water affairs
Department:
Water Affairs
REPUBLIC OF SOUTH AFRICA

Directorate: National Water Resource Planning

Minutes of the Strategy Steering Committeefor the Implementation and Maintenance of the Reconciliation Strategy for the KwaZulu-Natal Coastal Metropolitan Area Water Supply System

Meeting 4

Wednesday, 14 March 2012, Durban Jewish Club

		Notes / Actions
1.	**WELCOME AND INTRODUCTION OF MEMBERS** Mr Peter van Niekerk (Department of Water Affairs – DWA) chaired the meeting and welcomed everyone to the fourth meeting of the Strategy Steering Committee (SSC) for the KwaZulu-Natal Coastal Metropolitan Area Water Supply System.	
2.	**ATTENDANCE AND APOLOGIES** A round of introduction was held. An attendance register can be found at the back of the minutes. The following apologies were received: Mr Kurt Fortuin, DWA Dr BeasonMwaka, DWA Prof SiphoShabalala, Office of the Premier Mr Andy Blackmore, Ezemvelo KZN Wildlife Mr Maxwell Pawandiwa, Ugu DM Mr Johan van der Walt, Ugu DM Mr Frank Stevens, eThekwini Metro Prof Chris Buckley, University of KwaZulu-Natal Dr Andre van Niekerk, Golder Associates Africa.	
3.	**ACCEPTANCE OF AGENDA** The draft agenda, which was circulated to all invitees prior to the meeting, was accepted with minorchanges.	
4. **4.1**	**MINUTES AND MATTERS ARISING FROM MEETING 3 (27 September 2011)** The minutes were as accepted as a true reflection of meeting 3 held on 27 September 2011 after two changes were made: Ms Anne Bindoff (SAPPI) was added to the list of apologies; and Point vi) on page three was changed to read "Mr Steve Gilham said the scenarios must split the Mgeni System into Upper and Lower sections, or else the results will be too simplistic if the Mgeni River is studied as a whole".	

4.2 The following matters arising from the previous minutes were discussed, because they were not covered in the agenda:

4.2 a) Ms KhumbuzileMoyo (DWA) reported that final additions are being made to the SABS Standards Bylaws and it should be published for comment during April 2012.

4.2 c)Mr Niel van Wyk (Study leader - DWA) reported that the Terms of Reference will be prepared for an Ecosystems Services Assessment by Mr Christo Marais (Department of Environmental Affairs) at a cost of R1.3 million. The DWA's Directorate: Information Management is also undertaking a study that relates to this subject. A decision as to who will manage this study must still be taken.

Ms Pat Luckin (Department Cooperative Governance and Traditional Affairs) suggested that Dr Deborah Roberts (eThekwini) can contribute to this study, due to her experience on this subject.

6.1.3) Mr Kevin Meier (Umgeni Water) said the North Coast Pipeline is almost finished but construction of the pump station has not yet been started, because the owner of the property cannot be traced. Expropriation is the only option and Umgeni Water needs the assistance of the DWA in this regard.

Ms Angela Masefield (DWA - KZN) said a submission on this matter has been sent to the DWA's legal section in Pretoria a while ago. She will discuss this matter further with Mr Van Wyk outside this meeting. **Ms Masefield Mr Van Wyk**

6.2.2 ii) Mr Paul Herbst (DWA) reported there are two main issues here. The first is that National Treasury treats water conservation / water demand management (WC/WDM) as a serious issue. A letter was sent to all municipal managers and financial officers instructing them to make provision for WC/WDM in their municipal budgets.

The second issue is a resolution that was taken at a SALGA workshop late last year to earmark 1% of all municipal budgets for WC/WDM. SALGA is busy writing a positioning paper on this 1%. It is small, but at least it is a start in the right direction. SALGA is taking this very seriously

Mr Speedy Moodliar (eThekwini Metro) said he is really concerned if only 1% will be used for WC/WDM.

Mr Simon ScrutoneThekwini Metro) agrees and said the specific elements of this budget must be defined and questioned whether this 1% includes daily operational activities.

Mr Bryan Ashe (Geosphere) asked what can be done so that municipalities use all funding they have received from Government.

Mr Herbst said this is still a serious problem and unspent funds to the value of billions of rands are still returned annually to National Treasury.

5. STATUS AND RECAP SINCE THE LAST SSC MEETING

5.1 Water balance update and supply situation

Mr Niel van Wyk, DWA presented the updated water balance and highlighted that the biggest concern since the last meeting is the proposed raising of the Hazelmere Dam which will now be far more expensive and take longer to implement than originally expected due to geotechnical issues.

