FINAL RESOURCE MANAGEMENT PLAN

CRAIGIEBURN DAM

water & sanitation

Department:
Water and Sanitation
REPUBLIC OF SOUTH AFRICA

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- Umvoti Local Municipality;
- Umzimyathi Local Municipality;
- Umvoti Water Committee; and
- Mooi River Irrigation Board.

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Review:

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Amendments Page

Date	Description	Version No.
17 September 2013	First Draft for PSC Review	1
13 December 2013	Amended RMP for PSC Review	2
10 March 2014	Amended RMP for PSC Review	3
19 March 2014	Amended RMP for Public Review	4
23 May 2014	Final RMP for PSC Review	5
13 August 2014	Final RMP for Public Review	6
10 March 2015	Final RMP	7

Executive Summary

According to the Guidelines for the Compilation of Resource Management Plans (2006), the main aim of the Resource Management Plan 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 described 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 funds should be used. Together these components provide a comprehensive guide on the "what?"; "why?"; "how?" and "who?" of the management of prioritised Government Waterworks.

Craigieburn Dam was originally constructed for the storage and regulation of water for agriculture in the Region. More recently, development pressures in the area has led to applications for the water to be redirected to surrounding municipalities to provide potable water and therefore enable development.

Set in the Natal Midlands, Craigieburn Dam is officially closed to the public and no recreation is permitted, however several operators have established themselves at the Dam, including a Water Ski school and a holiday resort. The local community use the Dam for fishing and for limited domestic purposes, while hoping to see an increase in tourism that will lead to job-creation.

The process followed to compile the Resource Management Plan is detailed in the figure below.

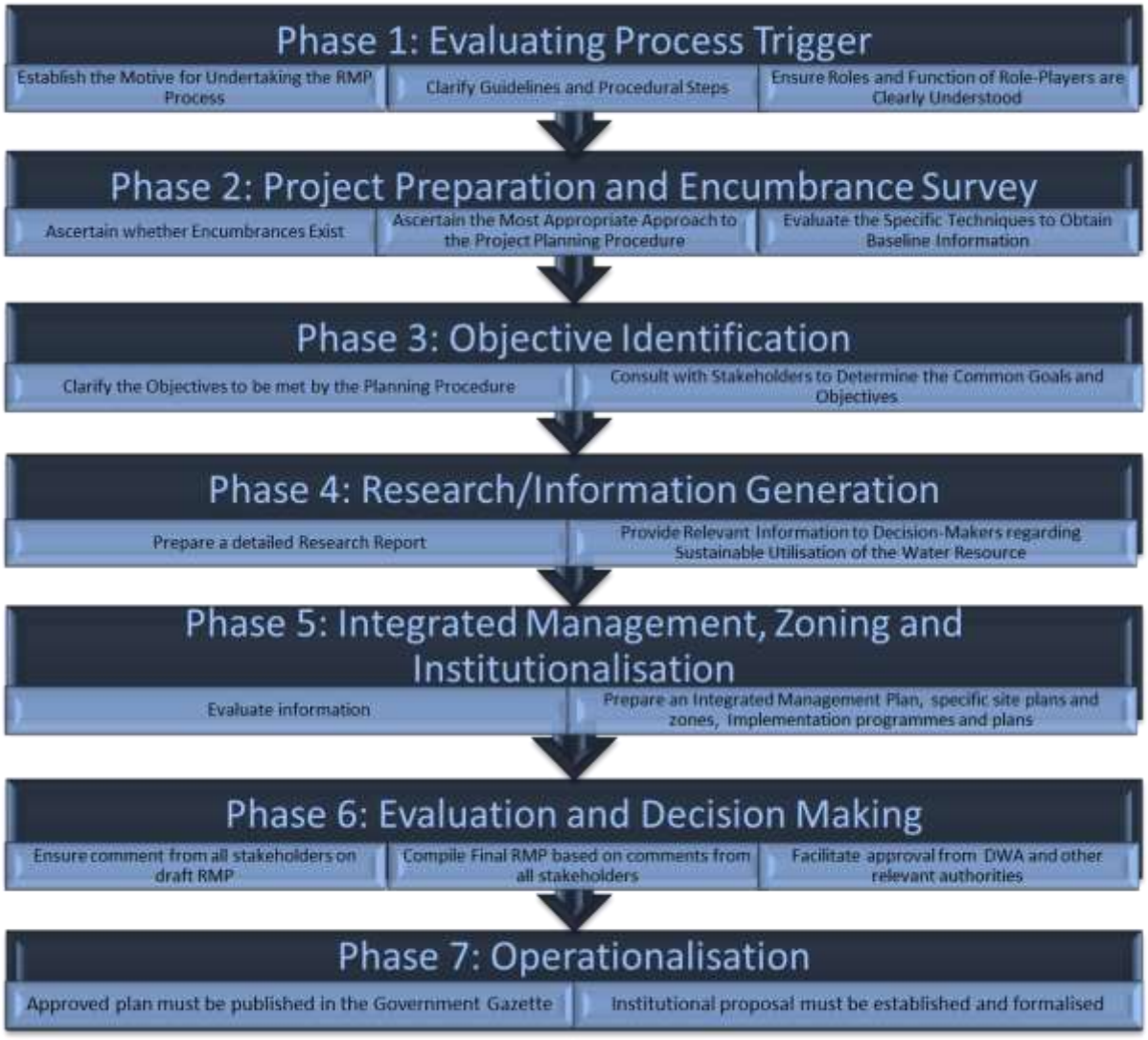

Figure 1: RMP Process (DWA, 2006)

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.

The key recommendations of the Craigieburn Dam Resource Management are as follows:

- 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 Safety Regulations prior to allowing recreational use of the Dam;
- Formalisation of access to the water surface through the establishment of legal access points and

Agreements between Department of Water and Sanitation and landowners;

- Feasibility of a Wedding and Conference Facility/Venue to be determined, including the feasibility of obtaining National Monument Status of the Church;
- Feasibility of Camping Site/Resort with Picnic Sites for public access to be determined;
- Education programmes should be instituted by the Dam Management Committee to encourage community members to utilise Craigieburn Dam once there is formalised management and access to the Dam. Additional coordination with Swim South Africa or Telkom Splash should take place;
- Erosion Control Study should be undertaken to identify the causes of erosion and suitable erosion control mechanisms; and
- The water allocation for agricultural purposes must be confirmed. It may be possible to share the water between agricultural use and domestic if the water is used for efficiently.

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Acronyms and Abbreviations

AtoN	Aids to Navigation
BAR	Basic Assessment Report
BBBEE	Broad-Based Black Economic Empowerment
BP	Business Plan
CARA	Conservation of Agricultural Resources Act (Act 43 of 1983)
CCA	Carrying Capacity Assessment
CIWSP	Cooperative Inland Waterways Safety Programme
CBA	Critical Biodiversity Area
CITES	Convention on International Trade of Endangered Species of Wild Fauna and Flora
CMF	Catchment Management Forum
COGTA	Department of Cooperative Governance and Traditional Affairs
CMA	Catchment Management Agency
CPSI	Centre for Public Service Innovation
DAFF	Department of Agriculture, Forestry and Fisheries
DEA	Department of Environmental Affairs
DAEA	Department of Agriculture and Environmental Affairs
DRDLA	Department of Rural Development and Land Reform
DMC	Dam Management Committee
DMR	Department of Minerals Resources
DoT	Department of Transport
DWA	Department of Water Affairs
ECC	Effective Carrying Capacity
EIA	Environmental Impact Assessment
EMF	Environmental Management Framework
EMP	Environmental Management Plan
EKZNW	Ezemvelo KZN Wildlife
FIRE	Finance, Insurance, Real Estate
GDP	Gross Domestic Product
GIS	Geographical Information System
GN	Government Notice
GVA	Gross Value Added
Ha	Hectares
IA	Implementing Agent

IALA	International Association of Marine Aids to Navigation and Lighthouse Authorities
IBA	Important Bird Area
IDP	Integrated Development Plan
I&APs	Interested and Affected Parties
IWRM	Integrated Water Resource Management
LAAP	Local Accountable AtoN Parties
LED	Local Economic Development
LM	Local Municipality
mASL	Metres above Sea Level
MMLM	Mooi-Mpofana Local Municipality
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, 2009 (Act 15 of 2009)
NGP	New Growth Plan
NTU	Nephelometric Turbidity Units
NWRIB	National Water Infrastructure Branch
NWRIB: IEE	National Water Infrastructure Branch: Integrated Environmental Engineering
NSDP	National Spatial Development Perspective
OMC	Operational Management Committee
PAN	Provincial Administration of Natal
PCC	Physical Carrying Capacity
PFMA	Public Finance Management Ac (Act 29 of 1999)
PGDS	Provincial Growth and Development Strategy
PPP	Public Private Partnership
PSDES	Provincial Spatial Economic Development Strategy
QDS	Quarter Degree Square
RCC	Real Carrying Capacity
RHIB	Rigid-Hulled Inflatable Boat
RMP	Resource Management Plan
RQO	Resource Quality Objectives
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
SASCOC	South African Sports Confederation and Olympic Committee
SDF	Spatial Development Framework

SEA	Strategic Environmental Assessment
SMME	Small, Medium and Micro Enterprises
SPC	Strategic Plan for Commercialisation
SRP	Soluble Reactive Phosphorus
SRSA	Department of Sports and Recreation
THETA	Tourism, Hospitality and Sports Education Training Authority
ToR	Terms of Reference
TR	Treasury Regulations
UPN	Unique Positioning Number (used in the CIWSP)
VIP	Ventilated Improved Pit Latrine
WESSA	Wildlife and Environment Society of South Africa
WMA	Water Management Area
WSDP	Water Services Development Plan
WULA	Water Use License Application
WWTWs	Waste Water Treatment Works

1 WHAT IS A RMP AND WHY IS IT NECESSARY?

A Resource Management Plan (RMP) lays the foundation required to consolidate objectives for a resource, within the framework of existing policy priorities. A 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 the principles of Integrated Water Resource Management (IWRM). 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 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 include leisure, sport, 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 Affairs and Sanitation (DWS). This branch is tasked with developing and operating strategic water resource infrastructure in an efficient way so to ensure that 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) and KZN Department of Agriculture and Environmental Affairs (DAEA)	Responsible for biodiversity management within the Dam including invasive alien species.
Department of Water Affairs and Sanitation (DWS)	DWS is responsible for the establishment and operation of Government Waterworks (as per the National Water Act, 1998 (Act 36 of 1998). This includes management of Dam Safety, and Recreational Use.
South African Maritime Safety Authority (SAMSA)	Administers and executes maritime related legislation and regulations.

Each of the Government Department have their suite of Legislation to govern their use and mandate over 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 (BPs). Therefore the RMP is a planning tool aimed at meeting the expectations of users without compromising the environment.

2 WHERE ARE WE NOW?

2.1 Overview of the Catchment

Craigieburn Dam is within the Mooi Catchment in the Mooi sub-catchment. This forms part of the Thukela Water Management Area (WMA). The Dam falls within the Mooi Mpofana Local Municipality (MMLM). However, it is important to note that due to a number of transfer schemes, information on the nearby Umvoti Local Municipality (ULM) has also been provided where necessary.

2.1.1 Surface Water and River Systems

The main river in the catchment is the Mooi River which rises in the Drakensberg Mountains and flows parallel to the Bushmans River in a north-easterly direction to join the Thukela River near Muden (DWAF, 2004). The main tributaries of the Mooi River include:

- Klein Mooi River;
- Loza;
- Mdumbeni;
- Mlopheni;
- Mpanza; and
- Mayamvuba.

Craigieburn Dam is situated on the Mnyamvubu River, a tributary of the Mooi, and is the only existing major dam within the catchment. Craigieburn Dam has a gross storage capacity of 23.48 million m^3 and is utilised for irrigation water supply. There are also numerous farm Dams scattered throughout the Catchment. These farm Dams are mainly used for irrigation and to a lesser extent also for stock watering (DWA, Umgeni Water, 2002b).

Although afforestation occurs within the catchment, irrigation is the major consumer of water. There are four Irrigation Boards, two Government Water Schemes and one Government Water Control Area located within the catchment.

The only current in-basin abstractions from the Mooi River take place at the existing diversion weir downstream of Mearns where water is abstracted by Mpofana Municipality to supply the domestic and industrial needs of the town of Mooi River. The existing Mooi-Mgeni inter-basin transfer scheme is currently used to augment the Mgeni River System and consists of the Mearns Pumping Scheme that was built in 1983 as an emergency measure to alleviate the drought conditions experienced in the Mgeni River. This scheme has a maximum pumping capacity of 3.2 m^3/s and transfers water from the Mearns diversion weir in the Mooi River to the upper Mgeni River Catchment (DWA/Umgeni Water, 2002).

The mean annual runoff of the system is approximately 385 million m^3/a (www.ewisa.co.za). Natural groundwater discharge occurs in the Mooi Catchment from springs, seeps and uncapped artesian boreholes. Dolerite sill intrusions in the mudstone shale of the area support perennial groundwater discharge that supports wetlands in the headwaters of the catchment. Other springs arise from faults to fractures in granite or gneiss areas. Groundwater recharge occurs at a rate of 3 – 7 % of annual precipitation, which is comparable with the level of groundwater recharge found in the nearby uMngeni catchment.

2.1.2 Land Use

The predominant land use in the catchment is commercial agriculture and there is large-scale irrigation of pastures and summer cash crops, with an estimated water requirement of 49 million m^3/a (DWAF, 2004).

The commercial agriculture is largely made up of cattle, dairy and stud farming (with a number of premier stud farms occurring in the area) (uMgungundlovu District IDP, 2012). Potatoes and cash crops are also extensively grown in the area. Although, there are some manufacturing

activities that occur in the area, these are mainly related to agricultural processing activities.

The Region is a popular destination for holidaymakers from the Highveld and the Coast. Major attractions include the Kamberg Nature Reserve situated at the foot of the Drakensberg and the Zulu Falls (DWA, 2011). The majority of water use in the catchment is for irrigation (78% of total registered Water Use) (DWA, 2011).

2.1.3 Water Quality

Water quality in the Mooi Catchment ranges from excellent to good. This is due to the low density farming practices in the catchment.

The Water Reconciliation Strategy for the KwaZulu-Natal Coastal Metropolitan Areas (DWA, 2009) found that the chemical data from the Mooi River system indicated generally good water quality, with no significant changes during the period between 2003 – 2007. High *E. coli* counts upstream in the river (at Spring Grove and Mearns) and the significant increase in the ammonium concentration in Mearns Dam however is cause for some concern.

Umgeni Water (2006) also reported that water quality assessment of Mearns in the Mooi River system showed increased trends in nutrient levels. Analysis showed highly intensive agriculture to be the cause of the eutrophication. A Water User Association was established for the Mooi River by DWA in 2006 and this, together with the Upper Mgeni Catchment Management Forum play an active role in the Catchment.

Detailed water quality assessments have been undertaken for the Mooi River at Spring Grove Dam. Although at a specific location, this provides some insight into the water quality of the river in general and of its tributaries. The findings of the report show that in general, the Mooi River has the following water quality characteristics (DWA/Umgeni Water, 2002a):

- Low *E. coli* counts (200 cells/100 ml) – however these counts exceeds the DWS *E. coli* target water quality guideline for full contact recreation (130 *E. coli* per 100 ml), thus posing a slight risk of gastrointestinal illnesses among swimmers and bathers in the area.
- Low Suspended solid concentrations (9.6 mg/l). An increase is seen in the summer months and is mainly attributed to the agricultural land use in the area with erosion a major source of suspended materials.
- Normal range pH (6.6- 8.7).
- Conductivity results (2.5-8.5 mS/m) show that the water is likely to be corrosive.
- Phosphorus concentrations were approximately 27 ug/l indicating that the system can be classified as a mesotrophic system (moderate levels of productivity), with high levels of biodiversity and low to moderate algal growth.
- Average summer inorganic nitrogen concentrations were approximately 0.28 mg/l indicating a oligotrophic system which has moderate levels of biodiversity and rapid nutrient recycling. In general, these systems do not have aquatic invasive plants of significant blue-green algal blooms.
- Metal concentrations were low (about 0.6 mg/l for Iron).

