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Department: Water Affairs and Forestry

MOOI-MGENI RIVER TRANSFER SCHEME PHASE 2: FEASIBILITY STUDY

Spring Grove Dam & Appurtenant Works EIA Review ENVIRONMENTAL IMPACT REPORT

2nd DRAFT REPORT

November 2008

Prepared by

BKS (Pty) Ltd

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Mooi-Mgeni River Transfer Scheme Phase 2:

Spring Grove Dam and Appurtenant Works – EIA Review

ENVIRONMENTAL IMPACT REPORT

November 2008

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Spring Grove Dam and Appurtenant Works – EIA Review

ENVIRONMENTAL IMPACT EPORT

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PREFACE

The Department of Water Affairs and Forestry (DWAF) and Umgeni Water (UW) carried out a number of studies over the past eight years to identify further sources from where water could be transferred to the Mgeni System. Several alternatives were considered, including transfer of water from the Mkomazi River. However, the most economically viable proved to be Mooi-Mgeni Transfer Scheme.

Phase 1 of the Mooi-Mgeni Transfer Scheme (MMTS-1) was completed in 2003. This scheme utilised the transfer infrastructure of the original emergency scheme and included the construction of a new Mearns Weir on the Mooi River and the raising of the Midmar Dam.

In 2000, the DWAF and UW jointly initiated the feasibility study of the second phase of the proposed Mooi-Mgeni Transfer Scheme (MMTS-2). This development is proposed to comprise a dam on the Mooi River at Spring Grove, about 8 km upstream of the Mearns Weir near the town of Rosetta in the KwaZulu-Natal Midlands (Figure 1.1). One of the components of the feasibility study was the Environmental Impact Assessment (EIA), the other component being the technical investigation. The purpose of the technical investigation was to establish the size, configuration, costs and economics of the proposed MMTS-2. The EIA has addressed the associated biophysical and social impacts arising from the proposed development and put forward recommendations for the mitigation thereof.

This Report read in conjunction with all bridging studies and supporting documents (A list of documents is provided in Section 5) aims to provide DEAT with enough background to enable them to make a decision.

MOOI-MGENI TRANSFER SCHEME PHASE 2

SPRING GROVE DAM AND APPURTENANT WORKS

DRAFT ENVIRONMENTAL IMPACT REPORT

LIST OF ABBREVIATIONS

Acronym	***Explanation***
amsl	above mean sea level
BIA	Bio-physical impact assessment
BID	Background Information Document
CGS	Council for Geoscience
CPF	Community Policing Forum
DAEA	Department of Agriculture and Environmental Affairs
DEAT	Department of Environment Affairs and Tourism
dia.	Diameter
DM	District Municipality
DME	Department of Minerals and Energy
DWAF	Department of Water Affairs and Forestry
ECA	Environment Conservation Act (Act 73 of 1989)
EFR	Estuarine Freshwater Requirement
EIA	Environmental impact assessment
EIR	Environmental Impact Report
EMP	Environmental Management Plan
ESR	Environmental Scoping Report
FSL	Full supply level
FSL	Full Supply Level
GIS	Geographical Information System
HDSA	Historically Disadvantaged South-Africans
HFL	High flood level (1:100 year flood level)
HFL	High Flood Level (1:100 year flood level)
I&AP(s)	Interested and Affected Party(ies)
IAIA	International Association for Impact Assessment
IAP	Interested and affected party
IEMA	Institute of Environmental Management and Assessment (United Kingdom)
km	kilometer
KZN	KwaZulu-Natal
LFL	Lowest foundation level
LM	Local municipality
m	Metre
m^3	cubic metre
MAE	Mean Annual Evaporation
MALE	Mean Annual Lake Evaporation

MAP	Mean Annual Precipitation
MAR	Mean Annual Runoff
MC	Mooi Catchment
METS	Mearns Emergency Transfer Scheme
MM	Metropolitan Municipality
mm	millimeter
MMC	Mitigation Monitoring Committee
MMTS	Mooi-Mgeni Transfer Scheme
MMTS-1	Phase-1 of the Mooi-Mgeni Transfer Scheme
MMTS-2	Phase-2 of the Mooi-Mgeni Transfer Scheme
MMTS-2A	Phase-2 of the Mooi-Mgeni Transfer Scheme (Spring Grove Dam and appurtenant works
MMTS-2B	Phase-2 of the Mooi-Mgeni Transfer Scheme (Spring Grove Transfer Scheme)
MOL	Mean operating level
MPRDA	Minerals and Petroleum Resources Development Act (Act 28 of 1998)
MRIB	Mooi River Irrigation Board
MWP	Mkomazi Water Project
n.t.s.	Not to scale
NEMA	National Environmental Management Act (Act 107 of 1998)
NOC	Non-Overspill Crest
NPSH	Net Positive Suction Head (technical term)
NS	Ninham Shand
NWA	National Water Act (Act 36 of 1998)
O&M	Operation and Maintenance
PMC	Project Management Committee
PoS	Plan of Study
PPP	Public Participation Process
PSP	Professional Service Provider
RBL	RiverBed Level
RCC	Roller Compacted Concrete
RMF	Regional Maximum Flood
RMP	Resource Management Plan
ROD	Record of Decision (from DEAT)
s	second
SAPS	South African Police Services
SEF	Safety Evaluation Flood
SGD	Spring Grove Dam
SGTS	Spring Grove Transfer Scheme (now MMTS)
SIA	Social Impact Assessment
SMME	Small, Medium and Micro Enterprises
StatsSA	Statistics South Africa
Sub	Sub-division (of a property)
T_c	Time of concentration
TCTA	Trans-Caledon Tunnel Authority
TIA	Traffic Impact Assessment
UMC	Upper Mooi Catchment
UW	Umgeni Water (name of water board)
VAT	Value added tax (14% at time of report writing)

VIA	Visual Impact Assessment
VRESAP	Vaal River Eastern Sub-systems Augmentation Pipeline
WCDM	Water Conservation and Demand Management
WFW	Working For Wetlands
WRPM	Water Resources Planning Model
WMA	Water management area
WRYM	Water Resource Yield Model
WTW	Water treatment works

LIST OF UNITS

Unit	*Explanation*
Length / distance	
mm	Millimetre
m	Metre
km	Kilometre
Area:	
ha	Hectare
km^2	Kilometre square
Level / altitude:	
masl.	Metres above sea level
Volume:	
l	Litre
million m^3	million cubic metres
Rate of water use / consumption / treatment / yield:	
l/cap/day	litre per capita per day
Ml/day	mega litre per day
million m^3/a	million cubic metres per annum
Flow velocity / speed:	
m/s	metre per second
Flow:	
m^3/s	cubic metre per second
Time:	
s	Second
min	Minute
hr	Hour
a	Annum (a year)
Cost of water / water tariff:	
c/m^3	cents per cubic metre (100 cents per Rand)
Energy consumption:	
GWh	giga watt hour
GWh/a	giga wat hour per annum

