FINAL RESOURCE MANAGEMENT PLAN

THEEWATERSKLOOF DAM

water & sanitation

Department:
Water and Sanitation
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- Hottentot's Holland Nature Reserve;
- City of Cape Town;
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- Theewaters Sports Club;
- Western Province Bank Angling Association;
- Western Cape Bass Angling Association;
- Theewaterskloof Local Municipality; and
- Breede-Overberg Catchment Management Agency (BOCMA).

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Review:

Review Period	Month	Year				
Annual Review of Business Plans	August	2015	2016	2017	2018	2019
Five (5) Yearly review of RMP	August	2019				

Amendments Page

Date	Description	Version No.
17 September 2013	Draft for PSC Review	1
10 March 2014	Amended Draft for PSC Review	2
19 March 2014	Amended Draft for Public Review	3
13 May 2014	Final RMP for DWS Review	4
18 August 2014	Final RMP for Public Review	5
8 March 2015	Final RMP	6

Executive Summary

According to the Guidelines for the Compilation of Resource Management Plans (2006), the main aim of RMPs is to "attain the objectives underlying sustainability and to compile workable, functional sustainable access and utilisation plans for water resources and in particular State Dams". A Resource Management Plan is thus, a planning tool aimed at working within the requirements of existing policies levels, while taking into account the needs and interests of stakeholders.

A Resource Management Plan can also be explained as a systematic process for the sustainable development and management of a water resource in the context of social, economic and environmental objectives. One of the main functions of the Resource Management Plan process is to implement an **Institutional Plan.** This focus on institutional arrangements is accompanied by a **Zonal Plan** together with a detailed Strategic Plan. In addition, a **Financial Plan** provides guidance on what funds can be collected and how these should be used. Together these components provide a comprehensive guide on the "what?"; "why?"; "how?"; and "who?" of the management of prioritised Government Waterworks.

The Theewaterskloof Dam has a capacity of 480 million m^3 and provides water for the Riviersonderend-Berg River Government Water Scheme, for urban use to the Greater Cape Town area and for agricultural use in the Riviersonderend River, Eerste River and Berg River catchments. The Dam stores runoff from its own catchment as well as water diverted into it during the winter months from the Berg Water Management Area by means of a system of diversion weirs and tunnels. During summer a significant proportion of the total yield of the Dam is transferred back to the Berg Water Management Area via the same tunnel system, causing the water levels to fluctuate seasonally.

Theewaterskloof Dam has excellent sailing conditions and has a popular sailing club (Theewaters Sport's Club) based at the Dam. The Dam is also a popular bass fishing and bank angling location. A number of national regatta's and angling competitions are held at Theewaterskloof Dam. In addition, Theewaters Sports Club has a well-established community sailing program which has been running for six years, focusing on creating water sport experiences for previously disadvantaged youths. The Western Cape Bass Angling Association holds a Youth Day annually for the youth of Villiersdorp. This involves teaching children environmental awareness. There are competitions and prizes which are funded as part of the day.

The Dam also falls within Theewaterskloof Conservancy which is jointly run by Cape Nature and local landowners. It is also located adjacent to Hottentot's Holland Nature Reserve which plays an important role in the conservation of mountain fynbos, with approximately 1 300 species occurring, some of which are rare and endemic. Approximately 110 bird species have been recorded, including several species of raptor.

The process followed to compile the RMP is detailed in the figure below.

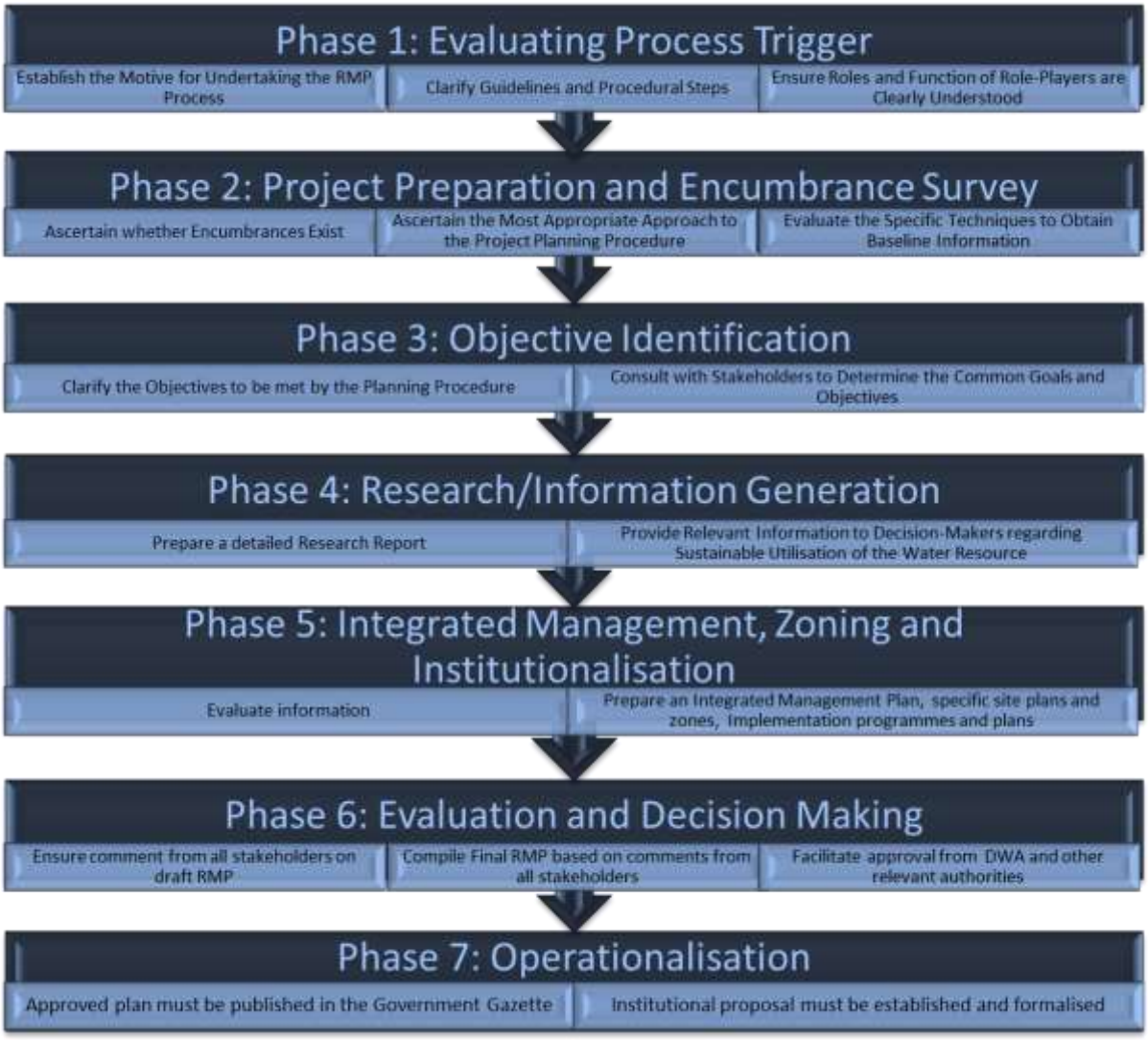

Figure 1: RMP Process (DWA, 2006)

It is important to note that the Resource Management Plan was compiled based on detailed stakeholder input and engagement. This formed the cornerstone of the Resource Management Plan through the establishment of a Vision for the Dam with a number of Key Objectives.

Below are some of the key recommendations of the Theewaterskloof Resource Management Plan. It is important to note that many of these recommendations affect other Government Departments.

- Implementation of the Institutional Plan including the formation of a Dam Management Committee, Operations Management Committee and Resource Management Plan Steering Committee. As part of this Institutional Plan, it is vital that all agreements are updated to take into account the findings of the Resource Management Plan.
- Implementation of standardised and harmonised Aids to Navigation and Demarcation Markers.
- Implementation of Unique Positioning Number and Wash Bay System at the Dam.

- Design and implementation of a detailed water quality monitoring plan to better understand pollution sources as well as the quality of water entering and within the Dam
- A Rehabilitation Plan should be developed and implemented to rehabilitate the wetland north of the Dam. This should be undertaken through labour intensive methodologies that create temporary employment for local community members.
- Upgrade of Villiersdorp Wastewater Treatment Works should be undertaken.
- Education programmes should be instituted by the Dam Management Commitee to encourage community members to utilise Theewaterskloof Dam. Additional coordination with Row South Africa should take place regarding the roll out of a Junior Rowing School in 2014.
- An Aquatic Invasive Plant Species Plan should be developed in consultation with the Department of Environmental Affairs's Working for Water programme to further contain/manage the aquatic invasive plant species currently at the Dam.
- The feasibility of Commercial Fishing to be determined (especially fishing of Carp). This study must include national and international research on the potential impacts of commercial fishing on water quality. Further, the economic benefit from localized job creation should be weighed against increased water treatment costs. The feasibility study should be made available to the public and authorities (such as City of Cape Town) for comment and discussion.
- A Species Management Programme in line with National Environmental Management Biodiversity Act Legislation to be compiled and implemented.
- Community access card to allow access to community members should be implemented.
- The feasibility of a Public Private Partnership process for the re-opening and management of Dennehof Resort and the creation of an upmarket hotel/resort at the Dam should be determined by the District Municipality. This study should take into account the potential impact on water quality into account.
- The feasibility of opening a High Performance Water Sports Centre should be assessed in conjunction with the South African Sports Confederation and Olympic Committee and South African Sailing.
- Agreements regarding land management, access and recreational use should be updated.

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Acronyms and Abbreviations

AGIS	Agriculture Geographical Information System
AtoN	Aids to Navigation
BAR	Basic Assessment Report
BBBEE	Broad-Based Black Economic Empowerment
BOCMA	Breede-Overberg Catchment Management Agency
BP	Business Plan
CARA	Conservation of Agricultural Resources Act (Act 43 of 1983)
CCA	Carrying Capacity Assessment
CCTM	
CITES	Convention on International Trade of Endangered Species of Wild Fauna and Flora
CIWSP	Cooperative Inland Waterways Safety Programme
COGTA	Department of Cooperative Governance and Traditional Affairs
CPA	Cape Provincial Administration
CPSI	Centre for Public Service Innovation
DAFF	Department of Agriculture, Forestry and Fisheries
DEA	Department of Environmental Affairs
DEADP	Department of Environmental Affairs and Development Planning
DLA	Department of Rural Development and Land Reform
DMC	Dam Management Committee
DMC	Dam Management Committee
DMR	Department of Minerals Resources
DoT	Department of Transport
DWS	Department of Water and Sanitation
FIRE	Finance, Insurance, Real Estate
GBD	Gloria Bay Development
GGP	Gross Geographic Product
GN	Government Notice
GVA	Gross Value Added
Ha	Hectares
I&APs	Interested and Affected Parties
IALA	International Association of Marine Aids to Navigation and Lighthouse Authorities
IDP	Integrated Development Plan
IWRM	Integrated Water Resource Management
LAAP	Local Accountable AtoN Parties
LAC	Limits of Acceptable Change
LED	Local Economic Development
LM	Local Municipality
NEMA	The National Environmental Management Act (Act 107 of 1998)
NEMA	National Environmental Management Act (Act 107 of 1998)
NEMBA	National Environmental Management: Biodiversity Act (Act 10 of 2004)
NEMPAA	National Environmental Management: Protected Areas Amendment (Act 15 of 2009)
NGP	New Growth Path
NSDP	National Spatial Development Perspective
NTU	Nephelometric Turbidity Units

NWRIB	National Water Resource Infrastructure Branch
NWRIB:IEE	National Water Infrastructure Branch: Integrated Environmental Engineering
OMC	Operations Management Committee
PCC	Physical Carrying Capacity
PFMA	Public Finance Management Act (Act 29 of 1999)
PGDS	Provincial Growth and Development Strategy
PPP	Public Private Partnership
PPP	Public Private Partnership
PSDES	Provincial Spatial Economic Development Strategy
RCC	Real Carrying Capacity
RHIB	Rigid-Hulled Inflatable Boat
RMP	Resource Management Plan
RSC	RMP Steering Committee
RWU	Recreational Water Use
SAMSA	South African Maritime Safety Authority
SANBI	South African National Biodiversity Institute
SAPS	South African Police Service
SAR	Sodium Absorption Ratio
SAS	South African Sailing
SASCOC	South African Sports Confederation and Olympic Committee
SDF	Spatial Development Framework
SMME	Small, Medium and Micro Enterprises
SPC	Strategic Plan for Commercialisation
SRSA	Department of Sports and Recreation
TCE	Theewaterskloof Country Estate
THETA	Tourism, Hospitality & Sport Education Training Authority
ToR	Terms of Reference
TR	Treasury Regulations
TSC	Theewaters Sports Club
UPN	Unique Position Number (used in the CIWSP)
USSA	University Sports South Africa
WCBAA	Western Cape Bass Angling Association
WCP	Western Cape Province
WfW	Working for Water
WMA	Water Management Area
WPBAA	Western Province Bank Anglers Association
WSDP	Water Services Development Plan
WULA	Water Use Licence Application
WWF	World Wildlife Fund
WWTWs	Wastewater Treatment Works

1 WHAT IS A RMP AND WHY IS IT NECESSARY?

A Resource Management Plan (RMP) is a management tool which provides guidance on how recreational use at Government Waterworks, such as Dams, should be managed. RMPs focus on the current and future uses of the Dam, as well as requirements that must be met, to ensure the optimal, equitable and sustainable management of the Dam.

According to the Guidelines for the Compilation of RMPs (DWA, 2006), the main aim of the RMP is to "attain the objectives underlying sustainability and to compile workable, functional sustainable access and utilisation plans for water resources and in particular State Dams". A RMP is thus, a planning tool aimed at working within the requirements of existing Government Policy, while taking into account the needs and interests of stakeholders.

A RMP can also be explained as a systematic process for the sustainable development and management of a water resource in the context of social, economic and environmental objectives. In many ways, it shares similarities with Integrated Water Resource Management (IWRM). Hence, one of the main functions of the RMP process is to implement an **Institutional Plan** for the effective management of State Dams. The focus on institutional arrangements is accompanied by a **Zonal Plan** together with a detailed **Strategic Plan**. In addition, a **Financial Plan** provides guidance on funding requirements and funding options. Together these components provide a comprehensive guide on the "what?"; "why?"; "how?" and "who?" of the management of prioritised Government Waterworks.

The RMP lays the foundation required to consolidate objectives for the resource, within the framework of existing policy priorities. The RMP also informs decision-making which may have a direct impact on the resource. Further, the RMP creates a platform to unlock economic potential of the Dam without compromising recreational use of the Dam. Recreational use includes activities which range from leisure, sport to culture and religion. Although recreational use is not consumptive, it is still a major water use and needs to be managed correctly to ensure increased personal, societal and economic benefits with minimal disturbances and environmental impacts.

RMPs are managed by the National Water Resource Infrastructure Branch (NWRIB) of the Department of Water and Sanitation (DWS). This branch is tasked with developing and operating strategic water resource infrastructure in an efficient way so to ensure the needs of the nation are met. This includes minimising business risks to DWS, financing investment and cost recovery.

The RMP also provides a platform for coordination between different spheres of government that have official mandates regarding the management of the Dam. These departments include:

Table 1: Government Departments and Agencies

DEPARTMENT	MANDATE
Department of Transport (DoT)	Responsible for legislation, policy and regulations for all transportation in South Africa, including shipping and other transport by water or sea, including inland waterways.
Department of Environmental Affairs (DEA)	Responsible for biodiversity management within the Dam including alien invasive species.
Nature Conservation	In the case of Theewaterskloof Dam, Cape Nature is responsible for managing a large portion of the land to the north of the Dam (which is adjacent to Hottentot's Holland Nature Reserve)
Department of Agriculture, Forestry and Fisheries (DAFF)	In the case of Theewaterskloof Dam, DAFF is responsible for management of some of the State Land outside the DWS purchase boundary together with Cape Nature. DAFF is also responsible for issuing Fresh Water Angling Permits for fishing.
Department of Water and Sanitation (DWS)	Apart from Operating and Maintaining the Infrastructure, DWS is also responsible for the use of the surface water of the Dam, the Dam Basin and all the land within the purchase boundary
South African Maritime Safety Authority (SAMSA)	Administers and executes maritime related legislation and regulations.
Breede-Overberg Catchment Management Agency (BOCMA)	Although, BOCMA is not responsible for the management of the Dam, it is involved in the management of the catchment which impacts on water quality and quantity.

Each of the Government Departments have their suite of legislation to govern their mandate on the Dam. The RMP consolidates these roles and functions into a coherent management platform.

The RMP presents the twenty-year vision of the Dam which is distilled into 5 year goals and annual Business Plans. Therefore the RMP is a planning tool aimed at meeting the expectations of users without sacrificing the environment.

2 WHERE ARE WE NOW?

2.1 Overview of the Water Management Area

Theewaterskloof Dam falls within the Breede Water Management Area (WMA) which is approximately 12 600 km^2 in size. The topography of the area is characterised by the Franschhoek and Du Toit's Mountains in the west, the Hex River Mountains to the north and the Langeberg Mountains in the east, with a wide Breede River valley and the rolling hills of the Overberg in the south (River Health Programme, 2011).

There are seven Local Municipalities in the region, including Theewaterskloof in the south-west (BOCMA, 2011). Theewaterskloof Dam occurs within this Local Municipality. The population is estimated to be about half a million people (most living within towns and villages).

The climate of the catchment differs extensively with the season. The winters are typically wet and cold (17 °C average) with occasional frost and snow, while the summers are very hot and dry (37 °C average daily maximum). Rainfall patterns also differ markedly from up to 3 000 mm per year in the western mountains, to as low as 150 mm/a in the southern-central valleys.

A significant factor in the catchment is the transfer of water into the Berg River Catchment Area.

2.1.1 Surface Water and River Systems

The Breede River and its main tributary, the Riviersonderend River drain the greater part of the Breede catchment with the Riviersonderend River rising upstream of Theewaterskloof Dam, in the Hottentots Holland and Franschhoek Mountains. Downstream of the Dam, a number of small tributaries join the Riviersonderend River before it reaches its confluence with the Breede River. In the lower reach, the main tributary joining the Breede River is the Buffeljags River, which rises in the Langeberg Mountains (BOCMA, 2011).

The river systems in the catchment are largely classified as Class C – Moderately modified. The ecological state of the rivers generally decreases near urban areas and agricultural areas. One of the main reasons for this is poor agricultural management practices within the riparian zone including altering the river bed and banks. Natural disturbance of the rivers during large floods also alters instream habitat and provides an opportunity for alien invasive plants to establish along the river banks.

Large instream Dams, particularly in the Riviersonderend (i.e. Theewaterskloof Dam), Koekedouw, Buffeljags and Palmiet rivers, have altered flow, while the use of fertilisers have led to eutrophication and habitat modification in many areas (River Health Programme, 2011).

Invasive alien plants are significant water users in several rivers in the Breede-Overberg WMA, consuming water that could be used for other social and economic growth or environmental purposes. Mountain headwaters, the eastern tributaries of the Breede and the Sout River feeding the De Hoop estuary are among the areas deemed the highest priority for rehabilitation programmes to remove alien vegetation. According to the River Health Programme (2011), programmes such as Working for Water (WfW) and the World Wildlife Fund's (WWF) water neutral scheme have begun some alien clearing projects in the catchment.

2.1.2 Land Use

The economy of the Breede-Overberg Region is primarily agricultural (with a third of the current R17 billion economic output directly linked to agriculture) (BOCMA, 2011).

The land use is dominated by commercial agriculture, ranging from intensive irrigation in the Breede and Riviersonderend valleys as well as west of the Overberg. Extensive rain fed

cereal cultivation and livestock farming can be found in the Overberg area. The Breede Water Management Area (WMA) produces annually approximately 70% of South Africa's table grapes, apples and fynbos for international export.

In addition, most of the manufacturing, construction, trade and services economies of the various small towns in the region fundamentally support agriculture and the associated agro-processing industries (BOCMA, 2011).

Some land use in the WMA is for localised tourism purposes (especially along the coastal strip).

2.1.3 Water Quality

According to the Western Cape Department of Environmental Affairs and Development Planning's IWRM Action Plan for the Western Cape (2011), the water quality in the headwaters of the Breede River (and its tributaries) are good but decrease in quality further downstream. This is mainly due to intensive farming activities and geological influences, which results in poor quality return flows.

From the numerous studies, investigations and monitoring information that is available on the subject, the following water quality issues are summarised for the Breede WMA:

The main issues in the WMA are:

- Increased salinity levels as a result of irrigation return flows discharged to the river and the intentional leaching of natural salts where new lands are cleared and soils purposefully leached to prepare those lands for irrigation;
- Nutrient enrichment is also a problem in the area with the occurrence of algal blooms and excessive filamentous algal growth under low flow conditions, clogging of canals by filamentous algae, and aquatic weed infestations (Water hyacinth);
- Microbiological quality is also reduced in some areas due to the discharge of inadequately treated effluent from Waste Water Treatment Works (WWTWs). Diffuse pollution from poorly serviced informal settlements and the use of soak ways on the banks of the Lower Breede River are also of a source of microbiological pollution. Storm water runoff from informal settlements and poorly serviced urban areas has increased microbial counts in receiving rivers. Microbial impacts tend to be localised due to the die-off of pathogens in the water;
- Agrochemicals in Irrigation Return Flows have also been detected, especially in the Hex River Valley. However, as the whole WMA has intensive agriculture, it is expected pesticide residues in irrigation return flows occur in the rest of the Breede River Basin;
- Dissolved Oxygen levels are also reduced through the breakdown of organic compounds. This has an impact on aquatic organisms. Intensive dairy farming and irrigation of wineries is thought to contribute to this issue; and
- Increased turbidity through sand mining activities results in siltation problems in the catchment.

2.1.4 The Social Environment

Less than 1% of the National Gross Domestic Product originates from the Breede WMA with the main drivers of local economy including:

- Agriculture 32%;
- Trade 19%;
- Manufacturing 12%;
- Finance 10%; and
- Government 10%.

Agriculture is the only sector in which the economy of the Breede WMA is highly competitive in the South African context. This is largely due to the Mediterranean climate. In addition, most of the economic production is from the areas where irrigation is practised and where processing and packaging plants are located (DWA, 2004).

2.1.5 Tourism Potential

Theewaterskloof Local Municipality has a rich array of natural attractions. In particular, these include a unique combination of natural scenery, floral diversity and Dams. Some of the more significant attractions are:

- The Cape Floral Kingdom, especially the Kogelberg and the Palmiet;
- The Dams: Theewaterskloof, Eikenhof, Nuweberg, Elandskloof, Mofam and Palmiet;
- The Nature Reserves which include seven Nature Reserves and various conservancies;
- The Hot Springs in Caledon;
- The Bot River Vlei – (birding);
- The area also offers a wealth of heritage resources, including Genadendal Mission Station, a recognised destination in Theewaterskloof, with over 20 buildings listed as national monuments. It is also a listed national heritage site;
- The first railway station to have been constructed outside of Cape Town is found in Theewaterskloof;
- Old Cape buildings and structures;
- Old Cape wagons and slave routes;
- Various museums including a Tractor Museum in Villiersdorp, a special interest attraction with a large number of vintage tractors, and museums at Caledon and Genadendal; and
- Cultural experiences that accompany these i.e. home-stays & community tours with local guides, storytelling, Khoisan history, religious tourism and churches.

Overall, this heritage has not been show-cased for tourism, with no existing wagon tour, un-used station buildings, few home stays or local tours and poor connections between the Genadendal offerings and the established tourism trade in Greyton or Elgin (Theewaterskloof IDP, 2012).

In addition, there are a number of canoe races that require water from Dams to be released to create the correct flow (DWA, 2004).

The proximity of the region to Cape Town is significant in terms of tourism potential and harnessing the tourism market created by Cape Town could improve the economy of the region.

2.1.6 Catchment Management Agency

The Breede Overberg Catchment Management Agency (BOCMA) was established by the Minister of Water Affairs in July 2005, in terms of the National Water Act (36 of 1998). The Governing Board was appointed in October 2007 and the Catchment Management Agency became operational with the appointment of the Chief Executive Officer and staff in 2008 (BOCMA, 2011).

The BOCMA is accountable to the Minister, but reports through the DWS. Some of the important guiding principles for BOCMA are as follows:

- Recognise that water is the **engine of development** in the Breede-Overberg area;
- **Prevent aquatic ecosystems from deteriorating** further by focusing simultaneously on flow, quality and habitat preservation;
- Enable opportunities for **redress of historical inequities** in allocation and then urgently address potential physical, political, social and economic consequences through other means;
- **Reduce waste discharge** at point and non-point sources to avoid water quality problems; and
- Engage catchment and land management role-players and ensure **alignment of these spatial and development planning** process with water strategies.

Many of these guiding principles are important in terms of management of Theewaterskloof Dam as an important resource within the catchment.

2.1.7 Safety of Navigation

In addition to its common law responsibility, DWS is, in terms of the requirements described in the National Water Act, Act 36 of 1998, amongst others, responsible for the safety of Government's waterways and watercourses, including its dams. DWS, its delegated public sector partner, or a delegated water management institution, has therefore the responsibility to provide the required fixed and/or floating Aids to Navigation[1] (AtoN) for general navigation.

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

In order to demarcate specific zones/areas, standardised demarcation markers are to be used in conjunction with the relevant AtoN.

There are currently no adequate, standardised and harmonised fixed and floating AtoN and Demarcation Markers in place.