2.1.4 Human Settlements and Services

The main settlements in the Catchment are:

- Mooi River;
- Rosetta;
- Lochslay;
- Wembezi;
- Estcourt; and
- Weenen.

Although not within the Catchment or the same local municipality, Greytown is approximately 30 km away from Craigieburn Dam and is the main urban centre near the Dam. Greytown has been identified by the ULM as the primary centre of

the area and a number of areas around the town have been earmarked for housing developments (Umvoti Housing Plan, 2007). This has implications for the Mooi River Catchment, in particular Craigieburn Dam, as there is a proposal to abstract water from Craigieburn Dam to meet the domestic water requirements of Greytown.

The MMLM has also initiated the construction of the Craigieburn Housing Development which includes 850 houses.

Other planned housing developments in the municipality include:

- Gamewood Housing Development;
- Vrystaat Farm Housing:
- Doomkloof Housing;
- Townview Re-habilitation;
- Highover Housing Project;
- Bruntville Hostel Conversion Project;
- Sierra Ranch Housing project;
- Rosetta Housing Project;
- Tendele Housing Project; and
- Phumlas-In-Situ Upgrade.

There is a backlog of water and sanitation services in certain municipal areas within the MMLM. These areas include Ward 4, in which Craigieburn Dam is located. The area is largely rural in nature with fragmented settlement patterns. Approximately, 8% of the population gets water from rivers/streams with a further 2% receiving water from water vendors/trucks. The MMLM Integrated Development Plan (IDP) makes specific mention of Ward 4 as having a lack of services. The communities around Craigieburn Dam in Ward 4 receive water from a water truck.

2.1.5 The Social Environment

MMLM has a population of approximately 36 819 people (making up 3.97% of the District). The area is strategically located and has easy access to rail and road infrastructure (DWA, 2011).

Due to the decline in clothing and textile industries in Mooi River, the main centre of MMLM, there has been a decrease in population numbers in the area (MMLM IDP, 2012). The age distribution of the area shows that the majority of the population consists of children and young adults. There is also a decrease in the number of adults with tertiary education. This has also impacted on the unemployment levels. However, there are a large number of individuals who self-employed through the formal and informal arts and crafts sector.

The MMLM is currently serviced by two clinics located in Mooi River and Bruntville respectively. There is also a satellite clinic located in Rosetta that opens once a week. Ward 4 is serviced by a mobile clinic.

2.1.6 Tourism Potential

The MMLM IDP (2012) identified the following tourism activities in the areas:

- Recreational Tourism;
- Adventure Tourism;
- Nature Based Tourism;
- Cultural and Historical Tourism;
- Arts and Craft Tourism;
- Events tourism; and
- Agri-tourism.

The town of Mooi River is strategically located along the national route N3 and is approximately 70km from Pietermaritzburg. The town is also at the heart of the Midlands Meander which is a well-established tourism route which was started in 1985 to create a tourist market for local and indigenous crafts and industries, including weaving, leatherwork, pottery and cheese making. The Meander has been extended to offer a variety of other attractions, such as nature reserves and guesthouses and hotels based on original settler houses and barns. These offer facilities such as trout fishing, hiking and mountain bike trails. Visits to one of the many prestigious racehorse studs and training establishments may be made by prior arrangement (DWA, 2011).

The Mooi River Falls and Craigieburn Dam are also potential tourism nodes especially in light of the proximity of the Dam to Karkloof Nature Reserve and Blinkwater Nature Reserve. The Municipality has also proposed the development of a nature reserve on the upper north region which would increase recreation and tourism in the Municipality.

There are quite a number of individuals who are self-employed through the formal and informal arts and craft sector of the economy, due to the location of the Municipality along the Midlands Meander Route. Tourism development thus has the potential to provide a source of income to unemployed people in the area.

Areas such as Bellevue, Lower rocky drift, Middelrus, Merinos Kloof, and Adrian farm, which are all in close proximity to the Dam, have tourism potential that still need to be explored and developed.

2.1.7 Catchment Management

There is no Catchment Management Agency in place. However, the Mooi River Irrigation Board and Muden Irrigation Board play an active role in the area regarding water resource management.

2.1.8 Safety of Navigation

In addition to its common law responsibility, DWS is, in terms of the requirements described in the National Water Act, Act No 36 of 1998, amongst others, responsible for the safety of Government's waterways and watercourses, including its dams. DWS, its delegated public sector partner, or a delegated water management 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 Craigieburn Dam

The construction of Craigieburn Dam was completed in 1963. The main purpose of the Dam is to provide water for irrigation to the local farmers via the nearby Dairy Dam (also known as the Horseshoe Dam), and to the downstream farming community at Muden. The infrastructure in the area however is old.

Further, due to the lack of water available for development in and around Greytown, the Umvoti Local Municipality has submitted an application to abstract water from the Dam to provide potable water to Greytown. The MMLM also has a number of new housing developments that require the provision of domestic water.

Currently, Ward 4 (the area around Craigieburn) receives water through water vendors. A local farmer in the region with an abstraction license has also been abstracting water and pumping it to a community tank for use. This has possible negative implications as the water is untreated. However, the community does not feel the quality of water received from the water vendors is high. In addition, as they are situated in close proximity to the Dam, there is a feeling that is should be used to provide potable water for the area.

The agricultural and domestic requirement together with the loss of water through leaks has resulted in conflict over Craigieburn 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*".

The Dam is also used for small scale recreational activities including fishing and water sports. There are no formal recreational clubs at the Dam.

2.3 Overview of the Dam

Craigieburn Dam is located in KwaZulu-Natal in the Mooi Mpofana Local Municipality. The figure below shows the locality of the Dam.

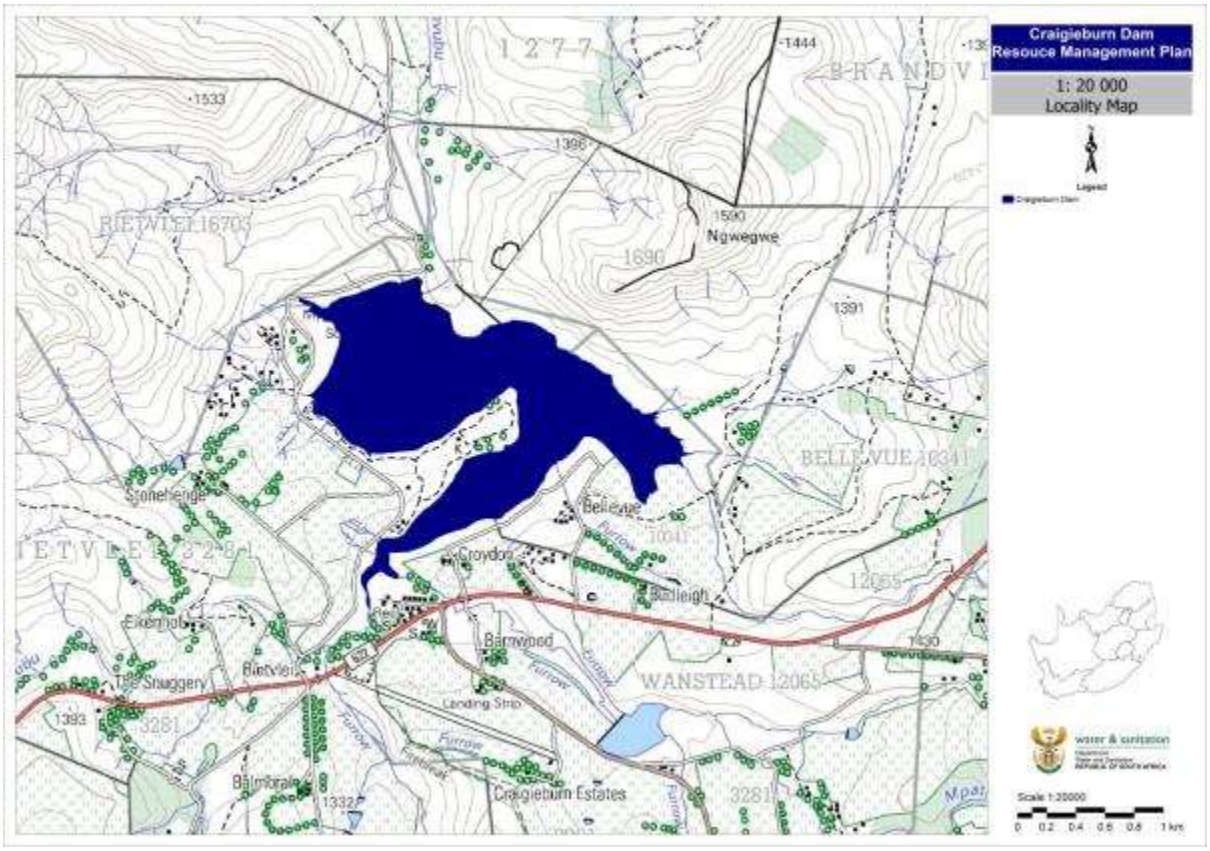

Figure 2: 1: 50 000 Locality Map of Craigieburn Dam

The hydrogeological characteristics of the catchment and Craigieburn Dam provided in the table below:

Table 2: Characteristics of the Mooi sub-catchment and Craigieburn Dam

Catchment Details	
Incremental Catchment Area	42 km^2
Total Catchment Area	2 868 km^2
Mean Annual Precipitation	800 mm
Mean Annual Runoff	522 million m^3
Annual Evaporation	1 342 mm
Dam Characteristics	
Gauge Plate Zero	21.33 mASL
Full Supply Level	1 304.52 mASL
Net Full Supply Capacity	22.47 million m^3
Dead Storage	1.7 million m^3
Total Capacity	23.07million m^3
Surface Area of Dam at Full Supply	207.30 ha (20.73 km^2)
Dam Type	arch and earthfill
Crest Length	262 m
Type of Spillway	Ogee Spillway
Capacity of Spillway	23 070 000 m^3

2.4 Legislative Framework

The RMP forms the overarching framework for the management of Craigieburn 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 Craigieburn 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);
- Kwazulu-Natal Planning and Development Act (Act 6 of 2008);
- KwaZulu-Natal Nature Conservation Management Act (Act 9 of 1997); and
- South African National Biodiversity Institute (SANBI) Biodiversity GIS information;

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
Small-mouth bass Florida bass Hybrids of the Florida bass and the largemouth bass Spotted bass	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 dams within discrete catchment systems in which it occurs c. 3 in all rivers, wetlands, natural lakes and estuaries in which it occurs. d. Subject to (b), each listed bass species is not listed for dams within discrete catchment systems in which it (the specific listed bass species) occurs.
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. b. 3 in all rivers, wetlands, natural lakes and estuaries in which it occurs. c. 2 for conveying, moving or otherwise translocating a live specimen. d. d. Large-mouth bass is not listed for dams within discrete catchment systems in which it occurs (excluding (a) above).
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, Smallmouth Bass and Bluegill occur at the Dam however the Dam is not in a provincial or national reserve or mountain catchment area or forestry reserve.

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 for the provision of an Enforcement Officer who can go aboard a vessel and search it and take possession of any intoxicating drugs or liquor. The Enforcement Officer may also request that the Identification Documents, Skipper's Licenses etc. be produced. The Officer may also direct the movement of the Small Vessel where necessary.

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 Kwazulu-Natal Planning and Development Act (Act 6 of 2008)

This Act directs and regulates planning and development in KZN. An application may be required before land may be used or developed for a particular purpose. In addition, all developments need to be in accordance with the municipality's planning scheme.

2.4.17 KwaZulu-Natal Nature Conservation Management Act (Act 9 of 1997).

This Act establishes Institutional bodies for nature conservation in KZN. The Authority for this act is Ezemvelo KZN Wildlife.

Craigieburn Dam was initially managed by Ezemvelo KZN Wildlife

2.5 Existing Plans

An RMP cannot function in isolation therefore associated planning initiatives were considered and used to inform the development of the RMP.

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

- The Strategic Framework of Water Services, 2003;
- The Provincial Spatial Economic Development Strategy (PSEDS), 2003;
- National Spatial Development Perspective (NSDP), 2006;
- The Cooperative Inland Waterways Safety Programme (CIWSP); and
- The New Growth Path, 2012 (NGP).

Figure 3: Relationship between RMP and Planning Initiatives

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.

Although Craigieburn Dam is not one of the Pilot Dams for this project, this RMP integrates information from the CIWSP into the management objectives for this Dam.

2.6 Socio-Economic Environment

2.6.1 Population

Mpofana Local Municipality has a population of 38 101 persons. The population of 15 -34 age groups and the 35-64 age group account for 39 percent and 27 percent of the population respectively. This means that 66 percent of the Mpofana LM population are of working age.

Youth in total account for 69 percent of the population indicating that youth are expected to contribute towards the households bearing more responsibility than what is normal. Only 4

percent of the population are over 65 years of age.

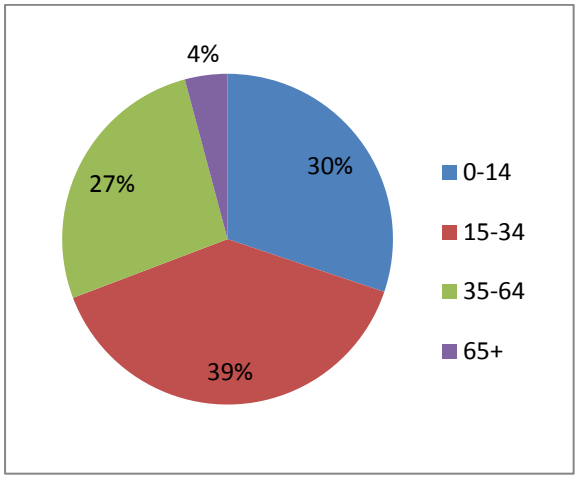

Figure 4: Population of Mpofana Local Municipality by age cohorts

2.6.2 Education

Over 70 percent of the population in Mpofana Local Municipality have received some level of education. Three percent 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.

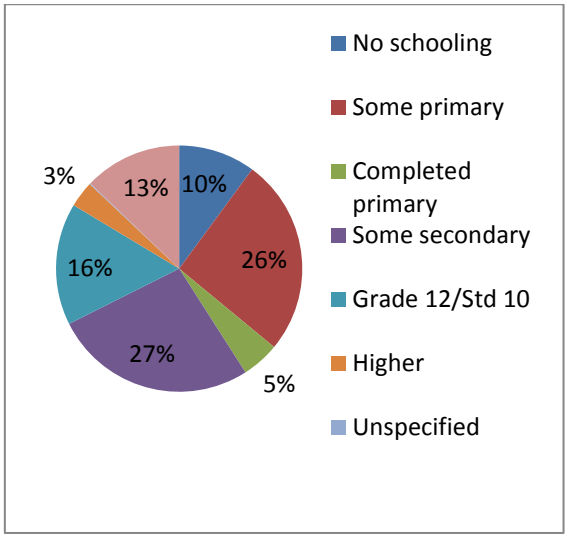

Figure 5: Education level of the population of Mpofana Local Municipality

2.6.3 Employment

The unemployment rate in MMLM is 15 percent. 43 percent of persons in MMLM are employed while 8 percent are unemployed. 49 percent of the population is not economically active.

