Determination of Water Resource Classes and Associated Resource Quality Objectives in the Inkomati Water Management Area

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INKOMATI
CATCHMENT MANAGEMENT AGENCY

PURPOSE OF THIS DOCUMENT

The purpose of this Background Information Document (BID) is to inform stakeholders about the implementation of the Water Resources Classification System (WRCS) and determination of the Resource Quality Objectives (RQOs) for significant water resources in the Inkomati Water Management Area (WMA). This study has recently been initiated by the Department of Water Affairs (DWA) in close cooperation with the Inkomati Catchment Management Agency (CMA).

Through this process water resources in the Inkomati WMA will be classified in accordance with the Water Resource Classification System (WRCS) and associated RQOs will be determined.

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

Public participation office:
Anelle Lötter
IWR Water Resources
Tel: (012) 6674860
Fax: (012) 667 6128
Email: anelle@jaws.co.za

Technical enquiries:
Stephen Mallory
IWR Water Resources
Postnet Suite 40, Private Bag x4

BACKGROUND

The National Water Act (NWA) – Act No. 36 of 1998 – is founded on the principle that the South African Government has overall responsibility 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 significant water resources, setting the Reserve and Resource Quality Objectives (RQOs).

The Chief Directorate: Resource Directed Measures of the Department of Water Affairs (DWA) is responsible for the implementation of resource directed measures in terms of Regulations (R810) for the establishment of the Water Resource Classification System (WRCS) that was published in Government Gazette No 33541 on 17 September 2010 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) and the determination of RQOs in the Inkomati Water Management Area (WMA) in accordance with the WRCS.

WHAT ARE THE WRCS AND RQOS?

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 the attributes society requires of different water resources and reflects the importance given to protection and/or development.

The actual process of applying the WRCS guidelines and procedures in order to establish the MC is called the Classification Process. The Classification Process is a consultative process that allows stakeholders to negotiate a desired MC.

The outcome of the Classification Process will be the approved MC by the Minister or her delegated authority which will be binding on all authorities or institutions when exercising any power, or performing any duty under the NWA.

The RQOs are numerical and/or narrative descriptive statements of conditions which should be met in the receiving water resource, in terms of resource quality, in order to ensure that the water resource is protected. The purpose of the RQOs is to establish clear goals relating to the quality of the relevant water resource. The NWA stipulates that in determining the RQOs a balance must be sought between the needs to protect and sustain the water resources, and the need to develop and use them. The RQOs are intended to give effect to the Class determined in each water resource.

The DWA brochure: *Implementation of a Water Resource Classification System* provides a detailed explanation of the procedures for determining different classes of water resources. (The brochure can be accessed from the Project website: http://www.dwa.gov.za/rdm/WRCS/default.aspx)

DWA Study Managers

Ms Shane Naidoo	Director: Water Resources Classification	Tel: (012) 336 6707	Fax: (012) 336 6712	NaidooShane@dwa.gov.za
Ms Mohlapa Sekoele	Project Manager	Tel: (012) 336 8	Fax: (012) 336 6712	SekoeleM@dwa.gov.za

PURPOSE OF THE STUDY

Since the promulgation of the prescribed WRCS in September 2010, the DWA has progressively embarked on the classification of significant water resources in the country in order to ensure that water resources are able to sustain their level of uses and be maintained at their desired states.

The purpose of this study is to coordinate the implementation of the WRCS in order to determine a suitable MC for the relevant water resources; and to determine RQOs using the Departmental Procedures to Develop and Implement RQOs.

The determination of the MC of the identified water resources in the study area 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 spatial extent for the study includes the primary drainage region X, which includes the Komati, Crocodile East and Sabie/Sand Rivers (see figure 1). The Inkomati WMA is an international river basin, and it borders Mozambique in the east and Swaziland in the south-east. All the rivers in the Inkomati WMA flow through Mozambique to the Indian Ocean. The Inkomati WMA is located in the north-eastern part of South Africa in the Mpumalanga Province. The WMA is defined by the following three distinct catchments: Komati River, Crocodile (East) River, Sabie River catchments.

A special situation is presented by the Komati River, the most southern tributary of the Inkomati River, which rises

in South Africa and flows into Swaziland, then re-enters South Africa where it is joined by the Crocodile River at the border with Mozambique, before flowing into Mozambique as the Inkomati River. The Kruger National Park is partially located in the Sabie and Crocodile catchments.