EXPLANATION OF TERMS

Concept	Description
	"*Biodiversity is the variability amongst living organisms and the ecological complexes in which these organisms occur. This diversity encompasses different levels of biological organisation, including genes, individual organisms, populations, species, communities and landscapes, and includes the ecological processes within and between these organisation levels*" (GDACE 2004). South Africa is a signatory to the United Nations Convention on Biological Diversity (1992) and, as such, needs to conserve biological diversity, promote the sustainable use of biological diversity, and ensure the fair and equitable sharing of benefits arising out of the utilisation of genetic resources. Principle 4(a) of the National Environmental Management Act (NEMA) (Act No 107 of 1998) states that disturbance to ecosystems and loss of biodiversity should be avoided, minimised and remedied.
Red Data species	To promote the conservation of biodiversity, species of concern have been identified by the World Conservation Organisation (IUCN) Red Data lists which they feel require protection. The World Conservation Organisation (IUCN) has three threatened categories, namely Critically Endangered, Endangered and Vulnerable. Species that have been evaluated according to the IUCN criteria and do not fall into one of the threatened categories can be classified as Least Concern, Near Threatened or Data Deficient (Minter et al. 2004; Hilton-Taylor 1996): **Extinct:** The species are presumed extinct when extensive surveys have failed to record an individual. Surveys should be in known and expected habitat, at appropriate times and throughout its historic range. **Extinct in the Wild:** Exhaustive surveys in known and expected habitat, at appropriate times and throughout its historic range have failed to record an individual. Populations occur well outside the past range, in cultivation or in captivity. **Critically Endangered:** Species facing an extremely high risk of extinction in the wild. **Endangered:** These taxa are in danger of extinction and are unlikely to survive if the current situation continues. **Vulnerable:** Vulnerable species are facing a high risk of extinction in the wild. Vulnerable species are taxa that are likely to move into the Endangered category in the near future, if the factors causing the decline continue to be present. **Near Threatened:** Species are classified as Near Threatened when they do not meet the criteria for the threatened categories, but are close to classifying as threatened or will likely classify as threatened in the near future. **Data Deficient:** A species is classified as a Data Deficient when there is a lack of appropriate data on the distribution and/or population status of the species. The species may be well studied, and the biology known, but data on the abundance and/or distribution are not available. The category indicates that more data is required and that there is a possibility that the species may be classified into one of the threat categories in the future. **Least Concern:** Species that are widespread and abundant are normally included in this category. To promote the conservation of biodiversity, species of concern have been identified by the World Conservation Organisation (IUCN) Red Data lists which they feel require protection. The KZN Nature Conservation Act (No 29 of 1992) has identified species requiring protection within the provinces boundary. Red Data plant species information was obtained from SANBI and other publications.

Concept	Description
Ecological Sensitivity Map	A sensitivity map was compiled, using GIS, which depicts the various sensitive areas on site. The sensitivity was based on the plant communities and its species composition, as well as providing possible habitat for Red Listed Fauna and Flora species. The plant communities were assigned a priority category based on their conservation status, species diversity, Red List species status and extent of transformation / degradation. The conservation importance categories are: • **High**: This category contains areas classified as natural wetlands (riverine, drainage lines etc), rocky outcrops, indigenous bush clumps and little impacted pristine grassland areas. These communities have a limited alien species invasion and Red List species occur. These areas must be conserved and not developed. • **Medium:** These are communities that are moderately transformed / disturbed with both alien invasive species and a large proportion of indigenous species. These are areas that require mitigation measures should development occur within these areas. • **Low:** These areas consist of alien plantations, agricultural areas and previously disturbed areas that have a large percentage of alien species invasion. The possibility of Red Data species occurring within these areas is highly unlikely. These areas have little conservation value and could be considered for development with correct management measures.

MOOI-MGENI TRANSFER SCHEME PHASE 2

ENVIRONMENTAL IMPACT REPORT

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1. INTRODUCTION

The Mgeni System supplies water to approximately 5 million people as well as the industrial sector within the Durban and Pietermaritzburg regions, the economic hubs of the KwaZulu-Natal (KZN) Province. The Mgeni Catchment is fully developed and further water resource development within the catchment will not increase the firm yield.

During a period of severe drought in 1983, the Mearns Emergency Transfer Scheme (METS) was implemented to augment the depleting water supply of the Mgeni System by transferring available water from the Mooi River. The METS consisted of the following:

- 3 m high weir and pump station at Mearns, just downstream of the confluence of the Mooi and Little Mooi rivers,
- 13.3 km long 1 400 mm diameter rising main to a break pressure tank situated at Gowrie in Nottingham Road; and
- 8.3 km long, 900 mm diameter gravity main to an outfall structure on the Mpofana River.

From the outfall on the Mpofana River the water flows via the Mpofana, Lions and Mgeni rivers to Midmar Dam. The METS has a maximum transfer capacity of 3.2 m^3/s.

The Department of Water Affairs and Forestry (DWAF) conducted various investigations since 1996 to establish from where to augment the Mgeni System, as there is no further scope for dam development within the Mgeni Catchment. These investigations included the proposed development of schemes to transfer water from the Mkomazi and Mooi rivers to the Mgeni System. Such schemes would need to be constructed in stages in order to keep both capital costs and the associated increase of the water tariff (which affects the end-user) to a minimum.

Feasibility investigations into the development of Phase-2 of the Mooi-Mgeni Transfer Scheme (MMTS-2) started in 2000. The growth in water demand of the Mgeni System has been so extensive since 2003 that it is now necessary to implement the MMTS-2. The MMTS-2 comprises the construction of a large dam (i.e. Spring Grove Dam) on the Mooi River upstream of the existing Mearns Weir and approximately 2 km southwest of Roseeta in the KZN midlands, a fish barrier weir on the river upstream of the dam, a new pumping station at the proposed dam wall that would transfer water alon a new pipeline (including a breakwater pressure tank, measuring weirs and outfall works at Mpofana) to the Mpofana

River in the Mgeni Catchment.

Although the dam and its appurtenant works have been extensively investigated from both technical and environmental perspectives (refer to all supporting documents undertaken prior to 2004 and bridging studies between 2004 and 2006 (as listed in Section 5 of this report), the pump station and transfer pipeline have not been investigated to the same level as explained later in **Section 2.3.4**. However, this Environmental Impact Report (EIR), undertaken in terms of the Enviornment Conservation Act, 1989 (Act No. 73 of 1989) will bring the pumping station and transfer pipeline to the same level of investigation as that for the dam.

From the discharge point on the Mpofana River the water will follow the same path as the water from the existing METS down this river into the Lions River and finally into the Mgeni River just upstream of Midmar Dam where the transferred water will finally be stored. The Locality Map (Figure 1.1) illustrates the alternatives investigated during the feasibility study for MMTS-2.

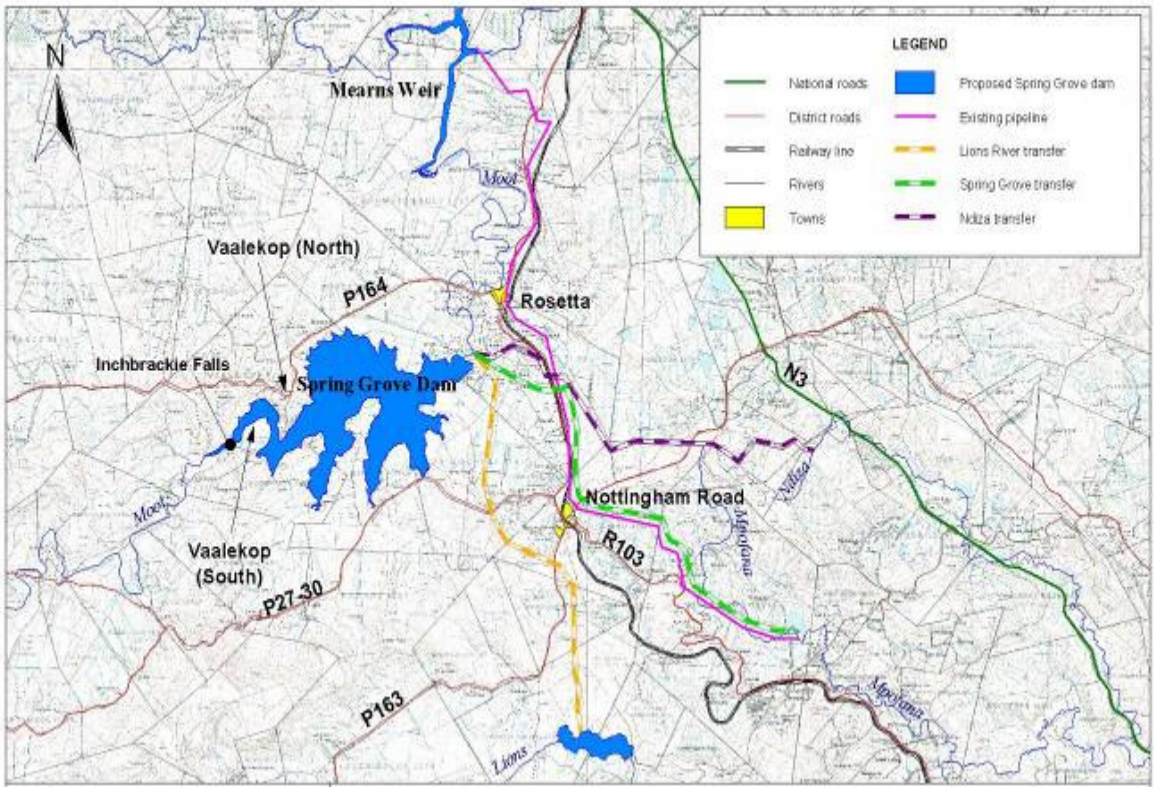

Figure 1.1: Locality Map

Once constructed, Spring Grove Dam would increase the yield of the Mgeni System from the current 334 million m^3/a by 60 million m^3/a to 394 million m^3/a. The growth in water use within

the Mgeni System has been so extensive over the last few years and even with Water Conservation and Demand Management (WCDM) in place the system is already severely stressed. Further augmentation is already required even if MMTS-2 is constructed.

