



water affairs

Department:
Water Affairs
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Sustainable water supply for Nelson Mandela Bay Municipality and surrounding areas

The Department of Water Affairs has welcomed the measures introduced by the Nelson Mandela Bay Municipality to drastically reduce water usage following the drought in the Eastern Cape that severely affected the Algoa Water Supply System last year (2010). The measures include the changing of the Nelson Mandela Bay Municipal by-laws to promote the use of rainwater harvesting tanks which seeks to reduce users' total reliance on the municipal water supply.

In addition, an investigation is to be undertaken for an emergency seawater desalination plant, to be located at the old Swartkops Power Station at the Swartkops River was identified as an emergency desalination plant. The design of the plant is well advanced and procurement processes are to begin. However to meet long-term planning needs a new site that would accommodate a bigger desalination plant needs to be investigated.

These are some of the initiatives that were discussed at the inaugural Strategy Steering Committee meeting of the Algoa Water Supply System (Algoa, WSS) on September 8, 2011 comprising the Department of Water Affairs, other relevant government departments and statutory organisations whose planning depends on the availability of water. This system includes the Nelson Mandela Bay Municipality as well as the Cacadu District Municipality which represents the local municipalities who receive water from the Algoa WSS, was established in September 2011 after completion of the study. The committee meets twice a year to monitor the implementation of the strategy, as well as to update the strategy when required or the situation changes

Background to the Strategy development

The Algoa Water Supply System (Algoa WSS) consists of an intricate infrastructure system of dams, pipelines and canals linking the surface water resources of the Kouga and Krom rivers and some small local surface water sources in the West, the Orange River via the Fish and Sundays rivers, as well as groundwater resources to supply water to 1.1 million users of the Nelson Mandela Bay Municipality (NMBM) and several smaller towns as well as water for irrigation to the Gamtoos Irrigation Board and other irrigators. The System is cooperatively managed by the Department of Water Affairs (DWA), NMBM and the Gamtoos Irrigation Board.

The continuing increase in water requirements as a result of population and economic growth necessitated the development of a strategy to determine when interventions (i.e. additional water resources) will be needed to meet future water requirements for at least the next 25 years. The Algoa Reconciliation Strategy Study was initiated in 2008 by the DWA, in cooperation with the NMBM and other stakeholders to ensure a sustainable future water supply for NMBM and the other towns served by the Algoa WSS. The Strategy was completed in 2010 and was subsequently updated in April 2011 to accommodate emergency interventions planned and implemented by NMBM as a result of the drought, as well as to allow for revised future requirements for the Coega Industrial Development Zone.

The purpose of the Reconciliation Strategy is to determine the current water balance situation and to develop possible future water balance scenarios for a 25-year planning horizon. It describes the proposed strategy, and the associated actions, responsibilities and timing of such actions that are needed to reconcile water supplies and requirements. This will ensure that interventions will be timeously implemented to prevent the risk of unacceptable water shortages. Continuous monitoring and updating of the Strategy into the future is important.

Formation of a Strategy Steering Committee

A Strategy Steering Committee, was established in September 2011 after completion of the study. This committee meets twice a year to monitor the implementation of the strategy, as well as to update the strategy when required or the situation changes. The committee will also monitor the success and effectiveness of measures introduced to reduce water requirements, and the trends in water requirements to determine if and when a new intervention would be required to augment the available sources. The committee will further ensure that the necessary studies are undertaken in time so that informed decisions are taken by the responsible authorities on new schemes to be implemented, to ensure a sustainable water supply well into the future. The committee is also tasked to inform all stakeholders of progress with the implementation of the Strategy recommendations and the situation in the system. At the September 2011 meeting, the committee was provided with an overview of the updated Strategy. The committee then evaluated the progress with various measures being implemented and potential measures that could be implemented to ensure that future water requirements will be met.

The recent Drought

Severe drought conditions were experienced in all the catchment areas of the dams supplying the NMBM area from 2008 up to early 2011. A series of interventions were started to alleviate the drastic water shortage experienced. NMBM prepared and implemented an Emergency Drought Action Plan and a Drought Publicity Campaign to reduce water use. Water delivery from the existing Nooitgedagt Scheme that brings in water from the Orange-Fish-Sundays transfer scheme was maximised during the drought. Preparations were further made to abstract the dead storage from the Impofu Dam in the event of the drought worsening. Water restrictions were imposed in October 2009 and subsequently emergency restrictions with punitive tariffs in February 2010 in order to minimise the risk of a total failure of the system, which would have had catastrophic implications for the whole region. The drought punitive tariff structure was implemented on 1 July 2010. Following the ending of the drought after very good rains in the first half of 2011 and the System dams being filled to capacity, water restrictions were lifted in July 2011 and normal water tariffs are in place again.

