

Progress Report of the classification of water resources in the Olifants/Doorn Water Management Area



water affairs

Department:
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Project Progress

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PURPOSES OF THIS INFORMATION DOCUMENT ARE TO:

- Provide progress to date of the Water Resources Classification Process undertaken in the Olifants-Doorn WMA;
- Provide information on how the Integrated Units of Analysis (IUAs) were delineated; and
- Illustrate the methodology used to generate scenarios.

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1. BACKGROUND

Following the promulgation of regulations prescribing a Water Resources Classification System (WRCS) in September 2010, the Department of Water Affairs (DWA) initiated a process of classifying significant water resources in the Olifants/Doorn WMA. This report is intended to provide an overview of the classification process thus far and does not replace the comprehensive technical reports available for the study.

2. PROGRESS TO DATE

According to the 7-step procedure for determining a Management Class (Table 2) steps 1, 2, and 3 are completed, which are Delineation of the IUAs and describing the Status Quo of the water resources; Linking the socio-economic and ecological value and condition of the water resources; and quantifying the Ecological Water Requirements (EWR) respectively. The results of the first 3 steps (water resource assessment) will be used during the scenarios development. Scenarios are water resource management options available for a particular water resource that satisfies protection and use and further development and includes the water quality, quantity and distribution requirements to support ecosystem functioning.

The extent of technical work/analyses conducted to date, include ecological (geohydrological, hydrological, water quality) and socio-economic components. Progress with the ecological component of the project has focused on finalising the description of significant water resources in order to understand the implications of a change in water use on the ecological state of the rivers, estuaries, and wetlands. The National Freshwater Priority Areas recommendations and the updated current approved Ecological Reserve results (Figure 2) were incorporated into the ecological assessment. Farming models were created for different types of farming in the WMA, and interviews will be held with stakeholders in the catchment in order to understand the implications of a change in water availability on social well-being and economic activities.

A. Delineation of Integrated Units of Analysis (IUA):

IUAs are socio-economic zones aligned to watershed boundaries.

Quaternary catchment boundaries and socio-economic zonal boundaries have facilitated the integration of ecological and socio-economic aspects (land-use activities and biophysical factors, respectively) into IUAs.

The following IUAs have been identified through the classification procedure for the WMA (Figure 1):

1. The **KoueBokkeveld** area which consists of 11 quaternary catchments that drains in a northerly direction from the catchment divide between the Olifants Doorn WMA and the Breede WMA). The area can be described as a high altitude irrigation farming area, which is characterised by relatively high winter rainfall and the typical water use is from numerous farm-dams for irrigation purposes.
2. The **Doring Rangelands** which consists of 27 quaternary catchments that drain the south-eastern and central region of the WMA to the confluence with the Olifants River. It is a relatively mountainous area which is characterised by conservation and livestock farming and a low population density.
3. The **Knersvlakte** which consists of 24 quaternary catchments and drains the northern region of the WMA. This is an arid area characterised by a very low population density and has extensive rangelands as the main land use.
4. The **Upper Olifants** Irrigation area which consists of ten quaternary catchments and extends from the source of the Olifants River to the Clanwilliam Dam. Here, intensive irrigation farming occurs along the Olifants River valley and the area also contains some of the major urban areas in the WMA.
5. The **Olifants/Doring Dryland** Farming area which consists of seven quaternary catchments and includes the lower Doring River and its confluence with the Olifants River. This area is characterised by a relatively high proportion of land under dryland farming, but with livestock still being an important activity.
6. The **Lower Olifants** Irrigation area consists of two quaternary catchments downstream of the confluence of the Olifants and Doring Rivers to the estuary. It is primarily the irrigation farming area that occurs along the lower Olifants river valley and within the floodplain down to the estuary. The area includes several small urban areas.
7. The **Estuary (Ebenezer)** consists of the communal land area comprising the poor fisher-farming community of Ebenhaesar. This is identified as an important target area in terms of resource-poor irrigation farmers. This area falls within the previous area and is associated with the Olifants Estuary.
8. The **Sandveld** sub-area consists of 8 quaternary catchments within the coastal strip to the south of the Olifants River mouth. The area is primarily an irrigation farming area where the main water resource is groundwater.