The DWAF is planning to develop Phase-1 of the Mkomazi Water Project (MWP-1) once the water of the MMTS-2 is fully utilized. The MWP-1 would comprise the construction of a large dam (Smithfield Dam) on the Mkomazi River near Lundy's Hill from where water would be pumped via a 33km long tunnel to a balancing dam at Baynesfield where the raw water would be treated in a new water treatment works (WTW) to be constructed by Umgeni Water (UW).

From the Baynesfield WTW potable water would be transferred along a 22 km long twin pipeline to a new reservoir at Umlaas Road from where water would be fed into the Mgeni System bulk water supply network. Phase-2 of the MWP (MWP-2) would comprise the construction of another large dam (Impendle Dam) higher up on the Mkomazi River near Impendle. The MWP has only been investigated at a pre-feasibility level. The DWAF is currently planning to commission a feasibility investigation into the project. The feasibility investigation would, *inter alia*, include an environmental impact assessment. Such a feasibility investigation is not the subject of this Environmental Impact Report for MMTS-2.

2. BACKGROUND

2.1 The Mgeni System

The Mgeni Catchment is the main water source for the eThekweni Metropolitan Municipality (MM) and Umgungundlovu District Municipality (DM) specifically Msunduzi Local Municipality (LM). The Mgeni River has been fully developed with the construction of four major dams, viz. Nagle (1950), Midmar (1965), Albert Falls (1976) and Inanda (1988). With the exception of the Nagle Dam, which is owned by Umgeni Water (UW), all the other dams are owned by the state. However, UW operates all these dams on an agency basis on behalf of the DWAF. The Mgeni System is illustrated in **Figure 2.1** below.

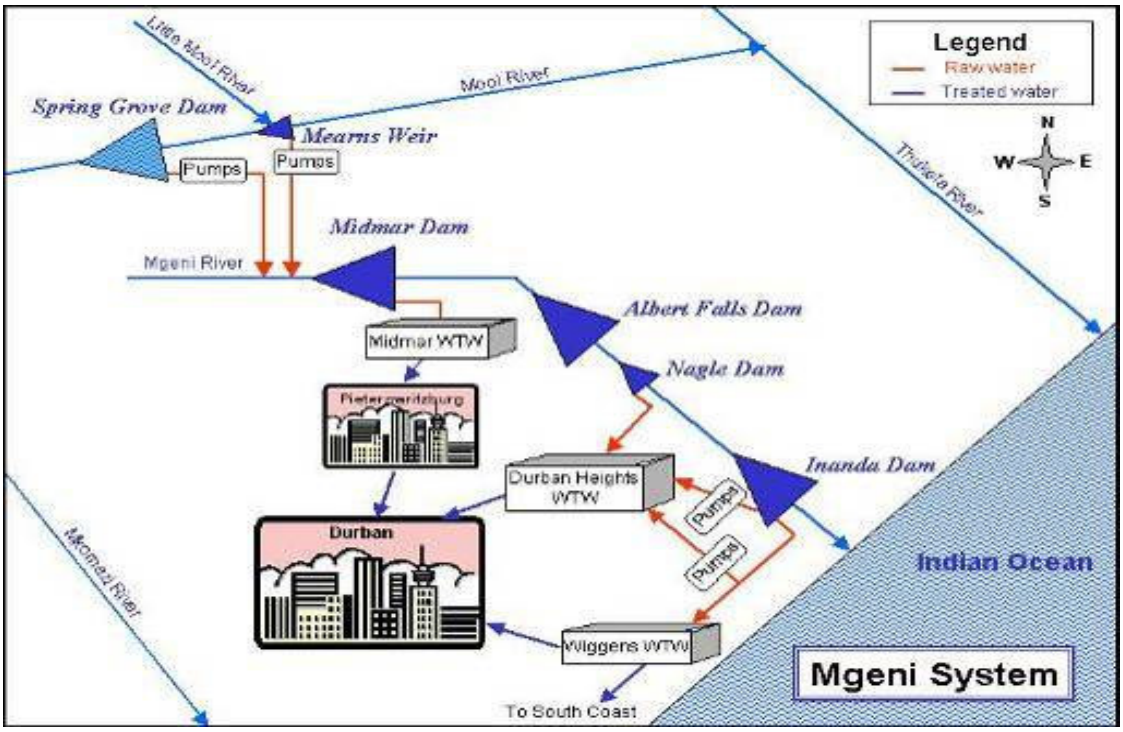

Figure 2.1: Schematic presentation of the Mgeni System

Raw water from these dams is abstracted by UW who purifies it and then supplies it in bulk to the above mentioned municipalities within the supply area.

2.2 The Mearns Emergency Transfer Scheme

In 1983, during a period of a severe drought, the Mearns Emergency Transfer Scheme (METS) was constructed over a 4-month crash programme by DWAF to augment the depleting water supply of the Mgeni System. The METS transfered available water from the Mooi River to Midmar Dam. At this time, before Inanda Dam was constructed, Midmar Dam nearly ran dry and there was a good chance that it would leave the region's population without water if the drought persisted. The emergency scheme was operated for a short period until the drought broke and was then moth-balled. UW re-commissioned the METS for a short period, again during a drought cycle in 1993. The layout of the existing Mearns and proposed Spring Grove transfer schemes is shown in **Figure 2.2** below.

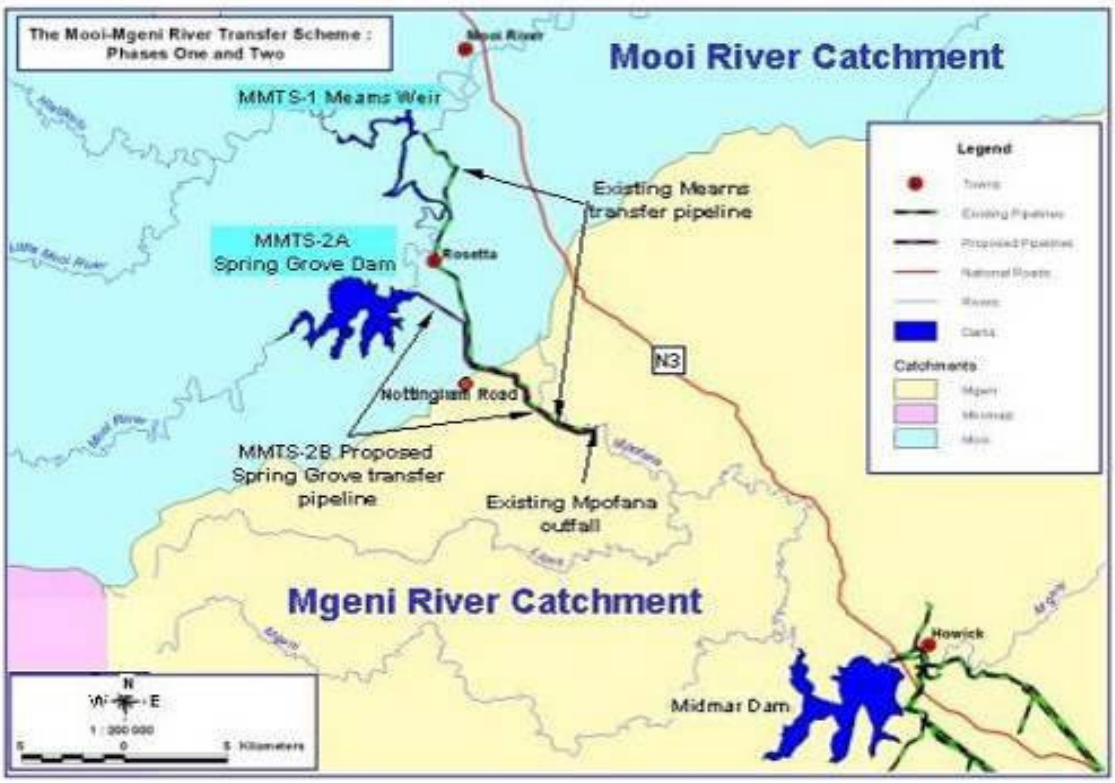

Figure 2.2: Layout of the existing Mearns and proposed Spring Grove transfer schemes

2.3 Planning investigations

Since 1983, various schemes to augment the Mgeni System have been investigated by the DWAF in collaboration with UW, who has also made financial contributions towards these investigations. The purpose of these investigations was to ensure that the objectives of integrated water resource planning would result in optimum scheme configurations that would keep the overall costs of water in the supply area as low as possible. Integrated water resource planning implies that consideration is given to infrastructure development requirements downstream of the water resource, not only to minimise the overall cost of water to the end-user, but also to establish sound operating rules that would enhance the assurance of the water supply.