The priority infrastructure projects for the study area are:

- Spring Grove Dam and transfer system;
- Raising of Hazelmere Dam; and
- North Coast Pipeline.

The priority feasibility studies for this area are:

- The Mkomazi River Transfer Scheme;
- Lower Thukela Bulk Water Supply Scheme;
- Re-use of treated effluent; and

- Desalination of sea water.

Water use efficiency will be further increased through Water Conservation and Water Demand Management (WC/WDM) measures.

5.2 Mgeni System: Effect of load shift

Mr Pieter van Rooyen (Study Team)presented the water requirement projectionsand provided the results of a load shift analysis that was added to the Mgeni System scenarios. The purpose of load shift is to reduce the pumping cost of water. The particular load shift scenario (Scenario 3) causes an imbalance between Upper and Lower Mgeni System and unacceptable uncontrolled failures occurs with both Midmar and Spring Grove dams depleted for Scenario 3 at >95% exceedance probability.

He recommended that Scenario 3 be redone with revised assumptions. Load shift scenarios must also be determined that will achieve balanced restrictions of Upper and Lower Mgeni Systems and prevent uncontrolled failures in the Upper Mgeni System.The WRPM analysis period should be extended up to the year 2040 and the annual balance diagrams must be supplemented with risk analysis using the WRPM.

Discussion

a) Mr Van Wyk said in the long term the Smithfield Dam will feed into the Mgeni System at the Umlaas Road Junction.

b) Mr Johan van Rooyen (DWA) said the risk of water restrictions in the scenarios is higher than what is acceptable.

c) Mr Johan van Rooyen said we cannot afford to lose water out of the Mgeni System, because we do not want to pump the water due to the expense. Another problem is that we are adding treated effluent to the System where it is not needed.

d) Mr Van Wyk said there is currently enough water in the Mgeni System, but if we take out too much in the Upper Mgeni as Scenario 3 suggests, then we will have a problem. This has to be balanced out by pumping water (load shifting) from the Lower Mgeni to the Upper Mgeni.

e) Mr Johan van Rooyen said it should be investigated if we can continue to pump water from the Inanda Dam and stay with Scenario 1.

f) Mr Moodliar said Mr Pieter Van Rooyen has shown us where all the water in the System is. It is now up to Umgeni Water and eThekwini to distribute surplus water to where it is needed in the System. Options of how to move the surplus water from the Lower to the Upper Mgeni must be investigated.

g) Mr Ashe asked if the water that is being re-used from the Darvill Waste Water Treatment Works (WWTW) can be used somewhere instead of just being released into the Msunduzi River. Mr Meier said this is being investigated by Umgeni Water.

h) Mr Pieter van Rooyen said small load shift can be done in Scenario 2 to move water from the Midmar Dam, but it can only be a small increase.

6. REVISED NORTH COAST SCENARIOS

6.1 Alternate water supply options for the North Coast: Plan B option for augmentation

Mr Trevor Coleman (Study Team) provided an assessment of water supply options for the North Coast (Plan B for Hazelmere Dam raising). This assessment became necessary due to the stability problems related to the raising of the Hazelmere Dam wall. These geotechnical problems will also cause an increase in the capital cost from R160 to R370 million and add an extra year to the construction phase.

These Hazelmere Dam costs and time frames are now comparable to other augmentation options and at the Technical Task Group meeting on 7 February 2012 it was decided to review the reconciliation options for the Mdloti and Mvoti Systems.

The objective of the assessment is to identify schemes that can be used. The available schemes are:

- Raising of Hazelmere Dam – Detailed design;
- Mvoti River Development (Isithundu Dam) – Feasibility study – 2000;
- Phase 1 and 2 of Lower Thukela BWSS – Detailed design – 2011/12 – Umgeni Water;
- Seawater desalination – planning level/pre-feasibility; and
- Re-use treated sewage effluent – Feasibility study – 2010.

The conclusions of the assessment are:

- Lower Thukela BWSS has lowest unit reference value (URV);
- URV for desalinisation, re-use and Hazelmere Dam raising are similar;
- Different levels of confidence in cost information;
- Lower Thukela BWSS Phase 2 suggested; and
- Supply needs optimisation – Hazelmere Dam raising, Isithundu Dam phasing, desalinisation, re-use.