B. Consideration of various water use scenarios and selection of the preferred scenario:

The social, economic and ecological use and value of the water resources in the above IUAs have been quantified and described. The ecological description is undertaken at a much finer scale (quaternary level) due to the availability of data in the field. This knowledge and understanding of socio-economic value and use of water, as well as the ecological responses to the use of water within the catchment, allows for the consideration of various water use scenarios with their respective social, economic and ecological implications.

The following water use scenarios are being considered:

- Scenario 1 - **Ecological Sustainability Baseline Configuration** ESBC (which would permit maximum use) scenario;
- Scenario 2 - Present Ecological State (PES) scenario;
- Scenario 3 - RDM scenario (approved ecological Reserve); and
- Scenario 4 - Conservation targets scenario.

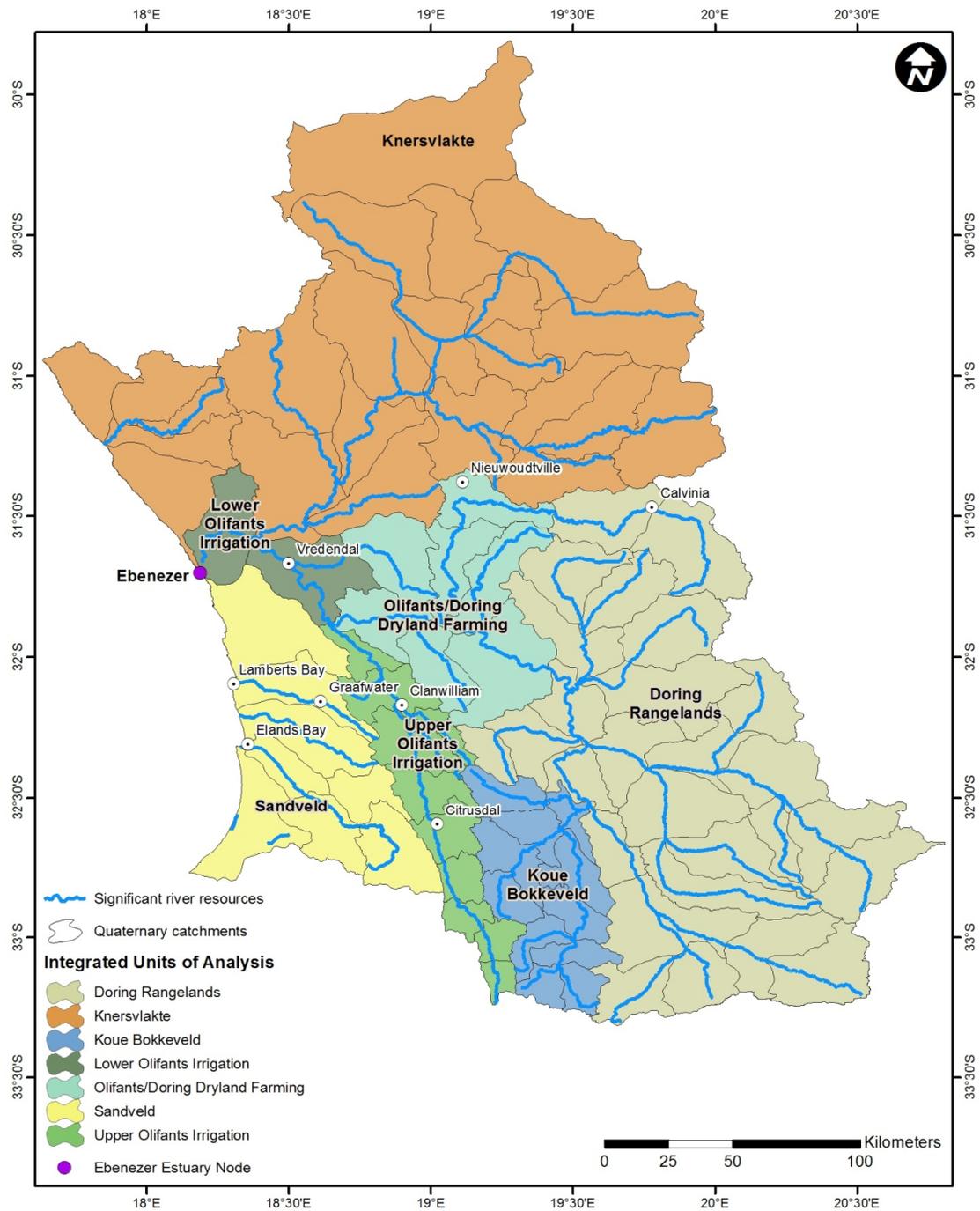


Figure 1: Integrated Units of Analysis (IUA) for the Olifants Doorn WMA

Based on the consideration of the above scenarios, and the socio-economic and ecological implications for each of these scenarios, a recommended water use configuration is created that is a selection of the prepared configurations. This recommended scenario provides the basis and starting point for the discussion with the stakeholders within the WMA on the preferred water resource classes and water use configuration for the WMA.

The project is now at Phase 3: Classification phase, which deals with determination of the scenarios. This phase serves as an input for step 5 of the 7-step procedure.

Table 2: The 7-step procedure for determining different classes of water resources

The procedure for determining different classes of water resources is a 7-step procedure (Methodology) and MUST be followed:

Step 1: Delineate the units of analysis and describe the status quo of the water resource(s)

Step 2: Link the socio-economic and ecological value and condition of the water resource(s)

Step 3: Quantify the ecological water requirements and changes in non-water quality ecosystem goods, services and attributes

Step 4: Determine an ecologically sustainable base configuration scenario

Step 5: Evaluate scenarios within the integrated water resource management process

Step 6: Evaluate the scenarios with stakeholders; and

Step 7: Gazette and implement the class configuration.

The key outputs of this stage of the classification process include the following:

- Value the changes in aquatic ecosystems and water yield;
- Describe the macro-economic and social implications of different catchment configuration scenario;
- Evaluate the overall implications at an IUA and a regional level;