Water requirements

The total usage of water from the Algoa WSS in 2009 was 158 million m³. As expected, water use reduced significantly during 2010 as a result of the water restrictions introduced during the drought, but also as a result of the many water conservation and water demand management measures put in place by the NMBM to ensure greater water use efficiency. Historical water use from the Algoa WSS shows that while water use was inhibited during a drought as a result of the implementation of water restrictions and other measures, the long-term water requirements growth trend typically continues after a drought is broken. It is thus most important that the good practices of water demand management which were implemented by water users during the most recent drought continue after the drought, and that water users do not return to bad habits and waste water. Lower growth in water requirements can delay the implementation of expensive water augmentation schemes and keep the cost of water down.

The committee bases its planning on high future growth in urban and industrial water requirements to ensure that we have the necessary water augmentation plans in place should that actually realise. The growth in future water requirements of the Coega Industrial Development Zone (IDZ) is however still very uncertain and the recent world-wide economic recession has had a major impact on the local economy. Water use and potential uptake of water by developers in the Coega IDZ will therefore be closely monitored and on-going liaison will be maintained with the developers.

Water conservation and water demand management (WC/WDM)

The objective of NMBM's WC/WDM Programme is to reduce water use by a minimum of 25 MI/d by undertaking repairs to water leaks on municipal water mains and leaks on properties. At the September meeting NMBM reported on its achievements with the implementation of their Water Conservation and Water Demand Management Strategy Action Plan, implemented as part of the Drought Emergency Interventions. The implementation of water conservation and water demand management was identified in the Algoa Reconciliation Strategy as the most important intervention to be put in place to reduce water losses and thus water requirements, before any other augmentation options would be considered. Implementation of WC/WDM was therefore afforded the highest priority during the emergency.

The drought and the declaration of an emergency have enabled NMBM to intensify their leak detection and repair and plumbing repair programs. Increased sliding-scale tariffs have been introduced, usage patterns are being closely monitored and excessive use is brought to the attention of high volume users. Measures are being put in place to significantly improve water use monitoring. This intensification of the WC/WDM program is

expected to result in overall savings of approximately 15 million m³/a. Every water user should take water conservation and efficient water use very seriously to ensure that the water that is available is used much more effectively. It is important that all these actions are continued after the drought.

NMBM Municipal by-laws have been changed to promote the use of rainwater tanks and reduce users' total reliance on the municipal water supply.

Other interventions

At the September meeting, the committee evaluated the progress with various measures that are and/or could be implemented to ensure that future requirements are met. Measures include:

- Fast-tracking of the implementation of the Nooitgedagt Low-Level Scheme that will deliver additional Orange River water: an additional allocation of water from the Orange River has been approved by DWA and the environmental impact assessment for the scheme has been approved by the Department of Economic Development and Environmental Affairs. Construction of this scheme is under way.
- Water re-use: a study is being done to determine the feasibility of using treated water from the Fishwater Flats waste water treatment plant to supply industries in Port Elizabeth and Coega with industrial standard water.
- Investigations for a groundwater scheme are under way at a variety of locations: groundwater can provide affordable, dependable supply with minimal management. Private boreholes, municipal boreholes and several potential well field sites were investigated, partly based on previous studies undertaken. 6 Production boreholes were sited and a contract is out on tender for drilling along the Coega Fault.

Conclusion

It has been recommended that NMBM should source funding to complete implementation of the Nooitgedagt Low-level Scheme, and that a range of planning studies be undertaken or be continued by NMBM and DWA respectively, to find the most appropriate interventions to meet future growth in potable and industrial water requirements.

From the above it is clear that the augmentation of the Algoa WSS is receiving attention at a high level from all the institutions involved. It is however important to be aware that all these interventions will still take many years to deliver additional supplies of water, and the efficient use of the current supplies, including the curbing of water wastage and water losses, remains of critical importance for the users from the Algoa WSS to be ensured of a water supply. This will ensure water for the future, but each person must contribute.

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