2.2 Purpose of Theewaterskloof Dam

Theewaterskloof Dam was constructed to transfer water primarily to Cape Town and irrigation in the Berg and Breede WMA, as part of the extensive Western Cape Water Supply System (BOCMA, 2011). Construction of the Dam's 35.46m high earthfill wall was completed in 1980 and provided an overall storage capacity of 480 million m^3 ,with a surface areas of 5100 ha at the full supply level.

The purpose of the Dam is to provide storage for the larger quantities of runoff that become available during the winter rainy season in the upper reaches of the Riviersonderend and are then transferred through tunnels from the Berg River catchments. During the dry summer season water from the Theewaterskloof Dam can be transferred to the Berg River and Eerste River valleys (BOCMA, 2011). A tower within the Dam basin houses the inlet outlet from the tunnel system which links the Dam with the Berg river and Eerste River catchment areas (DWA, 1989).

At the time of being built, approximately 60% of the water yield was provisionally allocated to irrigation water and the rest to the City of Cape Town (DWA, 1989).

2.3 Overview of the Dam

Theewaterskloof Dam falls within Theewaterskloof Local Municipality in the Western Cape Province. As discussed in the previous sections, it also falls within the Breede River Catchment (figure 2).

Below is an overview of the catchment and the Dam.

[1] A marine Aid to Navigation (AtoN) is defined by the International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA) as "*A device or system external to vessels that is designed and operated to enhance the safe and efficient navigation of vessels and/or vessel traffic*".

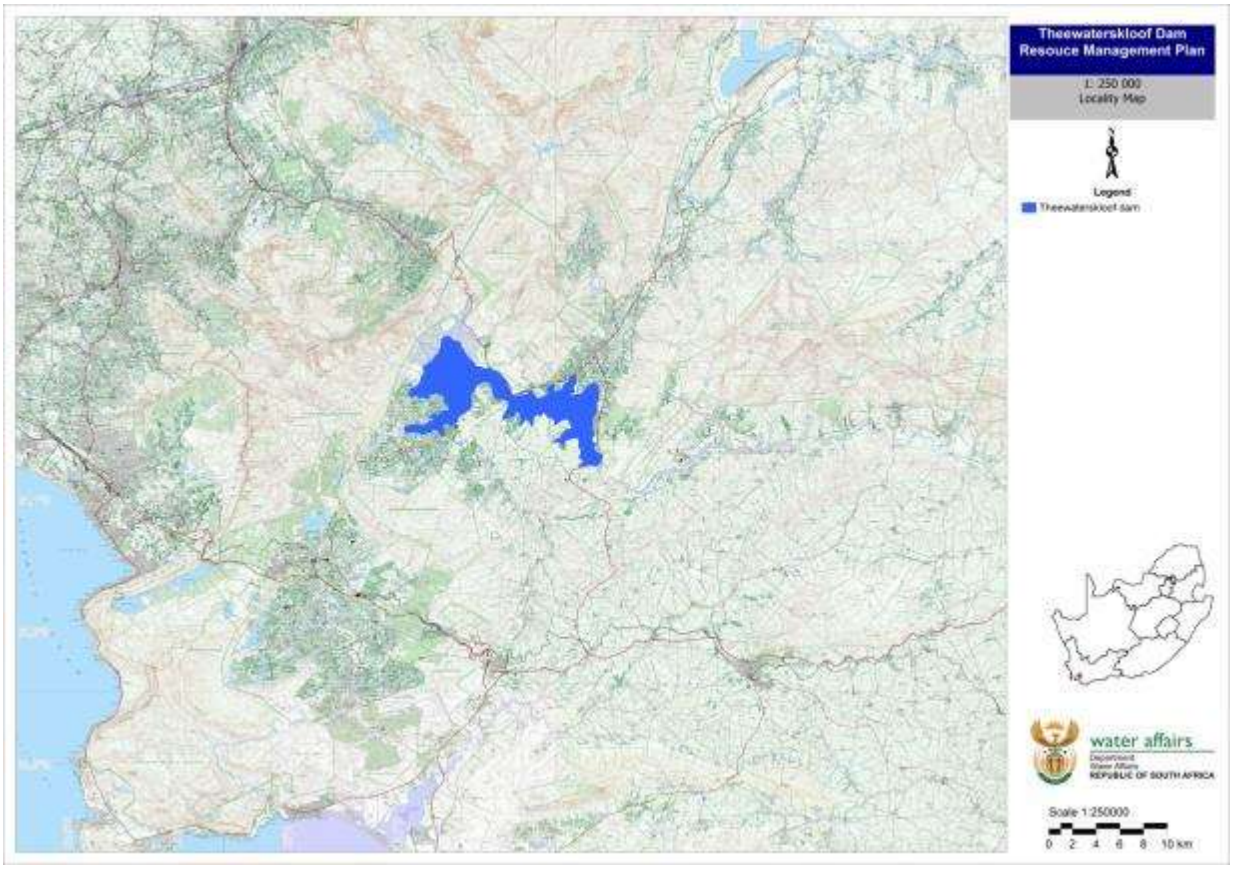

Figure 2: 1: 250 000 Locality Map

Table 2: Overview of Theewaterskloof Dam (DWA, 1989)

Catchment Details	
Total Breede Catchment Area	12 600 km^2
Incremental Breede Mean Annual Runoff (MAR)	1 904 million m^3/annum
Loss (including Dam evaporation and alien vegetation)	-121 million m^3/annum
Total Overberg Catchment Area	7 186 km^2
Incremental Breede Mean Annual Runoff (MAR)	558 million m^3
Loss (including Dam evaporation and alien vegetation)	-72 million m^3/annum
Dam Characteristics	
Year of completion	1980
Purpose	Storage of water for irrigation and urban use
River	Riviersonderend
Nearest Town and Province	Villiersdorp, Western Cape
Type	Earth embankment
Net Storage capacity	480 million m^3
Wall height	35.465m
Crest length	646m
Material content of Dam wall	Earthfill – 960 000m^3 ; concrete – 37 000m^3
Type and length of spillway	Side channel spillway on left flank (75m)
Capacity of spillway	875m^3
Surface area of Dam at full supply	5 100 ha (51 km^2)
Owner, designer and construction	Department of Water and Sanitation
Yield and Assurance (BOCMA, 2011)	204 million m^3
Year of completion	1980

2.4 Legislative Framework

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

The Theewaterskloof Dam RMP was informed by the following policies, legislation, frameworks and strategies:

- Constitution of the Republic of South Africa, (Act 108 of 1996);
- National Water Act (Act 36 of 1998);
- Municipal Systems Act, 2000 (Act 32 of 2000);
- The Development Facilitation Act, 1995 (Act 67 of 1995);
- Communal Land Right Act, 2004 (Act 11 of 2004);
- Restitution of Land Rights Act, 1994 (Act 22 of 1994);
- Intergovernmental Relations Framework Act, (Act 13 of 2005);
- Disaster Management Act, 2002 (Act 57 of 2002);
- Water Services Act, 1997 (Act 108 of 1997);
- State Land Disposal Act, 1961 (Act 48 of 1961);
- Land Administration Act, 1995 (Act 2 of 1995);
- Environment Conservation Act (Act 73 of 1989);
- National Environmental Management Act (Act 107 of 1998);
- National Environmental Management Air Quality Act (Act 39 of 2004);
- National Environmental Management: Biodiversity Act, 2004 (Act 10 of 2004);
- National Environmental Management: Protected Areas Act (Act 57 of 2003);
- National Environmental Management: Waste Act (Act 59 of 2008);
- National Veld and Forest Fire Act, (Act 101 of 1998);
- Minerals and Petroleum Resources Development Act (Act 28 of 2002);
- National Heritage Resources Act (Act 25 of 1999);
- Conservation of Agricultural Resources Act (Act 43 of 1983);
- Tourism Act (Act 72 of 1993);
- South African Maritime Safety Authority Act (Act 5 of 1998);
- National Sport and Recreation Act (Act 110 of 1998 as amended);
- Safety at Sports and Recreational Events Act (Act 2 of 2010);
- Game Theft Act, (Act 105 of 1991);
- Merchant Shipping (National Small Vessel Safety) Regulations, 2007
- National Environmental Management Act EIA Regulations (2010);
- Nature and Environmental Conservation Ordinance, 1974 (No 19 of 1974);
- South African National Biodiversity Institute (SANBI) Biodiversity GIS information;
- The Mountain Catchment Areas Act. 1970 (Act 63 of 1970);
- Western Cape Nature Conservation Laws Amendment Act, 2000(Act 3 of 2000);
- Cape Nature and Environmental Conservation Ordinance, 1974 (Act 19 of 1974);
- Land Use Planning Ordinance, 1985 (Act 15 of 1985);
- Western Cape Nature Conservation Board, 1998 (Act 15 of 1998); and
- Sport and Recreation SA Strategic Plan - 2011-2015.

The Section below provides an overview of how the RMP has considered some of key policies, legislation and strategies.

2.4.1 National Water Act (Act 36 of 1998)

The Act aims to ensure that the Nation's water resources are protected, used, developed, conserved, managed and controlled in ways which take into account (amongst other factors):

- Meeting the basic human needs of present and future generations;
- Promoting equitable access to water;
- Redressing the results of past racial and gender discrimination;
- Promoting the efficient, sustainable and beneficial use of water in the public interest;
- Facilitating social and economic development;
- Providing for growing demand for water use; protecting aquatic and associated ecosystems and their biological diversity;
- Reducing and preventing pollution and degradation of water resources;
- Meeting international obligations;
- Promoting Dam safety; and
- Managing floods and droughts.

Further, Section 113 of the Act makes provision for the recreational use of Dams. It further allows that the Minister may control or prohibit access to Dams and make reasonable charges for the a.) use of; b.) entrance into; and c.) use of any water surface or land associated with any Government Waterworks for recreational purposes.

The definition of water use in the Act includes the use of water for recreational use (Section 21k). Based on this requirement, the Department has published guidelines for recreational use of water and requires the following:

- DWS structures or infrastructure in and around water resources need to be constantly protected and maintained;
- Enforcement through mechanisms such as a Zonal Map, which is developed as part of the RMP process, is essential to resolve conflict amongst users both within the recreational water use; e.g. skiing vs. angling, or with other uses; e.g. agriculture;
- An appropriate degree of policing of irresponsible use should be maintained;
- Establishing water management institutions for the water resource users allows the institutions to charge for their activities therefore improving management and policing which instils a sense of ownership and responsibility among users; and
- Involving Public Private Partnerships (PPPs) could address commercial use but also assist with safety management at the Dam.

Once the RMP has been gazetted, the RMP will regulate access and use of the Dam. It is important to note that users will need to comply with other relevant legislation including the Merchant Shipping (National Small Vessel Safety) Regulations, 2007, The National Water Act, 1998 (Act No 36 of 1998), SAMSA Marine Notices and its Directive on the Standardisation of fixed and floating AtoN and Demarcation Markers on all navigable Inland Waterways in the Republic of South Africa and the relevant provincial ordinances.

According to DWAF (2007) Internal Guideline: Generic Water Use Authorisation Application Process, the term Recreational Water Use (RWU) encompasses the uses of water, including the surface, for:

- The exclusive purpose of sport, tourism or leisure;
- Personal or commercial recreational water use; and
- Activities which contribute to the general health, well-being and skills

development of individuals and society.

In addition, the only water use entitlement that currently applies to RWU is Schedule 1 of the Act. Currently the Act is silent on Commercial RWU (although the Strategic Plan for Commercialisation (2009) does deal with Commercial RWU) and thus it is necessary for the RMP to provide guidance this regard.

2.4.2 GN 654 of May 1964

The only Departmental Regulations limiting RWU at Government Waterworks is Government Notice R654, dated 1 May 1964.

These Regulations are read together with section 113 of the National Water Act (Act 36 of 1998) and only apply to the water surface and surrounding State Land of a State Dam, and not to other water resources.

The Regulations provide guidance on access control, use of firearms and other weapons, speed limits, parking areas, trading, reserved areas, fire management, hygiene, camping and accommodation, access to works, photography, safety rules, reckless and unseemly conduct, damage to property, prohibited areas, protection of fauna and flora, swimming, angling, boat Regulations, water skiing and hydroplaning; and general rules.

2.4.3 Water Services Act (Act 108 of 1997)

The Act outlines the roles and responsibilities for the supply of water and sanitation to citizens. It also recognises the rights of all humans to basic water supply and sanitation services. The management of the Dam cannot compromise the purpose of the Dam especially if it is for domestic water supply.

2.4.4 National Environmental Management Act (Act 107 of 1998) as Amended

The National Environmental Management Act (Act 107 of 1998), or NEMA, as it is simply known, is the foundation piece of legislation for environmental management in South Africa.

Section 2 of the Act has the largest impact on the RMP in that future development and management of the Dam must ensure the following:

- The disturbance of ecosystems and loss of biological diversity both in and around the Dam must be avoided, or, where they cannot be altogether avoided, are minimised and remedied;
- Pollution and degradation of the Dam is avoided, or, where it cannot be altogether avoided, is minimised and remedied;
- The disturbance of landscapes and sites that constitute the nation's cultural heritage is avoided, or where it cannot be altogether avoided, is minimised and remedied;
- Development, use and exploitation of renewable resources and the ecosystems of which they are part do not exceed the level beyond which their integrity is jeopardised;
- A risk-averse and cautious approach is applied, which takes into account the limits of current knowledge about the consequences of decisions and actions; and
- Negative impacts on the environment and on people's environmental rights be anticipated and prevented, and where they cannot be altogether prevented, are minimised and remedied.

Coupled with these considerations, the following is stipulated with regards to integrating social and economic aspects into the purely biophysical aspects of the environment:

> *"Environmental management must be integrated, acknowledging that all elements of the environment are linked and interrelated, and it must take into account the effects of decisions on all aspects of the environment and all people in the environment by pursuing the*

selection of the best practicable environmental option." ***(National Environmental Management Act, 1998 (Act 107 of 1998)***

2.4.5 National Environmental Management: Protected Areas Amendment Act (Act 15 of 2009)

The National Environmental Management: Protected Areas Amendment Act (NEMPA) (Act 15 of 2009) ensures the protection and conservation of ecologically viable areas in the country. It further seeks to achieve co-operative environmental governance and to promote sustainable and equitable utilisation and community participation.

2.4.6 The National Environmental Management: Biodiversity Act (Act 10 of 2004)

The National Environmental Management: Biodiversity Act (NEMBA) (Act 10 of 2004) provides for the consolidation of biodiversity legislation through establishing national norms and standards for the management of biodiversity across all sectors and by different management authorities.

Chapter 4, Part 2 of the Biodiversity Act provides a listing of species as threatened or protected. If a species is listed as threatened, it must be further classified as critically endangered, endangered or vulnerable. The Act defines these classes as follows:

- **Critically endangered species:** any indigenous species facing an extremely high risk of extinction in the wild in the immediate future.
- **Endangered species**: any indigenous species facing a high risk of extinction in the wild in the near future, although it is not a critically endangered species.
- **Vulnerable species**: any indigenous species facing an extremely high risk of extinction in the wild in the medium-term future; although it is not a critically endangered species or an endangered species.
- **Protected species:** any species which is of such high conservation value or national importance that it requires national protection. Species listed in this category will include, among others, species listed in terms of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

Certain restricted activities are regulated on listed species using permits by a special set of regulations published under the Act. Restricted activities regulated under the Act are keeping, moving, having in possession, importing and exporting, and selling. The first list of threatened and protected species published under NEMBA was published in the government gazette on the 23rd of February 2007 along with the Regulations on Threatened or Protected Species. Many Dams around South Africa are likely to have threatened or protected species. The management of these species in line with NEMBA must be taken into account in the RMP and by managers at the Dam.

2.4.7 National Environmental Management: Biodiversity Act (Act 10 of 2004): Alien and Invasive Species Lists, 2014 (GN 599 of 2014)

The Alien and Invasive Species Lists were promulgated on 1 August 2014. They provide certain prohibitions of use of Invasive alien species. This includes Catch and release of a specimen of a listed invasive fresh-water fish or listed invasive fresh-water invertebrate species. However certain exemptions apply depending on the area and species in question. The details are provided in Notice 3 of the Species List and include:

Species	Category/Area
Large-mouth bass	a. a. 2 in National Parks, Provincial Reserves, Mountain Catchment Areas and Forestry Reserves declared in terms of the Protected Areas Act. a. 3 in all rivers, wetlands, natural lakes and estuaries in which it

	occurs. b. 2 for conveying, moving or otherwise translocating a live specimen. c. d. Large-mouth bass is not listed for dams within discrete catchment systems in which it occurs (excluding (a) above).
Common carp	a. Ib in National Parks, Provincial Reserves, Mountain Catchment Areas and Forestry Reserves declared in terms of the Protected Areas Act. b. 2 for release into a dam within a discrete catchment system in which it occurs. c. 3 in all rivers, wetlands, natural lakes and estuaries in which it occurs. d. Subject to b, common carp is not listed for dams within discrete catchment systems in which it occurs.
Bluegill	a. 1 b in National Parks, Provincial Reserves, Mountain Catchment Areas and Forestry Reserves declared in terms of the Protected Areas Act. b. 3 for all other discrete catchment systems in which it occurs.

Largemouth Bass, Carp and Bluegill occur in Theewaterskloof Dam. The western section of the Dam occurs within a protected area.

However, Common carp and Bass are exempted listed as category 2 for a period of two years from the date upon which this notice takes effect, from requiring a Permit for any restricted activity in terms of the Act or Alien and Invasive Species Regulations, 2014, provided a person is in possession of a valid Provincial Permit issued in terms of Provincial legislation where required for the species.

2.4.8 The National Environmental Management: Biodiversity Act (Act 10 of 2004): Alien and Invasive Species Regulations (GN 33683 of 19 July 2013)

The Alien and Invasive Species Regulations require the development and coordination of Species Management Programmes for all Invasive Species listed in Category 1B.

These species management programmes must stipulate the following:

- The listed invasive species to which it relates;
- The measures to eradicate or control the listed invasive species;
- The areas in which the measures are to be applied; and
- The schemes to fund the measures, if applicable.

Species monitoring, control and eradication plans are also required and the Department will publish guidelines on the compilation of these documents within a year of the publication of the regulations.

The Regulations provide for a register of alien and listed invasive species to be compiled. In addition, all research on invasive species needs to be lodged. This has implications for the RMP as any small-scale fishery proposals or alien invasive management plans will need to be approved in line with these regulations.

2.4.9 The Municipal Systems Act (Act 32 of 2000)

The Municipal Systems Act (Act 32 of 2000) serves to provide the framework to enable municipalities to ensure access to essential services to their citizens. The Act gives priority to the basic needs of the community, but also gives local government the freedom to set tariffs, and charge for services independently of other municipalities, providing that decisions made are in the best interest of the community.

The Act is of particular relevance to the RMP process, as it requires integrated planning from all spheres of government to ensure equitable and accessible municipal services. This means that any planning or policy-making must be in line with local government policies, planning and initiatives.

2.4.10 Conservation of Agricultural Resources Act (Act 43 of 1983)

The Conservation of Agricultural Resources Act (CARA) (Act 43 of 1983) seeks to provide for the conservation of natural agricultural resources by maintaining the production potential of land,

combating and preventing erosion and weakening or destruction of water resources, protecting vegetation and combating weeds and invader plant species.

Given that much of the land surrounding the Dam is State Owned Land it needs to be managed in such a way that it reduces the threat and spreading of invasive alien species.

In addition, Invasive Alien Plants are known to use significant volumes of water in correlation to the plants biomass and thus affect the volume of water available for use.

2.4.11 Public Finance Management Act (PFMA) (Act 29 of 1999)

The object of the Act is to secure transparency, accountability and sound management of the revenue, expenditure, assets and liabilities of Government Departments.

The Act promotes the objective of good financial management in order to maximise service delivery. The Act allows DWS to enter into PPP agreements with the private sector for the commercial use of state assets.

2.4.12 Treasury Regulations of 15 March 2005

Section 76 of the Public Finance Management Act (PFMA) (Act 29 of 1999) provides for the making of Regulations for governing the efficient use and financial management of State Resources.

Section 16 of the Treasury Regulation provides guidance on PPP including the process that needs to be followed, procurement and management of PPPs.

2.4.13 Safety at Sports and Recreational Events Act (Act 2 of 2010)

The purpose of the Safety at Sports and Recreational Events Act (Act 2 of 2010) is to provide measures to safeguard the physical wellbeing and safety of people at at sports, recreational, religious, cultural or similar events held at stadiums, venues or along a route. It also provides for the accountability of event role-players. The Act also provides for Access Control Officers which can be appointed by the Event Organisers. These officers control access of both people and motor vehicles to an event and prevent a person from entering or requesting that a person leaves should the need arise. The act also allows for Peace Officers to be in charge of search and seizures at an event.

The Act also specifies that an Event Planning and Safety Committee must be set up for all events categorized as medium or high risk. This committee should include the following stakeholders:

- The National Commissioner or an authorised member;
- A local authority disaster management department or centre;
- A controlling body, in respect of high-risk events only;
- A stadium or venue owner;
- The event organiser; and
- An emergency service provider.

2.4.14 Merchant Shipping (National Small Vessel Safety) Regulations (GN.R 705 of 8 August 2007)

The National Small Vessel Safety Regulations, 2007 were promulgated under Section 356 of the Merchant Shipping Act (Act 57 of 1951) and provides a number of requirements including:

- Vessel Safety Requirements; and
- Crewing.

It also provides the provision of an Enforcement officer who can board and inspect a small vessel and its appliances and equipment ,ask any pertinent questions of, and demand all reasonable assistance from the owner or skipper or any person who is in charge or appears to be in charge of the vessel. The enforcement officer may request documents or certificate required by these regulations etc. to be produced. An Enforcement officer may, in order to ensure compliance with these regulations and in the

interests of public safety direct the movement of a vessel or prohibit the operation of the vessel.

2.4.15 South African Maritime Safety Authority Act (Act 5 of 1998)

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

2.4.16 Nature and Environmental Conservation Ordinance (No 19 of 1974)

The aim of the Nature and Environmental Conservation Ordinance, 1974 was to consolidate and amend the laws relating to nature and environmental conservation including the establishment of the Department of Nature and Environmental Conservation, establishment of provincial and local nature reserves, protection of fish in inland waters, management of angling, management of noxious aquatic weeds and protection of wildlife and flora.

2.4.17 Cape Nature and Environmental Conservation Ordinance (Act 19 of 1974)

The aim of the Nature and Environmental Conservation Ordinance, 1974 was to consolidate and amend the laws relating to nature and environmental conservation including the establishment of the Department of Nature and Environmental Conservation, establishment of provincial and local nature reserves, protection of fish in inland waters, management of angling, management of noxious aquatic weeds and protection of wildlife and flora.

2.4.18 Land Use Planning Ordinance, (Act No 15 of 1985)

The purpose of the ordinance is to regulate land use and to provide for incidental matters related to land use.

2.4.19 Western Cape Nature Conservation Board (Act 15 of 1998)

The purpose of this act is to promote and ensure nature conservation, render services and provide facilities for research and training and to generate income. Agreements related to biodiversity are signed under this act.

2.4.20 Western Cape Nature Conservation Laws Amendment Act (Act 3 of 2000)

The Act contains amendments to the Cape Nature Act, 1998 and the Nature Conservation Ordinance, 1974. The Amendment Act provides for the amendment of various laws on nature conservation in order to transfer the administration of the provisions of those laws to Cape Nature.

Further, it amends Cape Nature Act, 1998 to provide for a new definition of Department and the deletion of a definition.

It also provides for an increase in the number of members of the Board, provides for additional powers of the Board and amends the provisions regarding the appointment and secondment of persons to the Board.

2.4.21 Overberg Regional Council By-Law Relating to the Control of Boats and Boating on Theewaterskloof Dam

The By-Law provides guidance on a number of issues including the operation and control of boats on the Dam, water skiing, unacceptable behaviour and polluting of the Dam. It also provides certain powers to authorized officers to remove anyone contravening the by-law from the water.

2.4. Existing Plans

An RMP cannot function in isolation and so all associated planning initiatives must be considered and used to inform the development of the RMP.

The following planning initiatives were taken into account in developing the RMP:

- The IDP of Theewaterskloof Local Municipality;
- The Overberg District Council's Theewaterskloof Dam and Environs Spatial Development Framework (1998);
- The Water Services Development Plan of the affected LMs;
- The Strategic Framework of Water Services, 2003;
- The Provincial Spatial Economic Development Strategy, 2003;
- National Spatial Development Perspective, 2006;
- The New Growth Path, 2012; and
- The Cooperative Inland Waterways Safety Programme (CIWSP).

2.4.1. The Cooperative Inland Waterways Safety Programme (CIWSP)

The Cooperative Inland Waterways Safety Programme (CIWSP) project is a partnership between multiple government entities and between the government and the community. The aim is to enhance the development of a best practice model to ensure a safe and structured inland maritime environment and culture, whilst protecting the country's precious water resources.

Theewaterskloof Dam is one of the pilot projects for the CIWSP and thus the RMP integrates information from the CIWSP into the management objectives for the Dam.

Figure 3: Relationship between RMP and Planning Initiatives

2.5. Socio-Economic Environment

Theewaterskloof Local Municipality is the largest local authority in the Overberg District, embracing the City of Cape Town on its western boundary and sharing the eastern coastline with the Overstrand Local Municipality. It is the most populous municipality in the Overberg District (44% of the total district population). Its economic activity, as measured by Gross Regional Product, accounts for 41% of the broader District economy.