- A list of Preliminary scenarios, Prioritization of the different scenarios; and
- Select a subset of scenarios for stakeholder evaluation.

3. NEXT STEPS TO FOLLOW

3.1 Finalisation of the Ecological Sustainable Base Configuration Scenario (ESBC)

ESBC is the lowest theoretical level of protection required for the sustainable use of the entire catchment, which should not be lower than a D ecological category. PES, Recommended Ecological Categories, and Freshwater Conservation targets need to be considered while developing an ESBC.

3.2 Evaluate scenarios within the integrated water resource management process

The project is currently at step 5, dealing with the identification of scenarios describing the current and future catchment management scenarios in the Olifants-Doorn. These scenarios are based on an assessment of the ecological and socio-economic profiles of each IUA in the Olifants-Doorn. The draft report on the socio-economic and ecological scenarios will be available end of August 2011, for comments by the Project Management Committee members.

3.2 Stakeholder engagement

The inaugural PSC meeting was held in 17 May 2011 where the process for classifying water resources in the Olifants-Doorn was provided and the members of the PSC confirmed. The next **PSC meeting** will be held on the 06 September 2011. The purpose of the meeting is to present the socio-economic and ecological scenarios established.

A public consultation meeting was held in 14 June 2011 in Clanwilliam, the purpose of which was to introduce the aims of the project and the study process as well as to obtain catchment-specific perspectives from the communities, water users and Interested and Affected Parties in the Olifants-Doorn. The second **Public Consultation meeting** is scheduled for 06 October 2011 in Clanwilliam, Western Cape, where the scenarios will be presented for the stakeholders to make inputs.

A comments register is available consolidating all issues and responses obtained through the various stakeholder engagement processes.

3.3 Next steps

3.3.1 Step 6: Evaluate the scenarios with stakeholders

The following are the outputs of step 6:

- Stakeholders to evaluate scenarios and agree on a short-list, and
- Recommend classes for each IUA.

3.3.2 Step 7: Gazette and implement the class configuration

This is the last step of the WRCS procedure, which entails the gazetting of the proposed classes in the Government Gazette for a period of 60 days, when the public is invited to comment accordingly.

4. MORE INFORMATION

The following project documents are available in the Departmental web site:

www.dwa.gov.za/rdm/WRCS/default.aspx

- Inception Report; and
- Background Information Document on the Project.