Discussion

a) Mr Moodliar said no extra water will be available until 2015. What do the municipalities tell developers and other the municipalities who want to develop?

b) Mr Meier said the WWTW at Hazelmere Dam will still be developed even if the dam wall is not raised which will provide additional water to the System from 2013. Umgeni Water has started spending millions of rand on infrastructure to support the raising of the dam wall. If this project does not proceed, Umgeni Water will waste the money spent on unnecessary pipes and pump stations that will be totally under-utilised.

c) Mr Coleman said Phase 1 or 2 of the Lower Thukela BWSS will be operational from 2014.

d) Mr Johan van Rooyen said the questions must be asked, do we go ahead with raising the Hazelmere Dam or not? This project should not be delayed to after Phase 1 and 2 of the Thukela BWSS.

e) He said the raising of the dam wall is still less expensive than desalinisation.

f) Mr Johan van Rooyen said no developments will be stopped. It is just that the risk of water shortages will be higher.

g) Mr Ashe said water saving principles should be enforced for all new residential and industrial developments. Even properties in upper calls neighbourhoods should have water conservation devices and solar heating must be installed in all low-cost housing developments as well.

h) Ms Bindoff said she is concerned about the availability of sufficient water for the Reserve once all the developments are completed on the Thukela.

i) Mr Bill Pfaff (eThekwini Metro) said the Phoenix WWTW will release less water into the System than expected due to a slower growth of the residential properties in the area.

j) Mr Van Wyk said no clear decision has been reached regarding the Hazelmere Dam raising. There are still a number of issues to be sorted out, but all of us understand the problems far better than before.

7. UPDATE ON PROGRESS OF THE IMPLEMENTATION OF THE RECONCILIATION STRATEGY

7.1 Spring Grove Dam and Hazelmere Dam

Mr Tony Moore (DWA) gave an update on the construction of the 42 m high Spring Grove Dam and related infrastructure which should be operational early in 2015.

Regarding the Hazelmere Dam raising, Mr Moore said investigations indicate two viable ways of improving the stability of dam wall; anchor cables through the wall into foundation rock or mass

concrete on the downstream face of the dam wall.

Two types of crest gates are being considered; radial gates installed in the existing seven openings or vertical sliding gates in 14 reduced openings.The above options still need to be optimised. **The budget cost estimate of the various options for raising (including civil works for stability, crest gates, VAT, contingencies and escalation are:**

- Original feasibility cost: R162.3 million;
- Anchor cable option: R370.0 million;
- Mass concrete option: R547.0 million; and
- Anchors and concrete: R475.0 million.

Mr Moore said instability due to the geotechnical flaws will only become a possibility in cases of extreme flooding.

Discussion

Mr Meier said community complaints regarding the noise levels of the Spring Grove Dam construction were upheld and the construction tempo has been increased.

7.2 North Coast Pipeline

Mr Meier presented progress made with the construction of the North Coast pipeline. His presentation included the following progress update:

Honolulu to Mvotibalancing reservoir pipeline

- Pipeline contract was completed in October 2010;
- The construction of the pipe bridge is approximately 85% complete; and
- The construction of the booster pump station can only start once the land issue is resolved.

Hazelmere raw water pipeline

- Construction tender is being evaluated.

Hazelmere WTP upgrade

- Construction tender has been advertised.

Hazelmere to Bifurcation pipeline andpump station

- Environmental Authorisation obtained; and
- Contractor appointed to construct the pipeline. Pipe has been ordered.

The way forward includes:

Honolulu to MvotiBalancing Reservoir Pipeline

- Construction of the pipe bridge is practically complete; and
- Resolve land issues and completepump station as soon as possible.

Hazelmere supply infrastructure

- Complete the upgrade of the raw water pipeline from dam to waterworks (2013);
- Upgrade Hazelmere WTP to 75Ml/day (December 2013); and
- Upgrade Hazelmere to Bifurcation pipeline and pump station (December 2012).

7.3 Lower Thukela Bulk Water Supply Scheme

Mr Meier presented progress made with the Lower Thukela Bulk Water Supply Scheme. His presentation included the following progress update:

- Environmental Impact Assessment (EIA) report submitted to the authorities in January 2012

and made available for public comment;

- Design split up into a number of contracts ;
- Design of gravity pipeline completed in March 2012;
- Design of other components on going; and
- Design of the WTW is 80% complete.

The way forward:

- Environmental Authorisation expected in July 2012;
- Need to obtain all necessary DWA licences and approvals before construction and abstractions can commence. Submission will be made in March 2012;
- Construction of the gravity pipeline to start in August 2012;
- Design of all components approximately 35% complete;
- Weir must be constructed over at least two dry seasons; and
- Target deadlines for final completion:
    - Gravity Pipeline (Mvoti Reservoir to Darnall) – November 2013
    - Phase 1 - December 2014.