Unless otherwise indicated, all information in the section was obtained from the Census 2011 (Statistics South Africa, 2011) data.

2.5.1. Population

Theewaterskloof Local Municipality has a population of 108 790 persons. The population of 15-34 age groups and the 35-64 age group account for 34% and 36% of the population respectively. This means that 70% of the population are of working age.

Youth in total account for 61% of the population indicating that youth are expected to contribute towards the households bearing more responsibility than what is normal. Only 5% of the population are over 65 years of age.

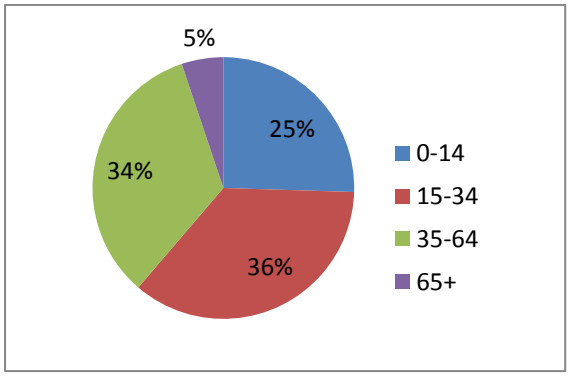

Figure 4: Population

2.5.2. Education

87% of the population in LM have received some level of education. 45% of the population has received some form of higher education. This indicates that with a trend of a large section of the population being of working age, that there should be sufficient capacity within the local community to accommodate an increase in the tourism sector.

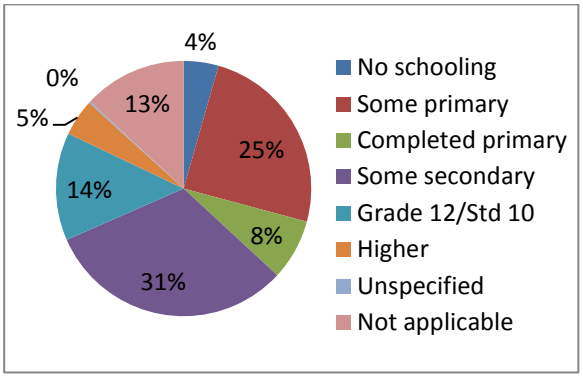

Figure 5: Education Level

2.5.3. Employment

17% of the people in the LM are unemployment. 43% of persons are employed while 40% of the population is not economically active.

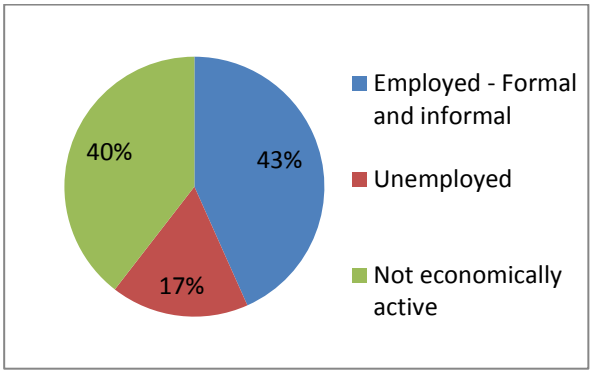

Figure 6: Employment Status

Many of the people living around the Dam are farm workers who are often marginalised.

2.5.4. Monthly Personal Income

Personal income is grouped into the following brackets:

- No income R0
- Low Income R1 - R3 200
- Middle Income R3 201 - R 25 600
- High Income R25 601+

The figure below shows monthly income per person for 2011. 39% of the population earn no income at all. 34% of the population are low income earners while, only 1% of the population earn in the high income bracket.

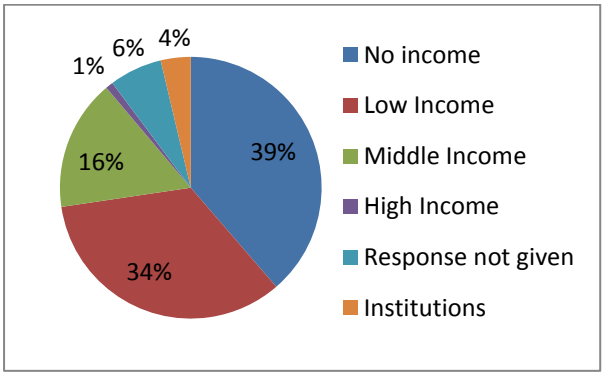

Figure 7: Income status

2.5.5. Gross Value Added

Gross Value Added (GVA) is defined as the total value of all the goods produced in a specific area during a specific period.

Quantec Research defines the major sectors into Primary Sector, which is extractive, Secondary Sector, which is made up of manufacturing and the Tertiary Sector, which comprises of services. The figure below shows the GVA per sector for 2011. This data is taken from Quantec Research and the variables are explained below.

Primary Sector:

- Agriculture, forestry and fishing;
- Mining and Quarrying

Secondary Sector:

- Manufacturing. This includes food, beverages and tobacco; textiles, clothing and leather goods; wood, paper, publishing and printing; petroleum products, chemicals, rubber and plastic; other non-metal mineral products; metals, metal products, machinery and equipment; electrical machinery and apparatus; radio, TV, instruments, watches and clocks; transport equipment; and furniture and other manufacturing.
- Electricity, gas and water; and
- Construction

Tertiary Sector:

- Wholesale and retail trade, catering and accommodation. This sector represents the tourism sector through catering and accommodation and the sale of goods through trade.
- Transport, storage and communication;
- Finance, insurance, real estate and business services;
- Community, social and personal services; and
- General Government

In total, Theewaterskloof LM contributed R 2 727.34 million to GVA. General government contributed 30% to GVA of Theewaterskloof LM indicating a dependence on the municipality for job creation. Agriculture contributed 21% to GVA while community and social services contributes 16% to GVA.

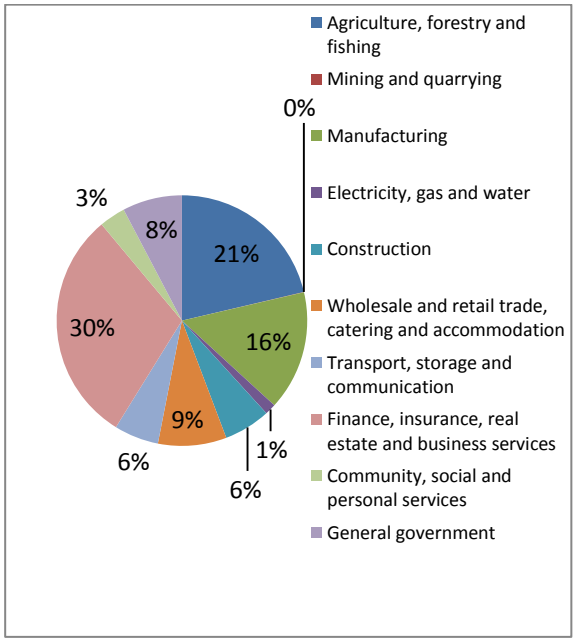

Figure 8: GVA

2.6. Development Potential

The development potential of Theewaterskloof Dam and the surrounding town is relatively high especially in terms of tourism. Firstly, the Dam occurs in relatively close proximity to Cape Town which has a blossoming tourism industry. To a certain extent this tourism aspect has been captured with the catering & accommodation sector (linked to tourism), contributing R203.6 million or 13.9% to the local economy (IDP, 2012).

The area also has a number of attractions including:

- A Tractor Museum which is a special interest attraction with a large number of vintage tractors;
- Tractor tours,
- Wine Tasting;
- Kroonland 4 x 4 adventure route;
- Hiking trails;
- Elliots Art Facility which offers premier art courses;
- The Dagbreek Museum which that dates back to 1845 and was declared a monument in 1994;
- The historical home, Oude Radyn, which is possibly the only building in the Cape to have Batavian wooden gutters and downpipes;
- Water sports at Theewaterskloof Sports Club;
- The area has unique biodiversity and has a number of Nature Reserves and Protected Areas including Hottentot's Holland which is adjacent to Theewaterskloof Dam; and
- The area has a wealth of bird species.

At this point, the area has not utilised its biodiversity offerings to the full extent. The absence of direct access to Kogelberg from the area is a key constrain. The IDP also lists a lack of infrastructure at the Dams in the areas as a limiting factor.

Through new and continued partnerships with Theewaters Sports Club (TSC), South African Sailing (SAS) and other SASCOC accredited bodies, there is a potential to make Theewaterskloof Dam the training and development centre for water sports in the Western Cape and South Africa.

Some local community members who took part in a Focus Group also highlighted the potential for local community access for walks/hikes around the Dam.

Due to the high income estates near the Dam, there is also potential for more high income accommodation around the Dam. However, there is concern that this would make the Dam inaccessible to the local community members.

2.7. Access and Infrastructure

In terms of management of access, the Dam can be separated into two distinct areas. The first area, south of Draaiberg Bridge is a public area. The second area is north of the Draaiberg Bridge and is managed by CapeNature. This area is restricted and requires a permit from DWS.

In the first area, the main access point to the Dam is through TSC. In addition, the Theewaterskloof Country Estate (TCE) (Golf Course) also has a slipway. This allows residents and holiday makers to launch their vessels onto the Dam. An informal agreement is in place between TSC and the TCE where TCE has purchased registration to the TSC to allocate to its guests. A record of launches is then kept by TCE and submitted to TSC.

The registration fees paid to TSC are used to cover the safety officer's salary and the maintenance of the TSC safety vessels.

Dennehof Holiday Resort which is managed by the Overberg District Municipality also has access to the Dam. The Holiday Resort was recently closed down. A slipway does exist

however due to a lack of proper control, the slip way is no longer used and Dennehof only provides access for swimming and fishing.

Gloria Bay Residential Development (GBD) also has a communal slipway for use by residents only.

2.8. Biophysical Environment

2.8.1. Water Quality

DWS Resource Water Quality Services undertakes some monitoring at two points in Theewaterskloof Dam. However, no monitoring has taken place since 2011 at the one point. In 2010, the measured pH was high (4.64). The Maucha diagram also indicates higher levels of Chloride and Sodium ions (DWS, 2012).

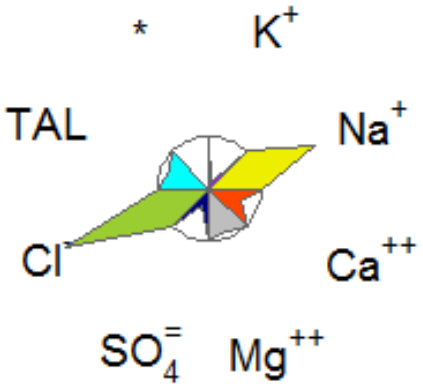

Figure 9: Maucha Diagram for Monitoring Point 1

Monitoring at the second site has been consistently undertaken by DWA (DWA, 2012). The Maucha diagram below follows the same trend with higher levels of Chloride and Sodium ions.

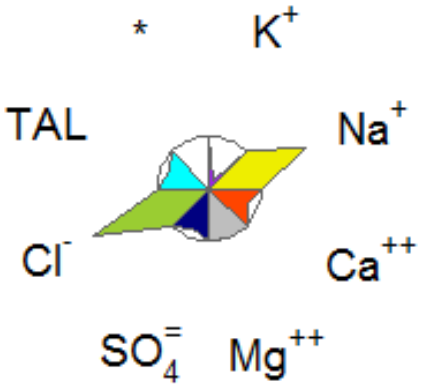

Figure 10: Maucha Diagram for Monitoring Point 2

In addition, consultation with City of Cape Town Metropolitan (CCTM) has indicated that the water quality (for drinking purposes) at the Dam is low. In particular there is a growing concern about algae blooms which occur seasonally. Geosmin in the water also results in increased raw water treatment costs.

Growing Carp populations has increased turbidity in the Dam and the water transferred to the Berg River Catchment (into the Berg and Eerste Rivers) has also been noticeably more turbid (River Health Programme, 2011).

Some of the concerns regarding water quality are related to Villiersdorp WWTWs. However, according to the Theewaterskloof IDP (2012), the Villiersdorp WWTW is in a good condition and is well-maintained. The WWTW operates within 50% of its hydraulic and 60% of the organic design capacities. A Consulting Engineering firm was appointed to oversee the upgrade of the works to comply with the special effluent quality standards as required by DWS (Theewaterskloof IDP, 2012). The Villiersdorp WWTW has 94.44% microbial compliance but only 48% waste water quality compliance.

2.8.2. Aquatic Invasive Plant Species

Although there are some aquatic invasive plant species at Theewaterskloof Dam, the main infestation is caused by indigenous species that have become problematic (Sharp, 2013). The only invasive floating macrophyte present on the system currently is *Myriophyllum aquaticum*,

Parrots feather. Under existing legislation: (NEMBA, 2008), it is listed as a Category 1b invasive species.

Figure 11: Myriophyllum aquaticum (www.invasives.org.za)

The submerged species include *Potamogeton schweinfurthii, P. pectinatus* and *Ceratophyllum demersum* (an indigenous species which has become invasive)

Figure 12: Ceratophyllum demersum (www.invasives.org.za)

Approximately, 100 ha of the Dam is covered by invasive reeds such as *Arundo donax* or Giant Spanish reed (Sharp, 2013). *Arundo donax*, giant Spanish reed forms dense stands invading watercourses and as well as dry lands. The plants are large and robust, up to 6m tall and can outcompete other reeds.

Figure 13: Arundo donax (www.invasives.org.za)

2.8.3. Terrestrial Invasive Plant Species

A large number of alien species occur in the catchment which surrounds the Dam. These include the following (Kotze et al., 2010).

- *Acacia baileyana, dealbata & mearnsii;*
- *Acacia Cyclops;*
- *Acacia melanoxylon;*
- *Acacia saligna;*
- *Agave* spp.*;*
- *Arundo donax;*
- *Atriplex nummularia;*
- *Caesalpinia decapetala;*
- *Cereus jamacaru;*
- *Cestrum* spp.*;*
- *Chromolaena odorata;*
- *Eucalyptus* spp.*;*
- *Hakea* spp.*;*
- *Jacaranda mimosifolia;*
- *Lantana camara;*
- *Melia azedarach;*
- *Opuntia* spp.*;*
- *Pinus* spp.*;*
- *Populus* spp.*;*
- *Prosopis* spp.*;*
- *Psidium gaujava;*

- *Rosa rubignosa;*
- *Salix babylonica;*
- *Senna didymobotrya;*
- *Sesbania punicea;*
- *Solanum mauritianum;* and
- *Tamarix chinensis.*

According to the River Health Programme (2011), there is considerable water loss from river systems by invasive alien plants. Indications are that further substantial losses in river flow, particularly during the low flow season, are likely should the increased spread and densification of invasive alien plants not be actively and timeously prevented.

The Working for Water (WfW) Programme is actively clearing alien invasive trees from priority areas in the water management area. Invasive alien plant removal priorities in the Breede Catchment are Witels, Witte, Holsloot, Du Toits, Riviersonderend above Theewaterskloof Dam (River Health Programme, 2011). The wetland around the northern part of the Dam has also been cleared.

2.8.4. Fauna

2.8.4.1. Fresh Water Fish

Freshwater Ecosystem Priority Area maps provide guidance on how many rivers, wetlands and estuaries, and which ones, are needed for protecting representative aquatic biodiversity and ecological functioning of South Africa's freshwater ecosystems.

Fish species such as *Sandelia capensis* (Cape Kurper), *Galaxias breede slow*; *Pseudobarbus burchelli* (Tradou Redfin) are found in the sub-water management areas surrounding the Dams.

2.8.4.2. Amphibians

The Western Cape Province (WCP) has 54 described frog species. Of these, three are Critically Endangered, four are Endangered, one is Vulnerable, six are Near Threatened and at least three remain to be described as new species and have their threat status formally evaluated.

More than half of the frogs in the WCP are endemic to this Province. Two South African species alien to the WCP have been recorded. There is only one invasive species (guttural toad) that is not indigenous at the provincial level although there are some large-scale movements of an indigenous species (painted reed frog) within the province.

Using the South African Frog Atlas Project (www.sarca.adu.org.za), *Amietophrynus rangeri , Arthroleptella villiersi , Heleophryne purcelli , Hyperolius horstockii , Poyntonia paludicola* and *Strongylopus grayii* were found in the quarter degree grid which surrounds the Dam.

2.8.4.3. Reptiles

One hundred and fifty-three reptile species and subspecies have been recorded in the WCP. Of these, 22 are endemic to the WCP and eight species are alien to the WCP.

2.8.4.4. Mammals

The WCP has 172 described mammal taxa (species and subspecies). Of these, 19 are Threatened listed in the South African Red Data Book, based on regional assessments. Three are Critically Endangered, four are Endangered, ten are Vulnerable and 18 are Near Threatened. The plant diversity and diversity of vegetation communities of the WCP provides a diverse landscape and a variety of habitats for which evidence suggests an associated level of speciation in other taxa, including mammals (Birss and Palmer, 2012).

Due to the agricultural nature of much of the land surrounding Theewaterskloof Dam, large mammal species are not expected. However in Hottentot's Holland Nature Reserve (which adjoins Theewaterskloof Conservancy and the Dam), many animals have been re-introduced, including the rare Cape mountain zebra, eland, bontebok and red hartebeest. Populations of grey rhebuck, klipspringer, common duiker and grysbok occur and, while leopards frequent

these mountains, they are seldom seen (CapeNature, 2010).

According to CapeNature, one of the concerns regarding mammals in the area is the large number of feral dogs in the area which have formed packs (D Dreyer, pers comm. 23 October 2012). In addition, during summer when the water level is low, it is possible for large herbivores to pass out of the reserve onto the road. This can result in accidents.

2.8.4.5. Avifauna

A list of recorded bird species was obtained using the Avian Demography Unit MyBirdPatch database (www.mybirdpatch.adu.org.za) which includes data from the South African Bird Atlas Project 1 and 2 (ADU, 2013). An area around Theewaterskloof Dam was selected and a list of bird species occurring in this area was then generated. The list contains 272 bird species including Sacred Ibis, Fish eagles, Hawks, Lanner falcons, Kites, Sunbirds, Herons, African Hoopoes, Aquatic waders, Cormorants, Gulls, Kingfishers, Blue Cranes, Egrets, Hamerkoppe and Egyptian geese, to mention but a few.

Species such as the Blue Crane is also of concern and is listed as vulnerable in the Eskom Red Data Book of Birds of South Africa, Lesotho and Swaziland (Barnes, 2000). The species has declined in much of its former stronghold mostly due to habitat loss, but has adapted well to the artificial habitat of the wheat producing areas of the WCP (Shaw, 2003) to such a degree that it is estimated that about 50% of the total population now occurs in the WCP (McCann, 2001) (Shaw and Waller, 2012).

2.8.4.6. Alien Fauna

Alien fish species were introduced into the rivers and Dams of the water management area from 1880 onwards for angling purposes and to provide food. Many of these species found the inland waters of this region much to their liking and 12 species have become invasive, with severe predatory and competitive impacts on indigenous fish species and associated biota (River Health Programme, 2011).

In addition, alien fish species are one of the greatest threats to the indigenous fish in the region. They are the prime reason why several indigenous fish species, especially small species (e.g. Barrydale redfin, Heuningnes redfin) are now restricted to tiny areas where alien fish are absent (Jordaan et al., 2012).

Numerous stakeholders have also raised concerns regarding the population growth of Carp which has resulted in increased turbidity in the Dam (Sean Hermann, pers comm, 07 February 2013). The increased population is also seen to have impacted the bass fishing as well as the freshwater biodiversity in the Dam.

2.9. Heritage

The Dam is situated in an area with a rich heritage background. Early records of human life in the Breede-Overberg Area indicate that it was first occupied by Stone Age people, ancestral San, who lived mainly along the coast where food and water were plentiful. Archaeologists believe that they may have been responsible for the intertidal fish traps built between 7 000 and 3 300 years ago, remnants of which can be found at Cape L'Agulhas. Rock paintings are also found in the Tradouw's Pass and in the De Hoop Reserve.

Some Early Stone Age hand axes dating from between 1 million to 800 000 years ago were found by recreational users at the Dam and verified by the Iziko SA Museum

The Villiersdorp corridor was one of the few geographical openings for massive seasonal migrations of animals from the coastal Fynbos and Renosterbos to the seasonal Karoo grazing areas. Ancient hunters and predators probably had easy pickings as herds concentrated through the narrow corridor.

The Khoekhoe, who originated in the Zambezi Valley, migrated southwards into the area approximately 2 000 years ago. They were pastoralists and pottery-makers and introduced the first cattle and sheep to the area. They were also nomadic and moved regularly from place to place to make use of seasonally available grazing and other resources such as water. Three

Khoekhoe tribes were known to occur in this area, the Chainouqua who lived east of the Hottentots Holland Mountains and south-west of the Riviersonderend River, the Hessequa between the Riviersonderend and Mossel Bay (River Health Programme, 2011).

After 1707, the Dutch in the Cape began to encourage the expansion of agriculture into the Breede and Overberg Areas. This occurred mostly along the transport routes from the present day Sir Lowry's Pass, to Caledon, and along the Riviersonderend River to SwellenDam. There are a number of museums in the area showcasing this history.

2.10. Current Institutional Arrangement

2.10.1. Official Institutional Structure

DWS is the official custodian of Theewaterskloof Dam.

The control of the surface water and the land east of Draaiberg Bridge was signed over to the Cape Provincial Administration (CPA) (now CapeNature). Further, a 1992 memo shows that DWS suggested the transfer of control of the whole surface area to the CPA. The memo also suggested that a DWS boat be given to CPA to enable monitoring. No agreements showing this transfer were available.

However, according to Theewaterskloof Dam and Environs Spatial Development Framework (SDF) (1998), control of the **whole** water surface area was vested with CapeNature who in turn, vested the physical control to its agent, Theewaters Sports Association (now the Theewaters Sport's Club – TSC). Although this was the intention, this agreement was never implemented.

However, as of a recent agreement, Cape Nature no longer manages the surface water past the Draaiberg bridge.

Other important government structures that have an official management role include SAMSA, the Department of Public Works and the Department of Sports and Recreation.

2.10.2. Informal Institutional Structure

Currently, TSC manages access to the Dam. They are also responsible for safety and have an emergency rescue boat and safety officer employed at the Dam. There is a letter between DWS and TSC regarding their roles and responsibilities however there is no formal agreement in place. The General Manager of the TSC provides feedback to the DWS Southern Operation's office.

TSC also has an informal agreement with the TCE. In return for purchasing registration to TSC and allocating it to visitors (and recording all boat launches), the TCE has access to the Dam via a private slipway.

The rules and responsibilities of TSC, TCE, GBD and DWS are somewhat unclear especially in light of the standardised AtoN and demarcation markers requirements. Initial payment for the AtoN and demarcation markers (for general navigation) will be undertaken by DWS. However, the provision and maintenance of the demarcation markers at TSC and other Bodies will be for the cost of the latter.

2.10.3. Management of the Water Surface

Management of the water surface and infrastructure (including AtoN and demarcation markers related to the Dam wall) is carried out by DWS. However, monitoring of the current buoyage system is carried out by TSC. The maintenance of the buoyage system remains the responsibility of DWS.

The rules and responsibilities of either party are somewhat unclear especially in light of the standardised AtoN and demarcation markers requirements. Initial payment for the AtoN and demarcation markers (for general navigation) will be undertaken by DWS. However, the provision and maintenance of the demarcation markers at the Boat Club and other Bodies will be for the cost of the latter.

Further, the wash bay system, as part of the CIWSP, is built on State Land at the TSC . The

operation and management of the system will be by agreement.

2.10.4. Access

The official access point is through the TSC. As part of the CIWSP programme, the wash bay system has been built on State Land at the entrance to the TSC.

Although TSC charges an entrance fee to the Dam, this price is reduced for people who live within the Theewaterskloof Local Municipality. The Sports Club also charges an annual registration fee for all vessels. These vessels are then provided with a sticker is checked by the Safety Officer. In addition, there is a launching fee per boat.

As mentioned above, TCE also has a slipway which is managed through an informal agreement with TSC. TCE purchases registration to TSC which it then allocates to visitors. They also keep a record of boat launches at their slipway.

Dennehof Holiday Resort which was managed by the Overberg District Municipality also has access to the Dam. A slipway does exist however it is no longer used and Dennehof only provides access for swimming and fishing. The resort is currently closed.

Gloria Bay Residential Development also has a communal slipway for use by residents only.

In addition, a number of farms have caretaker agreements with DWS and thus have waterside access for the residents of the farms only.

2.10.5. Permits

A Freshwater Angling License is required for all fishing activity in the Dam. This license can be obtained from CapeNature.

The north-western portion of Theewaterskloof Dam forms part of the Theewaterskoof Conservancy and is currently zoned as a restricted zone for use by permit holders only. Currently, this includes Bass Fisherman. Previously this section was managed by Cape Nature and the Western Cape Bass Angling Association (WCBAA) had an informal agreement (email) from CapeNature allowing them access into the restricted zone for fishing purposes. However, no specific restricted area permits are required.

However, Cape Nature no longer manages this area (as of a recent agreement) and thus permits to the restricted area are required from DWS.

2.10.6. Safety

TSC is responsible for safety on the water surface. The club owns two boats and also employs a Safety Officer which undertakes patrols. Although there is no specific safety agreement, the old lease agreement does specify that the Club is responsible for safety. A General Boating Rules booklet is available and all vessels entering the club are required to register. They are then issued with a safety booklet, a registration disc and the Rescue Service telephone number sticker. The registration disc and sticker must be fixed to the boat in a prominent position.

