

Classification of significant water resources in the Olifants Water Management Area

Background Information Document

February 2011



PURPOSE OF THIS DOCUMENT

The purpose of this Background Information Document (BID) is to inform stakeholders about the water resource classification process that has recently been initiated by the Department of Water Affairs (DWA) in the Olifants Water Management Area (WMA).

Through this process water resources within the WMA will be classified in accordance with the Water Resource Classification System (WRCS).

Stakeholders are invited to participate in the process by contributing information at meetings and workshops, or by corresponding with the public participation office or the technical team at the addresses provided below.

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BACKGROUND

The National Water Act (NWA) – Act No. 36 of 1998 – is founded on the principle that the South African Government has overall responsibility for and authority over water resource management for the benefit of the public without seriously affecting the functioning of the water resource systems.

In order to achieve this objective, Chapter 3 of the NWA provides for the protection of water resources through the implementation of resource directed measures (RDM) which includes the classification of water resources, setting the Reserve and Resource Quality Objectives.

The Chief Directorate: Resource Directed Measures of the Department of Water Affairs (DWA) is responsible for the classification of water resources in terms of the recently published Water Resource Classification System (WRCS) to ensure that a balance is sought between the need to protect and sustain water resources on one hand and the need to develop and use them on the other.

The DWA has identified the need to undertake the classification of significant water resources (rivers, wetlands, groundwater and lakes) in the Olifants Water Management Area (WMA) in accordance with the WRCS.

WHAT IS THE WATER RESOURCE CLASSIFICATION SYSTEM?

The Water Resource Classification System (WRCS) places water resources into different categories called Management Classes. The Regulations (R810) for the establishment of the WRCS was published in Government Gazette No 33541 on 17 September 2010.

The WRCS is a set of guidelines and procedures for determining the desired characteristics of a water resource, and is represented by a Management Class (MC). The MC outlines those attributes that the DWA and society require of different water resources. The WRCS prescribes a consultative process to classify water resources (Classification Process) to help facilitate a balance between protection and use of the nation's water resources.

The outcome of the Classification Process will be the approval of the MC by the Minister or her delegated authority for every significant water resource (river, estuary, wetland and aquifer) which will be binding on all authorities or institutions when exercising any power, or performing any duty under the NWA.

The DWA brochure: *Implementation of a Water Resource Classification System* provides a detailed explanation of the procedures for determining different classes of water resources. Go to the DWA website (see below) for a copy of the brochure.

PURPOSE OF THIS STUDY

As South Africa's water resources are becoming more stressed due to an accelerated rate of development and the changing weather patterns resulting in the scarcity of water resources, there is an urgency to ensure that water resources are able to sustain their level of uses and be maintained at their desired states specifically in the Olifants River WMA.

The purpose of this study is to coordinate the implementation of the 7 - step process of the WRCS to classify all significant water resources in the Olifants WMA in order to determine a suitable Management Class (MC) for the relevant water resources which will be presented to the Minister for approval.

The determination of the MC of the identified water resources in Olifants River System will essentially describe the desired condition of the resource, and conversely, the degree to which it can be utilised by incorporating the economic, social and ecological goals of the users and stakeholders in the catchment area.

AN OVERVIEW OF THE STUDY AREA

The study area for the implementation of the classification system is the Olifants WMA. For the purposes of this study the WMA has been divided into four sub-areas:

- **Upper Olifants Catchment** constitutes the catchment of the Olifants River down to Loskop Dam;
- **Middle Olifants Catchment** comprises the catchment of the Olifants River downstream from the Loskop Dam to the confluence with the Steelpoort River;
- **Steelpoort Catchment** corresponds to drainage region of the Steelpoort River; and
- **Lower Olifants Catchment** represents the catchment of the Olifants River between the Steelpoort confluence and the Mozambique border.

The Olifants WMA corresponds with the South African portion of the Olifants River catchment but excludes the Letaba River catchment. The Olifants WMA falls within three provinces; Gauteng, Mpumalanga, and the Limpopo Province and it covers approximately 54 550 km².

Distinct differences in climate occur; from cool Highveld in the southwest to subtropical, east of the escarpment. Mean annual rainfall is in the range of 500 mm to 800 mm over most of the WMA.

The Olifants River is one of the major water resources in the area and it originates near Bethal on the Mpumalanga Highveld. The river initially flows northwards before curving in an easterly direction through the Kruger National Park and into Mozambique where it joins the Limpopo River before discharging into the Indian Ocean.

The main tributaries are the Wilge, Elands and Ga-Selati Rivers on the left bank and the Steelpoort, Blyde, Klaserie and Timbavati Rivers on the right bank. The Olifants River is shared by South Africa, Botswana, Zimbabwe and Mozambique.

The main economic activity is concentrated in the mining and industrial centres of Witbank/Middelburg, Phalaborwa and Steelpoort where a variety of minerals are found. Some of the largest thermal power stations in the world are located in the Upper Olifants.