Discussion

Ms Bindoff said SAPPI has raised objections during the EIA process.

Mr Meier said Umgeni Water is addressing all the concerns raised by SAPPI regarding water availability and quality. This development is upstream from SAPPI who also need water of a specific quality and quantity. One of the SAPPI concerns is silt that could affect water quality. Umgeni Water is liaising with SAPPI.

7.4 Climate Change

Mr Mark Summerton (Umgeni Water) gave a presentation on identifying the potential impact of climate change on water security. Climate change deals with complex inter-related natural systems and scenario planning is key to managing uncertainty. Thus far, 26 possible scenarios have been developed for this study area. The potential exists that climate change could have a large impact on future infrastructure spending when the rainfall increases or decreases in this study area,

Discussion

a) Mr Johan van Rooyen said a similar study has been done in the Western Cape. These studies can contribute to improve water resources planning.

b) Ms Luckin asked if it is possible to say which of the 26 models are the most likely to occur. Mr Summerton said it is not possible at this stage and much more research will be needed before this can be achieved.

7.5 Water Conservation and Water Demand Management

7.5.1 eThekwini Metro

Mr Simon Scruton, eThekwini Metro presented an overview of their WC/WDM activities with pressure reduction the most important mechanism to reduce water use. A legislative change is required to improve water conservation, because the United Kingdom is moving towards pressure standards of around 25m, while South African legislation requires us to keep pressure at 52m. A huge investment will also be needed to install the relevant equipment to reduce pressure. Current thought is that fire engines need strong pressure to fight fires, but all it will take is installing the relevant equipment on fire engines and then low pressure can be as successful in fighting fires.

Social change can also reduce water losses by a third if a municipality can win over the trust of

its citizens and convince them of the advantages of WC/WDM. The problem is, however, that everybody is ignoring this due to the perceived difficulty of convincing communities to take ownership of WC/WDM.Municipalities also have too little funding to achieve WC/WDM targets.

Discussion

a) Mr Michael Singh (DWA) commented that losses are also due to inferior/cheap material being used when houses are built. Mr Ashe agreed and said combined with poor workmanship this a major obstacle to WC/WDM.

b) Mr Van Niekerk said the 30% reduction that social change can bring about is vital to the country. We need a discussion paper on this at a national event such as WISA to take this topic further. **DWA**

c) Mr Ashe said this problem will not go away and can only be improved by education.

d) Mr Paul Herbst (DWA) said the issue of lowering pressure at national level will be taken further. **Mr Paul Herbst**

7.5.2 iLembe Municipality, Ugu District Municipality and Msunduzi Municipality

Mr Mark Shepherd, from Joat Consulting presented an update on WC/WDM in the Ugu District Municipality, iLembe Local Municipalityand MsunduziLocal Municipality. A summary of his report is:

Ugu DM

- Improved non revenue water (NRW) by volume from 70,2% (Feb 2010) to 34,0% (Feb 2012);
- Current system input volumes (SIV) reduced to levels last seen in Feb 2010;
- Further 4-5 Ml/day reduction in demand to be achieved by end June 2012; and
- Student mentorship program extremely successful.

iLembe LM

- NRW by volume remaining relatively constant;
- SIV trends showing steady decrease;
- Focus on system stabilisation; and
- Further 2-3 Ml/day reduction in demand to be achieved by end June 2012.

Msunduzi LM

- NRW by volume remaining relatively constant;
- SIV trends showing steady decrease;
- Due to delays in funding and contractual arrangements, impact has been delayed; and
- Targeted 5-7 Ml/day reduction in demand to be achieved by end June 2012.

Discussion

a) Ms Masefield said the uMgungundlovu District Municipality must also be invited. This municipality has been invited to this meeting and all other meetings of this study. **DWA?**

7.6 Mgeni System: Desalination Plant

Mr Meier presented the progress made with the investigation into possible seawater desalination plants. His presentation highlighted the following:

- Professional Service Provider appointed to undertake a feasibility study (January 2012);
- Site visits were held at both sites to confirm suitability of the sites ;

- Southern site seems feasible;
- Northern site may have environmental impacts and these are to be discussed with an environmental expert;
- An alternative northern site will be confirmed in March 2012; and
- Water quality monitoring equipment and buoys have been ordered.