With the construction of Inanda Dam in 1988 the Mgeni Catchment became fully developed and future augmentation of the Mgeni System would have to be acquired through transfers from other catchments.

A number of rivers in the area were considered for augmentation of the Mgeni System. However, all of these rivers, with the exception of the Mooi and Mkomazi, are small and unsuitable. As a consequence comprehensive Mkomazi-Mgeni and Mooi-Mgeni Transfer Scheme Pre-feasibility studies were completed by DWAF in collaboration with UW in 1999. The aim of the study was to identify the best scheme to develop on each of the two rivers and to recommend which one should be implemented first.

The schemes that were proposed are (described in more detail in the paragraphs that follow):

- Mkomazi-Mgeni Transfer Scheme; and
- Mooi-Mgeni Transfer Scheme:
    - Phase-1 of the Mooi-Mgeni Transfer Scheme (MMTS-1); and
    - Phase-1 of the Mooi-Mgeni Transfer Scheme (MMTS-2).

2.3.1 Mkomazi-Mgeni Transfer Scheme

This alternative was studied in the Mkomazi-Mgeni Transfer Scheme Pre-feasibility Study, Report No. PB U100-00-0499, February 1999. It proposed that the augmentation be done in two phases. The first phase would consist of a 60 m high Smithfield Dam on the Mkomazi River near Richmond from where water would be pumped into a 36 km long tunnel which would discharge into a new WTW at Baynesfield in the Mlazi River valley. Purified water from

the Baynesfield WTW would be conveyed by a gravity pipeline to a distribution reservoir at Umlaas Road from where it could be further distributed under gravity to Durban and surroundings.

The second phase would comprise of a 100 m high Impendle Dam further upstream on the Mkomazi River. The phase 2 scheme would require an upgraded treatment plant rather than a new one, as this would have been built during phase 1. This alternative, however, would be vastly more expensive (over R4 billion) than the MMTS-2 alternative estimated at R409 million in June 2005 prices. Eskom showed a keen interest in the development of the Impendle Dam for its potential to support a pumped-storage scheme, which they investigated concurrently with the DWAF pre-feasibility study. At the time Eskom considered this pumped-storage scheme, as potentially one of the best in the country, after a scheme on the Steelpoort River. Unfortunately, the pumped-storage scheme had to be put on hold until the need to construct the Impendle Dam would arise. At the time it seemed as though the dam would only be required by 2014, or later, depending on how successful the eThekwini MM would be with their WCDM initiative.

In subsequent years, the priority of the Impendle Scheme has changed and is now much lower on Eskom's priority list. At the same time the so-called Table Mountain Scheme near Nagle Dam, was also identified by Eskom as a potential pumped-storage scheme. This scheme was, however, abandoned due to social problems that were encountered, which could not be resolved.

2.3.2 Mooi-Mgeni Transfer Scheme

This alternative was studied in the Mooi-Mgeni Transfer Scheme Pre-feasibility Study, Report No. PB V200-00-2899, May 1999. This study proposed the construction of the Spring Grove Dam on the Mooi River as a second phase to a scheme proposed in 1996, comprising a high dam at Mearns from where water would be transferred via the 11 km long Wellington Tunnel to the Mpofana River. From the Mpofana River outfall the water would run down the Mpofana, Lions and Mgeni rivers to be stored in Midmar Dam. In this configuration, water would be released from Spring Grove Dam down the Mooi River to the Mearns Dam from where it would be transferred under gravity via the Wellington Tunnel to the Mpofana River. Besides water being abstracted from Midmar Dam for treatment at the existing Midmar Water Treatment Works that serve Howick, Pietermaritzburg and environs, raw water would also be

released down the Mgeni River to augment the water supplies at Nagle and Inanda dams, supplying the eThekwini MM and utilising existing treatment and distribution infrastructure.

a) Phase-1 of the Mooi-Mgeni Transfer Scheme (MMTS-1) Feasibility Study

During the time of the Mooi-Mgeni Transfer Scheme Pre-feasibility Study it was established that the Mpofana River had certain environmental constraints that limited transfer flows to 4.5 m^3/s, which was much less than the 10 m^3/s capacity of the proposed Wellington Tunnel. This had serious consequences for the proposed Phase-1 of the Mooi-Mgeni Transfer Scheme (MMTS-1), Wellington Tunnel and large Mearns Dam, which necessitated a review of the proposed scheme. At the same time it was established that the existing METS (with a transfer capacity of 3.2 m^3/s) was still in good condition with a potential 25 years service life ahead of it.

A review of the MMTS-1 feasibility study indicated that the same yield could be obtained with a new and smaller scheme configuration than with the previously proposed large Mearns Dam and Wellington Tunnel, and at a much reduced cost. The new scheme utilised the infrastructure of the old METS, namely the pipeline and the pump station. New components consisted of an 8 m high diversion weir on the Mooi River at Mearns, installation of a stand-by pump in the existing pumping station, which was initially not installed even though it was designed for, and the raising of the Midmar Dam by 3.5 m to provide storage for the transferred water. Additionally, servitudes of aqueduct were registered on the receiving Mpofana, Lions and Mgeni rivers.

The construction of the MMTS-1 was authorised by the Minister of Water Affairs and Forestry and by the Minister of Environment Affairs and Tourism in 1999 and was completed in 2003.

b) Phase-2 of the Mooi-Mgeni Transfer Scheme (MMTS-2) Feasibility Study

In 1997, the eThekweni MM embarked on an intensive WCDM programme, which by 2000 was thought to reduce the demand from the Mgeni System by 10% below the MMTS-1 system yield and keep it at that reduced level for 10 years. If successful, the second phase of the MMTS (MMTS-2) would not have been needed until about 2018. Nevertheless, DWAF together with UW took a precautionary step to commission the MMTS-2 feasibility study in 2000 if for some reason the reduction in demand could not be fully accomplished and maintained by the eThekwini MM (DWAF, 2001).

The feasibility study recommended that the MMTS-2 be developed in two stages in order to both delay capital expenditure and to minimize an impact on the Mgeni System water tariff. The recommendation was that, as the first stage, only Spring Grove Dam (MMTS-2A) should be constructed. During this stage water will be released from Spring Grove Dam down the Mooi River into the impoundment of the Mearns Weir (MMTS-1) from where it will be abstracted and transferred, using the spare capacity of the existing transfer infrastructure, into the Mgeni Catchment to augment the supply of Midmar Dam. MMTS-1 has spare pumping capacity because it utilises the river flow without any significant storage. The Mearns Weir has storage capacity for only one week of pumping, which means that whenever the river flow is less than the pumping capacity and the compensation releases, which is most of the time, it is not fully utilised. The Mearns Weir is situated just downstream of the confluence of the Little Mooi and Mooi rivers. It was anticipated that the Spring Grove Dam (MMTS-2A), based on the demand projections of the time (2003), would be able to supply in the needs of the Mgeni System until about 2025.