TSC is also responsible for landside safety on the TSC property. Landside safety around the rest of the Dam is not regulated although caretaker agreements between DWS and adjacent farmers are currently being signed.

These draft caretaker agreements with adjacent landowners do not deal specifically with safety however issues such as fire breaks; fire fighting; alien invasive plant management; cutting of trees; hunting; cattle grazing are discussed.

In addition, there is a Theewater's Firefighting Association to which the TSC belongs to. TSC also has some fire fighting equipment available.

There is also a By-Law relating to the Control of Boats and Boating on Theewaterskloof Dam by the then Overberg Regional Services Council (now Overberg District Municipality). The By-Law provides guidance on a number of issues including the operation and control of boats on the Dam, water skiing, unacceptable behaviour and polluting of the Dam. It also provides certain powers to authorized officers to remove anyone contravening the by-law from the water.

2.10.7. Overnight facilities

Overnight facilities are provided by TSC in the form of caravans and tent sites. There are currently 19 camping sites fitted with electrical points, as well as caravans and a club cabin. Braai facilities are provided on the public side.

Overnight facilities were also provided at the Dennehof Holiday Resort. However these recently closed down. There are 40 chalets, 27 camping sites and 24 houses. The resort was managed by the Overberg District Municipality. A number of improvements were made to the resort including the upgrade of facilities (painting); and roads and the implementing of an electronic booking system.

Theewaterskloof Country Estate is a residential estate where landowners can purchase land to build houses in land adjacent to the Dam. There are 162 stands of which 75% have homes on them, are surrounded by a golf course rated one of the top 20 nine-hole golf courses in South Africa by the SAA Golf Digest. Home owners also have access to a private beach, slipway, tennis court, swimming pool and clubhouse. Gloria Bay is another residential development which has access to the water.

2.10.8. Event Management

The DWS: Southern Operations Office has an event management system in place for events on the Dam. All requests for events are sent in writing to the Regional Office. Details of the event including safety provisions are also provided. Based on this, a recommendation is made and provided to the Regional Director for final approval.

2.11. Users and Uses of Theewaterskloof Dam

2.11.1. Storage and Provision of High-Quality Drinking Water

One of the main uses of Theewaterskloof Dam is to provide high quality drinking water to the City of Cape Town which obtains most of its raw water from mountainous catchments outside the municipal area (WSDP, 2012). A fixed allocation of 90 million m³/a is applicable to the CCTM however an an additional temporary allocation was provided in 1998 based on that portion of the allocation to Agriculture, which was not being utilized (until such time as agriculture utilized such portion).

Theewaterskloof Dam therefore provides approximately 29.6% of the raw water required for CCTM and a decrease in water quality would have vast financial implications in terms of treatment costs.

2.11.2. Storage and Provision of Irrigation Water

One of the initial functions of Theewaterskloof Dam was to provide irrigation water to farmers in the Boland Area (DWA, 1989; BOCMA, 2011). Approximately 60% of the water in Theewaterskloof Dam was initially allocated to irrigation (DWA, 1989).

The blanket declaration of existing lawful water use that was made by DWS in terms of section 33(2) of the NWA, 1998 stated that all lawful scheduling in terms of section 63 (GWS scheduling) and/or section 88 (Irrigation Board scheduling) of the previous Water Act, 1956 (for which all rates were paid by 30 September 1998), should be treated as existing lawful water uses until compulsory licences are issued.

The blanket declaration covers the existing lawful use of the allocation to Agriculture as well as the allocation to CCTM for domestic water.

2.11.3. Recreational Use

Theewaterskloof Dam is one of the most popular Dams in the Western Cape in terms of water sports. The following recreational activities commonly take place at the Dam (Theewaterskloof Dam SDF, 1998):

- Bird watching;
- Fishing from Shore;
- Camping;
- Boardsailing/windsurfing;
- Fishing from Boats;
- Paddle Skiing/rowing/canoeing;

- Yachting and hobycat sailing;
- Swimming;
- Skiing and power boating; and
- Picnicking and sunbathing.

2.11.4. Conservation

Theewaterskloof Dam falls within Theewaterskloof Conservancy which is jointly run by CapeNature and local landowners. It is also located adjacent to Hottentot's Holland Nature Reserve which plays an important role in the conservation of mountain fynbos, with approximately 1 300 species occurring, some of which are rare and endemic. Approximately 110 bird species have been recorded, including several species of raptor.

2.11.5. Events at Theewaterskloof Dam

A number of national regattas are held at Theewaterskloof Dam. Angling competitions are also held at the Dam. There have also been recent requests for filming at the Dam and use of the Dam for large events such as the Red Bull Synergy Live 2012 Event.

2.11.6. Educational Programmes

TSC has a well-established community sailing program which has been running for six years, focusing on creating water sport experiences for previously disadvantaged youths.

In addition, the WCBAA holds a Youth Day annually for the youth of Villiersdorp. This involves teaching children environmental awareness. There are competitions and prizes which are funded as part of the day.

2.11.7. Food Security

The Dam also offers opportunities for small-scale fisheries projects. For example, a recent pilot project between University of Stellenbosch, CapeNature and landowners, the African Food Market project has found that fish protein makes up to 80% off all animal protein intakes of Central African populations (Visser, 2012). It is proposed that the local community will receive training in water safety and fishing methods, while the Project will provide the linking between the fisherman and the market.

Other similar projects may also provide food security to different communities in the area.

2.12. Catchment Interactions

A number of factors influence the Dam namely:

- Land use in the catchment (especially agriculture);
- Management practices within the adjacent Nature Reserves and within Nature Reserves in the Catchment;
- Recreational use;
- Management of Infrastructure (such as WWTWs);
- Aquatic Invasive plant species; and
- Alien invasive fish species.

It is important to understand how the Dam is influenced by these factors so that management of the Dam through the RMP are taken into account.

3. WHERE DO WE WANT TO BE?

3.1. Vision

A visioning exercise was carried out with a combination of stakeholder input from public meetings, authorities meetings, one on one stakeholder meetings and community focus group meetings.

This vision for Theewaterskloof Dam is highlighted through the unpacking of the needs, interests, requirements and uses of the Dam. Stakeholders agree that sustainable and cooperative use of the resource is a high priority to ensure that all can enjoy clean water for a multiple of uses. The improvement of the current water quality is also key. The need for institutional arrangements to manage the Dam was also noted and cooperation is required. The Dam is seen as an important resource for education and skills training. The vision statement that encompasses this is:

"A clean, safe and shared resource, well managed and sustainably used to ensure access to quality water for all, forever."

3.2. Objectives

The vision was distilled into a ten key objectives which are listed below. Key actions required to ensure that these objectives are met are also provided. More detail on these actions is provided in Section 4.5. (The Strategic Plan).

Improved institutional arrangements and management

- It is suggested that a three tier management system is formed to incorporate different stakeholders. This should include the Dam Management Committee (DMC), Operations Management Committee (OMC) and RMP Steering Committee (RSC). Terms of references for each of these bodies as well as a toolbox of tools should be developed;
- Discussions between DWS, Cape Nature, TSC and DAFF should be undertaken to ensure consensus regarding land management around the Dam. Agreements between DWS and role-players should be updated and include recommendations from the RMP regarding agreements;
- Agreement between DWS, Cape Nature and TSC regarding management of the surface water should be updated to include more detail on access, development, safety and recreational use;
- Rates for events and advertising should be determined;
- A specific account for management of funds should be set up; and
- All private clubs/associations must comply with Treasury Regulations in terms of commercial activities on State Owned Land.

Proper policing and safety

- Provision of a Safety Officer with power;
- The implementation of standardised and harmonised AtoN and Demarcation Markers as directed by SAMSA should be undertaken;
- Formalised institutional agreements;
- Formalised system for management of access (including additional Wash Bay systems) at Theewaterskloof Country Estate and Gloria Bay;
- Wash Bay system with safety check;
- Unique Positioning Number (UPN) system to be up and running; and
- Formalised permit system for restricted area.

Improved water quality

- Study to determine pollution points;
- Discussions between DWS, BOCMA, CCTM and Theewaterskloof Municipality regarding water quality;

- Sharing of information between CCTM, BOCMA and DWS regarding water pollution;
- Rehabilitation of wetlands north east of the Dam; and
- Watershed services study to determine whether any land use practices in the catchment can be managed differently to ensure improved water quality in the Dam.

Management of fishing

- Proper institutional management;
- Feasibility of a Permit system for fishing to be determined (In addition to Freshwater Angling License);
- Feasibility of Commercial Fishing to be determined (especially fishing of Carp). This study must include national and international research on the potential impacts of commercial fishing on water quality. Further, the economic benefit from localized job creation should be weighed against increased water treatment costs. The feasibility study should be made available to the public and authorities (such as CCTM) for comment and discussion;
- Species management programmes in line with NEMBA Legislation to be compiled and implemented; and
- Education Programme including signboards to educate Dam users regarding the impacts of invasive fish.

Formalised education and skills programmes

- Clubs to be affiliated to National Clubs such as under South African Sports Confederation and Olympic Committee (SASCOC) and thus incorporate training and development as per SASCOC requirements;
- Feasibility of opening a Centre for Water Sport Excellence;
- Information programmes to be implemented by DMC to educate local community about the benefits of the Dam;
- Feasibility of 'Buddy School" System where private schools who make use of the Dam for water sports work together with poorer local community schools;
- Subsidised funding for local community schools for trips to the Dam;
- Coordination with NGOs to create skills programmes for marginalised groups such as farm workers and women and children at the Dam;
- DMC to discuss roll out of new Junior Rowing School at Theewaterskloof Dam with Rowing SA; and
- DMC to discuss possibility of Inland Sailing High Performance centre with South African Sailing.

Equitable access

- Implementation of a local community access card for discounted prices for community members;
- Increase in number of picnic spots/areas for use by community members;
- Information programmes to be DMC to educate local community about the benefits of the Dam;
- Feasibility of subsiding local access to the Dam to explored;
- Feasibility of re-opening Dennehof Resort should be assessed. This study should include the potential impacts of this activity on water quality at the Dam and should draw on both national and international studies. Further, the economic benefit from localized job creation should be weighed against increased water treatment costs. The feasibility study should be made available to the public and authorities (such as CCTM) for comment and discussion; and
- Walkways/hiking trails around parts of the Dam with subsidized entrance fees for local residents.

Management of development pressure

- DMC to play active role in reviewing Basic Assessment Reports (BARs) and

Environmental Impact Assessment (EIAs) that may have an impact on the Dam;

- DMC should involve representatives from Western Cape Department of Environmental Affairs and Development Planning (DEADP) and the LM on non-compliances; and
- DMC to engage with BOCMA regarding land use and development in the catchment and the impact on water quality.

Recreational use and Tourism

- All sporting bodies to be affiliated to SASCOC affiliated bodies;
- Fishing permits system to be implemented;
- Law enforcement Control Officer/Safety Officer to be employed to ensure all boats and recreational users have relevant permits;
- Feasibility of re-opening Dennehof Resort;
- Feasibility of opening high end luxury accommodation as a separate development on the Dennehof Resort site;
- Coordination with Western Cape Tourism associations regarding improved advertising of Theewaterskloof Dam and surrounding area; and
- Walkways/hiking trails around parts of the Dam.

Natural Resource Management

- Wetland rehabilitation programme to be developed; and
- Alien invasive plants (terrestrial and aquatic) to be managed through partnerships with Cape Nature and Working for Water; and
- The implementation of the Wash bay system as part of the CIWSP to prevent spread of aquatic invasive plants.

Water Allocation

- Assessment of water use to be undertaken to better understand pressures on water allocation; and
- Water conservation and water demand management programmes to be developed in conjunction with agricultural sector to ensure efficient use of water.

4. HOW DO WE GET THERE?

4.1. How does the RMP Work?

The overarching framework for the Theewaterskloof Dam RMP is presented in Figure 14 below. It highlights the consultative nature of the RMP process where stakeholder meetings, public meetings and authority meetings were used to identify the Vision and Objectives for the Dam. The Vision and Objective forms the central tenet around which the RMP is based. The RMP is further broken down into 4 main Plans namely, the Institutional Plan, Financial Plan, Strategic Plan and Zonal Plan.

Each of the major areas of the RMP will be presented in detail further in this chapter. Briefly: The **Institutional Plan** provides a framework for the institutional arrangements at the Dam. In this case a three-tiered management system is proposed. This three-tiered approach includes a RMP Steering Committee (RSC), Operations Management Committee (OMC) and Dam Management Committee (DMC). However, please note that DWS reserves the right in all cases to appoint an Implementing Agent. In which case the IA would form part of the Institutional Structure.

The RSC includes representatives of National Government Departments and fulfils a monitoring and high level guidance function to ensure that all functions of the DMC and OMC are being undertaken.

The OMC will be formed at an Operations or Cluster Level and is a current reporting line within DWS. The DMC will include authorised access point representatives and those who have an official mandate at the Dam. All three committees are chaired by a DWS official.

The Institutional Plan discusses requirements for agreements, development targets (in relation to community development of water sports) and information on the affiliations required. The detailed Institutional Plan is provided in the **Chapter 4.2.**

The **Financial Plan** provides information on how money generated through recreational use should be used, by whom and for what. It also provides guidelines on the financial reporting required. Further, the information from the Financial Plan is used to inform the Business Plan. The detailed Financial Plan is provided in **Chapter 4.3.**

The **Zonal Plan** has three main components:

- Shoreline Management Zones;
- Water Surface Management Zones; and
- Activities allowed in each zone.

The activities are presented in Table 4 and provide information on activities that are not allowed within a zone together with preferred or potential activities. The detailed Zonal Plan is provided in **Chapter 4.4.**

In terms of the **Strategic Plan**, the vision for the Dam was distilled into a number of objectives. These objectives are further distilled into actions required in order to achieve the Vision. This information was used to inform the BP for each objective. The detailed Strategic Plan is provided in **Chapter 4.5.**

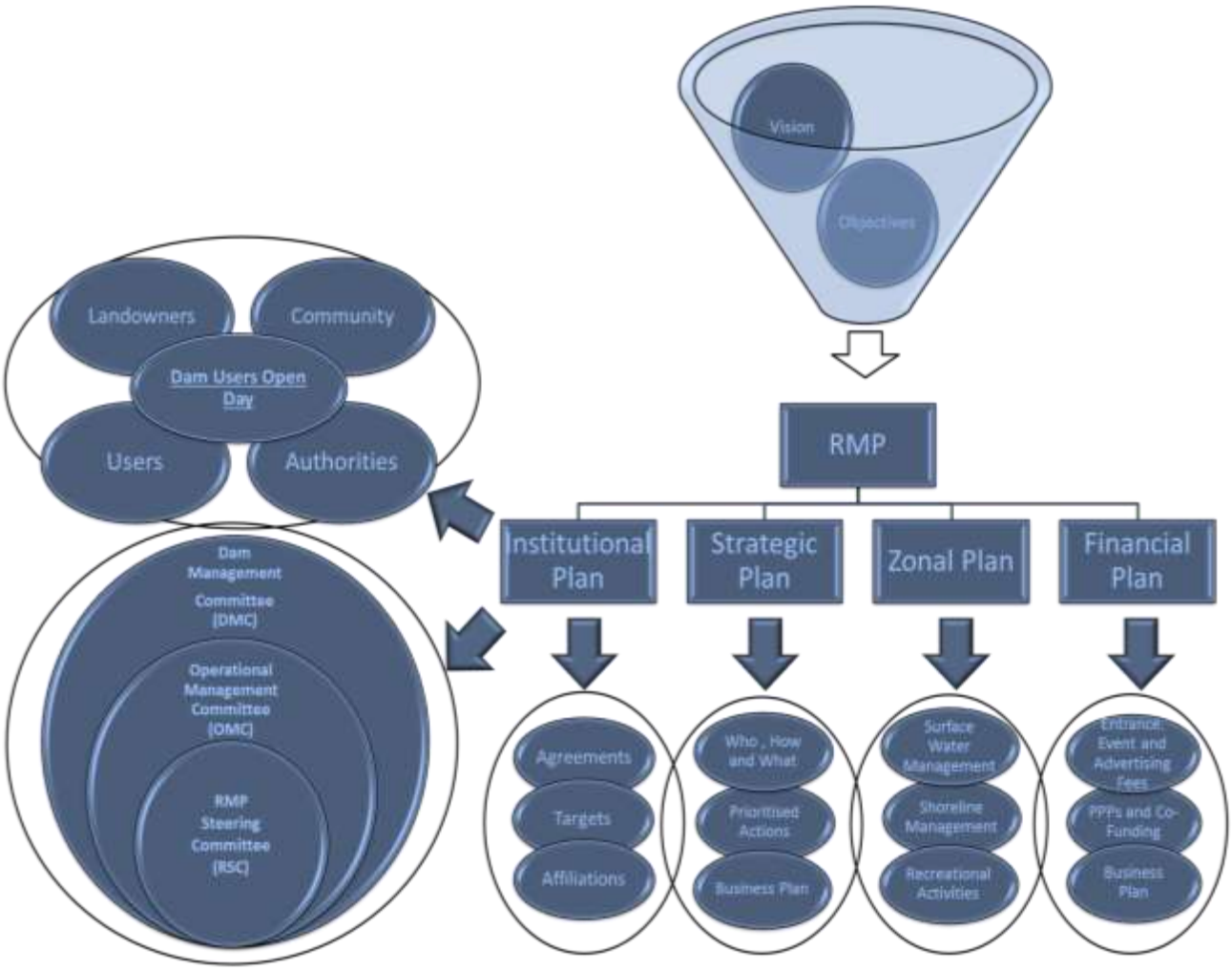

Figure 14: RMP Framework

4.2. Institutional Plan

The Institutional Plan is the backbone of the RMP as it identifies the management system which is required to ensure the objectives of the RMP are met. The Institutional Plan consists of three sets of tools which will be used to manage the Dam so that the Vision can be met.

The first toolset involves three separate but interlined committees all Chaired by the DWS because DWS is the custodian of all surface water in South Africa. The membership of each committee and their roles and responsibilities is provided in Section 4.2.1., 4.2.2. and 4.2.3. below.

The second toolset involves an open communication forum which allows all stakeholders to be involved in the management of the Dam. The purpose of this forum is to share information and allow stakeholders to raise concerns and ideas regarding the management of the Dam. It also provides a platform for dealing with issues and challenges faced by users.

The third toolset includes a number of management tools including agreements, affiliations and targets.

Figure 15 below provides a visual representation of how these toolsets function together.

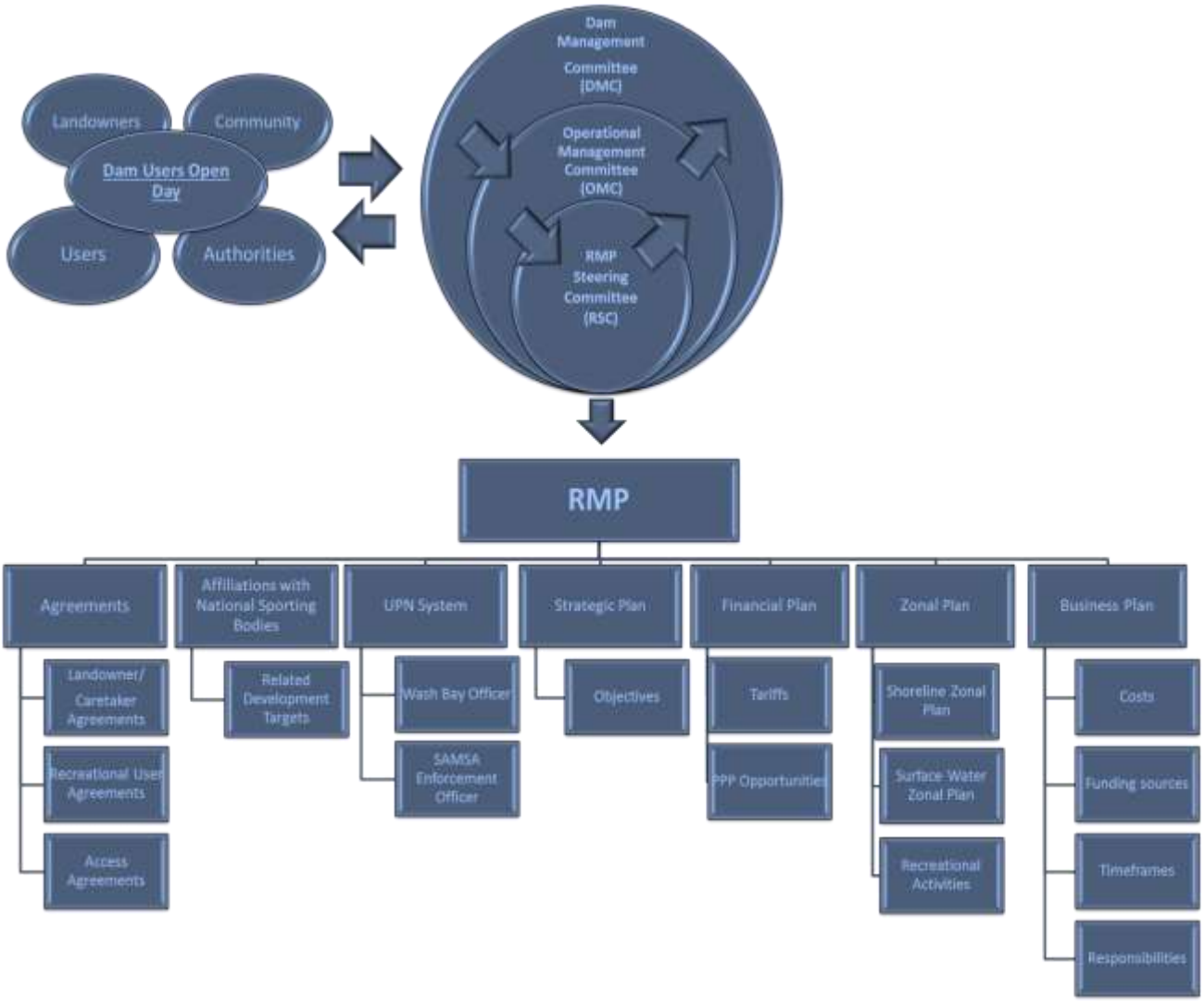

Figure 15: Institutional Framework

4.2.1. RMP Steering Committee (RSC)

The RSC is made up of representatives from National Government/Agencies. The main focus of this meeting is to ensure both the DMC and OMC are performing all necessary functions. The committee will also provide high level guidance. The RSC allows for a formal reporting structure between the Chief Director: Operations and the National Water Infrastructure Branch: Integrated Environmental Engineering (NWRIB:IEE). Relevant departments from DWS including Operations, Water Quality Management and Catchment Management will be included in the RSC. The committee will meet every six months. Figure 16 below provides details of the membership of the RSC.

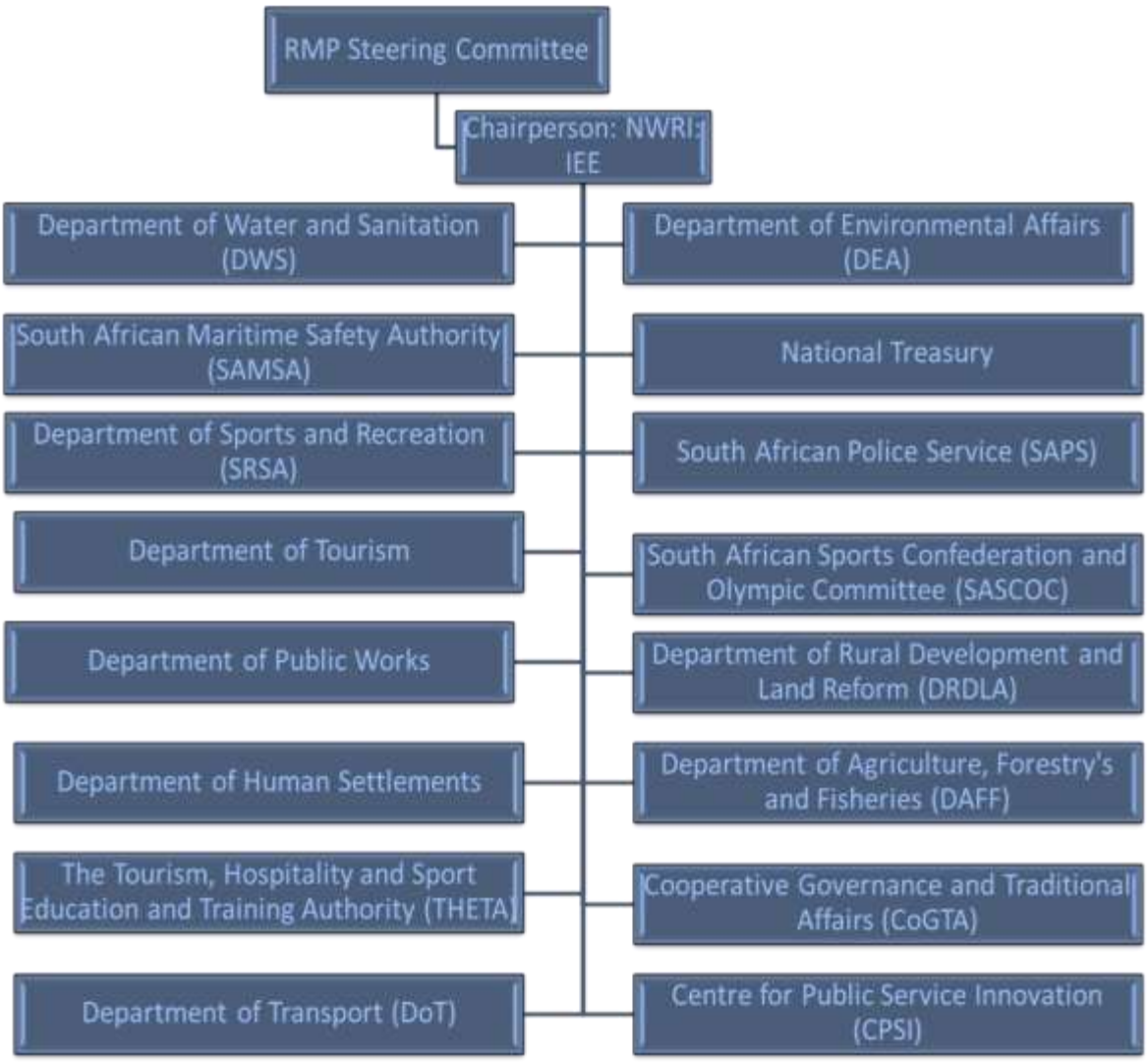

Figure 16: RSC Membership

4.2.2. Operations Management Committee (OMC)

The OMC will function at a catchment level and will provide high level guidance for all Dams occurring within one catchment. This is an existing reporting line between Area Managers for various schemes, the Regional Manager and the Director: Operations. The implementation of the RMP will be added as an agenda item, hence providing an opportunity to discuss the RMP. The Regional Manager will be fully aware of all commercial and/or recreational activities/opportunities at all Dams within the cluster.