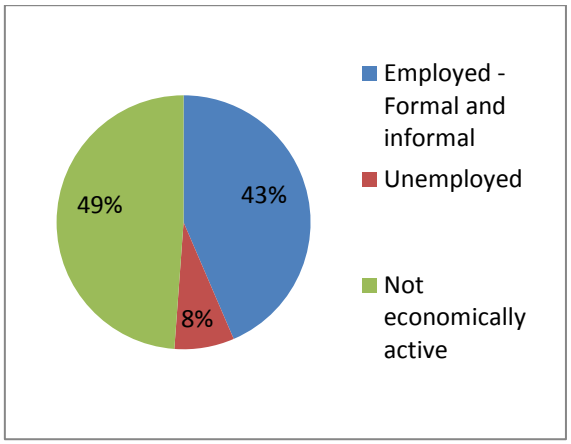

Figure 6: Employment status in Mpofana Local Municipality

2.6.4 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. 41 percent of the population earn no income at all. 45 percent of the population are low income earners while. Only 1 percent of the MMLM population earn in the high income bracket.

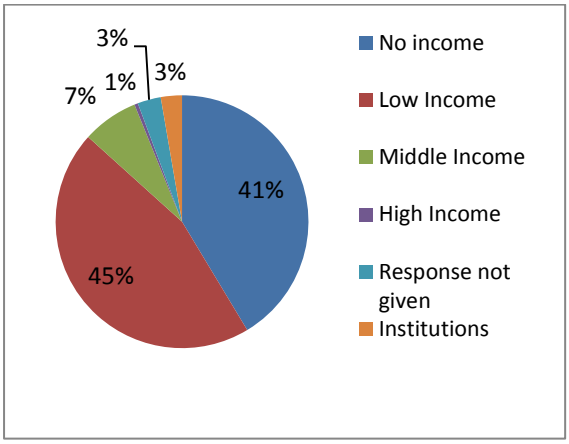

Figure 7: Monthly personal income in Mpofana LM

2.6.5 GVA

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; and
- 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, MMLM contributed R 929.97 million to GVA. Agriculture and general government both contributed 20 percent to GVA of MMLM. Other significant sectors in MMLM include trade, catering and accommodation, proving the significance of the tourism sector to the municipality.

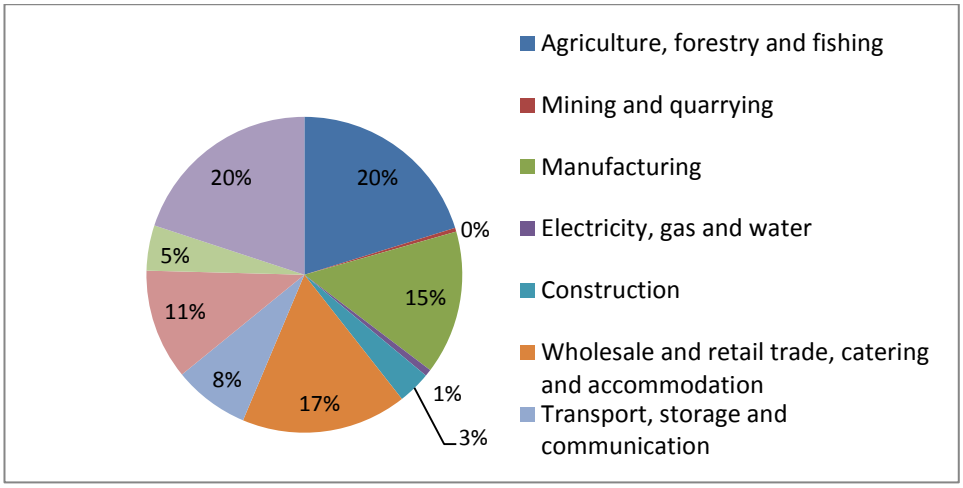

Figure 8: Relative contributions of different sectors to the economy

2.7 Biophysical Environment

2.7.1 Water Quality

The Department of Water Affairs and Sanitation (DWS) has undertaken water quality monitoring at four points at Craigieburn Dam between 1968 and 2013. The results from the monitoring point at the Dam wall are tabulated below. The results indicate fair to good water quality during the period.

Table 3: Water Quality Monitoring at Craigieburn Dam

Water Quality	Value
Ca	4.91
Cl	6.49
Electrical Conductivity	8.66
F	0.11
K	1.19
Mg	3.33
Na	5.15
Nh4	0.05
N03	0.09
P	0.03
pH	7.27
PO4	0.02
Si	4.06
So4	3.88
TAL	27.12

While the water quality is considered relatively good there are some concerns, outlined below, concerning drivers of water quality that may be affecting the state of the resource.

- Inadequate sanitation particularly in informal settlements which may result in contamination of the water. This could result in danger to human health through increased E.coli concentrations in rivers and Dams as an increased incidence of water-borne diseases such as bilharzia.
- Pollution from farming in the area as livestock pressure frequently increases nutrient load and sedimentation of Dams. Crop-farming can result in increased sediment-load and eutrophication through soil and fertilizer runoff.

2.7.2 Aquatic Invasive Plant Species

No aquatic invasive plant species have been recorded at Craigieburn Dam to date. This may be a result of limited recreational activity and the proximity of the Dam to the mistbeld headwaters. Should the Dam be opened for public recreation then care must be taken to prevent the introduction of such species to the Dam.

2.7.3 Terrestrial Invasive Plant Species

A list of invasive terrestrial plant species which could potentially occur at Craigieburn Dam is shown in listed below.

- *Acacia dealbata* (Silver Wattle)
- *Acacia mearnsii* (Black Wattle)
- *Cirsium vulgare* (Spear Thistle)
- *Eucalyptus grandis* (Rosegum Tree)
- *Jacaranda mimosifolia* (Jacaranda)
- *Melia azedarach* (Chinaberry)
- *Morus alba* (White Mulberry)
- *Opuntia ficus-indica* (Prickly Pear)
- *Ricinus communis* (Castor Oil Plant)
- *Senna didymobotrya* (African Senna)
- *Sesbania punicea* (Rattlebox)

2.7.4 Flora

Craigieburn Dam is situated near to two threatened ecosystems, namely Mount Gilboa Plateau and Oakspring Valley. These ecosystem, are both classified as Vulnerable. The Dam itself is situated in KwaZulu-Natal Highland Thornveld which is characterised by undulating hilly grassland dominated by *Hyparrhenia hirta,* interspersed with occasional savannoid woodlands containing *Acacia sieberiana* var *woodii* and some small pockets of *A. karroo* and *A. nilotica* (Mucina & Rutherford, 2006).

The vegetation type is classified as Least Thretened with a conservation target of 23 %, with 27.3 % currently transformed and 1.8 % formally conserved (Scott-Shaw & Estcott, 2011).

2.7.5 Fauna

According to MammalMap (www.adu.org.za), the following mammal species occur in the 2930AB Quarter Degree Square (QDS).

Table 4: Mammal species found in 2930AB

Species Name	Common Name
Sylvicapra grimmia	Common Duiker
Ourebia ourebi	Oribi
Cercopithecus aethiops pygerythrus	Vervet Monkey

In addition a number of Butterfly species are found in the area including; Rainforest brown; African clouded yellow; Painted lady; Common hottentot; Gaudy Commodore; Marsh acraea; Broad-bordered grass yellow; and Mountain sandman (www.adu.org.za). Craigieburn Dam also has a rich complement of arthropods including mayflies, diving beetles, whirligig beetles, midges, several families of caddisflies, crane flies, black flies, bugs, fireflies, springtails and freshwater crabs. Leeches and Oligochaetes have also been found in the Dam in the past.

According to the South African Bird Atlas Project the area around Craigieburn Dam is rich in birdlife, with well over 300 bird species recorded in the area. The Dam is also in the vicinity of a number of Important Bird Areas (IBAs) including Karkloof Nature Reserve, The KwaZulu-Natal Mistbelt Forests, Blinkwater Nature Reserve and the Umvoti Vlei. Karkloof Nature Reserve (approximately 11km from the Dam) is a confirmed breeding area for the Long-crested Eagle (*Lophaetus occipitalis*), African Crowned Eagle (*Stephanoaetus coronatus*) and Red-knobbed Coot (*Fulica cristata*). The reserve is also home to Blue, Grey Crowned and Wattled Cranes.

2.8 Current Institutional Arrangement

2.8.1 Official Institutional Structure

The Department of Water Affairs and Sanitation (DWS) is the official custodian of the Dam and a DWS official currently resides at the

Dam and manages operation of the Dam wall. In terms of recreational use, the Dam is officially closed to the public.

A deed of agreement was signed in 1977 where the land around the Dam was transferred to the Provincial Administration of Natal (PAN). In 1988, an additional agreement was signed whereby DWS transferred control of the following to PAN:

- Dwelling-house of the Water Control Officer;
- Six family living quarters;
- 18-man single quarters; and
- Water purification installation and network.

Ezemvelo KZN Wildlife however withdrew from the management of the Dam in 1996 due to a lack of funds. Infrastructure for day visitors remains at the Dam but it is unused and fallen into disrepair.

2.8.2 Informal Institutional Structure

Although Craigieburn Dam is not officially open for recreation, there are recreational activities taking place at the Dam.

Cloud 9 Resort is built on private land adjacent to the Dam. However it has a slipway on State Land for the launch of boats for recreational purposes, primarily fishing and water-skiing. The caretaker agreement between DWS and Cloud 9 allows for recreational access of no more than two boats at any time to the water surface, in exchange for a fee of R1 000 per month payable to DWS.

The resort is open to the public. In addition, a water-ski school also operates out of the Dam.

Users accessing the Dam through Cloud 9 undertake a basic safety check. In addition, all users sign an Indemnity Form.

2.8.3 Management of the water surface

Management of the water surface, including the required AtoN and demarcation markers is officially under the mandate of DWS. As the Dam is closed to the public there is no buoyage system in place.

Further, there is no official management of recreation or safety at the Dam.

2.8.4 Access

There is an official (albeit closed) access point at the DWS offices at the Dam. Access for the public is generally obtained through Cloud 9. Members of the public who do not use Cloud 9's services are not given access to the Dam. Recently the fences as the DWS facilities were broken, and this has been used as an access point for boats.

2.8.5 Permits

There is no permit system in place as the Dam is closed to the public, however a general Fresh Water Angling License is required for fishing.

2.8.6 Safety

There is no safety procedure in place at Craigieburn Dam. Should an accident take place on the water surface, the hospital in Howick is contacted for assistance. Cloud 9 maintains a boat that can be used for rescue purposes. All people using the water surface for recreation purposes sign indemnity forms releasing Cloud 9 from liability for potential accidents.

2.8.7 Overnight facilities

There are no official overnight facilities provided at the Dam, since it is closed to the public.

Cloud 9 provides permanent accommodation to residents of the resort who build log cabins on the property.

There are also chalets, tented campsites and caravan sites with electricity available at the Cloud 9 resort.

2.8.8 Event Management

There is no formal event management protocol at Craigieburn Dam. Cloud 9 holds occasional fishing competitions, but the resort does not notify any authorities prior to an event.

2.9 Users and Uses of Craigieburn Dam

2.9.1 Storage and Provision Water for Irrigation

At this time, the primary purpose of Craigieburn Dam is to provide water to both the farms surrounding the Dam and to regulate the flow of water to the Muden farming community downstream.

Currently, the infrastructure for transfer of water for irrigation purposes is old and degraded. This results in water loss through leaks which decreases the volume of water available for use.

2.9.2 Unofficial Use - Domestic

One of the unofficial uses of the Dam is that of domestic use. There is an informal settlement near the Dam which receives water from a Water Truck. To augment this supply, a land owner with abstraction rights abstracts water and transfers it to a water tank in the community. However, this water is not purified beforehand.

Residents of the informal settlement also use the inlet river to the Dam for domestic purposes.

2.9.3 Potential Use - Domestic

Umvoti Local Municipality has an approved environmental authorization for infrastructure to transfer water from Craigieburn Dam to Greytown. However, the Water Use License Application (WULA) has not yet been approved. Mpofana Local Municipality also plans to use Craigieburn Dam to provide water for domestic for the new housing development near the Dam.

2.9.4 Potential Use - Agri-village

The MMLM in consultation with the Department of Land Affairs identified the Craigieburn (Farm Workers) Housing Project as a Greenfield / Insitu-Upgrade Housing Project. Subsistence farming is planned for the project (KZN Housing, 2012). The need for this project arose from the large number of farm workers in the area requiring houses. In addition, the area has very basic services (mostly provided by a private landowner in the area.

This project is currently in the planning stages; therefore it is difficult to ascertain the impact it would have on the Dam. However, water for agriculture and domestic use would be required.

2.9.5 Educational Use

Residents of the settlement avoid the Dam as they believe that a large snake lives in the water. Teachers, while sharing this viewpoint, are keen to encourage the use of the Dam by pupils; both for education and for sports and development. However, there are no formal education programmes in place. Teachers sometimes take their students to the Dam to explain natural science concepts.

There is a Water-Ski School that makes use of the Dam which has ideal conditions for water-skiing. The School uses the Cloud 9 Access point.

2.9.6 Recreational Use

While Craigieburn Dam is closed to the public, informal recreational use does occur. Cloud 9 is a holiday resort based on the western banks of Craigieburn Dam. The resort provides housing for residents as well as accommodation for tourists. A slipway built at Cloud 9 provides access to the water surface for boats. Visitors also occasionally participate in angling contests at the Dam. While Cloud 9 does have access to the water through a caretaker's agreement, it

is currently unclear whether or not commercial access is allowed in the terms of the lease.

The Dam is a very popular location for bank-anglers. Traditionally the western bank has been the most popular area, mainly due to the close proximity to Cloud 9, but in recent months the eastern areas have increased in popularity with fishermen. Access on the eastern side is through a broken fence.

Residents of the informal settlement also use the Dam for shore-based angling, accessing fishing spots through Cloud 9.

2.10 Catchment Interactions

A number of factors influence the Dam namely:

- Pollution from informal settlements potentially affecting water quality.
- Conflict between agriculture water requirements and the demand for potable water to enable development.
- Downstream transfer schemes to provide water to large urban centres decreases the water available in the catchment. This has an impact on development potential and also contributes to conflict regarding water use.
- Poorly maintained infrastructure results in water losses through leaks.
- Informal recreational use at the Dam.

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.

The vision for Craigieburn Dam is a long-term, 20-year goal that is to be achieved through a series of objectives. While the vision is constant for a 20 year process, RMPs are developed every five years and so allow for adjustment of objectives as progress is made towards achieving the vision.

The vision for Craigieburn Dam is informed by the needs, interests, requirements and uses of the Dam. Stakeholders agreed 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 Dam is seen as an important resource for education and skills training. Importantly, the Dam is also a potential source of domestic water for the local community. The use of the Dam for a number of uses can improve the social environment and maintain economically important activities such as commercial agriculture. The Dam is also seen as an important potential tourist attraction which can provide job opportunities for the local community.

Main concerns centred on maintaining the sense-of-place of the Dam and maintaining a reliable source of water for current and future users. There was also concern regarding development pressure in the area surrounding the Dam and how this may impact water quality and resource use. The vision statement that encompasses this is:

"A tourist destination that celebrates heritage and uplifts local and neighbouring communities while promoting the quiet beauty, agricultural importance and remote nature of the area."