As a second stage (MMTS-2B) it was recommended that a new pump station be constructed at Spring Grove Dam from where the bulk of the transfer from the Mooi to the Mgeni River would take place. The MMTS-2B would include the construction of a new transfer pipeline from Spring Grove Dam through an area of smallholdings to the existing Mearns pipeline and running parallel to it within the existing 25 m wide servitude of aqueduct, to the discharge point in the Mpofana River. During this stage water from the Mooi River will be transferred from Spring Grove Dam via the MMTS-2B pipeline (and pumped against a much lower head than that from the Mearns Weir) while water from the Little Mooi River will be transferred from Mearns Weir utilizing the existing MMTS-1 transfer pipeline. Pumping costs from Spring Grove Dam would therefore be considerably less than from Mearns Weir. Since it was anticipated that the second phase would only be required by 2025, there was no need to investigate this phase to the same level as that of the dam. Consequently the technical investigation for the MMTS-2B was therefore limited to a pre-feasibility level of investigation and the environmental work limited to a scoping level of investigation.

The findings of the MMTS-2A feasibility study, which were based on historical hydrological records and on an assumption that the irrigators downstream of the dam would buy into the scheme, were that the MMTS-2 would significantly increase the yield of the Mgeni System. These results still had to be confirmed by stochastic yield analyses with a model that included the Mooi Catchment. This work has subsequently been completed and the results are reported in **Section 3.3** of this report and included as **Appendix C** of this report.

2.4 Study recommendations

The studies recommended that the proposed scheme transferring water from the Mooi River should be developed first and once it is fully utilised, the more expensive Mkomazi Transfer Scheme should follow. The reason for this was that the least expensive scheme would normally have the least detrimental impact on the water tariff when demands are still relatively low and is therefore in the interest of the end users. The more expensive scheme follows once the demand and user base has significantly grown to minimise tariff impacts through greater water sales.

3. MGENI SYSTEM WATER USE

3.1 Mgeni System users

The Mgeni System's water is predominantly used by the urban and industrial sectors within the Mgeni Catchment and only a limited amount is used for irrigation and rural communities.

3.1.1 Irrigation

A moratorium has been in place since 1998 limiting further irrigation development within the Mgeni Catchment. As a result, it is anticipated that the water use of this sector will not grow in future. The moratorium was implemented to prevent irrigation development creating serious impacts on water supply to the urban and industrial sectors in a catchment that is already stressed and with no potential for further conventional water resource development. The irrigation water use within the Mgeni Catchment amounts to 58 million m^3/a, and is not supported by transfers from the Mooi River.

3.1.2 Urban and Industrial Sectors

The actual 2006 water use for the Mgeni System amounted to approximately 364 million m^3/a, which is supported by transfers from the Mooi River, whenever required / possible. The latter does not include treated sewage effluent that is recycled by eThekwini Water and used by industry, for such water does not contribute to the system demand. The Durban Recycling Plant at the Mlazi Wastewater Treatment Works (WwTW) has a capacity of about 14.5 million m^3/a, which is currently fully utilised.

In 2005, approximately 4.95 million people received water from the Mgeni System and it is currently estimated that by about 2025 this figure would have increased to 5.57 million people. **Table 3.1** below shows how the 2005 population is distributed within the supply area.

Table 3.1: Total 2005 population being supplied by the Mgeni System (source: DWAF, 2006)

MUNICIPAL AREA-	AREA-	TOTAL POPULATION (MILLION PEOPLE)
eThekwini MM	Durban and surrounding areas	3 276 191
Msunduzi LM	Pietermaritzburg	566 239
uMgungungdlovu DM (excl Msunduzi LM)	Total area excluding Pietermaritzburg	393 868
Ugu DM	Middle South Coast (Scottburgh to Hibberdene)	720 880
TOTAL		**4 957 178**

Approximately 7.3 million m^3/a of water can be supplied from the Durban Heights Water Treatment Works (WTW) to the Verulam area north of Durban. Supply problems are currently experienced with the pipeline from the WTW due to high water draw-offs in the intermediate area. This has resulted in the situation where the Verulam area is primarily supplied from the Hazelmere WTW on the Hazelmere System, and is only augmented on occasion from the Mgeni System. This arrangement is likely to remain in place permanently.

Apart from water use within the Mgeni System, water is also to be exported to the Middle South Coast (Scottburgh to Hibberdene). The water resources of the Middle South Coast are unreliable and severe shortages are being experienced in the area during times of drought. To alleviate the problem in the Middle South Coast, UW is currently constructing a 40 km long bulk potable water pipeline at an estimated cost of R200 million (January 2006 prices) that will supply the Amanzimtoti to Park Rynie area with treated water from the Wiggins WTW in Durban, which obtains its raw water from the Mgeni System. This is a temporary measure to augment a part of the Middle South Coast from the Mgeni System as it has been established that the yields of the EJ Smith and Umzinto dams were much lower than previously believed. This explained why these dams were not capable of providing the Middle South Coast area with water at a high assurance of supply during dry periods and why it was often necessary to implement severe water use restrictions in the area. It was also found that there would be no benefit of raising these dams as there is not sufficient run-off from the catchments to increase the yields of these dams. As a result these resources are only capable of supplying part of the supply area at a reasonable assurance of supply. The remainder of the area must be augmented with water from other resources.

The new UW pipeline has been designed for reverse flow with the intention of abstracting from the future Mkomazi Water Project (MWP-1). Once this situation is achieved the Mkomazi would be providing not only water to the Middle South Coast (Scottburgh to Hibberdene) in the south but also to the southern coastal areas of Durban in the north (reverse flow). In this manner a certain load will then be removed from Mgeni System.

Furthermore, an off-channel storage dam is currently being investigated on the Mzimkhulu River to augment the water supplies of Port Shepstone (Lower South Coast). Once the proposed dam is completed, Port Shepstone (Lower South Coast) will have sufficient water supplies for several years and will be able to supply the Middle South Coast from Port Shepstone northwards to Hibberdene through the existing pipeline. Current planning also considers the future upgrading of the Port Shepstone-Hibberdene pipeline in order to remove the current capacity constraints of the existing pipeline. Once the upgraded pipeline in place, it would be possible to supply more water from Port Shepstone to Hibberdene.

Additionally, Umgeni Water is currently considering extending their pipeline from Park Rynie to Hibberdene to link it with the system from Port Shepstone. Such a pipeline would make it possible to supply the Middle South Coast (Scottburgh to Hibberdene) from both the south and north, thereby improving the assurance of supply of the Middle South Coast area. This means that in trying times there would be two possible sources of water that could supply the area. The new Umgeni Water pipeline will not only serve the Middle South Coast, but also certain areas of the southern part of Durban. It should be made clear that it is not the intention to transfer Mgeni System water to Port Shepstone.

The UW pipeline is intended to initially supply only 14 million m^3/a to the area, and it is anticipated that the supply would increase with the second phase of the pipeline extending to Hibberdene to about 22 million m^3/a (60 Ml/day) in 2035.

3.1.3 Rural communities

Various rural communities within the Mgeni Catchment are also being supplied from the Mgeni System. This is accomplished by the system's municipalities who purchase treated water from UW, the bulk water supplier for the Mgeni system.

The dam basin of the proposed Spring Grove Dam, as well as the adjacent area surrounding the basin, consists of farmland, except for one formal smallholding settlement at Vaalekop.

The MMTS-2 will increase the yield of the Mgeni System, thereby allowing additional rural communities to be reached through the extension of Umgeni Water's existing Mgeni System bulk water supply infrastructure. This will be achieved by linking the bulk water supply systems to the reticulation systems of the municipalities. Examples of this are the Umbumbulu, Richmond and Wartburg extension pipelines. In addition, this increased yield will allow for the municipalities to increase the level of service to those communities already connected to the Mgeni bulk supply infrastructure.

It is understood that UW is currently investigating a new bulk supply scheme as part of the KZN Strategy that will utilise water from the MMTS-2 to supply water to the town of Mooi River (including its peri-urban areas) as well as to the rural communities in a portion of the Msinga area close to Tugela Ferry (see Mooi-Mgeni Transfer Scheme Pre-feasibility Study, Report No. PB V200-00-2899, May 1999).

3.2 Stochastic Hydrology

A study was done to determine the "Stochastic Hydrology and Determination of Yield and Transfer Capacity of the Mooi-Mgeni Transfer Scheme (MMTS)" and to compile "Operating Rules of the Mooi and Mgeni Systems with the MMTS in Place". This Bridging Study (No. 5) formed part of the Mooi-Mgeni River Transfer Scheme Phase 2: Feasibility Study (DWAF, 2001) and was submitted by WRP Consulting Engineers (Pty) Ltd and DMM Development Consultants CC in 2006. The objectives of the study were to:

- Re-calculate the yield of both the MMTS-2A and MMTS-2B based on the stochastic hydrology of the whole Mooi Catchment;
- Integrate the Scheme into the Mgeni System and calculate the system yield which will be available to the users with firstly MMTS-2A and secondly MMTS-2B in place; and
- Assess the benefit of the development of the two proposed Mooi River Irrigation Board (MRIB) dams on the Little Mooi and Hlatikulu rivers.

