Water Balance

The water balance of the Olifants River System was calculated using the water requirements and water availability and is reflected in Figure 5. The projected water availability shows a partial Reserve phased in. There is an expected water deficit of approximately 113 million m³/a in the year 2035.

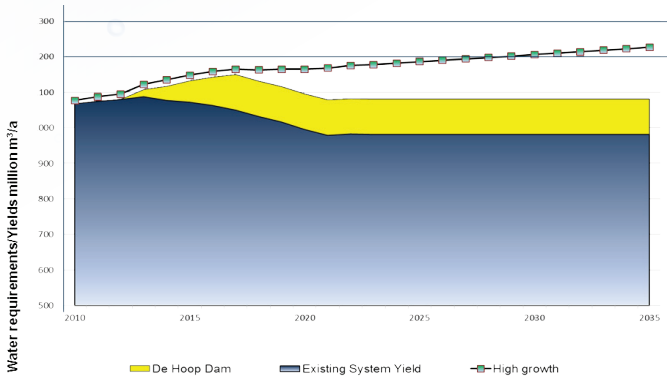

Figure 5: Projected Water Requirements vs Projected Water Availability

Preliminary Strategy Development

Various options have been identified to reconcile the water requirements with the available water. In some instances the water requirements can be reduced and in others the water supply can be increased. These options can then be divided into two main categories, i.e. Water Resource Management Options and Water Resource Development Options. For the latter category, infrastructure (e.g. dams and transfer schemes) at high capital cost is normally required. In order to obtain a good understanding of the proposed strategy interventions that will reconcile water requirements with available water for the 25 years planning horizon, a number of management reconciliation options were considered.

Some of these options are:

- Elimination of unlawful water use
- Implementation of water conservation and water demand management (WCDM) for all water use sectors
- Reduction of water requirements through compulsory licensing
- Removal of invasive alien plants to gain more yield

Development reconciliation options were also investigated and a future dam or water transfer option will be considered if the water deficits cannot be managed through management reconciliation options.

Further Investigations

The Preliminary Reconciliation Strategy identified aspects that needed further investigation:

- Was the Reserve set too conservatively in the past and can the Reserve be implemented in such a way that the impact on the system is reduced?
- How much yield can be made available from the decanting of decommissioned coal mines?
- How much of the irrigation water use is unlawful?
- Have the water requirements been realistically estimated?
- Are the estimates for water saved through WCDM realistic?

The team is currently attending to these further investigations and it seems that a water balance can indeed be achieved with the reconciliation options listed above as depicted in Fig 6. Implementing the management options will, however, require commitment from all water management institutions and the water users.

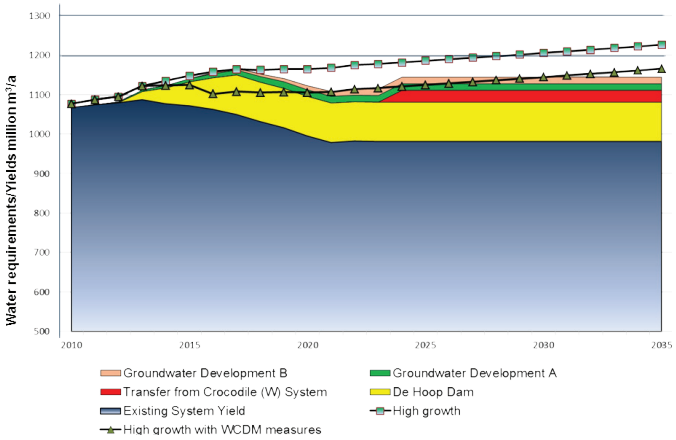

Figure 6: Achieving Water Balance with Reconciliation Options

Final Reconciliation Strategy Inputs

Stakeholders are invited to comment on the strategy by returning the attached leaflet or posting their comments on the DWA website.

The comments will contribute towards the Final Reconciliation Strategy which is due at the end of 2011.

Contact Details:

DWA Study Manager: Mr T Nditwani – 082 888 5113
Study Leader: Mr J Beumer – 082 885 3573
Stakeholder Relations: Ms C Masogo – 082 344 2364

OLIFANTS RECONCILIATION STRATEGY (ORS) NEWS

Development of a Reconciliation Strategy for the Olifants River Water Supply System

Towards the
Final Reconciliation Strategy

water affairs
Department:
Water Affairs
REPUBLIC OF SOUTH AFRICA

Introduction

The first newsletter for the Olifants Reconciliation Strategy Study [attainable from the Department of Water Affairs (DWA) website www.dwa.gov.za/projects/OlifantsRecon] introduced the purpose of the study, i.e. the development of a Reconciliation Strategy to ensure sufficient and reliable water supply of appropriate quality to current and future users, taking into account provision for the ecological Reserve.

The study area has been divided into three sub-catchments, the Upper, Middle and Lower Olifants as shown in Figure 1.