Economic activity is mainly focused on irrigation and afforestation, with related industries and commerce, and a strong eco-tourism industry. Several major dams, such as Nooitgedacht and Vygeboom have been constructed in the WMA. The Komati River is highly regulated, while the Crocodile and Sabie/Sand Rivers are less regulated by dams. A number of important canal systems that distribute water to irrigators in the Crocodile, Sabie and Sand River catchment also exist.

STUDY APPROACH

The process of determining classes and RQOs is both technical and consultative. The availability of data and information from past studies will be considered in defining the activities, tasks and resources for the execution of the study. The most important source is the recently completed high confidence Reserve Determination Studies in the Inkomati WMA.

Currently the Inkomati Catchment Agency is implementing a real time operational water resources management Decision Support System (DSS) including an ecological Reserve model on the Crocodile River system. The process followed in this study, will be cognisant of and aligned to the systems already in place at the ICMA.

Key aspects that will be assessed during the study to determine the MC are the following:

- The Status Quo of the study area will be determined. This will entail a description of the ecological, economical and ecosystem services of the study area. The description will be provided in context of the hydrology of the river system, geohydrology and its current water resource infrastructure and management. This information will highlight issues and challenges in the catchment as well as providing an indication of the ecological and environmental importance of different areas. With this information available, preliminary integrated units of analysis (IUAs) will be delineated and provided to stakeholders for comment. This information will also provide stakeholders with sufficient background to allow them to envisage their future 'vision' of the different IUAs.
- Ecological Water Requirements will be described for river systems. This information will be used for the required models and different scenarios which can include changes to present operation of the system and/or future developments. For future developments

it is required to understand the implications for water availability, stakeholders' requirement, ecological health of the system and changes to ecosystem services. This will lead to recommendations on the MCs for each IUA which will be presented for discussion to stakeholders. Stakeholders will then be able to understand the consequences of their original vision and how it could impact on all users and the ecological health of the system.

Once the MCs have been accepted, RQOs will be developed to describe the set classes. Some RQOs will be numerical, and others descriptive; all depending on the different detail available. The numerical RQOs will for example be used in monitoring which is very important to see that the MCs are being maintained and improvement within these MCs being achieved where necessary.

HOW DO MANAGEMENT CLASSES AND RESOURCE QUALITY OBJECTIVES FIT INTO THE CATCHMENT MANAGEMENT STRATEGY?

A Catchment Management Strategy (CMS) guides the protection, use, development, conservation, management and control of water resources in the area. A CMS must contain water allocation plans which must set out principles for allocating water. Water allocation schedules intended to specify, among other things, the quantities allocated to individual users must also be developed. Preparation of these schedules requires the water resource(s) to be classified, and Reserves and RQOs determined, in order to determine the amount of water that can be allocated for off stream use, and to inform the conditions that should be attached to the water use licenses.

PUBLIC PARTICIPATION PROCESS

Stakeholders are invited to participate

All stakeholders are invited to become involved in this study. The aim is to communicate regularly with stakeholders that represent relevant government departments on national and provincial level; municipalities; agriculture (Irrigation Boards, agricultural unions); mining and industry; conservation organisations; relevant parastatals (e.g. Eskom); community representatives; and civil society. If you are interested in becoming involved – please make sure you register as a stakeholder to receive further information on the study.

Project announcement

For stakeholders to become involved in the study, the commencement of the study is being announced by the distribution of this BID, and invitation letter with a response sheet, the placement of advertisements and a public meeting to be held on 12 June 2013. The public meeting will be held at the Bundu Lodge, Nelspruit as from 08:30. Please register for the meeting by completing the response sheet and returning it to the contact persons (see response sheet).

Project Steering Committee (PSC)

A Project Steering Committee (PSC) will be established for the duration (two years) of this project. The PSC members will oversee the classification process and provide strategic advice and guidance. If you are interested to represent your sector, please let us know so that you can be nominated for the PSC.

Discussion meetings

Several meetings with various representatives at different milestones of the study are planned. Invitations will be sent to stakeholders to attend the meetings and to contribute towards the investigations of this study.

On-going consultation with stakeholders

Stakeholders will continue to be informed of progress with the study through a series of newsletters and will be asked for their inputs on an ongoing basis. The DWA and Inkomati CMA websites will also be used for the publishing of information regarding this study (**http://www.dwa.gov.za/rdm/WRCS/default.aspx**) and **www.inkomaticma.co.za**

TIME-FRAME

The duration of the study is 24 months: commencing on April 2013 and ending on March 2015.

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 during preliminary Reserve studies 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.

Integrated Units of Analysis (IUAs): This is 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.

Figure 1: Map of the study area (DWA, 2003)