The following conclusions were made regarding the assessment of water requirements and return flows in the Mooi River and Mgeni River catchments:

- The irrigation requirements, streamflow reductions due to commercial afforestation and the extent of farm dam development in the Mooi Catchment are much greater than assumed previously, all of which have resulted in a reduction in the estimated yield of the Mgeni System; and

- The water requirements, streamflow reductions and farm dam development were not reassessed in the Mgeni Catchment. However, it is likely that a similar trend to that found in the Mooi Catchment may be observed.

The following conclusions can be made from the yield analyses using the Water Resource Yield Model (WRYM):

- The historical firm yield and 1:100 year stochastic yield are lower than those assessed in previous studies;
- The pumping capacity of the existing Mearns pumping station is a constraint on the full utilisation of Spring Grove Dam.
- The abstraction capacity from Inanda Dam may limit the Mgeni system yield;
- The impact that over-development of irrigation along the Mooi River has on the yield of the Mgeni System is some 5 million m^3/a, which would provide additional water to service the growth in water requirements expected in the Mgeni System over a period of almost two years;
- There is negligible impact on the transferable yield from the MMTS-2B should Spring Grove Dam be operated to make releases for the requirements of a downstream Instream Flow Requirements (IFR);
- There is no benefit in terms of additional long-term yield from the Mgeni System if the MMTS-2 was operated based on the water level in Albert Falls Dam;
- The impact that the possible reconciliation scenario (outlined in **Section 4.2 of Bridging Study No. 5**) has on the Mgeni System yield is some 10 million m^3/a, which would provide additional water to service the growth in water requirements expected in the Mgeni system over a period of more than three years; and
- The configuration of the WRYM network, particularly in the Mooi Catchment, is of much greater complexity than that originally used for the naturalisation and calibration of the hydrology. It is ideal that these networks be similar.

The following conclusions were made from the phasing analyses using the Water Resources Planning Model (WRPM):

- The priority classification (i.e. user groups and restriction levels) applied in this assignment was used in the MMTS-2 Feasibility Study (DWAF, 2001). Comparison of this priority classification with those from other studies is that restriction levels are fairly high leading to a significant amount of water being supplied at relatively high assurance levels;

- The planning analyses revealed that there are high risks of curtailments to the water supply in the short-term, so much so that the priority classification conditions will be violated almost immediately. In addition, there is an urgent need for augmentation, which should be put in place by 2009 at the earliest;
- The possible interventions put in place in the upper Mooi Catchment to reconcile the requirements of the IFRs with the current water use will not reduce the risks of curtailments or the need for augmentation;
- There is a significant difference in the timing of augmentation alternatives should Spring Grove Dam start full. This is approximately a 1.2 MAR dam so this is unlikely the case; and;
- In all cases, augmentation of the Mgeni System by the MMTS-2 will bring some relief, however, further augmentation, such as the Mkomazi-Mgeni Transfer Scheme, will still be required.

In Bridging Study No 5, the following conclusions were made from the assessment of the proposed MRIB dam on the Little Mooi River:

- No firm yield is attainable for the members of the MRIB without the proposed dam, for any of the scenarios analysed.
- It is clear that the dam will be of significant benefit to the downstream irrigators and that the larger the dam the greater the benefit. However, even if a dam is built, some reductions of water use will still be necessary, if supplied at assurance levels of 75% and higher. This situation can be attributed directly to the imminent implementation of environmental water requirements in the catchment, as well as the fact that the current water use causes the resource to be overextended;
- It is clear that there is no real benefit in building a dam with a live storage capacity of less than 10 million m^3 (see **Table 6-8 in Section 6.3.4 of Bridging Study No. 5**).
- A dam with a storage capacity of 15 million m^3 or more would result in lower reductions in the current use:
    - At the 75% assurance of supply, only a 23% reduction is required; and
    - At the 90% assurance of supply, only a 29% reduction is required.
- The most beneficial scenario for the MRIB is that full reconciliation takes place in the catchment (see **Section 6.3.1 of Bridging Study No. 5**). However, the assumed reconciliation scenarios are still theoretical and exact details will only become available once the process of compulsory licensing is implemented in the catchment; and

- The MRIB members along the Mooi River upstream of the confluence with the Little Mooi River do not benefit from the proposed Spring Grove Dam.

3.3 Water Demand

Water demand projections are updated annually. In this manner the Mkomazi-Mgeni and Mooi-Mgeni Transfer Pre-feasibility Study of 1998 utilised demand projections that were updated in 1997. However, when it was decided to implement the MMTS-1 in 1998, the eThekwini MM objected to the 1997 demand projection as being too high. The reason was that eThekwini MM, the main water user of the Mgeni System (83%), had embarked on an intensive WCDM initiative, which was anticipated to drastically reduce water use in future. These initiatives included plans to erect plants at Mlazi and Phoenix to recycle treated sewage effluent for industrial and domestic use.

Since WCDM was, and still is, strongly promoted by the DWAF, the Department developed a new demand projection in 2000 based on the reduction in demand forecasted by eThekwini MM. This projection predicted that eThekwini MM would reduce their water use as at 1999 within one year to a level 10% lower than the system yield, with the MMTS-1 included, where after water use would remain constant for about 10 years before further growth would take place. Despite such low demands being projected, analyses utilising the Water Resources Planning Model (WRPM), indicated that the system's assurance of supply would remain at risk unless the MMTS-1 was implemented. Consequently, these analyses and demand projections formed the basis for the decision to implement the MMTS-1.

Since this was the first time that water demand projections included the potential reduction in water use through WCDM measures, DWAF, together with UW, took a precautionary step by closely monitoring actual use and comparing it against projected use in the years that followed.

As a result of the monitoring programme it was possible to also update water demand projections on an annual basis. Based on eThekwini MM's insistence that further reductions in demand were still achievable through their ongoing WCDM measures, their predicted reductions were incorporated into the annually updated demand projections. The quantum of the predicted reductions in water demand reduced each year as actual use demonstrated that these reductions were not achievable. In 2005, it was acknowledged that potential reductions will only have the effect of suppressing a rising demand for the region rather than reducing it.

Sustained strong economic growth in the region is the principle driver for this strong growth in water demand. The results of this annual updating of water demand projections are indicated in **Figure 3.1.**