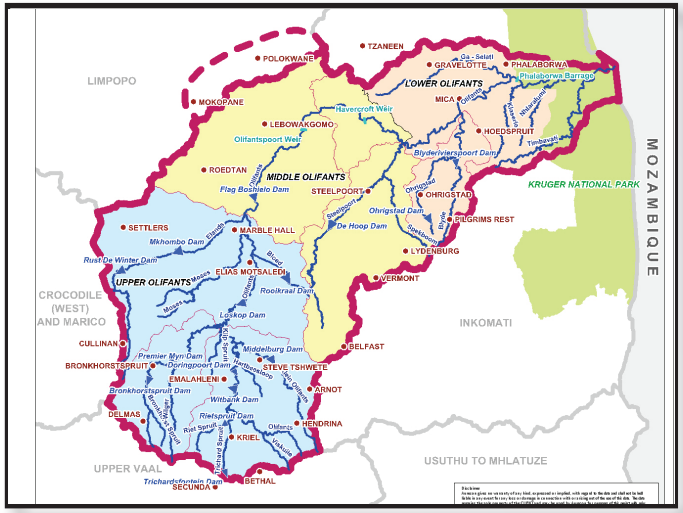

Figure 1: Sub-Catchments of the Olifants Water Management Area

Progress with the Study

A preliminary reconciliation strategy was developed and presented to the key stakeholders at a Study Steering Committee meeting on 24 November 2010. The report can be found on the aforementioned DWA website. Through the preliminary strategy, future water shortages were projected and possible immediate and long term solutions to alleviate water shortages were presented. Stakeholders are hereby invited to comment on these proposed solutions (see attached input form). The comments are vital for consideration in the investigations currently underway.

The Reserve

The Reserve has not yet been implemented in the Olifants River catchment but it is estimated that it would reduce the available yield by 221 million m³/a. The Reserve contains a high flow component and the release of such high flows through the outlet structures of the dams would not be possible since the outlet capacities of the existing dams are too small. Provision can therefore only be made for that portion of the Reserve that is practically implementable and this will reduce the available yield of the system by 132 million m3/a. It is expected that the dam spills will satisfy the high flow component of the Reserve.

Current Water Use and Water Requirements

The increase in water demands are mainly driven by domestic use and the mining industry. The current water use from the system for the different economic activities is illustrated in Figure 2.

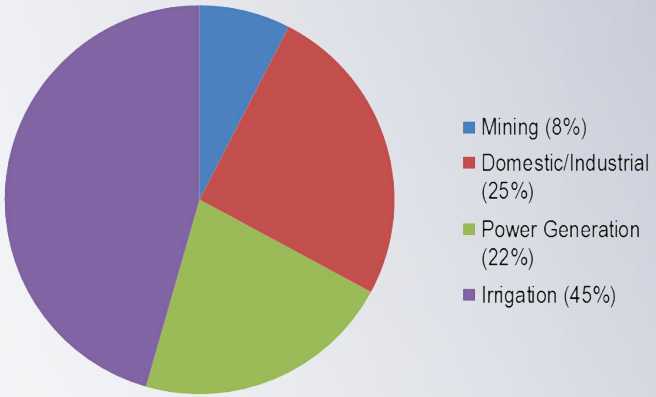

Figure 2: Current Water Use for Economic Activities (%)

The expected high growth water requirements for the next 25 years are shown in figure 3.

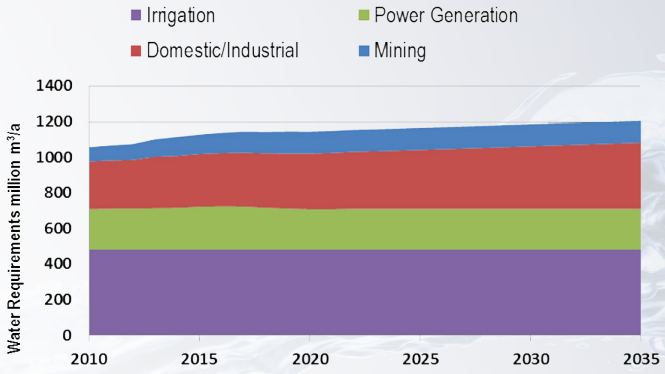

Figure 3: Water Requirements

Water Availability

There are several large dams as well as smaller farm dams that provide water to users. In addition, ground water as well as water transfers from other catchments for the power stations in the catchment contribute to the yield of the Olifants River system.

The available yield of the entire system is shown in Figure 4.

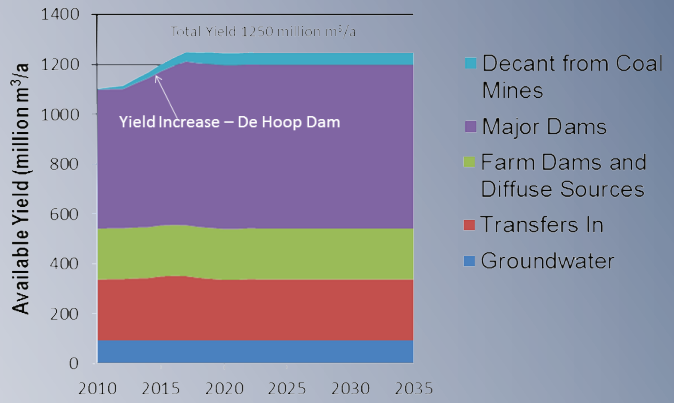

Figure 4: Available Yield of the Olifants River System

The available groundwater is spread over the entire Olifants River catchment but higher yielding aquifers are found in the dolomite sub-structures in the Upper Olifants and along the escarpment which traverses the Middle Olifants Sub-catchment from North-West to South-East.

The net potential groundwater available is estimated at 70 million m³/a.

Water Quality

Currently there are water quality problems in the catchment, most of which are caused by contamination from point sources such as effluent discharges. These problems need to be addressed at source.

Treatment of acid mine drainage caused by the coal mines in the Upper Olifants Sub-catchment is essential to maintain the water quality in the Loskop Dam catchment.

As long as the contamination is addressed effectively, the water quality will not affect the availability of water for the purposes of the reconciliation strategy.