3.2 Objectives

The vision was distilled into a number of 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 a Dam Management Committee (DMC), Operations Management Committee (OMC) and RMP Steering Committee (RSC). Terms of references for each of these bodies must be developed. In addition, a toolbox should be developed to facilitate management of the dam;
- The implementation of standardised and harmonised AtoN and Demarcation Markers as directed by SAMSA should be undertaken;
- A SAMSA Enforcement officer should be appointed to ensure rules and regulations are followed by all users of the Dam;
- The caretaker agreements with adjacent landowners should be updated to take into account the findings of the RMP;
- A Public Private Partnership (PPP) should be instituted for the management of recreation on the Dam. Agreements should include management of surface water, access control; future development, safety and recreational use;

- The Dam should be formally opened for recreational use;
- An Event management system should be implemented including standard rates for events and advertising;
- The UPN System should be implemented at the Dam (as part of DWS's rollout). In addition, a Rescue Operation Point, emergency vessel and Safety officer with First Aid Training is required; and
- A financial management process in line with Government Policies must implemented.

Management of Water Resources

- Craigieburn Land Restitution and Slums Clearance Low Income Housing Project as well as the Potential Agri-village should have effective waste and storm water management to ensure minimal pollution to the Dam;
- Silt management is necessary to minimize siltation of the Dam;
- All future plans (Agri-village, Housing Development, Wedding Venue etc.) must include feasibility studies that identify long term impacts on the Dam;
- Agreements should be put in place to ensure all abstraction points and pipelines etc. occur on servitudes;
- A study on sustainable farming water use practices to be undertaken to determine the potential water saving practices. A farmers water users forum should be instituted to ensure all commercial farmers relying on Craigieburn Dam for irrigation water implement water saving practices. In this way, conflict between domestic and agricultural use can be minimised;
- Upgrade of old and leaky infrastructure to be undertaken to ensure maximisation of water availability;
- An updated Water Demand and Availability study to be undertaken to determine the water availability for domestic and agricultural use;
- The feasibility of constructing a small scale water purification plant near the Dam should be determined. This infrastructure is needed to ensure local community members can obtain clean domestic water from the Dam.

Management of Natural Environment

- Currently Craigieburn Dam does not have any invasive alien species. In order to maintain this status, it is suggested the Wash Bay System be implemented as part of any Public Private Process (PPP) for the management of recreation at the Dam.
- Erosion Management System to be implemented at the inlets to the Dam.
- Due to the proximity to Important Birding Areas (IBAs), certain areas should be maintained as 'no-go' areas to promote bird populations.
- Discussions with Karkloof Nature Reserve, Blinkwater Nature Reserve and the KZN Crane Foundation should be undertaken and a bird list for Craigieburn Dam should be developed.
- A low impact Bird Hide should be developed and birding in the area promoted.

Management of Fishing

- The inlet of the Dam should be maintained as a 'No Go' Zone to promote fish breeding;
- A dedicated shore-angling area to be maintained;
- A formal fishing club to be opened; and
- A system to check fishing licenses and fish removed from the dam should be implemented.

Formalised Education and Skills Programmes

- The Water-Ski School (and any new clubs) to be affiliated to National Clubs such as under South African Sports Confederation and Olympic Committee (SASCOC). In this way training and development as per SASCOC requirements can be instituted;
- Feasibility of opening a Swimming School to be determined (as part of Telkom Splash Programme). This swimming school should target youth in the Informal settlement near the Dam;
- Education programmes to be implemented to educate local community about the uses and benefits of the Dam;
- First Aid Training for Enforcement Officers and Wash Bay Officers; and
- Subsidized funding mechanisms should be implemented to allow local schools access to the Dam for Natural Science/Life Orientation learning.

Equitable Access

- Investigate the possibility of a differential tariff system that caters for regular users, the local community, schools, etc. The intention of the system is to ensure that the entrance fee does not discourage and/or limit people from using the Dam;
- Public access area to be developed. The potential for this to be managed through the PPP should be explored; and
- The DMC to develop material to market the benefits of the Dam to the local community.

Management of Development Pressure

- DMC to comment on all Environmental Impact Assessments that may have an impact on the Dam;
- DMC should involve representatives from the Local Municipality and DAEARD so that non compliances can be reported to the relevant Compliance units;
- Craigieburn Dam occurs in an agricultural important area and the main use of the Dam is irrigation. The development of a sustainable 'Agri-village' as part of the Craigieburn Housing Development should be supported and a stewardship programme with commercial farmers in the area developed. The 'Agri-Village' should use sustainable farming mechanisms to ensure the development does not impact negatively on the Dam; and
- As part of the Midlands Meander, tours of Stud Farms in the area can be arranged. It is suggested that "sustainable agriculture/farming" tourism route be developed including these stud farms, the Agri-village and other commercial farmers. The tours can highlight sustainable agricultural practices and promote tourism in the area.

Recreational use

- Creation of functioning DMC, OMC and RSC;
- All new recreational/sporting clubs to be affiliated to National bodies.
- Law Enforcement Control Officer/Safety Officer to be employed to ensure all boats and recreational users have relevant permits;
- All recreational user bodies to form part of the DMC
- Major events to be managed in terms of entry fees, control of the event and clean-ups after the event;
- The feasibility of using the old Church and surrounding area as a wedding venue should be determined. A detailed Heritage assessment of the church would be required together with discussions with Amafa/Kwa-Zulu Natali;
- The Dam should be formally opened to the public for recreational use. A Public Private Partnership to manage, safety, access, recreational use, picnic and accommodation facilities would be required; and
- The Dam should formally join the Midlands Meander route.

4 HOW DO WE GET THERE?

4.1 How does the RMP Work?

The overarching framework for the Craigieburn Dam RMP is presented in Figure 8. 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, it should be noted that DWS reserves the right to appoint an Implementing Agent for the management of the Dam including the water surface and dam basin. The Implementing Agent would then also form part of the Institutional Structure at the Dam.

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 a Cluster level and will include authorities with a specific mandate at the Dam while the DMC will include landowners, users and community members who have an interest in the management of 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 7 and 8 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 Business Plan for each objective. The detailed Strategic Plan is provided in **Chapter 4.5.**

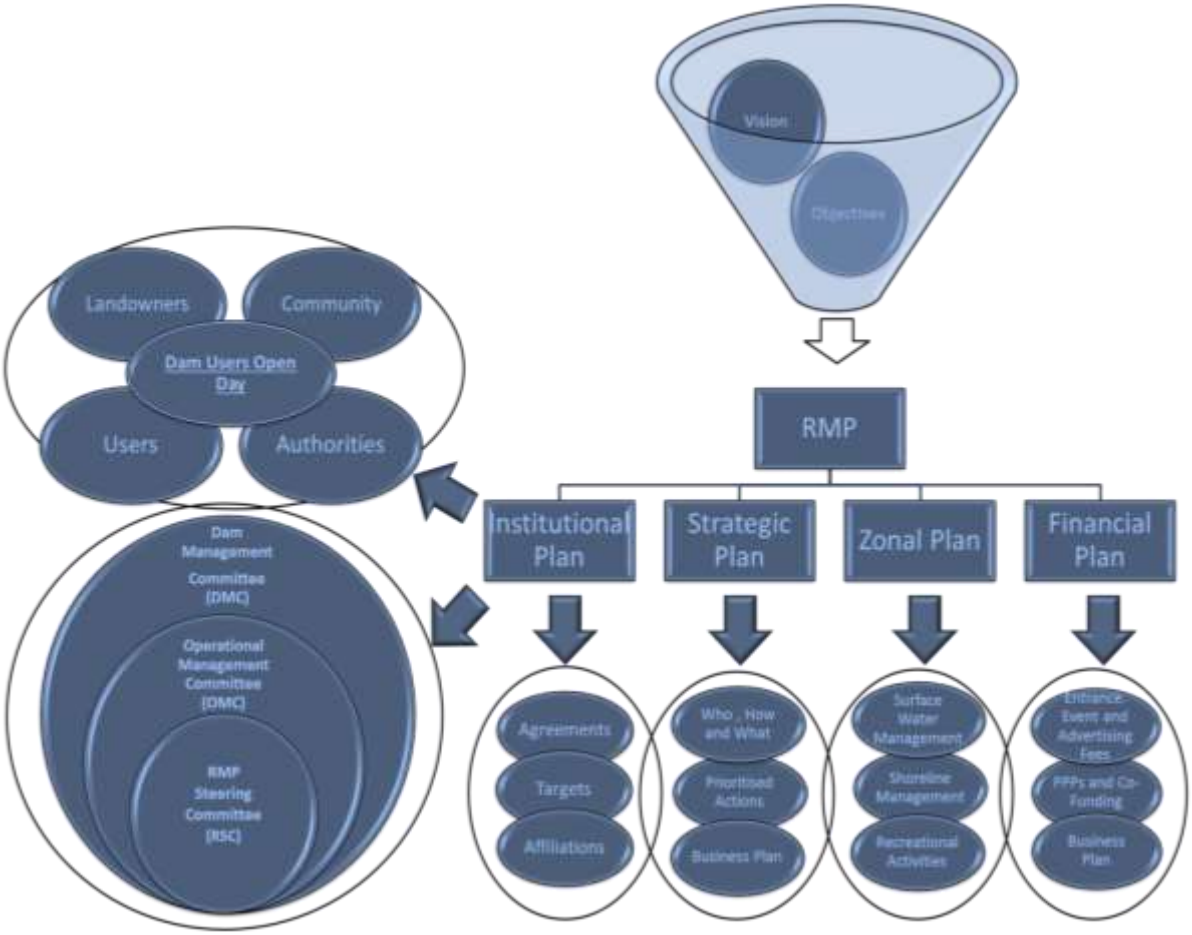

Figure 9: RMP Framework

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

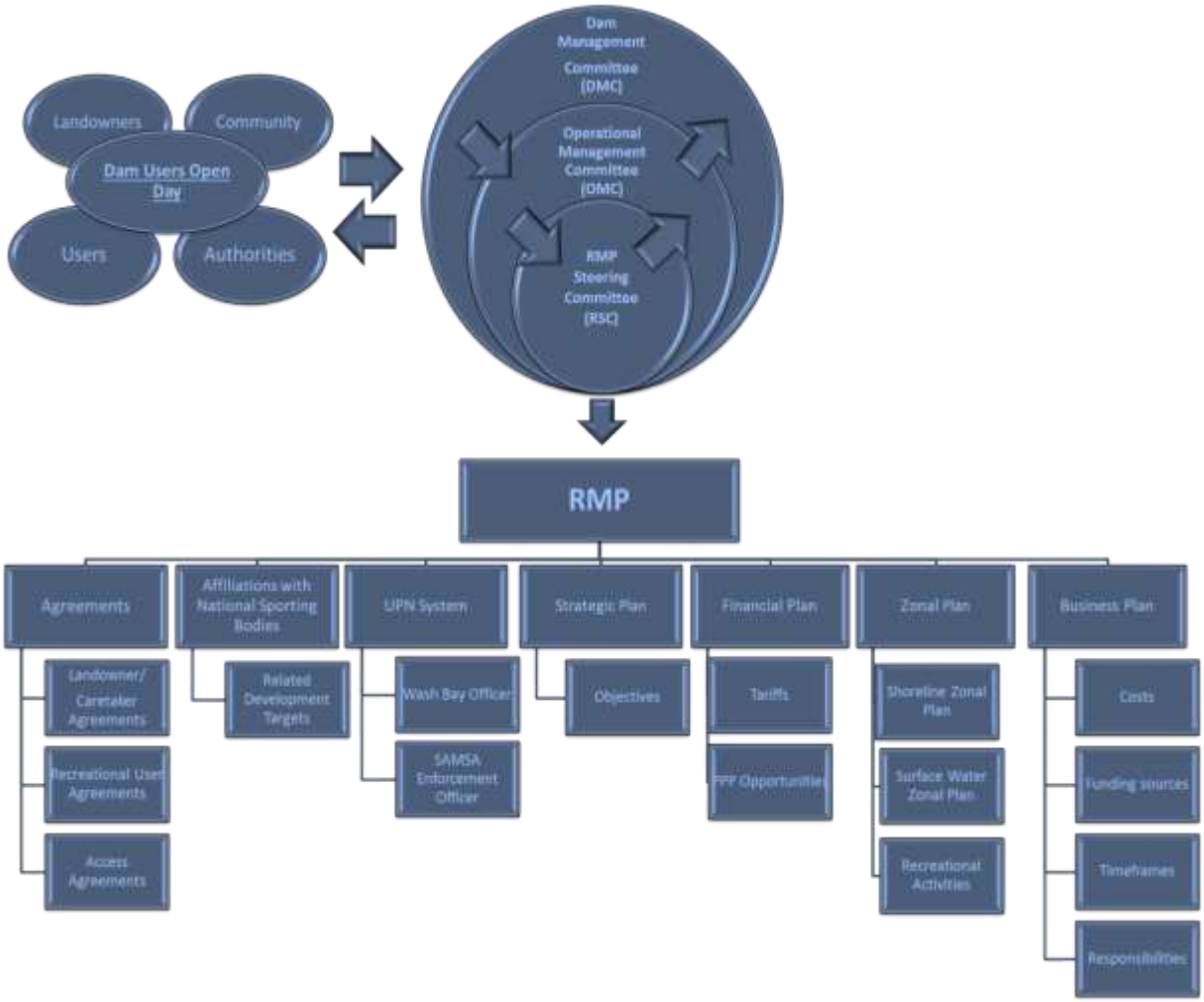

Figure 10: Institutional Framework

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 11 below provides details of the membership of the RSC.

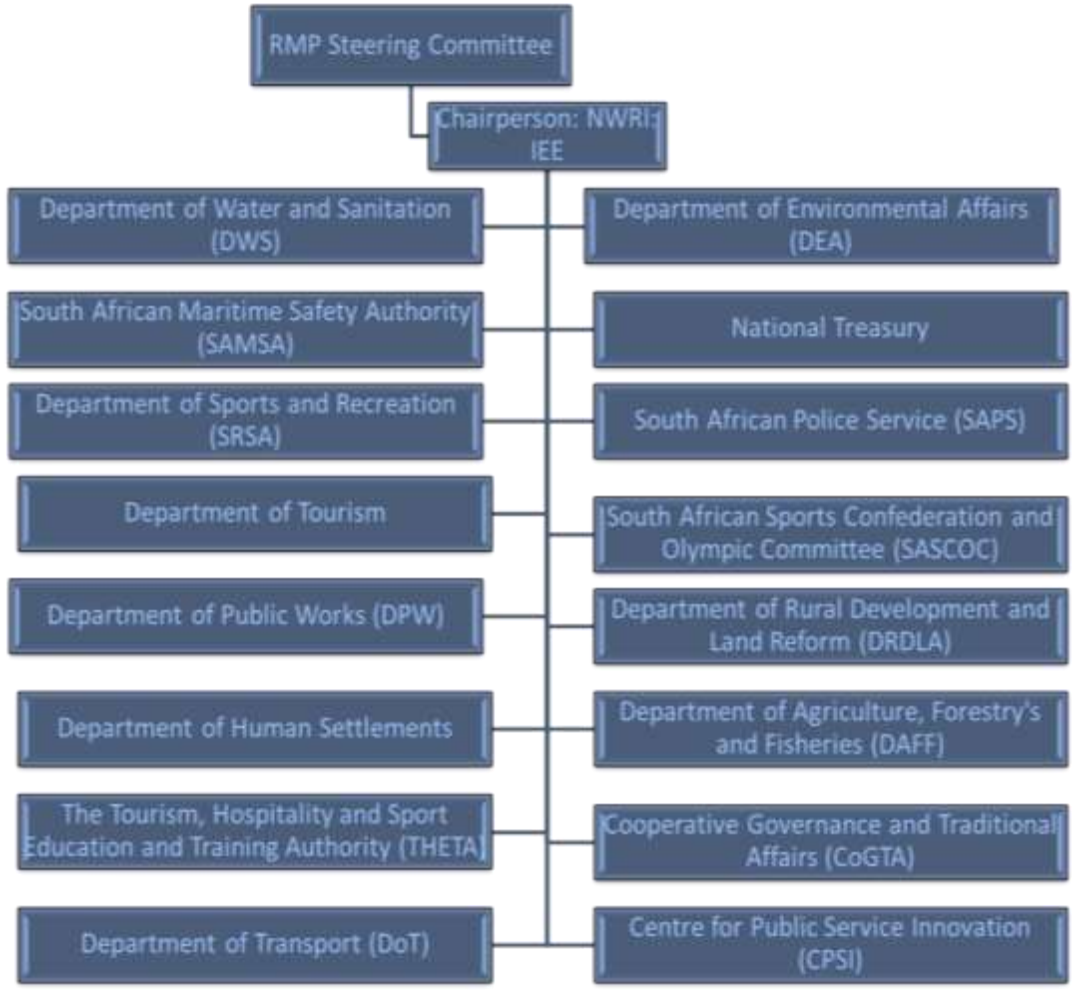

Figure 11: RSC Membership

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 scheme 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.