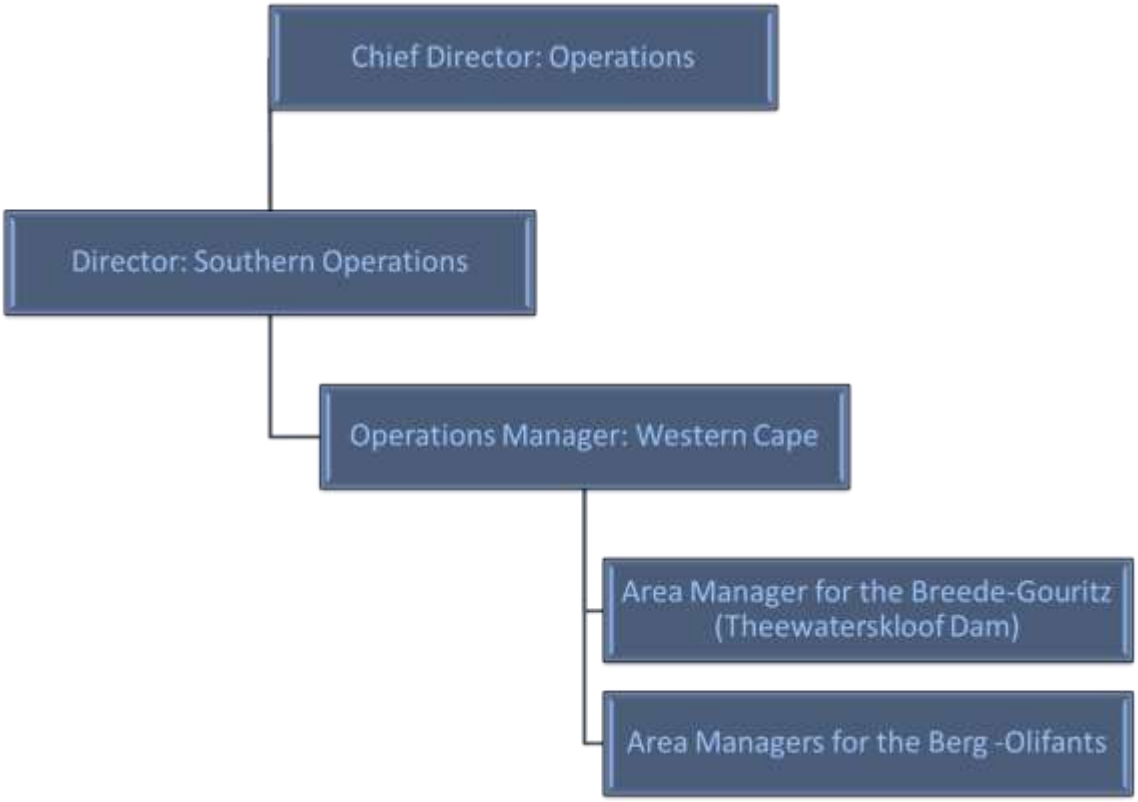

Figure 17: OMC Membership

4.2.3. Dam Management Committee (DMC)

The DMC is responsible for the day to day operations at the Dam and includes a larger pool of representatives. This committee is chaired by the delegated DWS Official or IA. The DMC is involved in the management of the UPN System as part of the Cooperative Inland Waterways Safety Programme (CIWSP) and includes the following representatives:

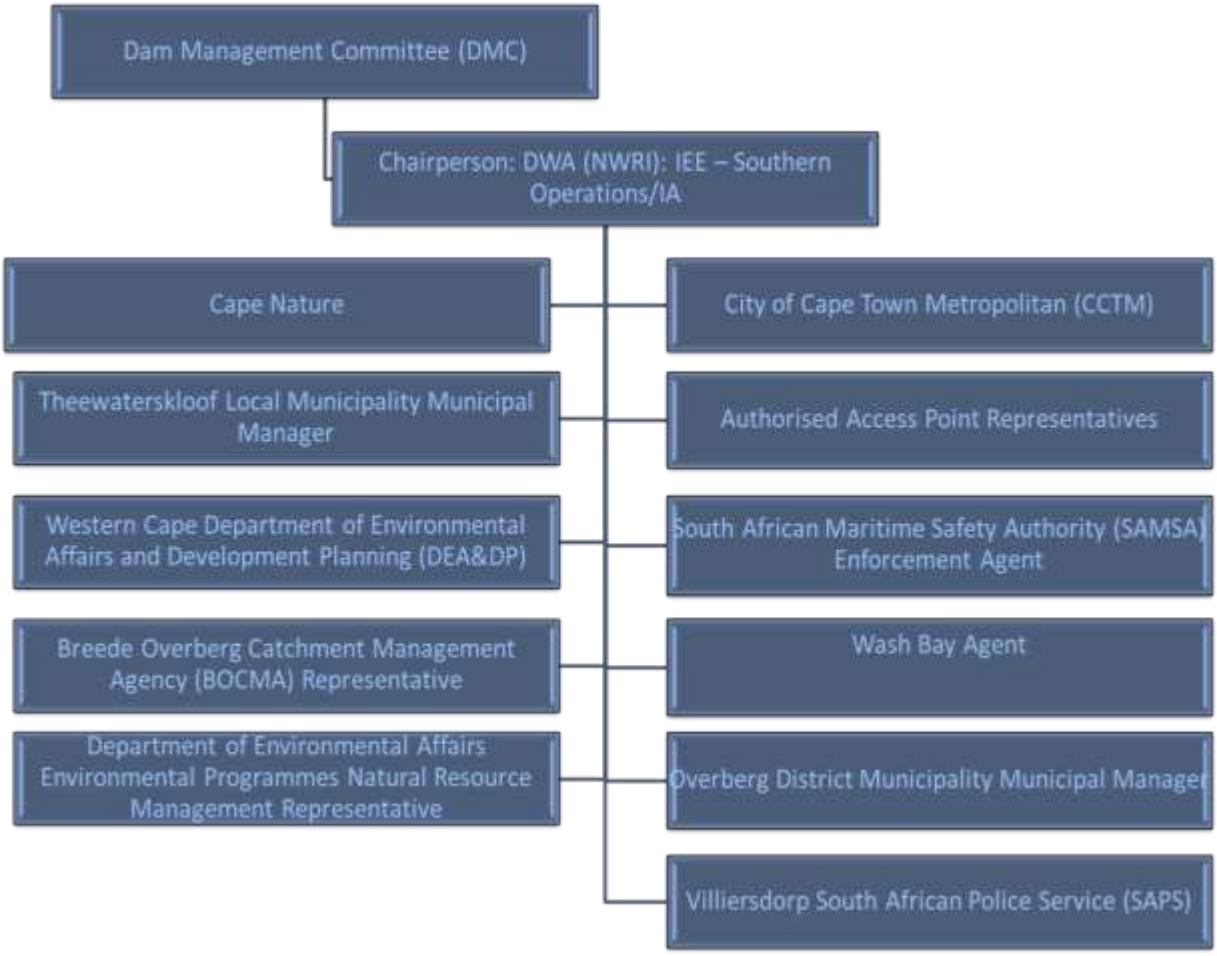

Figure 18: DMC Membership

One of the main functions of the DMC is to assess commercial opportunities at the Dam. As such, an agenda item related to the Strategic Plan for Commercialisation (SPC) is required. In addition, changes in water quality, developments in the area, status of Aquatic Invasive Species and education and information programmes should be discussed. The DMC should meet every three months (i.e. quarterly).

One of the most important functions of the DMC is to organise and facilitate the quarterly Dam User Open Day. All stakeholders should be invited to this meeting so that issues regarding use of the Dam can be discussed. If necessary, serious issues can be escalated from the Public Open Day to the OMC and then RSC so to ensure swift conflict resolution. The Open Day also provides an opportunity for the DMC to inform users of the Dam of all rules and regulations governing the access and use of the Dam.

Operational management of recreational activities such as ensuring the AtoN and

demarcation markers system is in place and setting times for use of the Dam (within the current framework of GN 654 of 1964) will also be managed by the DMC.

The final structure of the DMC may change once agreements with Authorised Access Points Representatives are concluded. The updated DMC membership list will be added as an addendum of the Gazetted RMP.

Lastly, the DMC is also responsible for ensuring the BP is implemented.

4.2.4. Management tools

The RSC, OMC and DMC will have a number of management tools which will enable proper management of the Dam in line with legislative requirements.

4.2.4.1. Terms of Reference

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

- Frequency of meetings;
- Roles and responsibility of the Chairperson;
- Roles and responsibilities of the Members;
- Minutes and attendance requirements;
- Reporting requirements;
- Management of agreements;
- Management of objectives;
- Management of development targets;
- Implementation of the SPC; and
- Management of the UPN system and wash bays.

4.2.4.2. Agreements

1.) Agreements between DWS and Provincial Authorities:

One of the main management tools available is the use of agreements to ensure proper use of the Dam in line with the RMP vision and objectives. DWS signed over management of Theewaterskloof Dam surface water and land to the Cape Provincial Administration (CPA) who according to a memo dated 1992 planned to vest the management of the surface water with the TSC. Although this was the intention, this vesting never took place.

Communication with CapeNature has indicated that only the land surrounding the north east portion of the Dam (i.e. adjacent to Hottentot's Holland is managed by CapeNature. The rest of the State Owned Land is managed by the Department of Agriculture, Forestry and Fisheries (DAFF). Whether this is based on a written agreement between DWS, CapeNature and DAFF is not known at this point.

Further, DAFF has been allocated land for grazing purposes which is managed by DWS.

Regardless, DWS reserves the right to appoint an IA in all cases. Further, all agreements regarding land management between Departments should be re-looked at in light of the suggestions provided in the RMP. At a minimum these agreements should include:

- Conditions on each Department's mandate to enter into agreements with other parties on the use of the surface water for recreational use;
- Terms and conditions regarding equitable access must be included in all agreements;
- Guidance on the use of the State Resource for Public-Private Partnerships (PPP) in line with Treasury's requirements;
- Safety management to be in line with SAMSA requirements;
- Targets and objectives for the management of the Dam;
- Roles and responsibilities regarding the following:
  - Maintenance of AtoN and Demarcation Markers;

- Maintenance of Wash Bays;
- Maintenance of Recreational Infrastructure;
- Maintenance of Fencing;
- Maintenance of the UPN System including signage;
- Management of agreements with other recreational users; and
- Responsibilities on monitoring development and access targets (as part of agreements with other recreational users).

- Conditions on the use of the Dam for small-scale fisheries or for commercial fisheries projects; and
- Conditions for the negotiations of agreements with recreational clubs. As a minimum, it is suggested that all agreements between CapeNature and/or DAFF with TSC, fishing clubs etc. should be reviewed and accepted in writing by the DWS Regional Manager for Southern Operations. The agreements should also be presented to the DMC prior to signature to ensure the vision and objectives of the RMP are met.

All agreements should be put in place within one year of the RMP.

2.) Recreational Use Agreements

All recreational use of the Dam must be through an appropriate legal framework between the recreational user and DWS as they are ultimately responsible for the surface water management at Theeswaterskloof Dam. However, all agreements.

Agreements must be developed with appropriate legal advice. Irrespective of the nature of the agreement the following must be incorporated:

- Start and end dates and terms of renewal/extension of each agreement;
- Rights and obligations of both parties;
- Access points to be used must be stipulated. The RMP makes provision for four potential access points (Theewaters Sports Club, Dennehof Resort (currently closed), Theewaterskloof Country Estate and Gloria Bay Residential Development);
- Terms and conditions of improvements made to the property should be stipulated. All improvements require consent from CapeNature, DAFF, DWS and the DMC. Furthermore, the financial consequences should this requirement not be met should also be stipulated in the agreement. No permanent structures shall be built within the 1:100 year flood line without additional approval as required by Section 21 (c) and (i) of the National Water Act, 1998 (Act 36 of 1998).
- The extent of the rights to use the resource should be stipulated;
- The financial requirements of both parties, and where and when money must be paid should also be stipulated. These arrangements must be in line with Treasury's requirements.
- Agreements should include a cancellation clause if conditions are not met;
- Clubs or associations must be affiliated to a national sporting body recognised by SASCOC;
- Limitations of the number of people allowed to access the water surface of the Dam based on carrying capacity of Dam as well as the carrying capacity of the CIWSP wash-bays must be adhered to;
- A list of current and potential recreational activities allowed at the Dam;
- Requirements for safety, disaster management and emergency response plans;
- Duties and responsibilities of each party regarding maintenance, management and infrastructure;
- A list of prohibited activities;
- Prohibition of subletting portions of the leased area;
- A mandate for programmes to assist in equitable access and redressing past

imbalances at the Dam, such as sponsored gate-fees for members of previously disadvantaged communities. This should be in line with the RMP. The DMC will then be required to report against all targets at the OMC; and

- All recreational activities must be in line with the RMP, which once gazetted, becomes the mechanism to control and manage recreational use. Although no Section 21k Water Use License Application (WULA) is required, all activities must comply with all other relevant legislation requirements including but not limited to the following:
    - The Merchant Shipping (National Small Vessel Safety) Regulations, 2007, - Control of Boating;
    - Section 21 a.) of the National Water Act, 1998 – abstraction;
    - Section 21 c.) and i.) of the National Water Act, 1998 – construction of slipways/infrastructure;
    - Safety at Sports and Recreational Events Act, 2010 – Events; and
    - Provincial Ordinances – Fishing.

It should be noted that all recreational clubs, adjacent landowners or estates which require access to the Dam for recreational use will require a Recreational Use Agreement. All agreements must be finalized within one year of the RMP being gazetted.

3.) Land Management Agreements

The DMC should actively consider land management strategies that improve the efficiency of current practices. This could include co-management agreements with surrounding or adjacent landowners which may result in environmentally sustainable and more efficient land management.

Agreements must be developed with appropriate legal advice and consultation.

Currently, DAFF is responsible for the State Owned Land along the southern portions of the Dam (purple circle) while CapeNature is responsible for the northern portion of land (green circle). Updated agreements with DAFF and Cape Nature are required to ensure all roles and responsibilities are clear.

These agreements should be updated within one year of the RMP being gazette.

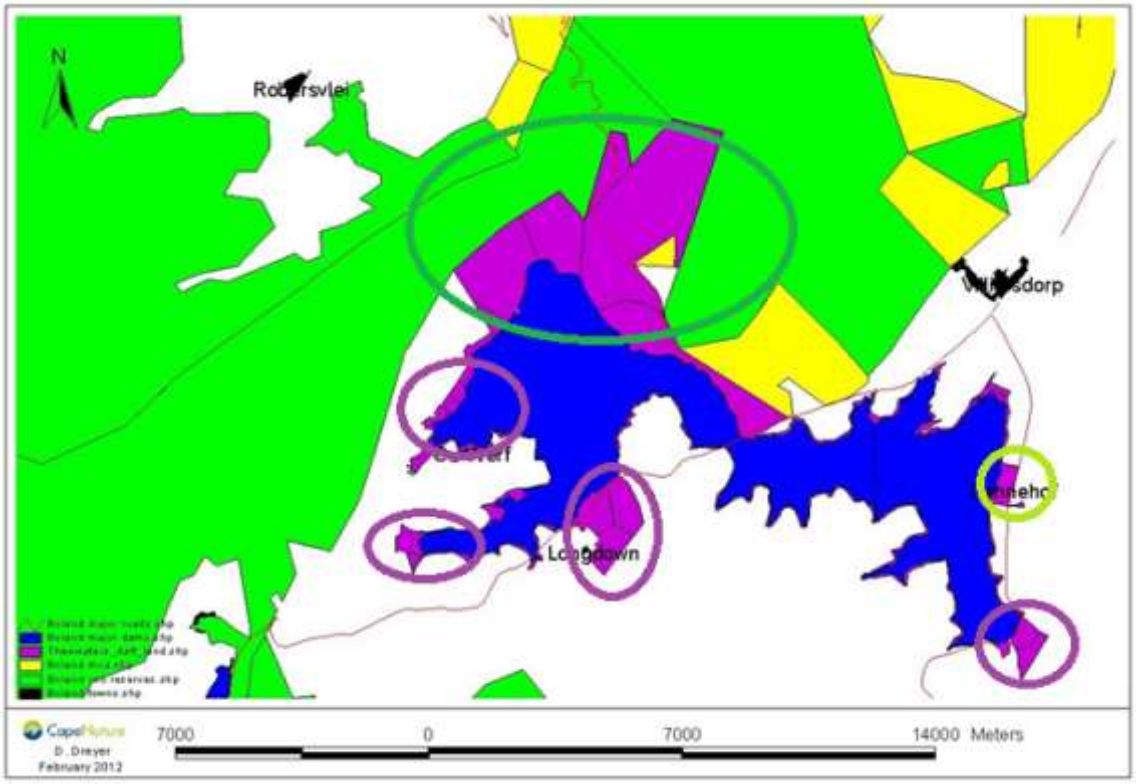

Figure 19: Land Management (from Cape Nature, pers comm, 2013)

4.) Access Agreements

It is suggested that additional agreements regarding access be signed thereby providing a legal mechanism to ensure that all access requirements are being met.

Agreements regarding access must be signed with the following parties:

- Dennehof Resort (currently closed but the agreement should be drafted if it is re-opened);
- Cape Nature;
- TSC;
- Adjacent Landowners
- TCE; and
- GBD.

Currently, DWS has built a wash bay at the entrance to the Theewaters Sports Club but still on State Owned Land. The Wash Bay Officer will be employed through DEA: WfW. DEA will also supply the herbicide for the Wash Bay System.

Historically Dennehof Resort which was run by the Overberg District Municipality had access to the Dam. Due to various issues, the slipway was closed and as of more recently, the resort itself has closed. Should the resort be re-opened, an access agreement with DWS would be required.

TCE and GBD also have slipways providing access to the water. An agreement between DWS and these developments is required to regulate access. All boats using the slipways at the TCE and GBD would need to go through the TSC wash bay prior to accessing the slipway at TCE or GBE. Staff at TCE and GBD would then be required to check that both the UPN access tag and date slip were in place.

All adjacent landowners and clubs must be made aware that access to the surface water should only be through authorised access points. Accessing the surface water through unauthorised access points is an illegal activity unless they enter into a formal agreement with DWS.

Further, a formal agreement with DWS will be required by all adjacent landowners and recreational clubs that have direct access to the water surface of the dam through 1.) constructed slipways; 2.) natural slipways; or 3.) jetties for angling and/or launching of boats. Additional agreements with the IA may also be necessary.

These agreements should be updated within one year of the RMP being gazetted.

5.) Safety of Navigation Agreements

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

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

These agreements should be updated within one year of the RMP being gazetted.

6.) Once Off Event Permit Applications

Theewaterskloof Dam is used for a number of regatta's and bass and bank angling competitions. It is also occasionally used for large events such as the annual Red Bull Synergy Event. The Dam has also been used for films/advertising and there is potential in that it could be used for further filming/photography due to the scenic environment around the Dam and its proximity to Cape Town.

The Southern Operations Office has an Event Access Permit System in place.

All events must be managed through an Event Permit Application form which is submitted to the DWS Regional Office for a decision. These applications must follow a specific template and include reference to the following:

- Number of participants;
- Number of Vehicles;
- Emergency Response Plan/Safety Plan;

- Advertising and branding (in line with DWS communication policy);
- Access points to be used; and
- Google Earth Maps showing the Location of the Events.

Films/photographs that will be generated need to be in line with DWS communication policy. Further, all events must be managed in line with the Safety at Sports and Recreational Events Act, 2010 (Act 2 of 2010).

4.2.4.3. National Affiliations and Development Targets

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

The main Sporting Associations in Theewaterskloof Dam are: 1.) TSC; 2.) Western Province Bank Angling association (WPBAA); and 3.) Western Cape Bass Angling Association (WCBAA). All three are nationally affiliated and thus there are development targets in place.

4.2.4.4. Community Participation and Beneficiation

The RMP has suggested a number of different objectives, actions, interventions, agreements and institutional arrangements to ensure that community participation and beneficiation of the resource takes place. These are captured throughout the different plans and in the vision and objectives. However, in order to ensure a strong focus on this aspect by the DMC, OMC and RSC going forward, the different elements of community participation and beneficiation are consolidated below.

1.) Socio-Economic Development

Socio-economic development is a key aspect of the RMP. Water quality, safety, improved access and management were all key components of the vision. Although not directly related, these aspects are required to improve recreational use and tourism (which have related socio-economic benefits). There is also a specific objective (and small actions) related to improved recreational use and tourism including:

Recreational use and Tourism

- All sporting bodies to be affiliated to SASCOC affiliated bodies;
- Fishing permits system to be implemented;
- Law enforcement Control Officer/Safety Officer to be employed to ensure all boats and recreational users have relevant permits;
- Feasibility of re-opening Dennehof Resort;
- Feasibility of opening high end luxury accommodation as a separate development on the Dennehof Resort site;
- Coordination with Western Cape Tourism associations regarding improved advertising of Theewaterskloof Dam and surrounding area; and
- Walkways/hiking trails around parts of the Dam.

Further, as discussed in the Financial Plan below, Theewaterskloof Dam can become a key economic lever for the region, thereby creating job opportunities for the local community.

One of the key mechanisms for this is the use PPPs. However in regards to potential PPPs, the following should be noted:

- A balance between high and small cap opportunities is required to ensure that revenue generation occurs together with the promotion of equitable access and job creation at the Dam; and
- While the tariff structure can be used for revenue generation, it should not be used to deny people access to the dam.

The BP for Theewaterskloof Dam has three specific interventions linked to increasing tourism and recreational use.

In addition, as another form of socio-economic development, a commercial fisheries study has been suggested as there is an opportunity for local community fishermen to create income and also provide a form of protein to a number of families. A specific intervention regarding this is detailed in the BP.

2.) Equitable Access

One of the main triggers for the RMP was the issue of inequitable access. In order to rectify this, one of objectives (and related actions) is specifically related to equitable access:

Equitable access

- Implementation of a local community access card for discounted prices for community members;
- Increase in number of picnic spots/areas for use by community members;
- Information programmes to be DMC to educate local community about the benefits of the Dam;
- Feasibility of subsiding local access to the Dam to explored;
- Feasibility of re-opening Dennehof Resort should be assessed. This study should include the potential impacts of this activity on water quality at the Dam and should draw on both national and international studies. Further, the economic benefit from localized job creation should be weighed against increased water treatment costs. The feasibility study should be made available to the public and authorities (such as CCTM) for comment and discussion; and
- Walkways/hiking trails around parts of the Dam with subsidized entrance fees for local residents.

In terms of equitable acces, the main issue is that many local community members are unaware of the opportunities at the Dam. There is also no specific tariff system that takes into account the socio-economic status of the local community around the Dam. Local community members are therefore often marginalised.

In order to deal with this, the BP includes an intervention which aims to determine the feasibility of a fee system for regular users, day visitors, schools, events, etc. The study should take into account the socio-economic status of the community. In addition an intervention is included to increase the number of picnic spots/areas for public access.

Section 4.2.4.1. provides guidance on the aspects which should be included in the ToR for the DMC and RSC. Specific mention is made of Management of access objectives and Management of development targets. While, Section 4.2.4.2. provides the guidance on the aspects which should be included in all agreements. This includes the following:

- A mandate for programmes to assist in equitable access and redressing past imbalances at the Dam, such as sponsored gate-fees for members of previously disadvantaged communities. This should be in line with the RMP. The DMC will then be required to report against all targets at the OMC.; and
- All agreements must include a cancellation clause should community access targets not be met.

3.) Skills Development and Training

The RMP also focuses on skills development and training through one of the objectives (and related actions items – listed below). This is vital to ensure that local communities benefit from the Dam.

Formalised education and skills programmes

- Clubs to be affiliated to National Clubs such as under South African Sports Confederation and Olympic Committee (SASCOC) and thus incorporate training and development as per SASCOC requirements;
- Feasibility of opening a Centre for Water Sport Excellence;
- Information programmes to be implemented by DMC to educate local

community about the benefits of the Dam;

- Feasibility of 'Buddy School" System where private schools who make use of the Dam for water sports work together with poorer local community schools;
- Subsidised funding for local community schools for trips to the Dam;
- Coordination with NGOs to create skills programmes for marginalised groups such as farm workers and women and children at the Dam;
- DMC to discuss roll out of new Junior Rowing School at Theewaterskloof Dam with Rowing SA; and
- DMC to discuss possibility of Inland Sailing High Performance centre with South African Sailing.