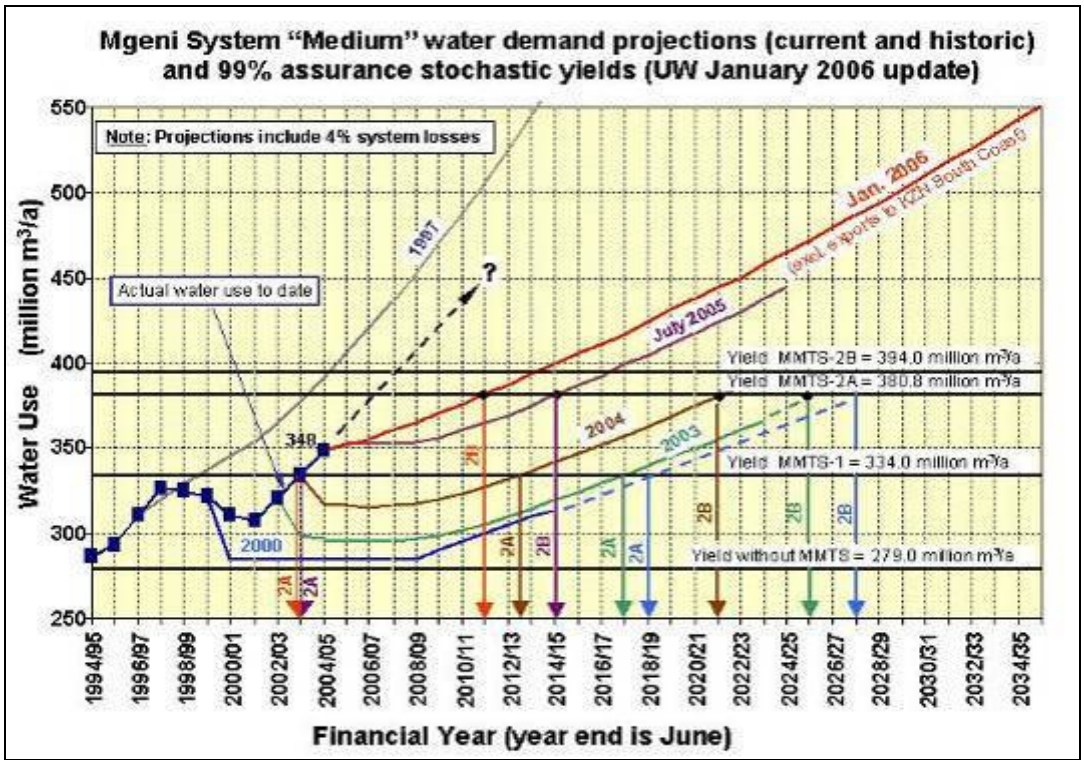

Figure 3.1: Current and historical water demand projections

4. LEGAL COMPLIANCE

The completion of an EIR for this project is required in terms of section 22 (3) of the Environment Conservation Act, 1989 (Act No. 73 of 1989) (ECA).

In order to finalise the application, the EIR has been undertaken in compliance with the EIA Regulations published in Government Notices R1182, R1183 and R1184 of 5 September 1997 in terms of Sections 21, 22 and 26 of the ECA as well as the principles of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA). The EIA process from the ECA regulations is being followed in this project because the application had already been submitted in January 2004 (prior to the promulgation of the NEMA EIA Regulations on 21 April 2006 and entry into force on 1 July 2006).

4.1 Consultation with Environmental Authorities

4.1.1 Consultation with KZN DAEA

Discussions with KZN Department of Agriculture and Environmental Affairs (DAEA) resulted in an agreement that the application which was submitted in January 2004 to the DAEA, would remain in place for a period of 5 years. Should the project proceed within the 5 year period, the existing EIR would be used but updated where necessary (social impacts, etc) based on new data. It was also agreed at a meeting held on 15 December 2005 (see correspondence in **Annexure A**) and confirmed during a pre-consultation meeting with the Department of Environmental Affairs and Tourism (DEAT) on 16 February 2007 that the relevant authority for this project would be DEAT and not KZN DAEA, as the applicant is a national government department, i.e. DWAF. A copy of the Plan of Study for EIA has also been forwarded to the KZN DAEA for their record.

4.1.2 Consultation with DEAT

At a meeting with DEAT, DWAF and BKS (i.e. the independent environmental consultants) on 16 February 2007, the following procedural process was agreed to in order to be compliant with the ECA EIA Regulations (R1182, R1183 and R1184):

(a) Request that KZN DAEA compile a letter referring the project to national DEAT in terms of section 4(3)(c) of the EIA Regulations R1183, on the basis that the applicant is a national government department. On 7 March 2007, confirmation was received from DEAT that KZN DAEA has referred the project (reference number 12/12/20/220/1).

(b) Application has been made to DEAT for an exemption from complying with the EIA Regulations R1183 in terms of Section 28 of the ECA for the submission of a scoping report.

(c) Application to DEAT for the amendment of the existing application to ensure that all relevant listed activities are included in the application form.

(d) Submission to DEAT of a letter that the independent environmental consultant (i.e. BKS) accepts the contents of the reports compiled by other consultants and the findings there from.

(e) Submission to DEAT of a Plan of Study for EIA (POS for EIA) which included the historical background, the proposed upgrading of previous reports (including the public participation process) and the proposed programme.

(f) During the EIA process, submission to DEAT of a letter from the DME confirming that DWAF has been exempted from complying with section 106 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) (MPRDA). However, an EMP has been compiled for this project (see **Annexure H**) and submitted in support of application for a prospecting right or mining permit in terms of Section 39 and Regulation 52 of the MPRDA.

(g) The documents referred to in points (b) to (e) above have been submitted to DEAT simultaneously.

The minutes of this meeting were attached as Appendix 4 to the POS for EIA, which is attached to this EIR as **Annexure A.**

4.1.3 Amendment of Application Form

It was agreed at the meeting held on 16 February 2007 that the existing application form be amended to include the following listed activities in terms of Regulation 1182:

Listed Activity 1. *The construction, erection or upgrading of-*

(a) facilities for commercial electricity generation with an output of at least 10 megawatts and infrastructure for bulk supply;

(c) with regard to any substance which is dangerous or hazardous and is controlled by national legislation (ii) manufacturing, storage, handling, treatment or processing facilities for any such substance;

(d) roads, railways, airfields and associated structures;

(i) canals and channels, including structures causing disturbances to the flow of water in a river bed, and water transfer schemes between water catchments and impoundments;

(j) dams, levees and weirs affecting the flow of a river;

(l) reservoirs for public water supply;

(m) schemes for the abstraction or utilisation of ground or surface water for bulk supply purposes;

(o) sewerage treatment plants and associated infrastructure;

Listed Activity 2. *The change of land use from-*

(c) agricultural or zoned undetermined use or an equivalent zoning to any other land use;

Listed Activity 10. *The cultivation or any other use of virgin ground.*

4.1.4 Application for Exemption from Compliance with EIA Regulations

An application was made to DEAT for an exemption from complying with the EIA Regulations R1183 in terms of Section 28(A) of the Environment Conservation Act (Act 73 of 1989) for the submission of a scoping report. This was done on the basis that:

- an application form was submitted to KZN DAEA, which was subsequently referred to DEAT,
- an EIA was conducted in the past,
- a public participation process had taken place and
- various specialist studies had been undertaken.

The reports previously undertaken were attached to the application for exemption.

4.1.5 Involvement of DEAT in EIA Process

For this project, DEAT was contacted during the following stages:

- before the commencement of the project to clarify their requirements (16 February 2007);
- the application for exemption from the Scoping Process (23 February 2007);
- the submission of the Plan of Study for EIA (12 March 2007);
- Transfer of Application from KZN DAEA to DEAT on 7 March 2007; and
- Approval of Amendment in Application, Exemption from Scoping Report, and PoS for EIA on 3 April 2007.

DEAT will also be contacted during the following stages:

- on submission of the Final EIR and EMP; and
- the issuing of the ROD.

The 1st draft EIR was made available for public review and comment for a period of 30 days. After this period the EIR was updated to cover the comments received during the review period. The updated draft EIR will again become available for public review for a period of 21 consecutive days. The final EIR will then be submitted to DEAT for the department to make a decision on the project. If DEAT accepts the contents of the EIR then DEAT will issue a record of decision (ROD) for the project. The ROD then has to be advertised for public comment on the conditions set by the ROD, which will refer back to the final EIR and the conditions described in the environmental management plan (EMP). The commenting period is 30 days. If any, appeals can then be lodged against the project. An appeal to the Minister under section 35 (3) of the ECA, must be done in writing within 30 days from the date on which the ROD was issued to the applicant in terms of regulation 10(1). An appeal must set out all the facts as well as the grounds of appeal, and must be accompanied by all relevant documents or copies of them that are certified as true by a commissioner of oaths. The Minister of DEAT shall, after considering all relevant facts and supportive documents:

- Uphold the original decision; or
- Uphold the original decision with modifications; or
- Reverse the original decision. In circumstances where the original decision is not upheld, a revised record of decision should be issued.

5. EIA REVIEW APPROACH

BKS has reviewed and analysed the available specialist and supporting reports that were performed as part of the Environmental Scoping Report (ESR) (up to January 2004), as well as the bridging reports undertaken (between January 2004 and October 2006). The purpose of this review was to identify possible constraints and impacts that could have been overlooked, classify the subsequent steps to be followed in assembling the required information for the EIA process and identify potential changes to the identified mitigation measures.