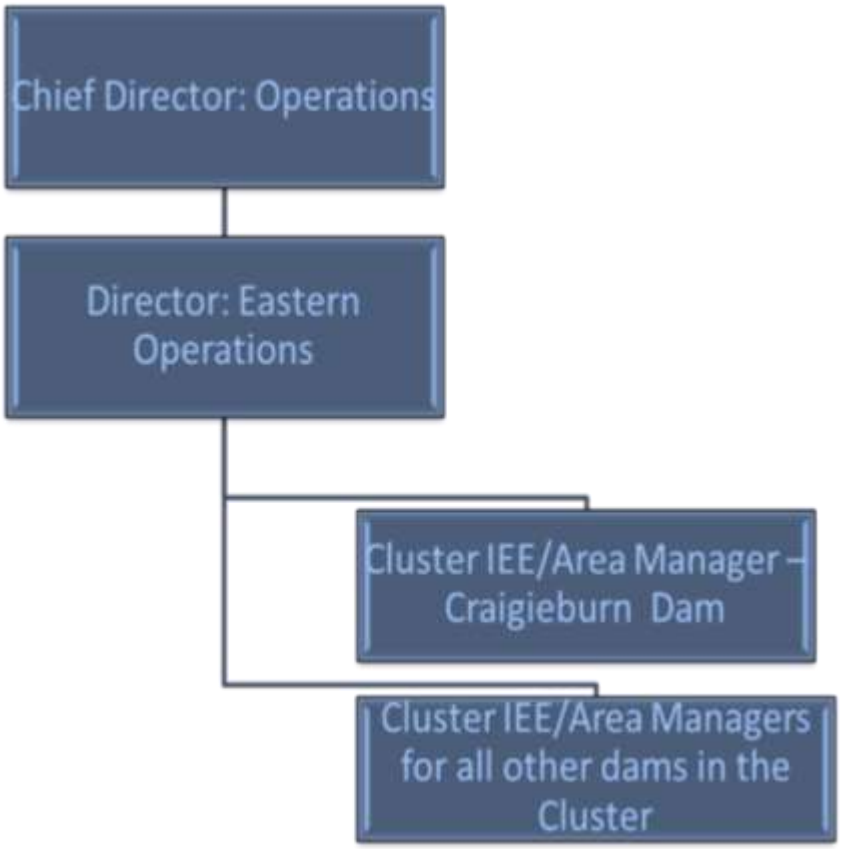

Figure 12: OMC Membership

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:

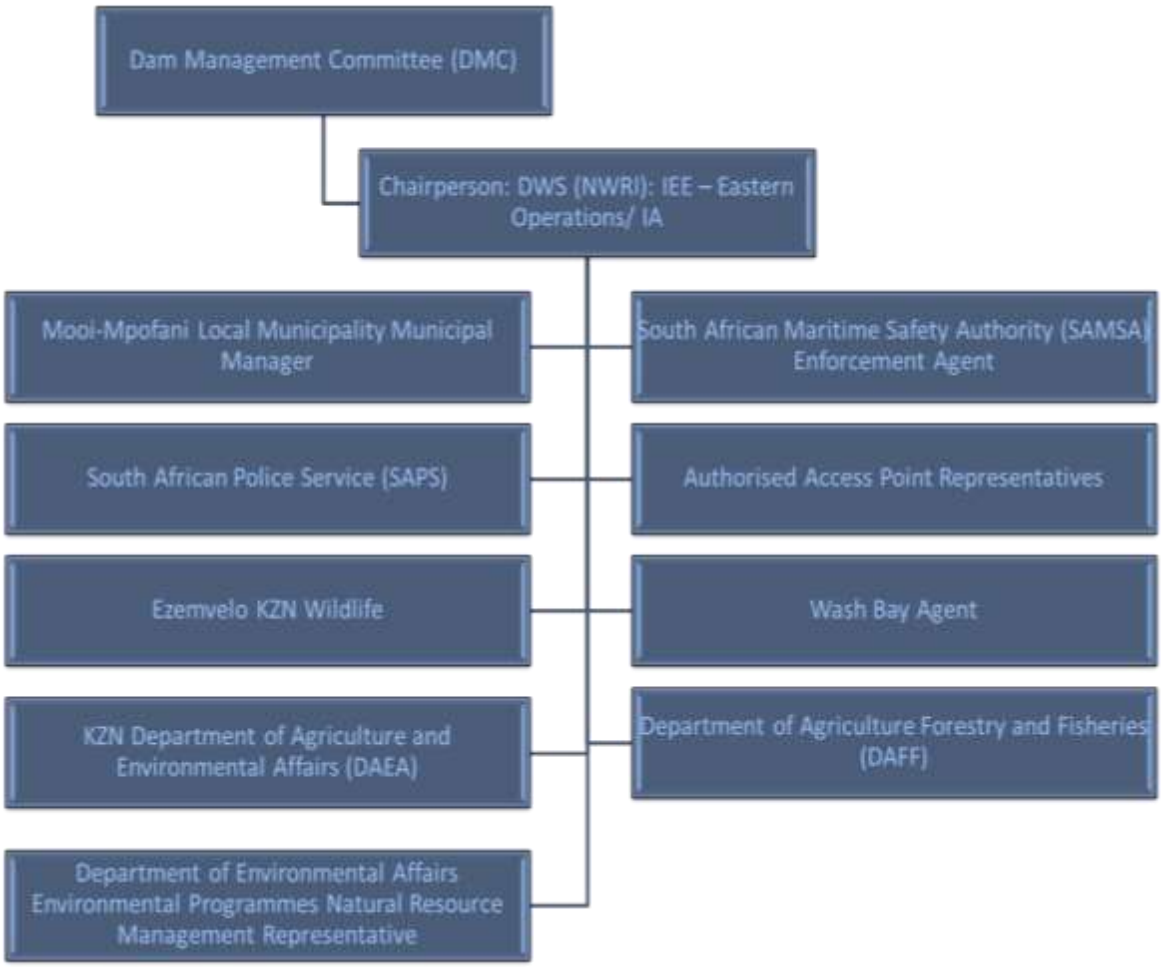

Figure 13: DMC Membership

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 provide guidance on the following management aspects:

- Meeting frequency;
- Roles and Responsibility of Chairperson;
- Roles and Responsibilities of Members;
- Minutes and attendance requirements;
- Reporting requirements;
- Management of agreements;
- Management of access objectives;
- Management of development targets;
- Strategic Plan for Commercialisation (SPC);
- Management of Water quality monitoring;
- Management of the Control of Aquatic Invasive Species;
- Management of Development Pressure; and
- Management of UPN system and wash bays.

4.2.4.2 Agreements

1. Agreements between DWS and Implementing Agent (IA):

One of the main management tools available is agreements to ensure that any use of the Dam is in line with the RMP vision and objectives

Currently the Dam is officially closed for recreational use and the management of the Dam is undertaken by DWS (as Ezemvelo KZN Wildlife withdrew from the management of the Dam due to lack of finances).

There is no management body in place for the management of recreational use at the Dam. Cloud 9 Resort occurs on private land and has access through a caretaker agreement. This agreement allows the resort access for two boats at a time. The owner of the resort has indicated that resort is not open for use by the general public. It is thus suggested that Ezemvelo KZN Wildlife be approached to determine their interest in managing the Dam. Should this not be possible, a PPP process should be instituted for the management of the recreational use at the Dam. This PPP should include management of Safety, Wash bays, UPN System, Accommodation, Public Access and Picnic Sites, Bird Hides, Angling Area and Wedding Venue.

An interim agreement is required while the PPP process is underway. It is suggested that DWS negotiate this with adjacent landowners.

Regardless, all agreements should be in line with the RMP requirements which as a minimum must achieve the following:

- Conditions on the Implementing Agent (IA'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;
    - 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 the IA and any new recreational clubs, should be reviewed and accepted in writing by the DWS Operations Manager for the Eastern Cape. They should also be presented to the DMC prior to signature to ensure the vision and objectives of the RMP are met.

Irrespective of the nature of the agreement the following must be incorporated:

- Clear start and end dates and terms of renewal/extension;
- Rights and obligations of both parties;
- Access points to be used must be stipulated. The RMP makes provision for three potential access points (The current access at Cloud 9 should an agreement be put in place, the old EKZNW access point and a potential access point near the old Church). Access agreements with DWS will be necessary within the next year. Failure to do so will result in unauthorized access points being closed (see section on Access agreements for more details);
- IA's (and therefore DWS's) exclusion of liability;
- Terms and conditions of improvements made to the property should be stipulated. All improvements require consent from 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 floodline without additional approval as required by Section 21 (c) and (i) of the National Water Act, 1998 (Act no 36 of 1998);
- The extent of the rights to use the resource should be stipulated;
- Safety management to be in line with SAMSA requirements;
- Targets and objectives for the management of the Dam;
- Clear instructions on the financial requirements of both parties, and where and when money must be paid should also be stipulated. All recreational clubs and societies on State Land must be managed in line with National Treasury requirements. Lease agreements for use of State Land should include fair remuneration at the current market value;
- All agreements should include a cancellation clause if requirements cannot be met;

- All clubs or associations must be affiliated to a national sporting body recognised by the South African Sports Confederation and Olympic Committee (SASCOC)
- All agreements must include a cancellation clause if clubs or associations fail to obtain affiliation within one year from date of signature of the agreement;
- 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 either party regarding maintenance, management and infrastructure;
- A list of prohibited activities;
- Prohibition of subletting portions of the leased area;
- Conditions on the use of the Dam for small-scale fisheries projects; and
- 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.
- All agreements must include a cancellation clause should community access targets not be met.
- 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 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.

These agreements should be updated within the next year.

1.) Recreational Use Agreements

Recreational Clubs must enter into an agreement with the IA who will be responsible for the surface water management of the Dam. All recreational use at the Dam must be through an appropriate legal framework. However all agreements must be approved in writing by DWS and the DMC.

Recreational Use Agreements must be developed in line with the conditions stipulated in the agreement between DWS and the IA.

All agreements must be finalised within one year of the RMP being gazetted.

2.) 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.

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

3.) Access Agreements

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

All adjacent landowners and clubs must be made aware that access to the surface water 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.

A PPP for the management of the Dam including recreational use should be instituted. This should include the construction of a Wash Bay in line with DWS's requirements and the provision of chemicals for spraying boats, and the payment of a full time Wash Bay officer.

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

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

4.) 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.

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

5.) Event Applications

There is potential for Craigieburn Dam to be used for a number of competitive events.

All events must be managed through an event application process. While the application may be made to the IA, DWS and the DMC must approve the application. These applications must follow a specific template and will include the following:

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

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

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

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.

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. The vision for the Dam involves seeing the Dam as a tourist destination with a focus on the sensitive environment and agricultural importance of the area. A number of objectives (and related actions) are specifically related to socio-economic development including:

Recreational Use

- The feasibility of using the old Church and surrounding area as a wedding venue should be determined. A detailed Heritage assessment of the church would be required together with discussions with Amafa/Kwa-Zulu Natali;
- The Dam should be formally opened to the public for recreational use. An Implementing Agent to manage safety access, recreational use, picnic and accommodation facilities would be required; and
- The Dam should formally join the Midlands Meander route.

Further, as discussed in the Financial Plan below, Craigieburn 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 has a specific intervention regarding determining the feasibility of a PPP for the management of Craigieburn Dam. The intervention specifically requires that any PPP agreements take into account community beneficiation and participation.

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

- Investigate the possibility of a differential tariff system that caters for regular users, the local community, schools, etc. The intention of the system is to ensure that the entrance fee does not discourage and/or limit people from using the Dam;
- Public access area to be developed. The potential for this to be managed through the PPP should be explored; and
- The DMC to develop material to market the benefits of the Dam to the local community.

In terms of potential PPPs, the BP specifies that the feasibility study for the PPP should determine the feasibility of using a sliding scale, cross subsidy fee structure and/or contractual obligations to ensure equitable access.

In addition, a specific intervention in the BP is focused entirely on the creation of a public access area at the Dam to allow community participation and use. It is suggested that DWS undertake the initial planning and construction while the management and maintenance of the area be included in the agreement with the Implementing Agent.

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).

Formalised Education and Skills Programmes

- The Water-Ski School (and any new clubs) to be affiliated to National Clubs such as under South African Sports Confederation and Olympic Committee (SASCOC). In this way training and development as per SASCOC requirements can be instituted;
- Feasibility of opening a Swimming School to be determined (as part of Telkom Splash Programme). This swimming school should target youth in the Informal settlement near the Dam; and
- Education programmes to be implemented to educate local community about the uses and benefits of the Dam;
- First Aid Training for Enforcement Officers and Wash Bay Officers; and
- Subsidized funding mechanisms should be implemented to allow local schools access to the Dam for Natural Science/Life Orientation learning.

The BP has a specific intervention relating to 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.

4.3 Financial Plan

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

Currently, Cloud 9 generates an income from:

- Entrance fees for visiting the Dam; and
- The chalets and camping facilities (privately owned).

A Water Ski School is also run at the Dam and generates income.

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 Business Plan provides a financial framework to undertake certain interventions.

4.4 Zonal Plan

The Zonal Plan for Craigieburn 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 at Craigieburn Dam are through Cloud 9 Resort and include water skiing, sunset 'booze' cruises, water toys and Fresh Water Angling.

Other recreational activities taking place at and around the Dam include bird watching. Fishing from the shore, camping, swimming and picnicking and sun bathing.

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 5: 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.

- Public Private Partnership (PPP) for the re-opening and managing of Craigieburn Dam for recreation'
- Public Private Partnership (PPP) for high income accommodation;
- Development of the church as a heritage site and possible wedding venue;
- Renovation of infrastructure currently in disrepair; and
- Creation of development programmes for local communities.