The BP has three specific interventions relating to formalised education and skills programmes including the development and implementation of a skills training programme as there is an opportunity for local community members to obtain skills (such as first aid) to be employed at the public access area as 'lifeguards'. This would have the added benefit of improving community safety at the Dam. There is also an intervention linked to the feasibility of a Junior Rowing School and a Centre for Water Sports Excellence.

4.3. Financial Plan

Theewaterskloof Dam is an economic lever and can become central to development in the Region. The RMP provides guidance on cost recovery mechanisms to ensure the sustained and improved management of the Dam.

There are opportunities for PPPs which could further unlock the economic potential of the Dam.

With PPPs, the private party assumes the financial, technical and operational risks but receives a benefit for this. PPPs allow DWS to make State Assets such as Dams available to private parties who wish to engage in tourism related commercial operations (DWAF, 2009). This risk sharing mechanism aims to unlock socio-economic potential of State Dams. In addition, development of PPPs in remote areas often require related infrastructure upgrades and thus there is the opportunity for new infrastructure investment and development and related services which would benefit local communities.

Although high cap PPPs result mostly in revenue generation, small cap opportunities (less than R10 million - 2007 figures) are more likely to fulfil socio-economic objectives such as job creation, promotion of BBBEE, LED and SMMEs. A balance between high and small cap opportunities is required to ensure that revenue generation occurs together with the promotion of equitable access and job creation at the Dam.

Further, Theewaterskloof Dam is a State Owned Resource and as such all profits made from the recreational use of the Dam should be used for further development at the Dam.

Currently, TSC generates an income from:

- Entrance fees for visiting the Dam ;
- Entrance fees and access for sporting activities;
- Fees from camping and caravan facilities; and
- Special events.

Currently, CapeNature generates an income from:

- Entrance fees for visiting the Nature Reserve;
- Hiking fees; and
- Fees from camping and the chalet facilities.

There is a potential for DWS to generate an income from special events and Filming and/or advertising.

Both TCE and GBD are private developments with access to the Dam via slipways on State Owned Land. No income is generated for DWS from this arrangement.

While the tariff structure can be used for revenue generation, it should not be used to

deny people access to the dam. Thus it should take into account the socio-economic status of recreational users. For example, a sliding scale, cross subsidy fee structure and/or contractual obligations which ensure equitable access must be considered when setting a fee.

The BP provides a financial framework to undertake certain interventions.

4.4. Zonal Plan

The Zonal Plan for Theewaterskloof Dam has three main sections. The first involves the current recreational activities together with an identification of potential recreational and/or commercial opportunities. This section also includes the determination of the carrying capacity of the Dam. The second section involves the shoreline management zones and the third involves surface management zones. The zones discuss preferred and prohibited activities within each zone.

4.4.1. Current Recreational Uses

The main recreational activities related to Theewaters Sports Club include keelboat, multihull and dinghy sailing, power boating, canoeing, jet skiing, water skiing, kite surfing, windsurfing and fresh water angling

Day visitors also make use of the Dam for bird watching, shoreline fishing, swimming and picnicking.

The WPBAA makes use of Theewaterskloof Dam for angling competitions.

Bass Angling is also a very popular activity and the WCBAA makes use the Dam for competitions.

Rowing SA also indicated interest in setting up a small rowing school at Theewaterskloof Dam in 2014. The TSC runs a community sailing programme since 2006.

The Dam is used for large events including filming and advertising.

4.4.2. Potential Recreational and/or Commercial Opportunities and Uses

A matrix model was used to determine the feasibility of possible recreational and eco-tourism activities in line with the operational requirements of the Dam, the biophysical environmental conditions and safety requirements.

The scores utilised to determine viability are as follows:

Table 3: Scores for Recreational Use

Score	Meaning	Comment
0	Not Feasible	High Negative Impact to Dam Environment + High Negative Impact to Recreational Users. Text provided in red highlights the specific factors which make the activity not feasible at the Dam.
1	Likely to be Feasible however feasibility study is required.	**Feasibility Study is required**
2	Likely to be Feasible	Benefits appear to outweigh impacts. Allowed should there be an interest. Adequate agreements and safety measures would be required as per RMP. **No feasibility study is required.**
3	Current use	Benefits outweigh impacts. **No feasibility study is required.**

Based on the table below the following commercial activities have been assessed as potential commercial activities that require further feasibility assessments.

- Re-opening of the Dennehof Resort including additional picnic areas and walking trails for the community;
- High income accommodation;
- The roll out of a Junior Rowing School with RowSA;
- High Performance Training Centre for Water sports; and
- Commercial Fisheries opportunity.

Table 4: Potential and Current Recreational Activities

Contact Type	Activity	**Operational Management Issues**		**Environmental Impacts on Recreational Use**			**Recreational Use Impacts on the Environment**			**Safety Requirements**					**Recreational Requirements**					**Legal Requirements**	**Economic Viability**		**Score**
		Change in Water Level	Impacts on Dam Wall	Water Quality (E. Coli)	Health Impacts	Aquatic Invasive Species	Fish Spawning	Bird Nesting	Water Quality	AtoN and Demarcation Markers	Water Depth	Visibility	Radio Signal	Emergency Response	Conflicts with current activities	Winds required	Accomm-odation / Facilities	Ablution facilities	Access to water	Access to Land	Interest in the activity	Funding Opportunities	
No Contact	Hiking/Walking Trail along Dam near Dennehof Resort	Trails would need to demarcated outside 1:100 year flood line	N/A	N/A	N/A	N/A	N/A	Possible disturbances	Litter would need to be picked up	N/A	N/A	N/A	Cell phone signal	UPN System would need to be extended	No	N/A	Walkways and dustbins would be required	Ablution facilities are available at Dennehof. The resort is currently closed	N/A	Dennehof occurs on state land. Agreements would need to be in place	Focus Group	PPP for management of resort	1
	Camping at Dennehof	N/A	N/A	N/A	N/A	N/A	N/A	Possible disturbances	N/A	N/A	N/A	N/A	N/A	UPN System would need to be extended	N/A	N/A	Camping sites available however the resort is currently closed	Yes	N/A	Dennehof Resort is currently closed	Tourism in the area has potential	PPP for management of resort	1
	Camping at Theewaters Sports Club	N/A	N/A	N/A	N/A	N/A	N/A	Possible disturbances	N/A	N/A	N/A	N/A	N/A	UPN System would need to be extended	N/A	N/A	Camping sites available and maintained	Yes	N/A	TSC owns the land adjacent to the Dam. Has a lease agreement for access to water	Current Activity	PPP for management of resort	1
	High end accommodation	N/A	N/A	N/A	N/A	N/A	N/A	Possible disturbances	Management of Waste would be required	N/A	N/A	N/A	N/A	UPN System would need to be extended	Some concern that would make the Dam inaccessible to low income and middle income groups	N/A	Would need to be built	Would need to be built	N/A	The Dennehof site could be used for more than one development	Tourism in the area has potential	PPP for high income accommodation	1
	Birding	N/A	N/A	N/A	N/A	N/A	N/A	Possible disturbances	N/A	N/A	N/A	N/A	Cell phone signal	N/A	No	N/A	N/A	N/A	N/A	Possible at TSC and Dennehof.	The area has an abundance of birds	Current Activity	3
	Game viewing – At Hottentots Holland	N/A	N/A	N/A	N/A	N/A	N/A	Possible disturbances	N/A	N/A	N/A	N/A	Cell phone signal	N/A	No	N/A	N/A	N/A	N/A	At Hottentots Holland	Some mammal species occur there	Current Activity	3
	Additional Picnic Areas – TSC	N/A	N/A	N/A	N/A	N/A	N/A	Possible disturbances	Litter would need to be picked up	N/A	N/A	N/A	Cell phone signal	UPN System would need to be extended	No	N/A	Additional picnic spots/braai areas would be required	Additional ablution facilities may be require	N/A	Parts of TSC are on state land. Additional infrastructure on state land would need to be through a PPP or if TSC is a NPO. Agreements with DWS would be required	Tourism in the area has potential	To be determined	2
	Picnic Area - Dennehof	N/A	N/A	N/A	N/A	N/A	N/A	Possible disturbances	Litter would need to be picked up,	N/A	N/A	N/A	Cell phone signal	UPN System would need to be extended	No	N/A	Additional picnic spots/braai areas would be required	Additional ablution facilities may be required	N/A	Dennehof occurs on state land. Agreements would need to be in place	Tourism in the area has potential	PPP for management of resort	1
Primary Contact	Open Water Swimming - Recreational	N/A	N/A	E Coli levels decreased in 2009	Algal blooms are known to occur	Some indigenous invasive species do occur and can constraint swimming area	N/A	N/A	N/A	N/A	N/A	N/A	Cell phone signal	UPN System	Potential conflicts with boating however zoning has taken this into account	N/A	N/A	Ablution changing facilities provided by TSC	TSC, TCE and Gloria Bay	TSC, TCE and Gloria Bay	Yes	N/A	3
	Open Water Swimming – Development	N/A	N/A	E Coli levels decrease	Algal blooms are	Some indigenous invasive	N/A	N/A	N/A	N/A	N/A	Water is quite turbid	Cell phone signal	UPN System	Potential conflicts with boating however	N/A	School buildings would be	New facilities would be	TSC and Dennehof	No specific area available	Unsure	SwimSA	1

Contact Type	Activity	Operational Management Issues		Environmental Impacts on Recreational Use			Recreational Use Impacts on the Environment			Safety Requirements					Recreational Requirements					Legal Requirements	Economic Viability		Score
		Change in Water Level	Impacts on Dam Wall	Water Quality (E. Coli)	Health Impacts	Aquatic Invasive Species	Fish Spawning	Bird Nesting	Water Quality	AtoN and Demarcation Markers	Water Depth	Visibility	Radio Signal	Emergency Response	Conflicts with current activities	Winds required	Accomm-odation / Facilities	Ablution facilities	Access to water	Access to Land	Interest in the activity	Funding Opportunities	
	School			d in 2009	known to occur	species do occur and can constraint swimming area						and dark. Not great area for swimming school			zoning has taken this into account		required	required					
	Snorkelling	N/A	N/A	E Coli levels decreased in 2009	Algal blooms are known to occur.	Some indigenous invasive species do occur and can constraint swimming area	N/A	N/A	N/A	N/A	N/A	Water is quite turbid and dark. Not great area for snorkelling	Cell phone signal	UPN System	No specific area	N/A	N/A	N/A	TSC and Dennehof	No specific area available	Unsure	N/A	0
	Diving	N/A	N/A	E Coli levels decreased in 2009	Algal blooms are known to occur.	Some indigenous invasive species do occur and can constraint swimming area	N/A	N/A	N/A	N/A	N/A	Water is quite turbid and dark. Not great area diving	Cell phone signal	UPN System	No specific area	N/A	N/A	N/A	TSC and Dennehof	No specific area available	Unsure	N/A	0
Secondary Contact	Commercial Fisheries	Changes occur seasonally and would need to be taken into account	N/A	Could impact on quality of fish.	Algal blooms would have negative impacts on fish	Impact Dissolved Oxygen in the Dam.	If not managed correctly could impact indigenous fish. Fishing of carp could improve bass and indigenous fish species populations	N/A	Commercial fishing of Carp may improve water quality	N/A	Adequate during winter may be constrained by changing levels	N/A	Cell phone signal	UPN System	May conflict with recreational use and provision of good quality drinking water	N/A	Smoking building for drying of Carp would be required but not on state land	N/A	Agreement with DWS would be required.	Would require additional slipway. Agreement with DWS would be required	Market for fish has been identified	Feasibility funded by University of Stellenbosch. A PPP would be required if a profit is to be made	1
	Shore Fishing	Changes occur seasonally	N/A	Could impact on quality of fish.	Algal blooms would have negative impacts on fish	Shore fishing may increase vegetative spread of indigenous invasive species	Shore fishing should not impact on spawning	N/A	Leaving of lines/bait in water could impact water quality	N/A	Adequate during winter may be constrained by changing levels	N/A	Cell phone signal	UPN System	May conflict with bass fishing	N/A	N/A	Ablutions available at TSC	Through TSC	Through TSC	Current Activity	N/A	3
	Tube Fishing	Changes occur seasonally	N/A	Could impact on quality of fish	Algal blooms would have negative impacts on fish	Little – to no impact	May impact on fish spawning if it takes place in breeding areas	N/A	Leaving of lines/bait in water could impact water quality	N/A	Adequate during winter may be constrained by changing levels	N/A	Cell phone signal	UPN System	May conflict with bass fishing and other boating activates	N/A	N/A	Ablutions available at TSC	Through TSC	Through TSC	Unsure	N/A	2
	Pontoon Fishing	Changes occur seasonally	N/A	Could impact on quality of fish	Algal blooms would have negative impacts on fish	May increase vegetative spread of indigenous invasive species	May impact on fish spawning if it takes place in breeding areas	N/A	Leaving of lines/bait in water could impact water quality	N/A	Adequate during winter may be constrained by changing levels	N/A	Cell phone signal	UPN System	May conflict with bass fishing and other boating activities	N/A	N/A	Ablutions available at TSC	Through TSC	Through TSC	Current Activity	N/A	2

Contact Type	Activity	Operational Management Issues		Environmental Impacts on Recreational Use			Recreational Use Impacts on the Environment			Safety Requirements					Recreational Requirements					Legal Requirements	Economic Viability		Score
		Change in Water Level	Impacts on Dam Wall	Water Quality (E. Coli)	Health Impacts	Aquatic Invasive Species	Fish Spawning	Bird Nesting	Water Quality	AtoN and Demarcation Markers	Water Depth	Visibility	Radio Signal	Emergency Response	Conflicts with current activities	Winds required	Accomm-odation / Facilities	Ablution facilities	Access to water	Access to Land	Interest in the activity	Funding Opportunities	
	Bass Fishing	Changes occur seasonally	N/A	Could impact on quality of fish	Algal blooms would have negative impacts on fish	increase vegetative spread of indigenous invasive species	May impact on fish spawning if it takes place in breeding area	N/A	Creating artificial bass breeding areas (throwing in drums etc.) mayimpact water quality	N/A	Adequate during winter may be constrained by changing levels	N/A	Cell phone signal	UPN System	May conflict with bank angling	N/A	N/A	Ablutions available at TSC	Through TSC	Through TSC	Current Activity – Very popular	N/A	3
	Motorised Boats	Changes occur seasonally	N/A	N/A	N/A	increase vegetative spread of indigenous invasive species	N/A	N/A	Oil leaks etc. may impact water quality	N/A	Adequate during winter may be constrained by changing levels	N/A	Cell phone signal	UPN System	May conflict with bank angling/swimming	N/A	N/A	Ablutions available at TSC	Through TSC	Through TSC	Current Activity	N/A	3
	Jet Powered Boats	Changes occur seasonally	N/A	N/A	N/A	increase vegetative spread of indigenous invasive species	N/A	N/A	Oil leaks etc. may impact water quality	N/A	Adequate during winter may be constrained by changing levels	N/A	Cell phone signal	UPN System	May conflict with bank angling/swimming	N/A	N/A	Ablutions available at TSC	Through TSC	Through TSC	Current Activity	N/A	3
	RHIB	Changes occur seasonally	N/A	N/A	N/A	increase vegetative spread of indigenous invasive species	N/A	N/A	Oil leaks etc. may impact water quality	N/A	Adequate during winter may be constrained by changing levels	N/A	Cell phone signal	UPN System	May conflict with bank angling/swimming	N/A	N/A	Ablutions available at TSC	Through TSC	Through TSC	Current Activity	N/A	3
	Jet Ski	Changes occur seasonally	N/A	N/A	N/A	increase vegetative spread of indigenous invasive species	N/A	N/A	Oil leaks etc. may impact water quality	N/A	Adequate during winter may be constrained by changing levels	N/A	Cell phone signal	UPN System	May conflict with bank angling/swimming	N/A	N/A	Ablutions available at TSC	Through TSC	Through TSC	Current Activity	N/A	3
	Dragon Boats	Changes occur seasonally	N/A	N/A	N/A	increase vegetative spread of indigenous invasive species	N/A	N/A	N/A	N/A	Adequate during winter may be constrained by changing levels.	N/A	Cell phone signal	UPN System	May conflict with motorised boats	N/A	N/A	Ablutions available at TSC	Through TSC	Through TSC	Unknown	N/A	2
	Slalom Canoe	Changes occur seasonally.	N/A	N/A	N/A	increase vegetative spread of indigenous invasive species	N/A	N/A	N/A	N/A	Adequate during winter may be constrained by changing levels.	N/A	Cell phone signal	UPN System	May conflict with motorised boats	N/A	N/A	Ablutions available at TSC	Through TSC	Through TSC	Canoeing and rowing take place	N/A	3
	Fishing Canoe	Changes occur seasonally	N/A	Could impact on quality of fish	Algal blooms would have	increase vegetative spread of indigenou	May impact on fish spawning	N/A	N/A	N/A	Adequate during winter	N/A	Cell phone signal	UPN System	May conflict with motorised boats	N/A	N/A	Ablutions available at TSC	Through TSC	Through TSC	Canoeing and rowing take place	N/A	2

Contact Type	Activity	Operational Management Issues		Environmental Impacts on Recreational Use			Recreational Use Impacts on the Environment			Safety Requirements					Recreational Requirements					Legal Requirements	Economic Viability		Score
		Change in Water Level	Impacts on Dam Wall	Water Quality (E. Coli)	Health Impacts	Aquatic Invasive Species	Fish Spawning	Bird Nesting	Water Quality	AtoN and Demarcation Markers	Water Depth	Visibility	Radio Signal	Emergency Response	Conflicts with current activities	Winds required	Accomm-odation / Facilities	Ablution facilities	Access to water	Access to Land	Interest in the activity	Funding Opportunities	
					negative impacts on fish	s invasive species	if it takes place in breeding areas				may be constrained by changing levels												
	Jet Ski Fishing	Changes occur seasonally	N/A	Could impact on quality of fish	Algal blooms would have negative impacts on fish	increase vegetative spread of indigenous invasive species	May impact on fish spawning if it takes place in breeding areas	N/A	N/A	N/A	Adequate during winter may be constrained by changing levels	N/A	Cell phone signal	UPN System	May conflict with motorised boats	N/A	N/A	Ablutions available at TSC	Through TSC	Through TSC	Jet Skiing is popular	N/A	2
	Wind Surfing	Changes occur seasonally	N/A	N/A	N/A	increase vegetative spread of indigenous invasive species	N/A	N/A	N/A	N/A	Adequate during winter may be constrained by changing levels	N/A	Cell phone signal	UPN System	May conflict with motorised boats	Yes. Good winds availabl e at the Dam	N/A	Ablutions available at TSC	Through TSC	Through TSC	Current activity	N/A	3
	Kite Surfing	Changes occur seasonally	N/A	N/A	N/A	increase vegetative spread of indigenous invasive species	N/A	N/A	N/A	N/A	Adequate during winter may be constrained by changing levels	N/A	Cell phone signal	UPN System	May conflict with motorised boats	Yes. Good winds availabl e at the Dam	N/A	Ablutions available at TSC	Through TSC	Through TSC	Current activity	N/A	3
	Ski Jumping	Changes occur seasonally	N/A	N/A	N/A	increase vegetative spread of indigenous invasive species	N/A	N/A	N/A	N/A	Adequate during winter may be constrained by changing levels	N/A	Cell phone signal	UPN System	May conflict with motorised boats	N/A	N/A	Ablutions available at TSC	Through TSC	Through TSC	Current activity	N/A	3
	Slalom Skiing	Changes occur seasonally	N/A	N/A	N/A	increase vegetative spread of indigenous invasive species	N/A	N/A	N/A	N/A	Adequate during winter may be constrained by changing levels	N/A	Cell phone signal	UPN System	May conflict with motorised boats	N/A	N/A	Ablutions available at TSC	Through TSC	Through TSC	Current activity	N/A	3
	Ski and Wakeboard Boat	Changes occur seasonally	N/A	N/A	N/A	increase vegetative spread of indigenous invasive species	N/A	N/A	N/A	N/A	Adequate during winter may be constrained by changing levels	N/A	Cell phone signal	UPN System	May conflict with motorised boats	N/A	N/A	Ablutions available at TSC	Through TSC	Through TSC	Current activity	N/A	3
	Kayaking Sprints	Changes occur seasonally	N/A	N/A	N/A	increase vegetative spread of indigenous invasive species	N/A	N/A	N/A	N/A	Adequate during winter may be constrained by changi	N/A	Cell phone signal	UPN System	May conflict with motorised boats	N/A	N/A	Ablutions available at TSC	Through TSC	Through TSC	Current activity	N/A	3

Contact Type	Activity	Operational Management Issues		Environmental Impacts on Recreational Use			Recreational Use Impacts on the Environment			Safety Requirements					Recreational Requirements					Legal Requirements	Economic Viability		Score
		Change in Water Level	Impacts on Dam Wall	Water Quality (E. Coli)	Health Impacts	Aquatic Invasive Species	Fish Spawning	Bird Nesting	Water Quality	AtoN and Demarcation Markers	Water Depth	Visibility	Radio Signal	Emergency Response	Conflicts with current activities	Winds required	Accomm-odation / Facilities	Ablution facilities	Access to water	Access to Land	Interest in the activity	Funding Opportunities	
											ng levels												
	Kayaking Marathons	Changes occur seasonally.	N/A	N/A	N/A	increase vegetative spread of indigenous invasive species	N/A	N/A	N/A	N/A	Adequate during winter may be constrained by changing levels	N/A	Cell phone signal	UPN System	May conflict with motorised boats	N/A	N/A	Ablutions available at TSC	Through TSC	Through TSC	Dam is not long enough for marathon.	N/A	0
	Kayaking Water Polo	Changes occur seasonally	N/A	N/A	N/A	increase vegetative spread of indigenous invasive species	N/A	N/A	N/A	N/A	Adequate during winter may be constrained by changing levels.	N/A	Cell phone signal	UPN System	May conflict with motorised boats	N/A	N/A	Ablutions available at TSC	Through TSC	Through TSC	Current activity	Unsure	2
	Kayaking Touring	Changes occur seasonally	N/A	N/A	N/A	increase vegetative spread of indigenous invasive species	N/A	N/A	N/A	N/A	Adequate during winter may be constrained by changing levels	N/A	Cell phone signal	UPN System	May conflict with motorised boats	N/A	N/A	Ablutions available at TSC	Through TSC	Through TSC	Unsure	N/A	2
	Kayaking Fishing	Changes occur seasonally	N/A	Could impact on quality of fish	Algal blooms would have negative impacts on fish	increase vegetative spread of indigenous invasive species	May impact on fish spawning if it takes place in breeding area	N/A	N/A	N/A	Adequate during winter may be constrained by changing levels	N/A	Cell phone signal	UPN System	May conflict with motorised boats	N/A	N/A	Ablutions available at TSC	Through TSC	Through TSC	Canoeing and rowing take place	N/A	2
	Paddle Ski	Changes occur seasonally	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Adequate during winter may be constrained by changing levels	N/A	Cell phone signal	UPN System	May conflict with motorised boats	N/A	N/A	Ablutions available at TSC	Through TSC	Through TSC	Current activity	N/A	3
	Surf Ski	Changes occur seasonally.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Adequate during winter may be constrained by changing levels	N/A	Cell phone signal	UPN System	May conflict with motorised boats	N/A	N/A	Ablutions available at TSC	Through TSC	Through TSC	Skiing takes place	N/A	2
	Pedal Boat	Changes occur seasonally	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Adequate during winter may be constrained by changing levels	N/A	Cell phone signal	UPN System	May conflict with motorised boats	N/A	N/A	Ablutions available at TSC	Through TSC	Through TSC	Usually popular resort activity	N/A	2
	Hovercraft	Changes occur	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Adequate	N/A	Cell phone	UPN System	May conflict with motorised boats	N/A	N/A	Ablutions available	Through TSC	Through TSC	Expensive equipment	N/A	2

Contact Type	Activity	Operational Management Issues		Environmental Impacts on Recreational Use			Recreational Use Impacts on the Environment			Safety Requirements					Recreational Requirements					Legal Requirements	Economic Viability		Score
		Change in Water Level	Impacts on Dam Wall	Water Quality (E. Coli)	Health Impacts	Aquatic Invasive Species	Fish Spawning	Bird Nesting	Water Quality	AtoN and Demarcation Markers	Water Depth	Visibility	Radio Signal	Emergency Response	Conflicts with current activities	Winds required	Accomm-odation / Facilities	Ablution facilities	Access to water	Access to Land	Interest in the activity	Funding Opportunities	
		seasonally.									during winter may be constrained by changing levels		signal					at TSC					
	Stand Up Paddling	Changes occur seasonally.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Adequate during winter may be constrained by changing levels	N/A	Cell phone signal	UPN System	May conflict with motorised boats	N/A	N/A	Ablutions available at TSC	Through TSC	Through TSC	Usually popular resort activity	N/A	2
	Boat Paragliding	Changes occur seasonally	N/A	N/A	N/A	increase vegetative spread of indigenous invasive species	N/A	N/A	N/A	N/A	Adequate during winter may be constrained by changing levels	N/A	Cell phone signal	UPN System	May conflict with motorised boats	Yes. Good winds available at the Dam	N/A	Ablutions available at TSC	Through TSC	Through TSC	Current activity	N/A	3
	Sailing	Changes occur seasonally	N/A	N/A	N/A	increase vegetative spread of indigenous invasive species	N/A	N/A	N/A	N/A	Adequate during winter may be constrained by changing levels	N/A	Cell phone signal	UPN System	May conflict with motorised boats	Yes. Good winds available at the Dam	N/A	Ablutions available at TSC	Through TSC	Through TSC	Current activity	N/A	3
	Water Toys	Changes occur seasonally	N/A	N/A	N/A	increase vegetative spread of indigenous invasive species	N/A	N/A	N/A	N/A	Adequate during winter may be constrained by changing levels.	N/A	Cell phone signal	UPN System	May conflict with motorised boats	N/A	N/A	Ablutions available at TSC	Through TSC	Through TSC	Unsure	N/A	2
	Flying Boats/Water Planes	Changes occur seasonally.	N/A	N/A	N/A	N/A	N/A	N/A	Oil spills may impact water quality. This is important water source	N/A	Changing levels	N/A	Cell phone signal	UPN System	May conflict with motorised boats Therefore a safety risk.	N/A	N/A	N/A	N/A	Through TSC	Unsure	N/A	0
	House Boats	Changes occur seasonally	N/A	N/A	N/A	N/A	N/A	N/A	Oil spills may impact water quality. This is important water source. Sewerage may also have negative impact.	N/A	Changing levels	N/A	Cell phone signal	UPN System	May conflict with motorised boats	N/A	N/A	N/A	N/A	Through TSC	Unsure	N/A	1
	Junior Rowing School	Changes occur seasonally	N/A	N/A	N/A	increase vegetative spread of indigenous invasive species	N/A	N/A	N/A	N/A	Adequate during winter may be constrained by changing levels	N/A	Cell phone signal	UPN System	May conflict with motorised boats	N/A	N/A	New facilities would be required.	Potential to locate it at TSC. Would require agreements	Potential to locate it at TSC. Would require agreements	Canoeing and rowing take place. Row SA has indicated that they want to open in 2014	Row SA	2
	High Performance	Changes occur	N/A	N/A	N/A	increase vegetative	N/A	N/A	N/A	N/A	Adequate	N/A	Cell phone	UPN System	May conflict with motorised boats	N/A	N/A	New facilities	Potential to locate it at	Through TSC	Canoeing and rowing	PPP/Co funding with	1

Contact Type	Activity	**Operational Management Issues**		**Environmental Impacts on Recreational Use**			**Recreational Use Impacts on the Environment**			**Safety Requirements**					**Recreational Requirements**					**Legal Requirements**	**Economic Viability**		**Score**
		Change in Water Level	Impacts on Dam Wall	Water Quality (E. Coli)	Health Impacts	Aquatic Invasive Species	Fish Spawning	Bird Nesting	Water Quality	AtoN and Demarcation Markers	Water Depth	Visibility	Radio Signal	Emergency Response	Conflicts with current activities	Winds required	Accomm-odation / Facilities	Ablution facilities	Access to water	Access to Land	Interest in the activity	Funding Opportunities	
	Water Sports Training Academy	seasonally				spread of indigenous invasive species					during winter may be constrained by changing levels		signal					would be required	TSC. Would require agreements		take place	SAS	

4.4.3. Carrying Capacity

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

Calculating carrying capacity for recreation is a vital step to ensure that recreation at the dam is safe and that users do not feel crowded and enjoy their use of the dam as a venue for recreation. There are three kinds of carrying capacity:

1. Physical Carrying Capacity (PCC). This is the maximum number of users that can physically fit onto the water surface at any given time.