Extensive irrigation occurs in the vicinity of Loskop Dam, along the lower reaches of the Olifants River, near the confluence of the Blyde and Olifants Rivers as well as in the Steelpoort valley and upper Selati catchment. Much of the central and north western areas of the WMA are largely undeveloped, with scattered rural settlements. Land use in the WMA is characterised by rain-fed cultivation in the southern and north-western parts, with grain and cotton as main products.

FOCUS OF THE STUDY

This study focuses on the classification of significant water resources (rivers, wetlands, groundwater and lakes) in the Olifants WMA.

The available information will be used to prioritise their significance in the WMA and importance to associated river systems and uses and users. Certain identified rivers of importance may require special mention in the final recommendations on the MC with specific conditions that afford them a higher level of protection.

Groundwater is important in some rural areas within the WMA and in certain areas such as Delmas. However groundwater supply does not play a significant role in the overall water requirement and supply reconciliation of the WMA nor in the hydrology of the catchment.

Classification of groundwater resources in the Olifants WMA will not be undertaken.

However for some areas such as Delmas, the contribution of groundwater to base flows will be recorded. Where over-utilisation of the groundwater resources will negatively impact on the surface water resources and where groundwater resources are threatened, conditions will be recorded and included in the recommendations to the Minister. These recommendations will support sustainable use and an adequate level of protection.

All the wetlands in the study area will be assessed in terms of their abundance, health, function, importance, sensitivity and present state. A priority list of the most important wetlands will be compiled.

INTEGRATED UNITS OF ANALYSIS

Twelve preliminary Integrated Units of Analysis (IUAs) have been defined for the Olifants WMA during this inception phase. These have been based on the socio-economics of the areas, water uses and users, envisaged level of protection required and significance of the resource in terms of use and protection.

The availability of representative Ecological Water Requirement (EWR) sites within each IUA and catchment modelling schematics were also considered.

The scale definition of the IUAs is secondary drainage regions. The 12 IUAs proposed will be reviewed and confirmed by a Project Steering Committee at the first meeting scheduled for 18 February 2011.

The study team considers the 12 preliminary IUA as a manageable number and practical to work with in terms of the implementation of the WRCS within the time and budget constraints of the study.

PUBLIC PARTICIPATION PROCESS

Identification of stakeholders

The identification of stakeholders in the Olifants WMA will be an ongoing process. Some of the stakeholders included in the database currently are relevant government departments on national and provincial level such as the Department of Environmental Affairs, the Department of Mineral Resources and the Department of Agriculture, Forestry and Fisheries; municipalities; agriculture (Irrigation Boards, National and Local Agricultural Unions); mining and industry; conservation organisations; relevant parastatals (e.g. Eskom); community representatives; and civil society.

Project announcement

The project will be announced to the public with a letter of invitation addressed to all Interested and Affected Parties (I&APs) currently on the database, accompanied by this BID, the DWA brochure on WRCS and a reply sheet for I&APs to register for participation.

A media release will be sent to the media and an advertisement will be placed in national and local newspapers.

Stakeholder meetings

Four geographical meetings – one each for the Upper, Middle, Lower and the Steelpoort catchment areas will be held. Meetings with these groups will be held to discuss and evaluate scenarios specific to that area.

Project Steering Committee

Stakeholders representing specific sectors of society (e.g. agriculture, mines, conservation, civil society) will be identified and asked to serve on a Project Steering Committee (PSC) for the duration (two years) of this project. The PSC members will be key stakeholder representatives that will oversee the classification process and provide strategic advice and guidance.

On-going consultation with stakeholders

Stakeholders will continue to be informed of progress with the study through a newsletter and will be asked for their inputs on an ongoing basis. The DWA website will also be used for the publishing of information regarding this study.

DEFINITIONS

Ecological Water Requirements (EWR): The flow patterns (magnitude, timing and duration) and water quality needed to maintain a riverine ecosystem in a particular condition. This term is used to refer to both the quantity and quality components. The EWRs as determined by the Comprehensive Reserve Study of 2001 will be applied in this study.

Ecological Water Requirement Sites: Ecological Water Requirement (EWR) sites are set at specific points on the river. These sites provide sufficient indicators for the specialists to assess environmental flows and information about the variety of conditions in a river reach. An EWR site consists of a length of river which may consist of various cross-sections for both hydraulic and ecological purposes. EWRs for 16 sites were recommended for preliminary Reserves as part of the Comprehensive Reserve Study and 3 additional sites on smaller tributaries were recommended for lower confidence preliminary Reserves in 2007.

Integrated Units of Analysis (IUAs): The basic unit of assessment for the classification of water resources. The IUAs incorporates socio-economic zones and is defined by catchment area boundaries.