Table1: The preliminary summary of the Ecological Water Requirements (EWRs) showing PES

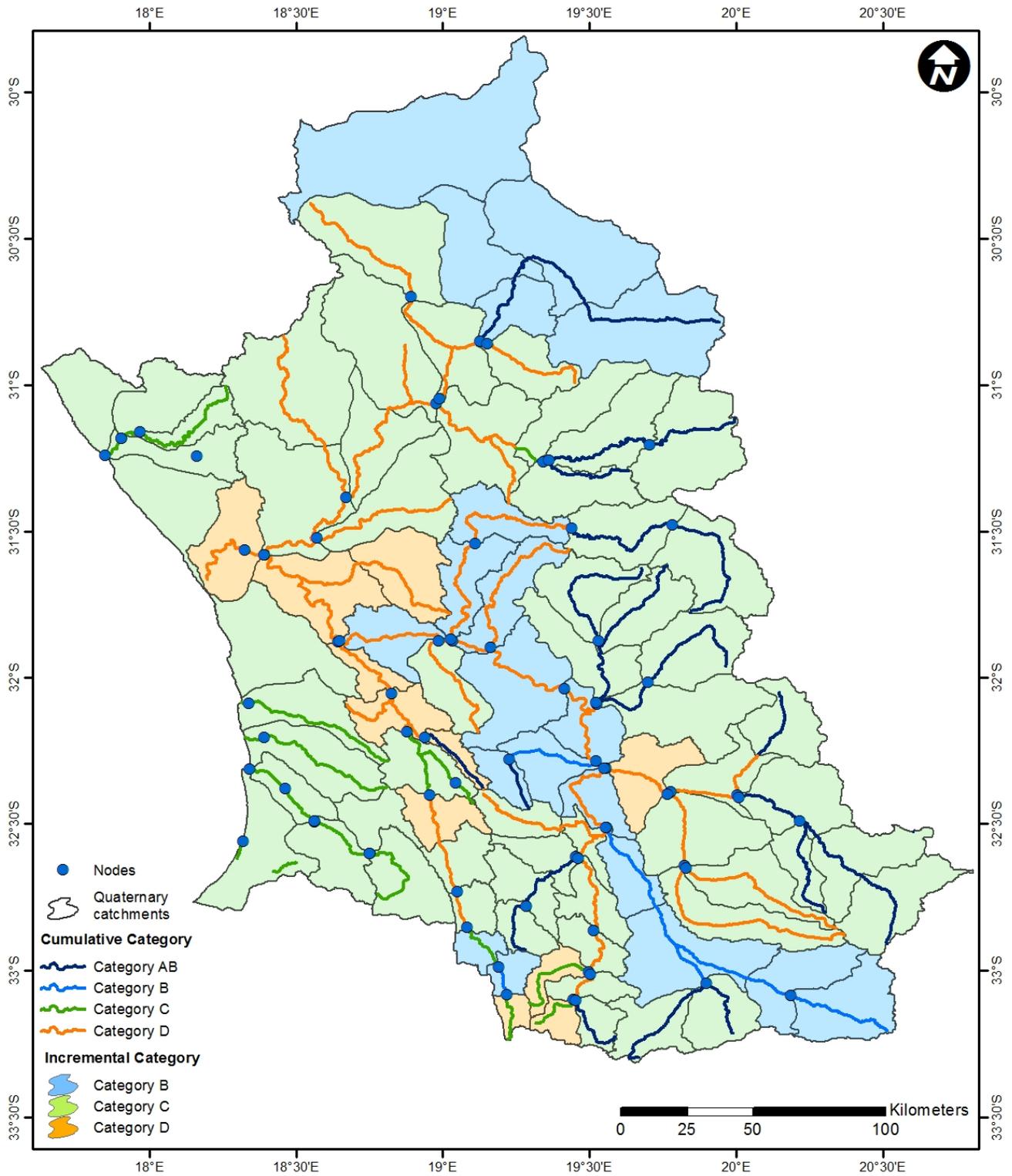


Figure 2: RDM (current approved ecological Reserve) scenario