2. Real Carrying Capacity (RCC). This is the maximum number of users that can use the resource once corrective factors (such as wildlife or weather conditions) that are unique to the dam are taken into account.

3. Effective (permissible) Carrying capacity (ECC). This is the number of visitors that can use the resource, given the management capacity available at the dam.

4.4.3.1. Physical Carrying Capacity (PCC)

PCC is calculated as PCC = A ÷ U/a x Rf

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

A is calculated as the area of the water surface: 51.41 km ^{2}, or 5 141 hectares (ha)

U/A = There is a range of literature regarding the area required for different recreational users. The Theewaterskloof SDF (1998) also did an assessment of carrying capacity at the Dam. The U/A used for that assessment are as follows:

Craft	Water Depth (m)	U/A (ha/ craft)
Canoes	>0.6	0.5
Windsurfers	>0.6	0.5
Rowing	>1.0	0.5
Dinghies	>1.0	1.0
Yachts	>1.8	2.0
Powerboats	>1.4	4.0
Fishing	>1.0	4.0
Water-skiing	>1.4	16.0
Average		

Based on the fact that most activities do not require much space, and that the average hectares per user is 3 ha (30 000 m^2), the value of 4 ha (40 000 m^2) is an acceptable area per user.

As Theewaterskloof is quite remote it is unlikely that people would use the Dam more than once per visit. It is far more likely that visitors to the Dam would spend the majority of the day on the water surface. In this case RF = 1.

The PCC for Theewaterskloof Dam can therefore be calculated as:

PCC = 5 141÷ 4 x 1

PCC = 1 285 boats on the Dam.

However, this is based on the full length of the Dam at 100% capacity. It also doesn't take into account the zoning of the Dam.

4.4.3.2. Real Carrying Capacity (RCC)

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

- Conservation areas,
- Water level – the Dam capacity fluctuates due to varying run-off, domestic supply to Cape Town and irrigation requirements. In addition, most of the recreational activity takes place during summer when the Dam is dry. Thus the capacity is taken as 55% for this calculation;
- Safety No Go Zones;
- Swimming Safety Areas; and
- Aquatic Weed No Go Areas.

Calculating the area of the surface of the Dam taking into account the 55% water capacity decreases Area available for use from 5145 ha (51.45 km^2) to 2829 ha (28.29 km^2). Subtracting the areas zoned as No Go for Safety or Aquatic Weeds, brings the area available to 1298 ha (12.98 km^2). This is approximately 25% of the physical carrying capacity

The RCC for Theewaterskloof Dam is therefore:

- RCC = PCC x (100 – Cf1) % x (100 – Cf2) % x … (100 – Cfn)%
- Where Cf = a corrective factor expressed as a percentage.
- RCC = 1285 x (100 – 25)%

RCC = 963 boats on the Dam at any given time ***Based on water surface.***

4.4.3.3. Effective (permissible) Carrying Capacity (ECC)

Effective Carrying Capacity is the maximum number of visitors that a site can sustain, given the management capacity available. Given that Theewaterskloof Dam has a formal, nationally affiliated boat club with safety provisions in check, the ECC is 1.

- ECC = [Infrastructure Capacity x MC]/ RCC
- Where: ECC = Effective Carrying Capacity;
- MC = Management capacity based on staff and budget;
- RCC = Real Carrying Capacity

In this case calculating ECC is not possible until such a point where the infrastructure capacity is known.

4.4.4. Water Surface Zonal Plan

The Zonal plan for the water surface at Theewaterskloof Dam is divided into thirteen distinct areas or zones. These zones are based on a number of factors including:

- Operational requirements of the Dam;
- Safety requirements of each activity;
- Types of activities (in terms of contact); and
- Environmental requirements.

The overall zonal map is provided in the figure below.

The zones are as follows:

- Zone A: Secondary Contact Activities – Combination
- Zone B – Full Contact Activities;
- Zone C – Safety/No- Go Zone;
- Zone D – Secondary Contact: Skiing lanes;
- Zone E – Secondary Contact: Keelboat Mooring;
- Zone F – Secondary Contact –Motorised Boats and Related Activities Zone
- Zone G – Secondary Contact: Restricted/ Permit Only Zone;
- Zone H – Secondary Contact –No Impact Activity Zone.
- Zone I - Secondary Contact – Jet Ski only;
- Zone J – No Go Zone – Aquatic Invasive Plants;
- Zone K – Secondary Contact – Organised Sailing;
- Zone L: Secondary Contact – Bank Angling; and
- Zone M – Secondary Contact – Wind Sports.

Detailed information of the current and potential activities together with activities that are not allowed in each zone is provided in the table below. Information on requirements for each zone is also provided.

Table 5: Surface Water Management Zones

Zone Name	Contact Type	Permissible Activities - Current	Permissible Activities - Potential	Access Point	Safety Requirements for Users	Safety Requirements for DMC
Zone A	Secondary Contact – Combination	Motorised Boats – No Wake zone Canoeing Kayaking Rowing Tubing Paddle Ski Bass Fishing/Fishing from Boats	Subsistence fisheries Dragon Boats Slalom Canoe Fishing Canoe Kayaking Sprints Kayaking Marathons Kayaking Touring Kayaking Fishing Pedal Boat House Boats Stand Up Paddling Shore Fishing Tube Fishing Pontoon Fishing	Theewaters Sports Club Theewaterkloof Country Estate Gloria Bay Dennehof - if re-opened (access agreements required for all)	Registered Safe for Water Vessel Valid Skipper's License First Aid Kit UPN date stamp UPN tag	AtoN and Demarcation Markers UPN System OPS Point Wash Bay Rescue Boat available at all times Wash Bay Officer Enforce-ment Officer Theewaterskloof Country Estate, Gloria Bay and Dennehof requires system to check UPN Tag and Date Stamp
Zone B	Full Contact - Swimming	Swimming - recreational	Swimming – development school	Theewaters Sports Club Theewaterkloof Country Estate Gloria Bay Dennehof - if re-opened (access agreements required for all)		AtoN and Demarcation Markers UPN system OPS point Rescue Boat available at all times
Zone C	No Go Zone – Dam Safety	None	None	N/A	N/A	AtoN and Demarcation Markers
Zone D	Secondary Contact – Ski Lanes	Skiing Ski and Wakeboard Boat		Theewaters Sports Club Theewaterkloof Country Estate Gloria Bay Dennehof - if re-opened (access agreements required for all)	Registered Safe for Water Vessel UPN date stamp UPN tag.	AtoN and Demarcation Markers uoys UPN System OPS Point Wash Bay Rescue Boat available at all times Wash Bay Officer Enforce-ment Officer Theewaterskloof Country Estate, Gloria Bay and Dennehof

Zone Name	Contact Type	Permissible Activities - Current	Permissible Activities - Potential	Access Point	Safety Requirements for Users	Safety Requirements for DMC
						requires system to check UPN Tag and Date Stamp
Zone E	Secondary Contact - Mooring	Keelboat Moorings		Theewaters Sports Club	Registered Safe for Water Vessel Valid Skipper's License First Aid Kit UPN date stamp UPN tag	AtoN and Demarcation Markers UPN System OPS Point Wash Bay Rescue Boat available at all times Wash Bay Officer Enforce-ment Officer Theewaterskloof Country Estate, Gloria Bay and Dennehof requires system to check UPN Tag and Date Stamp
Zone F	Secondary Contact	Bass Fishing/Fishing from Boats Motorised Boats Jet Powered Boats RHIB Wind Surfing Kite Surfing Paragliding Sailcraft Ski and Wakeboard Boat Canoeing Rowing Kayaking Sprints	Jet Powered Boats Dragon Boats Slalom Canoe Fishing Canoe Jet Ski Fishing	Theewaters Sports Club Theewaterkloof Country Estate Gloria Bay Dennehof - if re-opened (access agreements required for all)	Registered Safe for Water Vessel Valid Skipper's License First Aid Kit UPN date stamp UPN tag	AtoN and Demarcation Markers UPN System OPS Point Wash Bay Rescue Boat available at all times Wash Bay Officer Enforce-ment Officer Theewaterskloof Country Estate, Gloria Bay and Dennehof requires system to check UPN Tag and Date Stamp
Zone G	Secondary Contact	Bass Fishing/Fishing from Boats Canoeing	House Boats Tube fishing Kayaking Fishing Fishing Canoe	Theewaters Sports Club Theewaterkloof Country Estate Gloria Bay Dennehof - if re-opened (access agreements required for all)	Registered Safe for Water Vessel Valid Skipper's License First Aid Kit UPN date stamp UPN tag Restricted Area permit	AtoN and Demarcation Markers UPN System OPS Point Wash Bay Rescue Boat available at all times Wash Bay Officer Enforce-ment Officer Theewaterskloof Country Estate, Gloria Bay and Dennehof requires system to check UPN Tag and Date Stamp Permit system at TSC for restricted area (additional to fishing license)

Zone Name	Contact Type	Permissible Activities - Current	Permissible Activities - Potential	Access Point	Safety Requirements for Users	Safety Requirements for DMC
Zone H	Secondary Contact	Canoe Kayaking Rowing Swimming		Theewaters Sports Club Theewaterkloof Country Estate Gloria Bay Dennehof - if re-opened (access agreements required for all)	Registered Safe for Water Vessel Valid Skipper's License First Aid Kit UPN date stamp UPN tag	AtoN and Demarcation Markers UPN System OPS Point Wash Bay Rescue Boat available at all times Wash Bay Officer Enforce-ment Officer Theewaterskloof Country Estate, Gloria Bay and Dennehof requires system to check UPN Tag and Date Stamp
Zone I	Secondary Contact	Jet Ski		Theewaters Sports Club Theewaterkloof Country Estate Gloria Bay Dennehof - if re-opened (access agreements required for all)	Registered Safe for Water Vessel Valid Skipper's License First Aid Kit UPN date stamp UPN tag	AtoN and Demarcation Markers UPN System OPS Point Wash Bay Rescue Boat available at all times Wash Bay Officer Enforce-ment Officer Theewaterskloof Country Estate, Gloria Bay and Dennehof requires system to check UPN Tag and Date Stamp
Zone J	No Go Zone – Aquatic Invasive species	N/A	N/A	N/A	N/A	Enforcement Officer Notice Boards
Zone K	Secondary Contact	Organised Sailing		Theewaters Sports Club Theewaterkloof Country Estate Gloria Bay Dennehof - if re-opened (access agreements required for all)	Registered Safe for Water Vessel Valid Skipper's License First Aid Kit UPN date stamp UPN tag	AtoN and Demarcation Markers UPN System OPS Point Wash Bay Rescue Boat available at all times Wash Bay Officer Enforce-ment Officer Theewaterskloof Country Estate, Gloria Bay and Dennehof requires system to check UPN Tag and Date Stamp
Zone L	Secondary Contact	Bank Angling		Theewaters Sports Club Theewaterkloof Country Estate Gloria Bay Dennehof - if re-opened (access	Registered Safe for Water Vessel Valid Skipper's License First Aid Kit UPN date stamp UPN tag	AtoN and Demarcation Markers UPN System OPS Point Wash Bay Rescue Boat available at all times Wash Bay Officer Enforce-ment Officer

Zone Name	Contact Type	Permissible Activities - Current	Permissible Activities - Potential	Access Point	Safety Requirements for Users	Safety Requirements for DMC
				agreements required for all)		Theewaterskloof Country Estate, Gloria Bay and Dennehof requires system to check UPN Tag and Date
Zone M		Skiing Ski and Wakeboard Boat Paddle Ski Surf Ski Ski Jumping Slalom Skiing		Theewaters Sports Club Theewaterkloof Country Estate Gloria Bay Dennehof - if re-opened (access agreements required for all)		AtoN and Demarcation Markers UPN System OPS Point Wash Bay Rescue Boat available at all times Wash Bay Officer Enforce-ment Officer Theewaterskloof Country Estate, Gloria Bay and Dennehof requires system to check UPN Tag and Date Stamp
Zone N	No Go Zone – Safety Buffer	None	None	N/A	N/A	AtoN and Demarcation Markers

