at the dam are sufficient and include and map key monitoring points upstream and downstream of the dam.	Once-off	Within 6 months of operationalisation of the RMP.	No	Water monitoring points to be identified by suitably qualified individual at management authority.	MASC				
6.	1	7	Continuation of water quality monitoring by MAP Water - weekly testing of the water up- and downstream of Metsimatsho Dam by an accredited laboratory and compilation of monthly summarised water quality reports.	Ongoing	Ongoing over 5 year period	Yes	Water samples to be taken by suitably qualified individual at management authority. Water tests to be oursourced to accredited laboratory. For domestic use, testing must be in accordance with South African National Standards 241 (SANS 241). Note that testing of the first sample requires a full scan, where all parameters including parasites and viruses are tested. The full scan should be repeated quarterly. Further weekly	R 720 000	R 720 000	R 720 000	R 720 000	R 720 000

Rank	KPA Ref	Table Ref	Task	Frequency	Timeframe Guideline	Outsource	Skills/Human Resources	Budget				
								Year 1	Year 2	Year 3	Year 4	Year 5
							testing will be for selected parameters only.					
7.	1	7	Ensure that monthly summarised water quality reports are submitted to DWA, the Catchment Management Agency for the Upper Vaal Catchment, Wilge River Forum.	Ongoing	Monthly reporting to commence within 6 months of operationalisation of the RMP.	No	Water quality reports to be compiled and submitted by suitably qualified individual at management authority.	MASC	MASC	MASC	MASC	MASC
8.	1	7	Initiate quarterly meetings with the Wilge River Forum to discuss and action issues pertaining to water quality.	Ongoing	Quarterly meetings to occur within 1 year of operationalisation of the RMP.	No	Meetings to be facilitated by designated responsible person at based within management authority.	MASC	MASC	MASC	MASC	MASC
9.	1	7	Establish links between the RMP and other projects aimed at the improvement of water quality within the Upper Vaal Catchment to ensure that water quality objectives are met.	As required	Continuous; as and when required.	No	Meetings and/or process to be facilitated by designated responsible person at based within management authority.	**MASC**	**MASC**	**MASC**	**MASC**	**MASC**
10.	1	6	Undertake an Aquatic Assessment at the Dam to obtain baseline information pertaining to fish populations and make recommendations in terms of the management and monitoring of fish populations. This assessment will inform the Sustainable Livelihood Assessment which has to occur in consultation with the local communities.	Once-off	Once off. Report to be finalized within 1 year of operationalisation of the RMP.	Yes	To be developed by a qualified natural scientist registered at the South African Council for Natural Scientific Professions (SACNASP).	R 50,000				
11.	2	9	Develop Sustainable Livelihood Plan in consultation with the Local Communities to ensure continued sustainable use of the resource (fishing and grazing). An environmental education programme should form part of this plan.	Once-off	Once off. Plan in place within 1 year of operationalisation of the RMP 1 year.	Yes	To be developed by multidisciplinary team including qualified and registered social and natural scientists.	R 300,000				

Rank	KPA Ref	Table Ref	Task	Frequency	Timeframe Guideline	Outsource	Skills/Human Resources	Budget				
								Year 1	Year 2	Year 3	Year 4	Year 5
12.	1	6	Develop a terrestrial Biodiversity Management Plan (BMP), which should include the following, once the Dam Boundary Line is mapped and included on the Concept Zoning Plan: *The identification and management of sensitive areas, with specific reference to wetlands; *The identification and management of rare, threatened and endangered plant and animal species; *An Alien Invasive Eradication and Monitoring Programme *Erosion Control Programme	Once-off	Once off. BMP in place within 1 year of operationalisation of the RMP.	Yes	To be developed by a qualified natural scientist registered at the South African Council for Natural Scientific Professions (SACNASP).	R 150,000				
13.	3	13	Implement skills development programmes where opportunities exist and ensure that BEE is attained in any PPP projects.	As required	As and when required.	No	Skills development and local economic development. To be conducted by individuals within the management authority.	**MASC**	**MASC**	**MASC**	**MASC**	**MASC**
14.	2	9	Develop a detailed operational plan for the Dam subsequent to finalising the zoning plans.	As required	As required.	No	Knowledge of concept zoning plan and management authority policies and procedures.	**MASC**	**MASC**	**MASC**	**MASC**	**MASC**
15.	2	9	The existing unlawful structure located within the boundary line must be regularised in accordance with DWA policy.	As soon as possible	Within 6 months of operationalisation of the RMP.	No	Understanding of DWA policy and procedures.	**MASC**				
16.	2	12	Establish relationships with relevant government departments and explore the potential to obtain funding and assistance to develop infrastructure, particularly road infrastructure. This is not a critical priority, because, no recreational use is possible at the dam at this time.	Ongoing	Within 5 years of operationalisation of the RMP.	No	Physical Carrying Capacity can be determined by the designated responsible person based at the management authority.	MASC	MASC	MASC	MASC	MASC

Rank	KPA Ref	Table Ref	Task	Frequency	Timeframe Guideline	Outsource	Skills/Human Resources	Budget				
								Year 1	Year 2	Year 3	Year 4	Year 5
17.	1	8	Investigate the extent of the rock paintings within the caves occurring in proximity to the Dam and ensure that these resources are protected and managed appropriately. Consider the potential of these resources to be incorporated into regional tourism plans and/or initiatives.	Once-off	Once off within 5 years of operationalisation of RMP.	Yes	Investigation to be undertaken by experienced (10 years) qualified, registered archaeologist.					R 80,000

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APPENDIX A

Appendix A: STAKEHOLDER LIST

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PSP's & other								

	Name	Company	Designation/ Involvement	Contact Number	Fax	E-mail	Physical Address	Postal Address
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