Table 6: 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 Require-ments	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	Accommodation / Facilities	Ablution facilities	Access to water	Access to Land	Interest in the activity	Funding Opportunities	
No Contact	Hiking/ Walking Trails	N/A	N/A	N/A	N/A	N/A	N/A	Sensitive bird nesting areas must be identified and avoided	N/A	N/A	N/A	N/A	Cell phone signal available	Emergency response plan required from potential Operators	None	N/A	Day hikers would not require accommodation, longer hikes would require Camping or similar accommodation	Required	N/A	Required	Local community is interested in unlocking economic potential of the area		2
	Camping at Craigieburn Dam	N/A	N/A	N/A	N/A	N/A	None	Sensitive bird nesting areas must be identified and avoided	Waste management required to prevent impacts on water quality	N/A	N/A	N/A	Cell phone signal available	Emergency response plan required from potential Operators	None	N/A	Existing facilities requiring upgrade/renovation	Existing facilities requiring upgrade/renovation	N/A	Existing access point	Informal camping already occurs at the site		3
	Camping at Cloud 9	N/A	N/A	N/A	N/A	N/A	None	Sensitive bird nesting areas must be identified and avoided	Waste management required to prevent impacts on water quality	N/A	N/A	N/A	Cell phone signal available	Emergency response plan required from potential Operators	None	N/A	Available at Cloud 9	Available at Cloud 9	Agreements required with DWS	Agreements with DWS require updating	Camping already occurs here, Cloud 9 has expressed an interest in a PPP		3
	High end accommodation	N/A	N/A	N/A	N/A	N/A	Possible effects during construction phase	Sensitive bird nesting areas must be identified and avoided	Waste management required to prevent impacts on water quality	N/A	N/A	N/A	Cell phone signal available	Emergency response plan required from potential Operators	Concern that housing development may limit economic potential of these type of developments	N/A	Require development	Require development	May be required as part of a resort	Partnership between local landowners and DWS required	Interest expressed by local landowners		1
	Birding	N/A	N/A	N/A	N/A	N/A	None	None	Waste management required to prevent impacts on water quality	N/A	N/A	N/A	Cell phone signal available	Emergency response plan required from potential Operators	None	N/A	Day hikers would not require accommodation, longer hikes would require Camping or similar accommodation	Existing facilities requiring upgrade/renovation	N/A	Required	Local community is interested in unlocking economic potential of the area		2
	Picnic areas	N/A	N/A	N/A	N/A	N/A	None	Irresponsible waste management may affect bird behaviour	Waste management required to prevent impacts on water quality	N/A	N/A	N/A	Cell phone signal available	Emergency response plan required from potential Operators	None	N/A	Day hikers would not require accommodation, longer hikes would require Camping or similar accommodation	Existing facilities requiring upgrade/renovation	N/A	Required	Local community is interested in unlocking economic potential of the area		2
Primary Contact	Open Water Swimming - Recreational	N/A	N/A	Water quality very good	N/A	None recorded at present	Sensitive fish spawning areas must be identified and avoided	Sensitive bird nesting areas must be identified and avoided	None	Required	N/A	N/A	Cell phone signal available	Emergency response plan required from potential Operators	Zonal plan to prevent conflict	N/A	Changing rooms required	Upgrade/renovation of existing facilities or construction of new facilities required	Required	Access is required in order to access water	Local community is afraid of swimming in the Dam, but may develop an interest if the swimming school is successful	Telkom Splash, Swimming SA	2
	Open Water Swimming – Development School	N/A	N/A	Water quality very good	N/A	None recorded at present	Sensitive fish spawning areas must be identified and avoided	Sensitive bird nesting areas must be identified and avoided	None	Required	N/A	Water clarity is good	Cell phone signal available	Emergency response plan required from potential Operators	Zonal plan to prevent conflict	N/A	Changing rooms required	Upgrade/renovation of existing facilities or construction of new facilities required	Required	Access is required in order to access water	Mpofana LM has expressed interest		
	Snorkelling	N/A	N/A	Water quality very good	N/A	None recorded at present	Sensitive fish spawning areas must be identified and avoided	Sensitive bird nesting areas must be identified and avoided	None	Required	N/A	Water clarity is good	Cell phone signal available	Emergency response plan required from potential Operators	Zonal plan to prevent conflict	N/A	Changing rooms required	Upgrade/renovation of existing facilities or construction of new facilities	Required	Access is required in order to access water	None at present		1

Contact Type	Activity	Operational Management Issues		Environmental Impacts on Recreational Use			Recreational Use Impacts on the Environment			Safety Requirements					Recreational Requirements					Legal Require-ments	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	Accommodation / Facilities	Ablution facilities	Access to water	Access to Land	Interest in the activity	Funding Opportunities	
																		required					
	Diving	N/A	N/A	Water quality very good	N/A	None recorded at present	Sensitive fish spawning areas must be identified and avoided	Sensitive bird nesting areas must be identified and avoided	None	Required	Min 5m	Water clarity is good	Cell phone signal available	Emergency response plan required from potential Operators	Zonal plan to prevent conflict	N/A	Changing rooms required	Extensive infrastructure required	Required	Access is required in order to access water	Mpofana LM has expressed interest		1
Secondary Contact	Commercial Fisheries	N/A	N/A	Water quality very good	N/A	None recorded at present	Sensitive fish spawning areas must be identified and avoided	Sensitive bird nesting areas must be identified and avoided	Environmental feasibility studies required before any large-scale activities are authorised	Required	N/A	N/A	Cell phone signal available	Emergency response plan required from potential Operators	May affect recreational anglers and subsistence fishermen	N/A	Accommodation required	Ablution facilities required	Required	Land will be required to process fish	None at present		0
	Shore Fishing	N/A	N/A	Water quality very good	N/A	None recorded at present	Sensitive fish spawning areas must be identified and avoided	Sensitive bird nesting areas must be identified and avoided	None, as long as effective management of waste takes place	N/A	N/A	N/A	Cell phone signal available	Emergency response plan required from potential Operators	May conflict with other anglers	N/A	Day visitors do not require accommodation, but those visiting for longer time periods will require it	Ablution facilities required, renovation/upgrade of existing facilities may be sufficient	Legal access required	Through Cloud 9 or DWS access point	Already occurs at Craigieburn Dam		3
	Tube Fishing	N/A	N/A	Water quality very good	N/A	None recorded at present	Sensitive fish spawning areas must be identified and avoided	Sensitive bird nesting areas must be identified and avoided	None, as long as effective management of waste takes place	Required	N/A	May not be visible to large vessels, warning flags must be carried if this poses a risk	Cell phone signal available	Emergency response plan required from potential Operators	May conflict with other anglers	N/A	Day visitors do not require accommodation, but those visiting for longer time periods will require it	Ablution facilities required, renovation/upgrade of existing facilities may be sufficient	Legal access required	Through Cloud 9 or DWS access point			2
	Pontoon Fishing	N/A	N/A	Water quality very good	N/A	None recorded at present	Sensitive fish spawning areas must be identified and avoided	Sensitive bird nesting areas must be identified and avoided	None, as long as effective management of waste takes place	Required	N/A	May not be visible to large vessels, warning flags must be carried if this poses a risk	Cell phone signal available	Emergency response plan required from potential Operators	May conflict with other anglers	N/A	Day visitors do not require accommodation, but those visiting for longer time periods will require it	Ablution facilities required, renovation/upgrade of existing facilities may be sufficient	Legal access required	Through Cloud 9 or DWS access point			2
	Bass Fishing	N/A	N/A	Water quality very good	N/A	None recorded at present	Sensitive fish spawning areas must be identified and avoided	Sensitive bird nesting areas must be identified and avoided	None, as long as effective management of waste takes place	Required	N/A	N/A	Cell phone signal available	Emergency response plan required from potential Operators	May conflict with other anglers	N/A	Day visitors do not require accommodation, but those visiting for longer time periods will require it	Ablution facilities required, renovation/upgrade of existing facilities may be sufficient	Legal access required	Through Cloud 9 or DWS access point	Already occurs at the Dam		3
	Motorised Boats	N/A	N/A	Water quality very good	N/A	None recorded at present	Sensitive fish spawning areas must be identified and avoided	Sensitive bird nesting areas must be identified and avoided	All boats to be SAMSA certified	Required	N/A	N/A	Cell phone signal available	Emergency response plan required from potential Operators	Zonal plan to minimise conflict	N/A	Day visitors do not require accommodation, but those visiting for longer time periods will require it	Ablution facilities required, renovation/upgrade of existing facilities may be sufficient	Legal access required	Through Cloud 9 or DWS access point	Already occurs at the Dam		3
	Jet Powered Boats	N/A	N/A	Water quality very good	N/A	None recorded at present	Sensitive fish spawning areas must be	Sensitive bird nesting areas must be identified and avoided	All boats to be SAMSA certified	Required	N/A	N/A	Cell phone signal available	Emergency response plan required from potential Operators	Zonal plan to minimise conflict	N/A	Day visitors do not require accommodation, but those visiting for longer time periods	Ablution facilities required, renovation/up	Legal access required	Through Cloud 9 or DWS access point	Already occurs at the Dam		3

Contact Type	Activity	Operational Management Issues		Environmental Impacts on Recreational Use			Recreational Use Impacts on the Environment			Safety Requirements					Recreational Requirements					Legal Require-ments	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	Accommodation / Facilities	Ablution facilities	Access to water	Access to Land	Interest in the activity	Funding Opportunities	
							identified and avoided										will require it	grade of existing facilities may be sufficient					
	RHIB	N/A	N/A	Water quality very good	N/A	None recorded at present	Sensitive fish spawning areas must be identified and avoided	Sensitive bird nesting areas must be identified and avoided	All boats to be SAMSA certified	Required	N/A	N/A	Cell phone signal available	Emergency response plan required from potential Operators	Zonal plan to minimise conflict	N/A	Day visitors do not require accommodation, but those visiting for longer time periods will require it	Ablution facilities required, renovation/upgrade of existing facilities may be sufficient	Legal access required	Through Cloud 9 or DWS access point	Already occurs at the Dam		3
	Jet Ski	N/A	N/A	Water quality very good	N/A	None recorded at present	Sensitive fish spawning areas must be identified and avoided	Sensitive bird nesting areas must be identified and avoided	None	Required	N/A	N/A	Cell phone signal available	Emergency response plan required from potential Operators	Zonal plan to minimise conflict	N/A	Day visitors do not require accommodation, but those visiting for longer time periods will require it	Ablution facilities required, renovation/upgrade of existing facilities may be sufficient	Legal access required	Through Cloud 9 or DWS access point	Already occurs at the Dam		3
	Dragon Boats	N/A	N/A	Water quality very good	N/A	None recorded at present	Sensitive fish spawning areas must be identified and avoided	Sensitive bird nesting areas must be identified and avoided	None	Required	N/A	N/A	Cell phone signal available	Emergency response plan required from potential Operators	Requires large areas, may conflict with other users	N/A	Day visitors do not require accommodation, but those visiting for longer time periods will require it	Ablution facilities required, renovation/upgrade of existing facilities may be sufficient	Legal access required	Through Cloud 9 or DWS access point	Not at this time		1
	Slalom Canoe	N/A	N/A	Water quality very good	N/A	None recorded at present	Sensitive fish spawning areas must be identified and avoided	Sensitive bird nesting areas must be identified and avoided	None	Required	N/A	N/A	Cell phone signal available	Emergency response plan required from potential Operators	Requires large areas, may conflict with other users	N/A	Day visitors do not require accommodation, but those visiting for longer time periods will require it	Ablution facilities required, renovation/upgrade of existing facilities may be sufficient	Legal access required	Through Cloud 9 or DWS access point	Not at this time		1
	Fishing Canoe	N/A	N/A	Water quality very good	N/A	None recorded at present	Sensitive fish spawning areas must be identified and avoided	Sensitive bird nesting areas must be identified and avoided	None	Required	N/A	May not be visible to large vessels, warning flags must be carried if this poses a risk	Cell phone signal available	Emergency response plan required from potential Operators	May conflict with other anglers	N/A	Day visitors do not require accommodation, but those visiting for longer time periods will require it	Ablution facilities required, renovation/upgrade of existing facilities may be sufficient	Legal access required	Through Cloud 9 or DWS access point	Not at this time		2
	Jet Ski Fishing	N/A	N/A	Water quality very good	N/A	None recorded at present	Sensitive fish spawning areas must be identified and avoided	Sensitive bird nesting areas must be identified and avoided	None	Required	N/A	N/A	Cell phone signal available	Emergency response plan required from potential Operators	May conflict with other anglers	N/A	Day visitors do not require accommodation, but those visiting for longer time periods will require it	Ablution facilities required, renovation/upgrade of existing facilities may be sufficient	Legal access required	Through Cloud 9 or DWS access point	Not at this time		2
	Wind Surfing	N/A	N/A	Water quality very good	N/A	None recorded at present	Sensitive fish spawning areas must be identified and avoided	Sensitive bird nesting areas must be identified and avoided	None	Required	N/A	N/A	Cell phone signal available	Emergency response plan required from potential Operators	Zoning plan to minimise conflict	Wind usually variable enough that there is always a suitable location for wind-sports	Day visitors do not require accommodation, but those visiting for longer time periods will require it	Ablution facilities required, renovation/upgrade of existing facilities may be sufficient	Legal access required	Through Cloud 9 or DWS access point	Not at this time		2
	Kite Surfing	N/A	N/A	Water quality very	N/A	None recorded at present	Sensitive fish spawning	Sensitive bird nesting areas must be	None	Required	N/A	N/A	Cell phone signal available	Emergency response plan required	Zoning plan to minimise conflict	Wind usually variable	Day visitors do not require accommodation, but	Ablution	Legal access required	Through Cloud 9 or DWS access point	Not at this time		2