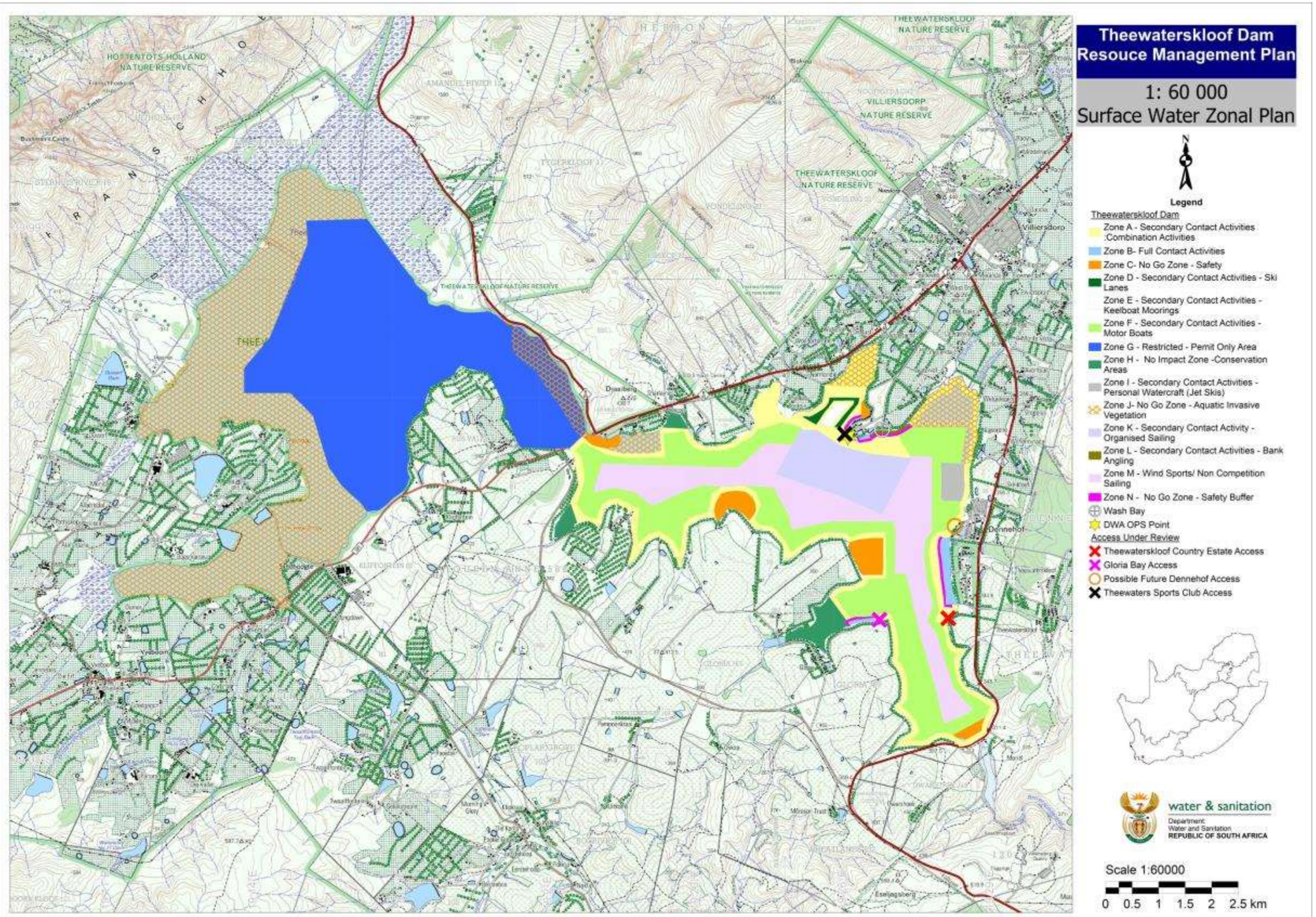

Figure 20: Map of the Water Surface Zonal Plan

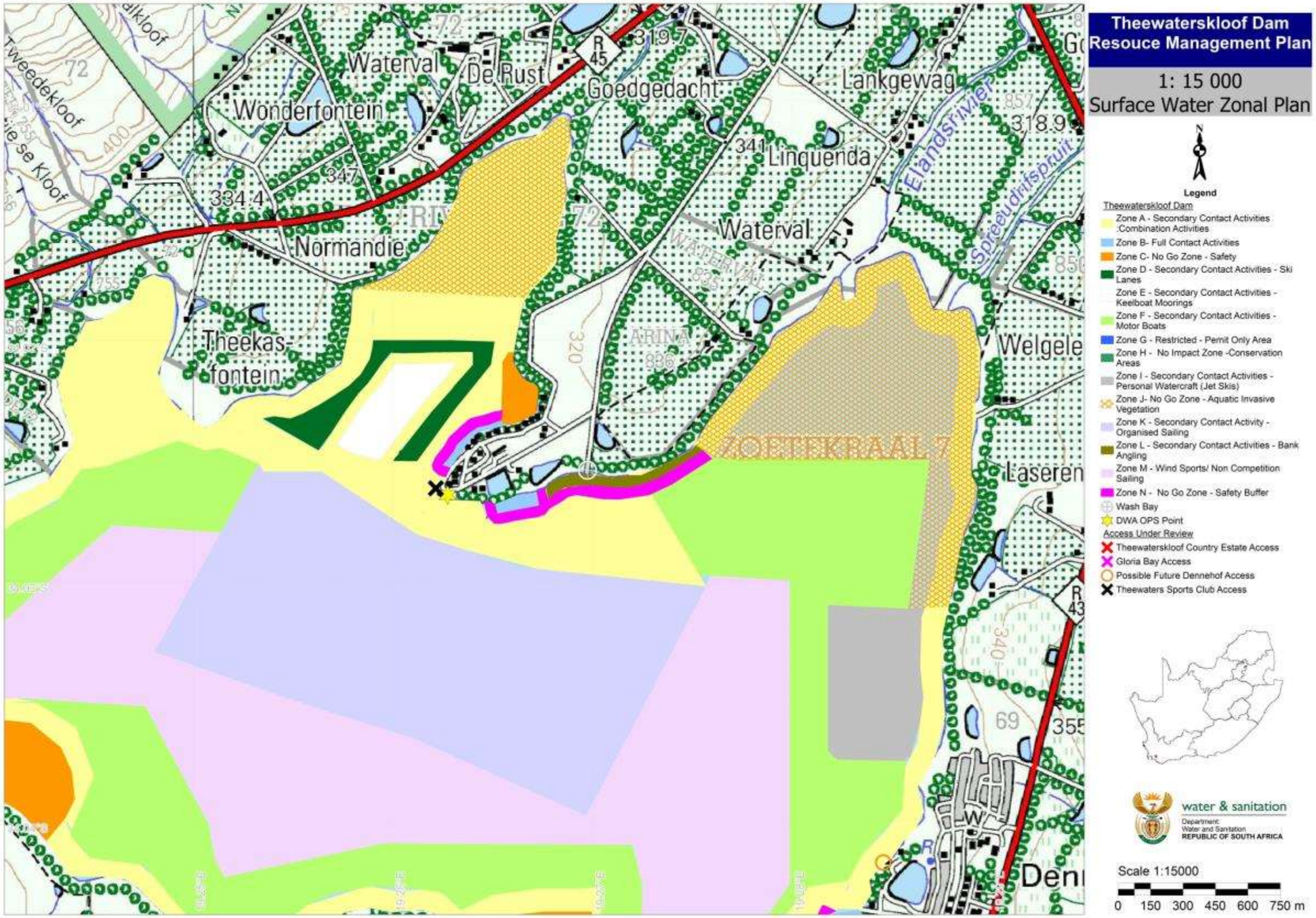

Figure 21: Map of the Water Surface Zonal Plan – Section 1

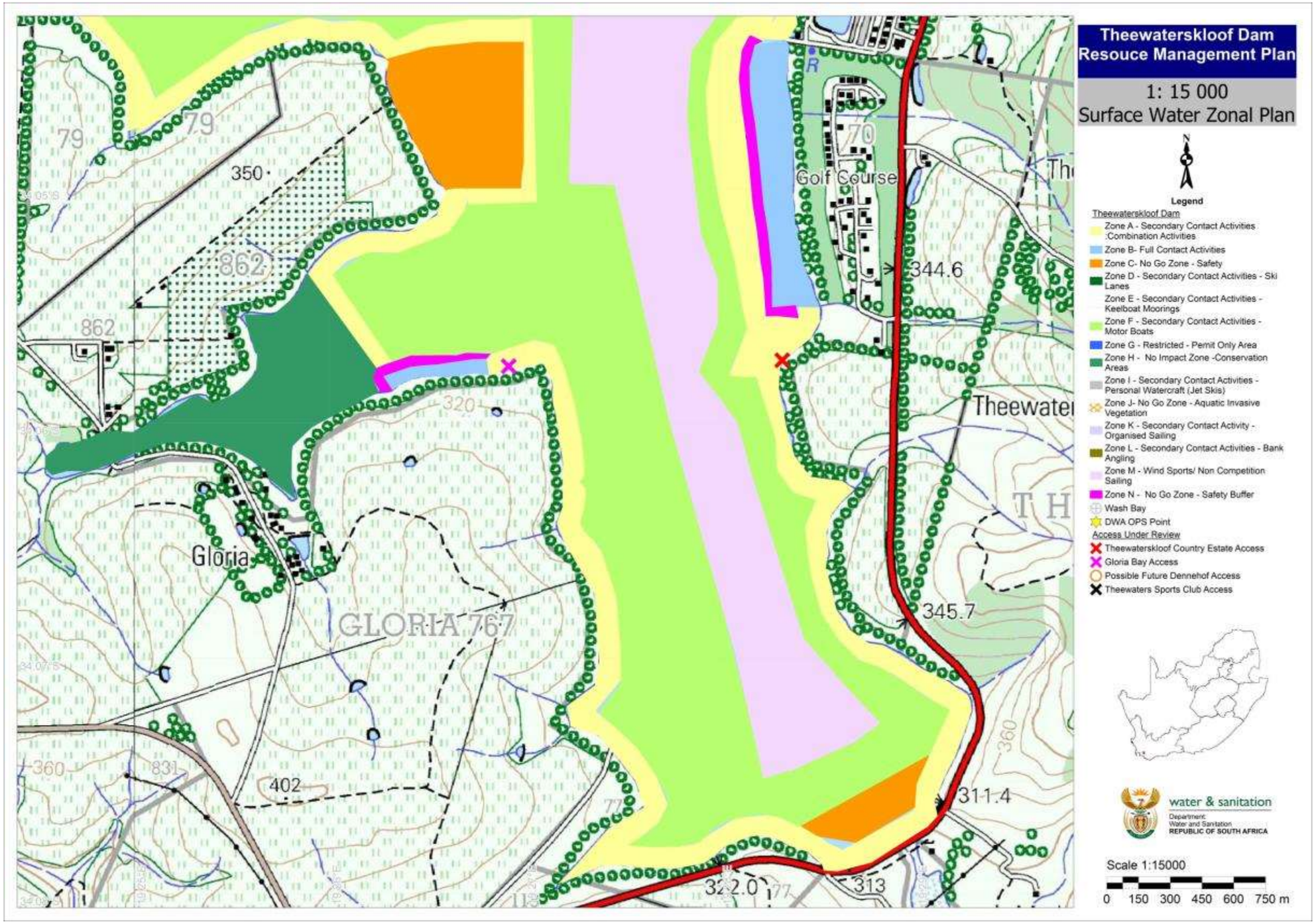

Figure 22: Map of the Water Surface Zonal Plan – Section 2

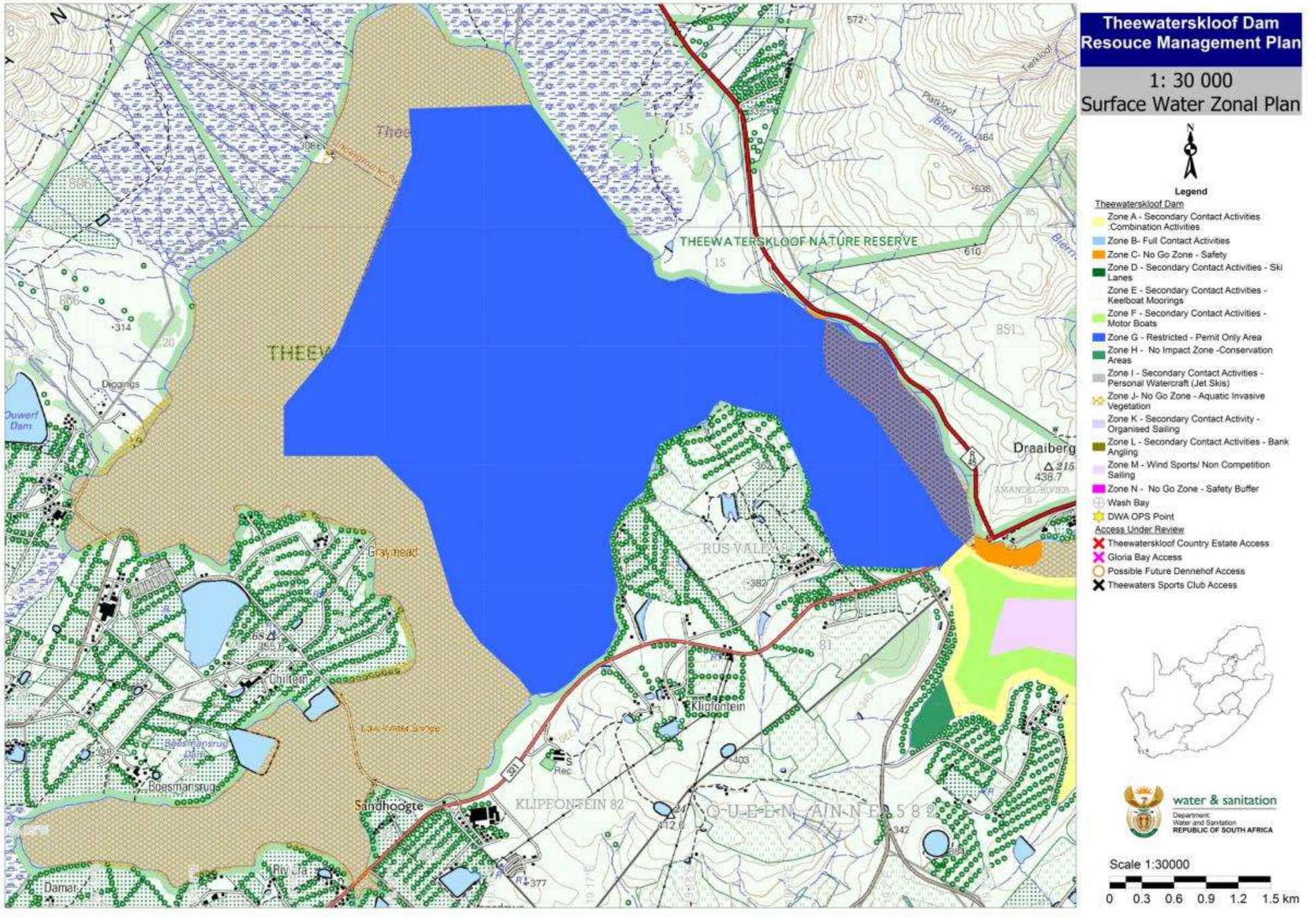

Figure 23: Map of the Water Surface Zonal Plan – Section 3

4.4.5. Shoreline Zonal Plan

In addition to the Surface Water Zonal Plan above, an integral part of the RMP is Shoreline Zoning. This provides guidance on what activities (if any) are allowed in the land adjacent to the Dam.

The Shoreline Zonal Plan can only manage state owned land around the Dam. For this reason, only State Owned Land has been included -in some cases, these properties are large and extend out while other times, the state land forms a very thin border around the Dam. This land is managed by DAFF and Cape Nature.

The management zones include:

- Zone A - Conservation and Recreation/Tourism
- Zone B - Development and Recreation
- Zone C- Management – No Access to the Public

Zone A includes the area to the east of Draaiberg Bridge (adjacent to Hottentots Holland Nature Reserve). This area is managed by Cape Nature and all access must be through their access points. There is no access to the surface water through this zone. Game viewing and conservation management activities are permitted. Development of this area is not allowed.

Zone B allows for recreation and development allowing for the potential development of the following:

- Theewaters Sports Club (i.e. ablution facilities);
- Wash Bay and Slipway at Gloria Bay and Theewaterskloof Country Estate;
- Upgrade and re-opening of Dennehof Resort. ;
- Rowing Development Schools; and
- High Performance Water Sports Training.

Zone B is mapped in purple.

Zone C provides for land management of state land but does not allow public use or access. This includes the area around the Dam wall. In addition, due to the fact that the land adjacent to the Dam is often managed through caretaker agreements with adjacent landowners, recreational users on the Dam are not permitted to access these areas. Zone C is mapped in red below.

Permissible and non-permissible activities are detailed in the table below.

Table 6: Shoreline Management Zones

Zone Name	Zone Type	Permissible Activities	Requirements for Users	Requirements for DMC
Zone A	Conservation and Management	Conservation management activities – Cape Nature Access to this Hottentots' Holland Game Viewing – Managed through Cape Nature's Hottentot's Holland	Birding and game viewing must be undertaken in accordance with rules and Regulations of Hottentot's Holland Nature Reserve Noise levels to be kept at a minimum No littering No access to the shoreline from the Dam permitted. All access through Hottentots Holland	Updated agreements with Cape Nature Rehabilitation of wetland Removal of alien invasive terrestrial species
Zone B	Recreation and Development	Development of facilities/infrastructure for recreation Development of facilities/infrastructure for development/training Development of facilities/infrastructure for tourism Fishing Camping/Accommodation Birding Picnicking Access to surface water for recreational purposes	Camping, birding, hiking, picnicking, shoreline fishing, and access to the water must be done in accordance to access agreements and Theewaterskloof Dam By-Laws Camping allowed only in designated areas Noise levels to be kept at a minimum. No littering at Picnic spots Access to surface water only through approved access points (Theewaters Sports Club, Theewaterskloof Country Estate, Gloria Bay and Dennehof Resort – when re-opened) All users to go through Wash Bay at Theewaters Sports Club No private slipways to be built without approval from DWS. In addition Section 21 c. and i. and k Water Use License Application (WULAs) would be required	Enforcement Officer to check all designated picnic spots Feasibility of employing local community members as part of "Working For Dams" programme to be assessed. Potential jobs include management of picnic sites/picking up of any litter DMC must ensure that all developments have been approved by DWS and DMC Requirements of National Water Act and National Environmental Management Act must be taken into account All developments should have an approved Environmental Management Plan (EMP) to ensure construction does not impact on Dam
Zone C	Management – No Public Access	Fire management Alien invasive species clearing Management of Dam Infrastructure	Caretaker agreements must be in place prior to use/management by adjacent landowners	Access to this area for strictly management purposes (i.e. DWS, DAFF, Adjacent Landowners with Caretaker Agreements Caretaker Agreements between DWS and Adjacent landowners should be drafted and include information on Fire Management, Management of Alien Invasives species Agreements to ensure that adjacent landowners do not have access to the Dam

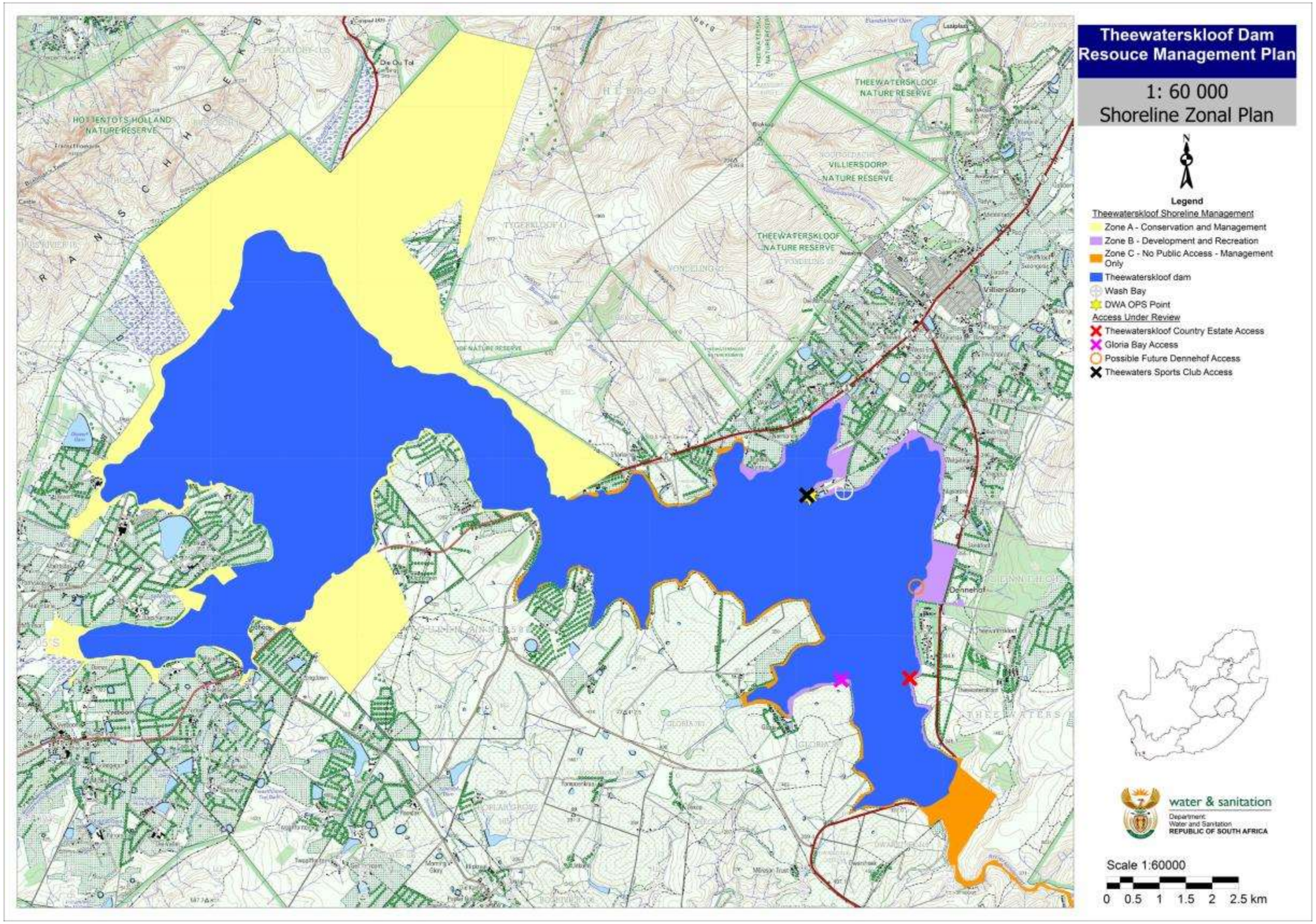

Figure 24: Shoreline Zonal Map

4.5. Strategic Plan

The Strategic Plan is informed by the objectives determined during the Visioning exercise and through research on feasible opportunities for the Dam.

Objective	What	Why	How	Who
Improved institutional arrangements and management	An Agenda item relating to the RMP should be added to the current Southern Operation Cluster Management Meeting	To ensure management of Theewaterskloof Dam is undertaken in line with management of other Dams within NWRI: Southern Operations	Additional Agenda Item to be added to Southern Operations Cluster Meeting	DWS: Southern Operations
	Formation of Dam Management Committee (DMC)	To ensure management of recreation at Theewaterskloof Dam	DMC to be established Terms of Reference to be drafted.	CIWSP DWS
	Agreements between DWS and Cape Nature, DAFF and Adjacent Landowners should be updated to include recommendations from the RMP	To ensure clarity and proper management of land adjacent to the Dam	Discussions between adjacent landowners/CapeNature/DAFF and DWS Agreements to be drafted taking into account RMP recommendations Agreements to be signed.	DWS CapeNature DAFF
	Agreement between DWS, Cape Nature and TSC regarding management of the surface water should be updated to include more detail on access, development, safety and recreational use	To ensure proper management of Surface Water	Discussions between Cape Nature, DWS and TSC to clarify who is mandated to manage surface water Agreements should be updated or drafted to take into account RMP recommendations. Agreements to be signed	DWS TSC

Objective	What	Why	How	Who
	Rates for Events and Advertising should be determined	To unlock the economic potential of Theewaterskloof Dam	Rates Table to be formulated	DWS
	All private clubs/association's on State Owned Land need to be updated to comply with Treasury and Government Polices	To comply to Treasury requirements	DWS and CapeNaure to review all agreements with Private Organisations on State Owned Land	DWS CapeNature
Proper policing and safety management	Implementation of standardised and harmonised AtoN and Demarcation Markers	Improve safety of navigation.	Implement AtoN and Demarcation markers as required. Agreements between SAMSA, DWS, LAAPs and other relevant parties to be concluded	SAMSA DWS Relevant Parties
	Provision of a Safety Officer with Authority	To ensure Safety Officer has the authority to manage safe recreation on the Dam	DWS, TSW and Overberg District to discuss use of Theewaterskloof Dam By-laws Overberg District Council to authorise TSC Safety Officer with powers of authorised officer in terms of Theewaterskloof Dam By-Laws	DWS TSC Overberg District Council
	Formalised agreements with Theewaterskloof Country Estate, Gloria Bay and Dennehof Resort (when necessary) regarding access to Dam	To ensure access from Private Developments is correctly managed	DWS to development management protocol for Theewaters Sports Club to manage access from private developments DWS to sign agreements regarding access with Theewaters Sports Club, Theewaterskloof Country Estate (TCE) and Gloria Bay (GB)	DWS TSC TCE GB

Objective	What	Why	How	Who
	Formalised system for management of access (including ensuring all users access Wash Bay at TSC prior to access at TCE and GBD)	To ensure UPN system and wash bays are used by all recreational users of the Dam	DWS to meet with TCE and GB management to discuss the need for a specific system for monitoring access will be required	DWS TSC TCE GB
Improved water quality	Water Pollution Study	To identify causes of pollution to the Dam	Water Pollution Study to be undertake	DWS
	Upgrade of Villiersdorp WWTWs	To improve water quality entering the catchment	Discussions with Theewaterskloof Municipality regarding the need for an upgrade Upgrade and maintain WWWTWs	DWS Theewaterskloof LM
	Sharing of information between CCTM, BOCMA and DWS regarding water pollution	A number of different types of monitoring information is collected by different stakeholders. By sharing this information, it is possible to obtain a better understanding of the water quality of the Dam	City of Cape Town, BOCMA and DWS to form part of DMC Water quality issues to be discussed at all DMC meetings	DMC CCTM BOCMA
	Rehabilitation of wetland	The wetland to the north of the Dam is degraded. Wetlands assist in improving water quality	DWS and Cape Nature to meet with Working for Wetlands Rehabilitation Plan to be compiled Rehabilitation of the wetland to take place	DWS Cape Nature Working for Wetlands
	Landuse management study	Landuse is the catchment including farming practices impact on water quality, erosion, ecosystem services etc. By understanding the landuses in the catchment,	Investigation into land use and land use management in the area and assessment of land use practices that will improve water quality and ecosystem services. Discussions between BOCMA, Cape Nature, CCT, DAFF and DWS with farmers to facilitate	DWS DMC DAFF CapeNature BOCMA CCT

Objective	What	Why	How	Who
		and through managing thmem better there is an opportunity to improve water quality.	instituting the findings of the study.	
Management of fishing	Permit system for entry into restricted area to be compiled (In addition to Cape Nature fishing permit)	To ensure control of fishing in the restricted area	Restricted Area Permit system to be compiled by DWS TSC to provide Restricted Area Permits at Wash Bay Wash Bay officer to check Freshwater Angling Permit from Cape Nature is up to date.	DMC Wash Bay Agent TSC DWS
	Feasibility of Commercial Fishing to be determined (especially fishing of Carp). This study must include national and international research on the potential impacts of commercial fishing on water quality. Further, the economic benefit from localized job creation should be weighed against increased water treatment costs. The feasibility study should be made available to the public and authorities (such as CCTM) for comment and discussion;	A study by Stellenbosch University and Cape Nature is proposed whereby commercial fishing of Carp is undertaken. The carp will then be smoked (to improve taste) and sold. A project like this could potentially create jobs and improve economic status of the area	Feasibility study for Commercial Fishing to be undertaken	DWS Cape Nature DAFF
	Species management programmes in line with NEMBA Legislation to be compiled and implemented.	Decrease in Bass Populations and increased turbidity are related to increased carp populations. Further, the new draft NEMBA legislation suggests that a catch and destroy policy will be required for Category 1b	Species management programmes to be compiled taking into account new NEMBA legislation Discussions with Carp fisherman to be undertaken	DWS DAFF DEA

Objective	What	Why	How	Who
		species in protected areas. The fish management plan will need to take this into account		
	Education Programme including signboards to educate Dam users regarding the impacts of invasive fish	Invasive fish species have negative impacts on indigenous fish populations. Education programmes are important to ensure the impacts of these fish are understood	Education boards providing information about invasive fish to be placed at Wash Bays	DWS DEA DAFF
Formalised education and skills programmes	Clubs to be affiliated to National Clubs such as under South African Sports Confederation and Olympic Committee (SASCOC) and thus incorporate training and development as per SASCOC requirements	National Sporting bodies have development targets which will ensure that both clubs are developing the community around the Dam	Agreements DWS and recreational clubs to have national affiliation requirement DMC to ensure that all clubs have become affiliated within a year	DMC DWS Recreational bodies
	Feasibility of opening a Centre for Water Sport Excellence through Public Private Partnerships (PPPs)	The Dam provides excellent conditions for water sports. Its location near Cape Town is also ideal. A High Performance Water Sports Centre would provide job opportunities and improve water sports at a national level	Feasibility Study to be undertaken Discussions with SASOC, Row SA and SAS regarding funding	DWS SASCOC SAS Row SA
	Information programmes to be implemented by DMC to educate the local community about the benefits of the Dam including environmental education	The local community to not use the Dam. This could be due to a lack of information. Information programmes should improve interest in the Dam	DWS to develop information programmes for local community	DWS DMC
	Feasibility of 'Buddy School" System where private schools who make use of the Dam	A number of junior rowing and sailing events take place	DWS to discuss possibility of Buddy School System with Private schools who make use of	DWS DMC

Objective	What	Why	How	Who
	for water sports work together with poorer local community schools	at the Dam. Affiliations with private schools may improve water sports at lower income local schools	the Dam for training	
	Subsidised funding for local community schools for trips to the Dam	The costs of entrance to the Dam may prevent school trips to the Dam	DWS to investigate subsidized funding for school trips Access for school trips should be specified in agreements with TSC	DWS TSC DMC
	Coordination with NGOs such as Color Foundation to create skills programmes for marginalised groups such as farm workers and women and children at the Dam	Due the agricultural industry surrounding the Dam, there are a large number of farm workers living in close proximity of the Dam. These workers are often marginalised. Access to the Dam and skills training programmes would be valuable	Discussions with NGOs such as the Color Foundation. Discussions with Theewaterskloof LM Development of Skills programmes	DWS DMC Theewaterskloof LM
	Junior Rowing School at Theewaterskloof Dam	RowSA has indicated that they will roll out a new junior rowing school at Theewaterskloof Dam in 2014	DWS to meet with RowSA to ensure easy roll out of the rowing school DWS to discuss subsidies for community scholarships for youth in the area	DWS RowSA DMC
Equitable access	Implementation of a local community access card for discounted prices for community members	To ensure access to the Dam is equitable	Agreement obligations to include access for community members	DWS DMC TSC
	Increase in number of picnic spots/areas for use by community members	To ensure there are adequate facilities for the community	Discussions with TSC about increasing number of picnic spots	DWS DMC TSC
	Information programmes to be DMC to educate local community about the benefits of the Dam	To increase community use of the Dam	Education programme to be rolled out in schools and churches	DWS DMC

Objective	What	Why	How	Who
	Feasibility of subsiding local access to the Dam to explored	To ensure access to the Dam is equitable	Agreement obligations to include access for community members	DWS DMC TSC
	Walkways/hiking trails around parts of the Dam with subsidized entrance fees for local residents	Community members expressed interest in accessing the Dam for walks	Feasibility to be undertaken Discussions with Overberg District and DAFF regarding land around the Dam. Clearing of walking trails Provision of dustbins Subsidized access to walking trails for local community to be assessed. Management of walking trails could be undertaken through PPP for resort management	DWS DMC Overberg DM DAFF
Management of development pressure	DMC to have dedicated agenda item regarding EIAs and developments in the area	To ensure DMC is aware of all developments around the dam	DMC to discuss and comment on all EIA's that could have an impact on the Dam	DMC DWS CapeNature DEADP
	Non compliances should be reported	Illegal developments can have negative impacts on the dam.	DMC should include DEADP representative and non-compliances should be reported.	DMC DEADP
Recreational use and Tourism	Demarcated area for angling to be maintained	To ensure facilities for angling are maintained	Discussions with WPBAA and TSC regarding management of bank angling	DMC TSC WPBAA
	Feasibility of re-opening Dennehof Resort should be assessed. This study should	Unlock Economic potential of the Dam	Feasibility Study to be undertaken	DWS DMC

Objective	What	Why	How	Who
	include the potential impacts of this activity on water quality at the Dam and should draw on both national and international studies. Further, the economic benefit from localized job creation should be weighed against increased water treatment costs. The feasibility study should be made available to the public and authorities (such as CCTM) for comment and discussion			
	Coordination with Western Cape Tourism associations regarding improved advertising of Theewaterskloof Dam and surrounding area	Unlock Economic potential of the Dam	Discussions with Western Cape Tourism	DWS DMC Western Cape Tourism
Natural Resource Management	Alien invasive plants (terrestrial and aquatic) to be managed through partnerships with Cape Nature and Working for Water	To control spread of alien invasive species	Coordination with Cape Nature, Working for Water and DWS Wash Bays Zonal Plans	DWS DMC DEA Cape Nature
Water Allocation	Water conservation and water demand management programmes to be developed in conjunction with the Agricultural Sector to ensure maximum water saving.	To improve recycling and water saving in the community around the Dam	Water Saving programme to be developed with BOCMA	DWS DMC BOCMA

5. WAY FORWARD

5.1. Compilation of Business Plans

Based on the strategic objectives identified for Theewaterskloof Dam, a suite of Business Plans were developed. The Business Plan describes the financial management and operational requirements to implement the Objectives of the RMP. The Financial Plan will facilitate the implementation of listed and recommended activities in the RMP.

The Business Plans are approached in the following manner:

- *Identify Strategic Objective* – informed by RMP
- *Determine Interventions* – Each objective was divided into practical interventions
- *List Detailed Activities* – Interventions were further divided into activities, in order to establish timeframes and provide guidance to the entity who implements the business plan
- *Establish Key Performance Indicators* per intervention – Key Performance Indicators allow for monitoring and evaluation
- *Establish timeframes* per activity
- *Establish a budget* per activity
- *Determine Funding sources* – Innovative mechanisms to obtain funding were identified.

5.2. Review of RMPs

The vision in the RMP process has identified a twenty-year vision for the Dam. This vision will be implemented through the RMP which will be revised and updated every five years, according to changing priorities, constraints and achievements. Within a five-year cycle of the RMP, the Business Plans will identify key objectives in line with a changing status quo and potential change in circumstances. After five years the RMP will be reviewed and updated so to identify new objectives in line with the vision for the dam.

The Business Plans are updated annually.

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