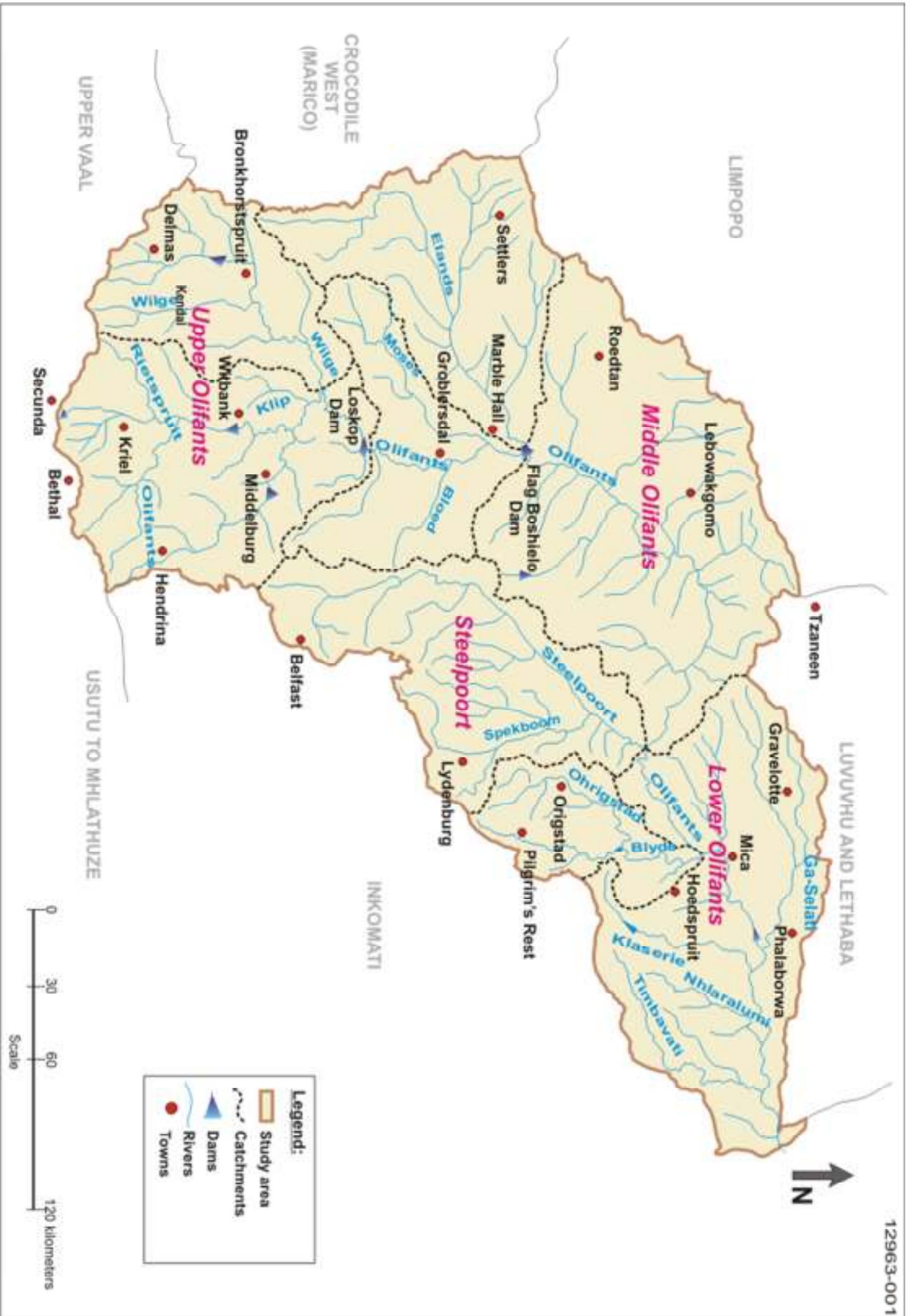
Reserve: The quantity and quality of water needed in a water resource (e.g. estuaries, rivers, lakes, groundwater and wetlands) to sustain basic *human needs* and protect *aquatic ecosystems* to ensure ecologically sustainable development and utilisation of a water resource.

Significant Water Resources: Water resources that are deemed to be significant from a water resource use perspective, and/or for which sufficient data exist to enable an evaluation of changes in their ecological condition in response to changes in their quality and quantity of water. Water resources are deemed to be significant based on factors such as, but not limited to, aquatic importance, aquatic ecosystems to protect and socio-economic value.

WHO IS CONDUCTING THE STUDIES ON BEHALF OF THE DWA?

The Department of Water Affairs has appointed various consulting companies with vast experience in the water resource management sector to conduct the classification.

The lead technical consultant is Golder Associates Africa supported by Prime Africa Consultants and the public participation process for the study is conducted by Zitholele Consulting (Pty) Ltd.



Legend:

- Study area
- Catchments
- Dams
- Rivers
- Towns