Contact Type	Activity	Operational Management Issues		Environmental Impacts on Recreational Use			Recreational Use Impacts on the Environment			Safety Requirements					Recreational Requirements					Legal Require-ments	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	Accommodation / Facilities	Ablution facilities	Access to water	Access to Land	Interest in the activity	Funding Opportunities	
				good			areas must be identified and avoided	identified and avoided						from potential Operators		enough that there is always a suitable location for wind-sports	those visiting for longer time periods will require it	facilities required, renovation/upgrade of existing facilities may be sufficient					
	Ski Jumping	N/A	N/A	Water quality very good	N/A	None recorded at present	Sensitive fish spawning areas must be identified and avoided	Sensitive bird nesting areas must be identified and avoided	None	Required	N/A	N/A	Cell phone signal available	Emergency response plan required from potential Operators	Zoning plan to minimise conflict	Suitable	Day visitors do not require accommodation, but those visiting for longer time periods will require it	Ablution facilities required, renovation/upgrade of existing facilities may be sufficient	Legal access required	Through Cloud 9 or DWS access point	Not at this time		2
	Slalom Skiing	N/A	N/A	Water quality very good	N/A	None recorded at present	Sensitive fish spawning areas must be identified and avoided	Sensitive bird nesting areas must be identified and avoided	None	Required	N/A	N/A	Cell phone signal available	Emergency response plan required from potential Operators	Zoning plan to minimise conflict	Suitable	Day visitors do not require accommodation, but those visiting for longer time periods will require it	Ablution facilities required, renovation/upgrade of existing facilities may be sufficient	Legal access required	Through Cloud 9 or DWS access point	Current activity		3
	Ski and Wakeboard Boat	N/A	N/A	Water quality very good	N/A	None recorded at present	Sensitive fish spawning areas must be identified and avoided	Sensitive bird nesting areas must be identified and avoided	None	Required	N/A	N/A	Cell phone signal available	Emergency response plan required from potential Operators	Zoning plan to minimise conflict	Suitable	Day visitors do not require accommodation, but those visiting for longer time periods will require it	Ablution facilities required, renovation/upgrade of existing facilities may be sufficient	Legal access required	Through Cloud 9 or DWS access point	Already occurs at the Dam		3
	Kayaking Sprints	N/A	N/A	Water quality very good	N/A	None recorded at present	Sensitive fish spawning areas must be identified and avoided	Sensitive bird nesting areas must be identified and avoided	None	Required	N/A	N/A	Cell phone signal available	Emergency response plan required from potential Operators	Requires large areas, may conflict with other users	N/A	Day visitors do not require accommodation, but those visiting for longer time periods will require it	Ablution facilities required, renovation/upgrade of existing facilities may be sufficient	Legal access required	Through Cloud 9 or DWS access point	Not at this time		1
	Kayaking Marathons	N/A	N/A	Water quality very good	N/A	None recorded at present	Sensitive fish spawning areas must be identified and avoided	Sensitive bird nesting areas must be identified and avoided	None	Required	N/A	N/A	Cell phone signal available	Emergency response plan required from potential Operators	Requires large areas, may conflict with other users	N/A	Day visitors do not require accommodation, but those visiting for longer time periods will require it	Ablution facilities required, renovation/upgrade of existing facilities may be sufficient	Legal access required	Through Cloud 9 or DWS access point	Not at this time		1
	Kayaking Water Polo	N/A	N/A	Water quality very good	N/A	None recorded at present	Sensitive fish spawning areas must be identified and avoided	Sensitive bird nesting areas must be identified and avoided	None	Required	N/A	N/A	Cell phone signal available	Emergency response plan required from potential Operators	Zoning plan to minimise conflict	N/A	Day visitors do not require accommodation, but those visiting for longer time periods will require it	Ablution facilities required, renovation/upgrade of existing facilities may be sufficient	Legal access required	Through Cloud 9 or DWS access point	Not at this time		2
	Kayaking Touring	N/A	N/A	Water quality very good	N/A	None recorded at present	Sensitive fish spawning areas must be identified and avoided	Sensitive bird nesting areas must be identified and avoided	None	Required	N/A	N/A	Cell phone signal available	Emergency response plan required from potential Operators	Zoning plan to minimise conflict	N/A	Day visitors do not require accommodation, but those visiting for longer time periods will require it	Ablution facilities required, renovation/upgrade of existing facilities may be sufficient	Legal access required	Through Cloud 9 or DWS access point	Not at this time		2
	Kayaking Fishing	N/A	N/A	Water quality very good	N/A	None recorded at present	Sensitive fish spawning areas must be	Sensitive bird nesting areas must be identified and avoided	None	Required	N/A	May not be visible	Cell phone signal available	Emergency response plan required from potential Operators	May conflict with other anglers	N/A	Day visitors do not require accommodation, but those visiting for longer time periods	Ablution facilities required, renovation/upgrade of	Legal access required	Through Cloud 9 or DWS access point	Not at this time		2

Contact Type	Activity	Operational Management Issues		Environmental Impacts on Recreational Use			Recreational Use Impacts on the Environment			Safety Requirements					Recreational Requirements					Legal Require-ments	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	Accommodation / Facilities	Ablution facilities	Access to water	Access to Land	Interest in the activity	Funding Opportunities	
							identified and avoided					to large vessels, warning flags must be carried if this poses a risk					will require it	existing facilities may be sufficient					
	Paddle Ski	N/A	N/A	Water quality very good	N/A	None recorded at present	Sensitive fish spawning areas must be identified and avoided	Sensitive bird nesting areas must be identified and avoided	None	Required	N/A	N/A	Cell phone signal available	Emergency response plan required from potential Operators	Zoning plan to minimise conflict	N/A	Day visitors do not require accommodation, but those visiting for longer time periods will require it	Ablution facilities required, renovation/upgrade of existing facilities may be sufficient	Legal access required	Through Cloud 9 or DWS access point	Not at this time		2
	Pedal Boat	N/A	N/A	Water quality very good	N/A	None recorded at present	Sensitive fish spawning areas must be identified and avoided	Sensitive bird nesting areas must be identified and avoided	None	Required	N/A	N/A	Cell phone signal available	Emergency response plan required from potential Operators	Zoning plan to minimise conflict	N/A	Day visitors do not require accommodation, but those visiting for longer time periods will require it	Ablution facilities required, renovation/upgrade of existing facilities may be sufficient	Legal access required	Through Cloud 9 or DWS access point	Not at this time		2
	Stand Up Paddling	N/A	N/A	Water quality very good	N/A	None recorded at present	Sensitive fish spawning areas must be identified and avoided	Sensitive bird nesting areas must be identified and avoided	None	Required	N/A	N/A	Cell phone signal available	Emergency response plan required from potential Operators	Zoning plan to minimise conflict	N/A	Day visitors do not require accommodation, but those visiting for longer time periods will require it	Ablution facilities required, renovation/upgrade of existing facilities may be sufficient	Legal access required	Through Cloud 9 or DWS access point	Not at this time		2
	Boat Paragliding	N/A	N/A	Water quality very good	N/A	None recorded at present	Sensitive fish spawning areas must be identified and avoided	Sensitive bird nesting areas must be identified and avoided	None	Required	N/A	N/A	Cell phone signal available	Emergency response plan required from potential Operators	Zoning plan to minimise conflict	Suitable	Day visitors do not require accommodation, but those visiting for longer time periods will require it	Ablution facilities required, renovation/upgrade of existing facilities may be sufficient	Legal access required	Through Cloud 9 or DWS access point	Not at this time		1
	Sailing	N/A	N/A	Water quality very good	N/A	None recorded at present	Sensitive fish spawning areas must be identified and avoided	Sensitive bird nesting areas must be identified and avoided	None	Required	N/A	N/A	Cell phone signal available	Emergency response plan required from potential Operators	Zoning plan to minimise conflict	Likely to be suitable	Day visitors do not require accommodation, but those visiting for longer time periods will require it	Ablution facilities required, renovation/upgrade of existing facilities may be sufficient	Legal access required	Through Cloud 9 or DWS access point	Not at this time		2
	Water Toys	N/A	N/A	Water quality very good	N/A	None recorded at present	Sensitive fish spawning areas must be identified and avoided	Sensitive bird nesting areas must be identified and avoided	None	N/A	N/A	N/A	Cell phone signal available	Emergency response plan required from potential Operators	N/A	Suitable	Day visitors do not require accommodation, but those visiting for longer time periods will require it	Ablution facilities required, renovation/upgrade of existing facilities may be sufficient	Legal access required	Through Cloud 9 or DWS access point	Not at this time		2
	House Boats	N/A	N/A	Water quality very good	N/A	None recorded at present	Sensitive fish spawning areas must be identified and avoided	Sensitive bird nesting areas must be identified and avoided	None, as long as effective management of waste takes place	N/A	N/A	Care must be taken to ensure that smaller craft are not	Cell phone signal available	Emergency response plan required from potential Operators	Zoning plan to minimise conflict	N/A	Not required	Ablution facilities required, renovation/upgrade of existing facilities may be sufficient	Legal access required	Through Cloud 9 or DWS access point	Not at this time		1

Contact Type	Activity	**Operational Management Issues**		**Environmental Impacts on Recreational Use**			**Recreational Use Impacts on the Environment**			**Safety Requirements**					**Recreational Requirements**					**Legal Require-ments**	**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	Accommodation / Facilities	Ablution facilities	Access to water	Access to Land	Interest in the activity	Funding Opportunities	
												overlooked											
	Junior Rowing School	N/A	N/A	Water quality very good	N/A	None recorded at present	Sensitive fish spawning areas must be identified and avoided	Sensitive bird nesting areas must be identified and avoided	None	Required	N/A	N/A	Cell phone signal available	Emergency response plan required from potential Operators	Large area required, may conflict with other users	N/A	Day visitors do not require accommodation, but those visiting for longer time periods will require it	Ablution facilities required, renovation/upgrade of existing facilities may be sufficient	Legal access required, Boat storage area would be required	Through Cloud 9 or DWS access point	Not at this time		1

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 Craigieburn 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: 2.16932 km ^{2}, or 216.9 hectares (ha)

U/A = There is a range of literature regarding the area required for different recreational users, which ranges between 1.6 ha (16 000 m^2) per boat to 16ha per boat. Typical U/A values 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	>1.4m	4.0
Fishing	>1.0m	4.0
Water-skiing	>1.4m	16.0

For the purposes of this calculation, bearing in mind that the uses of Craigieburn Dam are currently informal and subject to change with the introduction of management principles and formal operators, a conservative value of 4.04 ha (40 400 m^2) is assumed to be an acceptable estimate of area per user.

As Craigieburn Dam 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 Craigieburn Dam can therefore be calculated as:

PCC = 216.9 ÷4.04 x 1

PCC = 53 boats on 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:

- Erosion around the inlets to the Dam, particularly the seasonal rivers to the east and west of the Dam.
- Safety concerns of allowing recreation near to the Dam wall.

- The water around the banks of the Dam is shallow and likely to be a venue for bank anglers and as such must be a no-wake/idling zone for boat users.
- The major inlet to the Dam must be off-limits as it is a fish-breeding area and its proximity to the informal settlement means that high-speed boating is a safety concern as residents of the settlement may be in close proximity to the water.

Calculating the area of the surface of the Dam, adding a buffer-zone at the Dam wall and all three inlets and creating a buffer around the edge of the Dam, approximately 168 ha (1.68 km^2) of the water surface remain available for recreation. This means that 33% of the Dam is not available for recreational use.

The RCC for Craigieburn Dam is therefore:

$$RCC = PCC \times (100 - Cf_1)\% \times (100 - Cf_2)\% \times \ldots (100 - Cf_n)\%$$

Where Cf = a corrective factor expressed as a percentage. In this case all corrective factors have been consolidated.

$$RCC = 53 \times (100 - 34.7)\%$$

$$RCC = 34 \text{ boats on the Dam at any given time.}$$

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 Craigieburn Dam currently has no formal operations, and no safety protocol barring an indemnity form for water users, the ECC cannot be calculated until such a time as the infrastructure capacity is known.

4.4.4 Water Surface Zonal Plan

The Zonal plan for the water surface at Craigieburn Dam is divided into six 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; Swimming (current or potential);
- Zone C – Safety/No- Go Zone;
- Zone D – Secondary Contact: Potential Jet Ski area;
- Zone E – Secondary Contact: Motorised Boats and Related Activities Zone; and
- Zone F – Conservation/No-go Zone

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 7: 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	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	Cloud 9 (if formalised) DWS access point on peninsula EZKNW access point if reopened Proposed access point for PPP if put in place	Registered Safe for Water Vessel Valid Skipper's License (where necessary); First Aid Kit	AtoN and Demarcation Markers Rescue Boat available at all times Enforcement Officer Agreements with IA Wash Bay System
Zone B	Full Contact - Swimming	Swimming - recreational	Swimming – development school	Cloud 9 (if formalised) DWS access point on peninsula EZKNW access point if reopened Proposed access point for PPP if put in place	Registered Safe for Water Vessel Valid Skipper's License (where necessary); First Aid Kit	AtoN and Demarcation Markers Rescue Boat available at all times Enforcement Officer Agreements with IA Wash Bay System
Zone C	No Go – Safety Zone Dam Wall	None	None	N/A	N/A	AtoN and Demarcation Markers
Zone D	Secondary Contact – Jet Ski	Jet ski		Cloud 9 (if formalised) DWS access point on peninsula EZKNW access point if reopened Proposed access point for PPP if put in place	Registered Safe for Water Vessel Valid Skipper's License (where necessary); First Aid Kit	AtoN and Demarcation Markers Rescue Boat available at all times Enforcement Officer Agreements with IA Wash Bay System
Zone E	Secondary Contact – Motorised Boats and associated	Bass Fishing Motorised Boats Jet Powered Boats RHIB Wind Surfing	Jet Powered Boats Dragon Boats Slalom Canoe Fishing Canoe Jet Ski Fishing	Cloud 9 (if formalised) DWS access point on peninsula EZKNW access point if reopened Proposed access point for PPP if put in place	Registered Safe for Water Vessel Valid Skipper's License (where necessary); First Aid Kit	AtoN and Demarcation Markers Rescue Boat available at all times Enforcement Officer Agreements with IA Wash Bay System

Zone Name	Contact Type	Permissible Activities - Current	Permissible Activities - Potential	Access Point	Safety Requirements for Users	Safety Requirements for DMC
	activities	Kite Surfing Paragliding Sailcraft Ski and Wakeboard Boat Canoeing Rowing Kayaking Sprints				
Zone F	No Go - Conservation	N/A	None	N/a	N/A	AtoN and Demarcation Markers
Zone G	No Go – Safety Zone Buffer	None	None	N/A	N/A	AtoN and Demarcation Markers

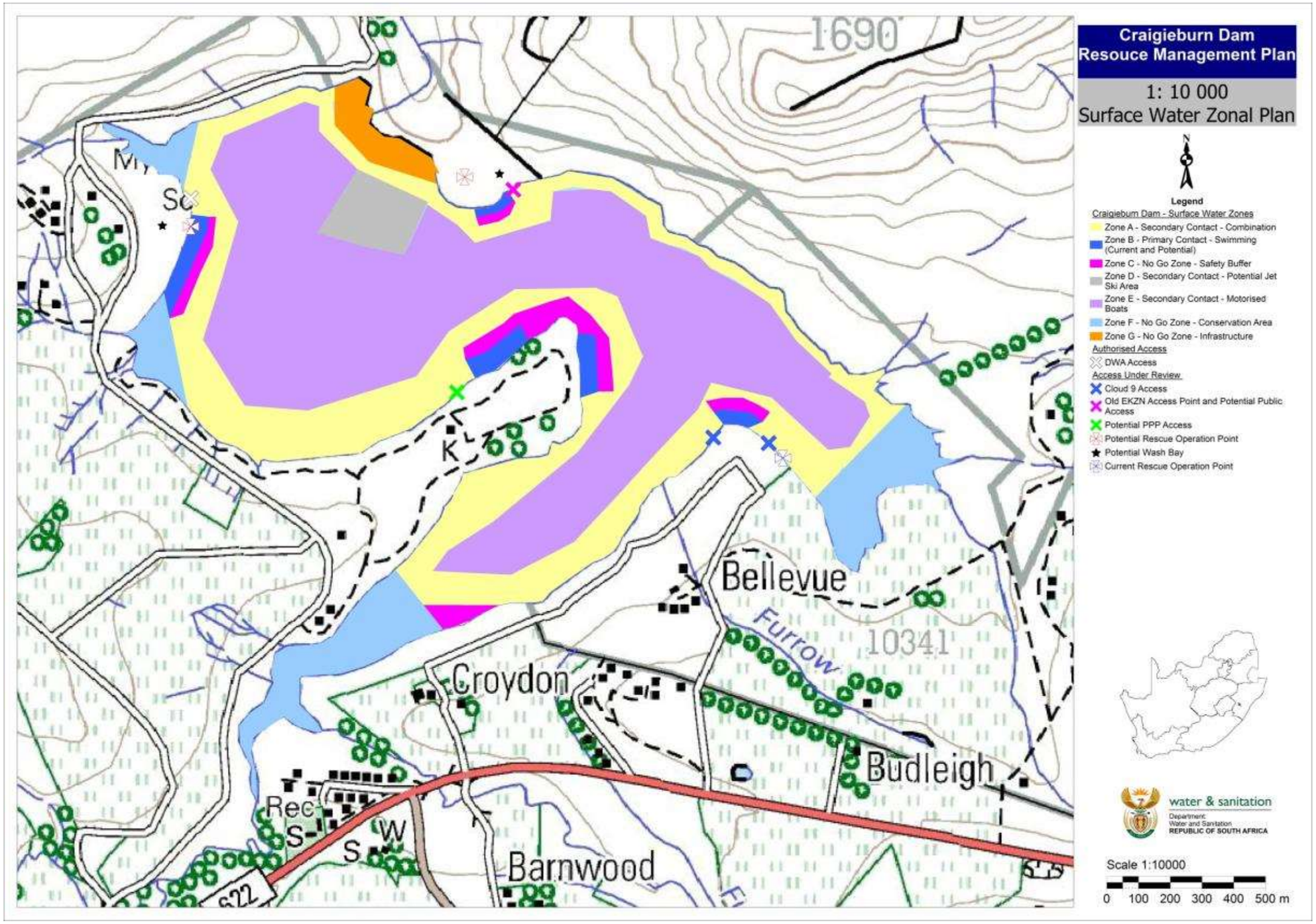

Figure 14: Map of the Water Surface Zonal Plan

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 DWS.