The way forward for desalinisation:

- Initial geotechnical studies to be undertaken in April 2012 to confirm site suitability;
- Tender for and EIA – April 2012;
- Appointment of EIA Practitioner to undertake the EIA – June 2012; and
- Planned completion for the feasibility study – June 2013.

7.7 Mkomazi River Transfer Scheme and Mvoti River Development Projects (Including the Lower Mkomazi Scheme)

Mr Kobus Bester (DWA) presented progress made with these two feasibility studies.

Mkomazi River Transfer Scheme:

- The Mkomazi Water Project Phase 1: Technical Feasibility Study commenced on1 December 2011 and BKS was appointed as the Professional Service provider for the study;
- First site visit took place 6 December 2011; and
- The Inception Report has been reviewed and will be signed off in March 2012.

Mvoti Water Project:

- The feasibility studies will start in 2012 and will take 3 years to complete.

7.8 Utilisation of Treated Effluent

Mr Bill Pfaff, eThekwini Metro presented progress made on the feasibility study to utilisetreated sewage effluent. The eThekwini Metro initiated a study in 2009 to assess the techno-economic feasibility of treated effluent reclamation and re-use as the basis for water supply augmentation.Ultimate future development through 2031 has focused plans on the north of the city.The proposed wastewater reclamation scheme therefore involves the collection of treated sewage effluent from the north of Durban at the KwaMashu and Northern Waste Water Treatment Plants (WWTPs) and treats it to potable standard. Various water re-use technologies are being investigated.

Mr Rob Hounsome (Golder Associates Africa) presented the public participation process that has been followed thus far in announcing water re-use to the public. Only five responses have been received, even after it was advertised in more than half a dozen newspapers and sites notices were put up around the proposed sites of the WWTPs. He and Mr Pfaff will be meeting The Mercury to increase awareness of water re-use.

Discussion

a) Ms Bindoff asked if endocrine disruptives will be removed from the water during the re-use treatment processes. Mr Pfaff said it can be done in a direct re-use process. However, currently a lot of sewage is leaking into water resources that are treated for potable use. This is a far more dangerous situation, because the WWTPs are not geared towards cleaning sewage at the moment.

8 INSTITUTIONAL ARRANGEMENTS

8.1 System Operation Management Forum

Mr Meier said Umgeni Water attended the last System Operation Management Forum (SOMF) on behalf of the DWA early in March 2012. Below average rainfall is currently recorded in the

study area. However, during March 2012, higher rainfall has already been recorded due to the cyclone early in March. The forecast for the year looks good and above average rainfall has been predicted for the year ahead. All the dams in the study area are also all at a healthy level.

8.2 Water Savings Forum

Ms Masefield reported that good progress has been made with institutional arrangements. An infrastructural coordination committee has been appointed to see where and how water-related funding is spent.

9. COMMUNICATION

Mr van Wyk said the standard procedure will be followed:

- The consultant team will prepare a draft media release, draft minutes and a draft progress report within one week;
- The draft documents will be submitted to the DWA for their review (DWA to review within week two) after the SSC meeting);
- The draft documents will be distributed to all SSC members at the end of week two for their review and comments. A deadline date for comments will be included; and
- The consultant team will consider and incorporate all comments and send out final versions of the documents to all SSC members.

Study Team

Discussion

a) Mr Van Niekerk said the media release must also be used to carry the momentum forward on water re-use and the issue of climate change can also be included.

b) Mr Johan van Rooyen said the media release should strike a good balance between positive progress and also informing the public that there is pressure on the System.

c) Mr Norman Ward (DWA) said the people living in the Umhlali System must be warned that water should be used cautiously during the next 12 months. Mr Meier said consumers have been receiving information on this issue.

d) Dr Manda Buthelezi (National African Farmers Union) said this media release should also be sent to community radio stations and not just the newspapers in order to reach more people, especially emerging farmers. Community radio stations will educate people on WC/WDM.

e) Mr Van Niekerk said the media release is sent out by the communication service of the DWA. Umgeni Water and the local municipalities must also send this media release out to their contacts.

f) Mr Ashe said Catchment Management Forums can also be sued to spread the messages this meeting wants to communicate. Ms Masefield said this can work, because the DWA has representatives on these forums.

10. GENERAL

Nothing was discussed under general.

11. DATE OF NEXT MEETING AND CLOSURE

The next meeting is scheduled for 11 September 2012.

All members were thanked for their participation and Mr Johan van Rooyen asked all members to keep their diaries open until 15:00 on 11 September 2012.

ALL