The following reports have been reviewed and analysed:

- Geological Survey: Feasibility Level Investigation for the Proposed Spring Grove Dam (Council for Geoscience (CGS), 1999 - **Report No 1999-0051**);
- MMTS: Spring Grove Dam Site: Feasibility Level Construction Materials Investigation (CGS, 1999. **Report No 1999-0052**);
- An Assessment of the Seismic Hazard Potential for the Site of the Mearns and Spring Grove Dams (CGS, 1999. **Report No 1999-0026**);
- Fish Barrier Weir: Mooi River: First Engineering Geological Feasibility Report (CGS, 2003. **Report No 2003-0212**);
- MMTS-1: Receiving Streams EIA (Nov 2000);
- MMTS-1: Receiving Streams EMP (May 2002);
- Main Report for MMTS-2 (Jan 2004);
- Water Resources Analysis (Supporting Report 1, Jan 2004);
- Dam Design (Supporting Report 2, Jan 2004);
- Transfer Infrastructure (Supporting Report 3, Jan 2004);
- Environmental Impact Assessment (Supporting Report 4, Oct 2002);
- Water Quality Assessment (Supporting Report 5, Jan 2004);
- Costing and Engineering Economy (Supporting Report 6, Jan 2004);
- Biophysical Impact Assessment (Supporting Report 7, Oct 2002);
- Social Impact Assessment (Supporting Report 8, Oct 2002);
- Conceptual Management Plan (Supporting Report 9, Oct 2002);
- Record of Public Participation (Supporting Report 10, Oct 2002);
- Identification of Water Falls Close to Inchbrakie Falls (DWAF Internal Report, Oct 2002);
- Technical Feasibility of Building a Fish Barrier (DWAF Internal Report, Dec 2003);
- Impact of submerging Inchbrakie Falls Plants (Bridging Study 1, May 2004);

- Provision of a Fish Barrier (Bridging Study 2, Jan 2005);
- Identification of wetlands for rehabilitation (Bridging Study 3, Mar 2004);
- Historical and Cultural Sites and Graves (Bridging Study 4, Nov 2004);
- Stochastic Hydrology, Yield Determination and Operating Rules with the MMTS-2 in place (Bridging Study 5, Oct 2006);
- Investigation of the Presence of Smallmouth Bass Upstream of Spring Grove Dam (Bridging Study 6, Aug 2005);
- Environmental Impact Assessment for the proposed Fish Barrier on the Mooi River Upstream of Spring Grove Dam (Bridging Study 7, May 2006); and
- The Economic Viability Of The Mmts-2 As A First Option To Augment The Water Supplies Of The Mgeni System (Bridging Study 8, Jan 2008)

6. THE PROJECT TEAM

BKS (Pty) Ltd have been appointed by DWAF as an independent environmental consultant to undertake the work required to update and submit the EIR for the MMTS-2. Peter Teurlings, a registered professional natural scientist, is leading the Project Team.

BKS have sub-contracted the following specialist companies:

- Cymbian Enviro-Social Consultants - Paula Tolksdorff and Warren Kok (Public Participation Process);
- Dr Kay Brügge - (Social Impact Assessment);
- eThembeni Cultural Heritage - Beth Wahl (Heritage Impact Assessment);
- Exigent Environmental cc - Ina Venter, Jacolette Adam, Mieke Barry, Ansie Swanepoel (Ecological Impact Assessment);
- Afrosearch - Dr David de Waal (Facilitation);
- Green Gain Consulting - Advocate Nicolai Massyn (Legal); and
- Skylab Designs - Taryn Haley (Website).

In addition, the following specialists employed by BKS are part of the EIA Technical Project Team:

- Estelle van Niekerk (Water Resources Analysis and Hydrology);
- Mike Howard (Water Quality);
- Danie Badenhorst (Dam Design);
- Khotso Moletsane (Geotechnical);
- Gerna Clifford (Cost and Engineering Economy and Transfer Infrastructure).

7. CONTACT DETAILS OF APPLICANT AND CONSULTANT

The applicant is:

the **Department of Water Affairs and Forestry**

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PRETORIA

0001

Represented by: Mr. JJ (Johann) Geringer

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The environmental consultant is:

BKS (Pty) Ltd

P O Box 3173 PRETORIA 0001

Represented by: Mr PMFG (Peter) Teurlings, MSc, Pr Sci Nat,

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Fax: (012) 421 3501

Cell: (083) 253 8322

E-mail: petert@bks.co.za

8. STAKEHOLDER ENGAGEMENT

The following interested and affected parties were consulted:

- Relevant Authorities at various tiers of government;
- Relevant Resident Associations;
- Landowners in the area;
- The proponent; and
- The public at large.

The Stakeholder Engagement Process is designed to illicit a joint effort by stakeholders to produce better decisions than if they had acted independently.

The following activities were utilised to achieve the aforementioned objective:

- Advertisments were placed in Zulu in the Echo and in English in the Estcourt News, the Midlands News, the Mirror, the Natal Witness and the Mercury to:
    - Announce the Project, including an invitation to register as a stakeholder;
    - Invite stakeholders to:
        - 1st Public meeting; and
        - 2nd Public meeting.
    - Announce the availability of the draft EIR.
- Placement of poster advertisements and site notices at various points frequented by the public in the towns of Rosetta and Nottingham Road.
- Distribution of Background Information Documents (BID) to registered stakeholders.
- Uploading information on the project website (www.mmts2.co.za) for public review.
- Ongoing consultation with the stakeholders and authorities via meetings, telephonic discussions and written communication.
- Minutes of the 2nd Public Meeting for The EIA Phase
- Minutes of the Pipeline Focus Group Meeting held on the 4th of June 2007
- Compilation of an Issues and Responses Register.
- Announcement and availability of the Draft EIR for review on 25 August 2008
- Compilation of Issues Register
- Individual review of 2nd Draft EIR and Issues Register on 28 November 2008.

9. REPORT PURPOSE AND FORMAT

The purpose of this draft Environmental Impact Report (EIR) is to present the findings of a series of reports from various specialist investigations, that address the issues and concerns identified by Interested and Affected Parties (I&APs). The Draft EIR assesses all the previously identified impacts and mitigation measures, as well as newly identified impacts and mitigation measures according to the methodology given in the POS for EIA. The EIR thus synthesises the environmental and technical work previously undertaken with the work proposed in the POS for EIA. This report forms the last stage in the application process before the Authority makes a decision.

The EIR contains information in the following format:

VOLUME 1:

- **Section 1: Introduction**
- **Section 2: Background**
- **Section 3: Mgeni System Water Use**
- **Section 4: Legal Compliance**
- **Section 5: EIA Review Approach**
- **Section 6: The Project Team**
- **Section 7: Contact Details of Applicant and Consultant**
- **Section 8: Stakeholder Engagment**
- **Section 9: Report Purpose and Format**
- **Section 10: The Proposed Project Components**
- **Section 11: Indentification of Alternatives**
- **Section 12: The Affected Environment**
- **Section 13: Review of Previous Studies**
- **Section 14: The Environmental Impact Assessment Process**
- **Section 15: The Public Participation Process**
- **Section 16: Background to New Specialist Studies**
- **Section 17: New Specialist Studies Relevant to the Proposed Dam Basin;**
- **Section 18: New Specialist Studies Relevant to the Proposed Fish Barrier Weir;**
- **Section 19: New Specialist Studies Relevant to the Proposed Pipeline;**

- **Section 20: New Specialist Studies Relevant to the Proposed Quarry Site;**
- **Section 21: Assessment of the Significance Impacts**
- **Section 22: Mining Permit**
- **Section 23: Conclusions and Recommendations**
- **References**
- **Annexures**
    - Annexure A: Authority Correspondence
    - Annexure B: Ecological Study
    - Annexure C: Stochastic Hydrology

VOLUME 2:

- Annexure D: SIA
- Annexure E: HIA
- Annexure F: PPP
- Annexure G: EMP
- Annexure H: Mining Permit
- Annexure I: Economic Study
- Annexure J: Purchase Line
- Annexure K: Locality Map

The EIR was made available in the following formats:

- Hardcopy format, containing all relevant specialist studies and design drawings;
- an executive summary report for the general public;
- Interactive electronic report on CD.

In line with the EIA guidelines, all I&APs were afforded the opportunity to verify if all issues that were raised have been recorded in this EIR as well as in the Issues and Responses Register (Annexure F, Appendix 16).

This report was placed in the Public Domain for a 30 day comment period after which the comments were compiled into a separate Issues and Response Register (Annexure F, Appendix 20) and amendments to the report made. The 2nd draft EIR was then made available to those I&APs that commented on the 1st draft EIR to confirm the inclusion of their comments before being submitted to DEAT.

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