The management zones include:

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

Zone A permits hiking trails, bird watching and conservation management activities. Development of this area is not allowed. Recreational activities are allowed in this area,

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

- Swimming school;
- Upgrade and reopening of resort;
- Water Ski School;
- Wedding Venue; and
- High end accommodation.

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 8: Shoreline Management Zones

Zone Name	Zone Type	Permissible Activities	Requirements for Users	Requirements for DMC
Zone A	Conservation and Management	Conservation management activities including birding, picnicking, swimming, low impact activities such as hiking and canoeing	Noise levels to be kept at a minimum No littering	Updated agreements with landowner PPP for management of recreation
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 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 agreements No private slipways to be built without approval from DWS. In addition Section 21 c. and i. Water Use License Application (WULAs) would be required	Enforcement Officer to check all designated picnic spots 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,)

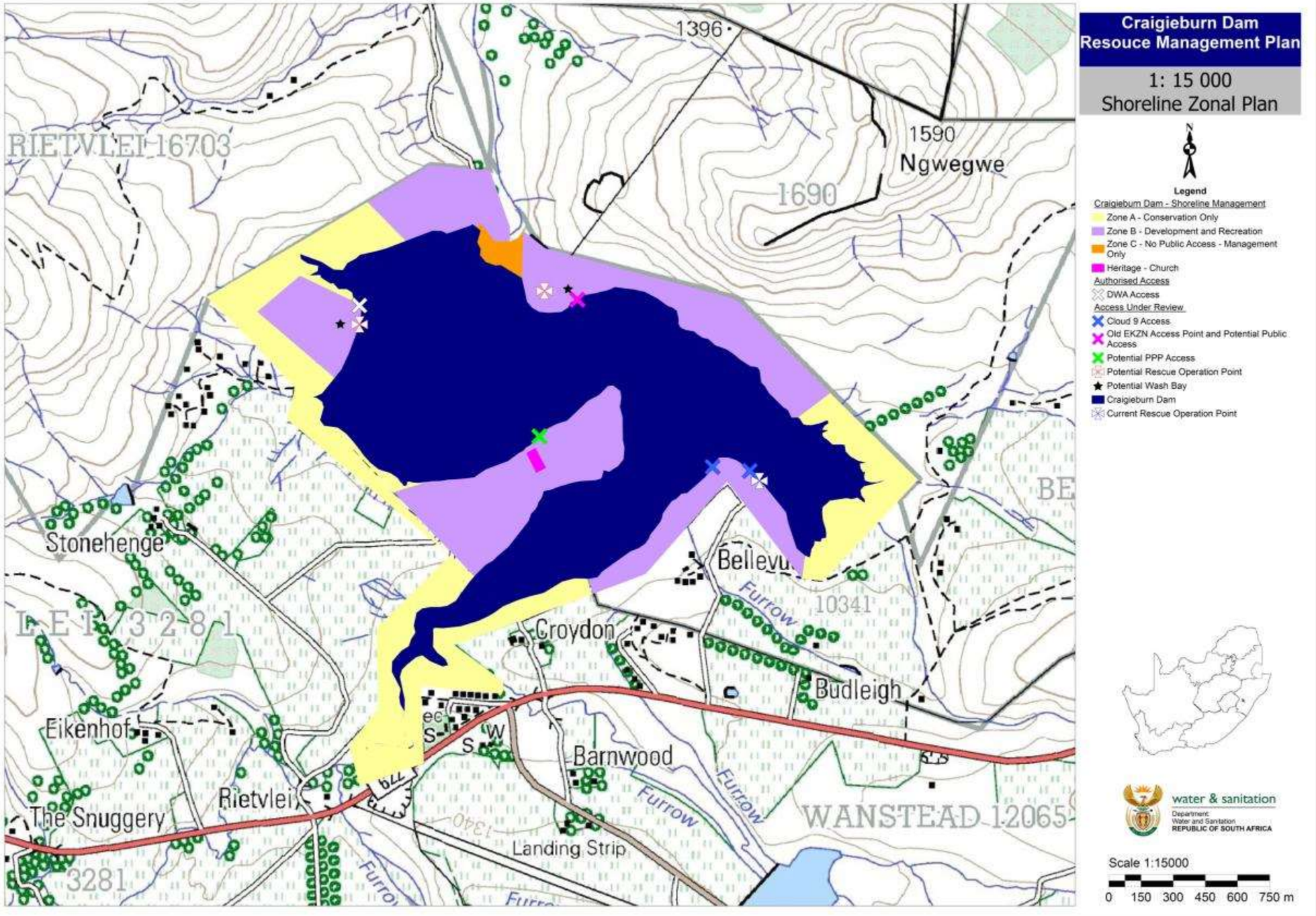

Figure 15: Shoreline Zonal Map

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	Formation of DMC, OMC and RSC.	To ensure management of recreation at Craigieburn Dam	DMC to be established Terms of Reference to be drafted	DWS
	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
	Public Private Partnership Process for management of recreational use to be instituted	To ensure management capacity is in place to allow recreational use	PPP Process	DWS
	Update existing agreements in line with RMP. Address the legality of the Water Ski School. Unauthorised abstraction should be addressed in light of the RMP. Agreements with interim Management Body to be updated	There are no agreements in place to manage recreational use. An interim management body is required while the PPP process takes place. Further, the legality of a number of activities should be addressed.	Discussions with stakeholders Agreements to updated to take into account RMP	DWS Cloud 9
	Event Management System to be put in place	To ensure events are managed with little to do impact on the environment or recreational users	Event Management System to be drafted	DWS
	Rates for Events and Advertising should be determined	To unlock the economic potential of Craigieburn Dam	Rates Table to be formulated	DWS

Objective	What	Why	How	Who
Management of Water Resources	Craigieburn Land Restitution and Slums Clearance Low Income Housing Project as well as the Agri-village should have effective waste and storm water management to ensure minimal pollution to the Dam	To maintain good water quality	DMC to liaise with Local Municipality to discuss waste and storm water management Waste and storm water management plan to be drafted	Mpofana Local Municipality DWS
	Silt management is necessary to minimize siltation of the Dam	Decrease siltation of the Dam through improved land management or silt management devices	Investigation into silt management infrastructure such as silt-curtains, silt traps and storm water control	DWS DMC
	All future plans (Agri-village, Housing Development, Wedding Venue etc.) must include feasibility studies that identify long term impacts on the Dam	To maintain good water quality at the Dam	Feasibility studies to be undertaken where necessary.	Mpofana Local Municipality DWS DMC
	Agreements should be put in place to ensure all abstraction points and pipelines etc. occur on servitudes	To ensure agricultural supply is not impacted by change of land ownership	Land matters to investigate servitudes	DWS
	A study on sustainable farming water use practices to be undertaken to determine the potential water saving practices. A farmer's water users forum should be instituted to ensure all commercial farmers relying on Craigieburn Dam for irrigation water implement water saving practices. In this way, conflict between domestic and agricultural use can be minimised	To ensure adequate water availability	Sustainable water use in farming study to be undertaken Farmers Forum to be established Sustainable water use practices to be implemented	DWS DMC Local Farmers DAFF
	Upgrade of old and leaky infrastructure to be undertaken to ensure maximisation of water availability	To minimise loss of water through leak	Infrastructure survey to be undertaken to identify all leaks Repairs and upgrades to be undertaken	DWS Mpofana LM
	An updated Water Demand and Availability study to be undertaken to determine the water availability for domestic and agricultural use	To determine availability and demand for agricultural and domestic water	Water Demand and Availability Study to be undertaken.	DWS

Objective	What	Why	How	Who
	The feasibility of constructing a small scale water purification plant near the Dam should be determined. This infrastructure is needed to ensure local community members can obtain clean domestic water from the Dam	To provide potable water to local community members around the Dam	Feasibility Study to be undertaken	DWS Mpofana LM
Management of Natural Environment	Currently Craigieburn Dam does not have any Invasive alien species. In order to maintain this status, it is suggested the Wash Bay System be implemented as part of any Public Private Process (PPP) for the management of recreation at the Dam	To prevent aquatic Invasive alien species at the Dam	PPP Process to include Wash Bay System Discussions with DEA and SAMSA to ensure Wash Bay is managed correctly	DWS DEA SAMSA
	Erosion Management System to be implemented at the inlets to the Dam	Decrease erosion at the inlets into the Dam	Investigation into erosion prevention measures Rehabilitation of inlets	DWS DMC
	Due to the proximity to Important Birding Areas (IBAs), certain areas should be maintained as 'no-go' areas to promote bird populations	To promote bird populations in the area	Zonal Plan takes into account 'conservation No Go Areas'	DWS DMC
	Discussions with Karkloof Nature Reserve, Blinkwater Nature Reserve and the KZN Crane Foundation should be undertaken and a bird list for Craigieburn Dam should be developed	To promote birding tourism and determine list of birds found at the Dam	Discussions with role players Bird Counts to be undertaken Bird Lists to be compile Information to be sent to the Avian Demography Unit to ensure that the bird life in the area is well known	DWS DMC

Objective	What	Why	How	Who
	A low impact Bird Hide should be developed and birding in the area promoted	To promote birding tourism	PPP process to include Bird Hide	DWS DMC
Management of fishing	The inlet of the Dam should be maintained as a No Go Zone to promote fish breeding	To promote fish populations in the Dam	Zonal Plan takes into account Conservation No Go Areas Patrols of Areas to ensure compliance.	DWS DMC
	A dedicated shore-angling area to be maintained	There is currently no formal areas for fishing although angling is popular at the Dam	Zonal Map takes into account areas for recreational use	DMC Anglers
	A formal fishing club to be opened	There is currently no formal angling club and therefore no control or management in place	Anglers to form association	DMC Anglers
	A system to check fishing licenses and fish removed from the dam should be implemented	There is currently no education programme regarding fishing in place	DEA and DWS to create educational pamphlets and boards to be erected at entrances and jetties	DMC DWS DEA
Formalised education and skills programmes	The Water-Ski School (and any new clubs) to be affiliated to National Clubs such as under South African Sports Confederation and Olympic Committee (SASCOC). In this way training and development as per SASCOC requirements can be instituted	National Sporting bodies have development targets which will ensure that both clubs are developing the community around the dam	Agreements between EKZNW and Clubs to have national affiliation requirement DMC to ensure that all clubs have become affiliated within a year	Recreational Clubs and Associations DMC EKZNW
	Feasibility of opening a Swimming School to be determined (as part of Telkom Splash Programme). This swimming school should target youth in the Informal settlement near the Dam	There is a need for swimming awareness and equitable use of dams	Feasibility study Swimming School; Coordination between DMC and Telkom Splash and SwimSA to determine availability of funds	DMC; SwimSA, Mpofana LM Telkom Splash SASCOC

Objective	What	Why	How	Who
	Education programmes to be implemented to educate local community about the uses and benefits of the Dam	Improve equitable access	Education programme to be developed	DMC
	Subsidized funding mechanisms should be implemented to allow local schools access to the Dam for Natural Science/Life Orientation learning	Improve equitable access	Funding mechanisms to be determined	DMC
	First Aid Training for Enforcement Officers and Wash Bay Officers	First Aid Training for Enforcement Officers will ensure enforcement officers are trained as first responders. It will also allow for skill development	First Aid Training Programme to be developed	DMC
Equitable access	Investigate the possibility of a differential traffic system that caters for regular users, the local community, schools, etc. The intention of the system is to ensure that the entrance fee does not discourage and/or limit people from using the Dam	To ensure access to the dam is equitable	Agreement obligations to include access for community members	DMC
	The DMC to develop material to market the benefits of the Dam	To increase community use of the dam	Education programme to be rolled out in schools and churches	DMC
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 DAEARD
	Non compliances should be reported	Illegal developments can have negative impacts on the dam	DMC should include DAEA representative and non-compliances should be reported	DMC
	Craigieburn Dam occurs in an agricultural important area and the main use of the Dam is irrigation. The development of a sustainable 'Agri-village' as part of the Craigieburn Housing Development should be supported and a stewardship programme with commercial farmers in the area developed. The 'Agri-Village' should use sustainable farming mechanisms to ensure the development does not impact negatively on the Dam	To promote sustainable agriculture in the area	Stewardship programme between commercial farmers and Craigieburn Agri-Village to be established	DMC Local Farmers Mpofana LM

Objective	What	Why	How	Who
	As part of the Midlands Meander, tours of Stud Farms in the area can be arranged. It is suggested that "sustainable agriculture/farming" tourism route be developed including these stud farms, the Agri-village and other commercial farmers. The tours can highlight sustainable agricultural practices and promote tourism in the area	To promote tourism and sustainable agriculture	Farming tours to be developed	DMC Local Farmers Midlands Meander Mpofana LM
Recreational use	Creation of functioning DMC including WESSA, KZN Crane Foundation, Nearby Nature Reserves and DAEA and all recreational bodies	To provide management capacity so that recreational use is possible	DMC to be established	DWS
	All new recreational/sporting clubs to be affiliated to National bodies	To ensure well managed recreational use	All sports/recreation clubs to be nationally affiliated All agreements should stipulate this	DWS
	Law Enforcement Control Officer/Safety Officer to be employed to ensure all boats and recreational users have relevant permits	To ensure safe use of the Dam	Safety Officer to be employed	DMC Management Body
	Events to be managed in terms of entry fees, control of the event and clean-ups after the event	To ensure safe event management	Event application form to be developed Event system to be implemented/	DWS DMC
	The feasibility of using the old Church and surrounding area as a wedding venue should be determined. A detailed Heritage assessment of the church would be required together with discussions with Amafa/Kwa-Zulu Natali	The church dates back to 1877 and could be used as part of a wedding venue	Heritage Assessment Feasibility Study of opening a wedding venue	DWS DMC Amafa-Kwazulu-Natali
	The Dam should be formally opened to the public for recreational use. A Public Private Partnership to manage, safety, access, recreational use, picnic and accommodation facilities would be required	To unlock economic potential	Through the RMP	DWS
	The Dam should formally join the Midlands Meander rout	To unlock economic potential of the area	Discussions with Midlands Meander	DMC Mpofana LM

5 WAY FORWARD

5.1 Compilation of Financial Plans

Based on the strategic objectives of each RMP, a suite of business plans will be developed. The business plan describes the financial management and operations required to implement an objective of the RMP. The Financial Plan will facilitate the implementation of listed and recommended activities in the RMP.

The business plans were approached in the following manner:

- *Identify Strategic Objective* – this was taken from the 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 the five-year RMP, each year a Business Plan will identify key objectives in line with a changing status quo and potential change in circumstances. After five years a new RMP will be developed to identify new objectives in line with the vision for the Dam.

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