

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

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PURPOSES OF THIS BACKGROUND INFORMATION DOCUMENT ARE TO:

- Provide a brief overview of the steps of the Water Resources Classification System (WRCS) related to addressing the socio-economic components of the WRCS;
- Provide an understanding of the purpose of conducting a socio-economic assessment and the associated decision-analysis framework that will guide the process of linking the value and condition of water resources in the WMA to economic prosperity and social well-being in the WMA; and
- Illustrate the main components of the methodology used to achieve the above-mentioned.

Public participation office:

Anelle Lötter
IWR Water Resources (PTY) Ltd
P O Box 1434
Rivonia, 2128
Tel: (012) 6674860
Fax: (012) 667 6128
Email: anelle@jaws.co.za

Technical:

Pierre van Jaarsveld / Ben van der Merwe
Urban-Econ
P O Box 13554
Hatfield, 0028
Tel: (012) 3428686
Fax: (012) 3428688
Email: pierre@urban-econ.com

Stephen Mallory
IWR Water Resources (PTY) Ltd
Postnet Suite 40, Private Bag x4,
Menlo Park, Pretoria
Tel: (012) 3652121

BACKGROUND

The study for the determination of the water resource classes and resource quality objectives in the Inkomati Water Management Area was initiated in April 2013. The study follows a step-wise process whereby a class and associated Resource Quality Objectives (RQOs) of a water resource are defined by taking into account the social, economic and ecological landscape in a catchment in order to assess the costs and benefits associated with utilisation versus protection of a water resource. As such, the process is not carried out in isolation, but is integrated within the overall planning for water resource protection, development and use. A key component of classification is integrating economic and social goals into the determination of the management class. Therefore the economic, social and ecological implications of choosing an appropriate management class (MC) needs to be established and communicated to all interested and affected parties during the Classification Process.

METHODOLOGY

To determine the class and RQOs of a water resource, both the Water Resource Classification System (WRCS) and the Procedures to Develop and Implement RQOs each lay out a set of procedures grouped together into seven steps that when applied to a specific catchment will result in the determination of a class and RQOs which aim to achieve a balance between protection of a water resource and using them to meet social and economic goals. For the purpose of this study, the classification steps have been integrated with the RQOs determination steps (figure 1). The classification system places the following principles at the forefront of implementation:

- Maximising economic returns from the use of water resources;
- Allocating and distributing the costs and benefits of utilising the water resource fairly; and
- Promoting the sustainable use of water resources to meet social and economic goals without detrimentally impacting on the ecological integrity of the water resource.

In order to ensure that the determination of a management class is supported by a robust technical assessment and decision-analysis process, the methodology supporting the socio-economic components of the WRCS implementation in the Inkomati addresses the following key components:

- Source and critically review available socio-economic data describing the communities and economies of the Inkomati WMA and aligned to the Integrated Units of Analysis (IUAs) already identified for the Inkomati WMA;
- Review specific studies for all major sectors in the WMA i.e. mining, agriculture, forestry and tourism. and where necessary consult sectors to address information gaps;
- Describe and value the use of water and aquatic ecosystems in order to establish the dependence of communities on the economic value of water use in the Inkomati WMA and the dependence of communities on the instream goods and services provided by the water resources

STEP	INTEGRATED STEP	
1	Delineate the RUs and IUAs and describe the status quo	Stakeholder Engagement
2	<i>Link the socio-economic and ecological value and condition of the water resource</i>	
3	Quantify ecological water requirements and changes in non-water quality Ecosystem Good, Services and Attributes	
4	Identification and evaluation of scenarios within IWRM	
5	Identification and evaluation of scenarios with stakeholders	
6	Recommend Management classes & RQOs	
7	Gazette Classes, Reserve and RQOs	

Figure 1: The 7-step procedure for determining different classes and RQOs of water resources

Step 2 in **Figure 1** relates to this Background Document Information, and is expanded on the diagram below.

The diagram below (**Figure 2**) illustrates the process followed of linking the value and condition of water resources in the WMA to economic prosperity and social well-being.

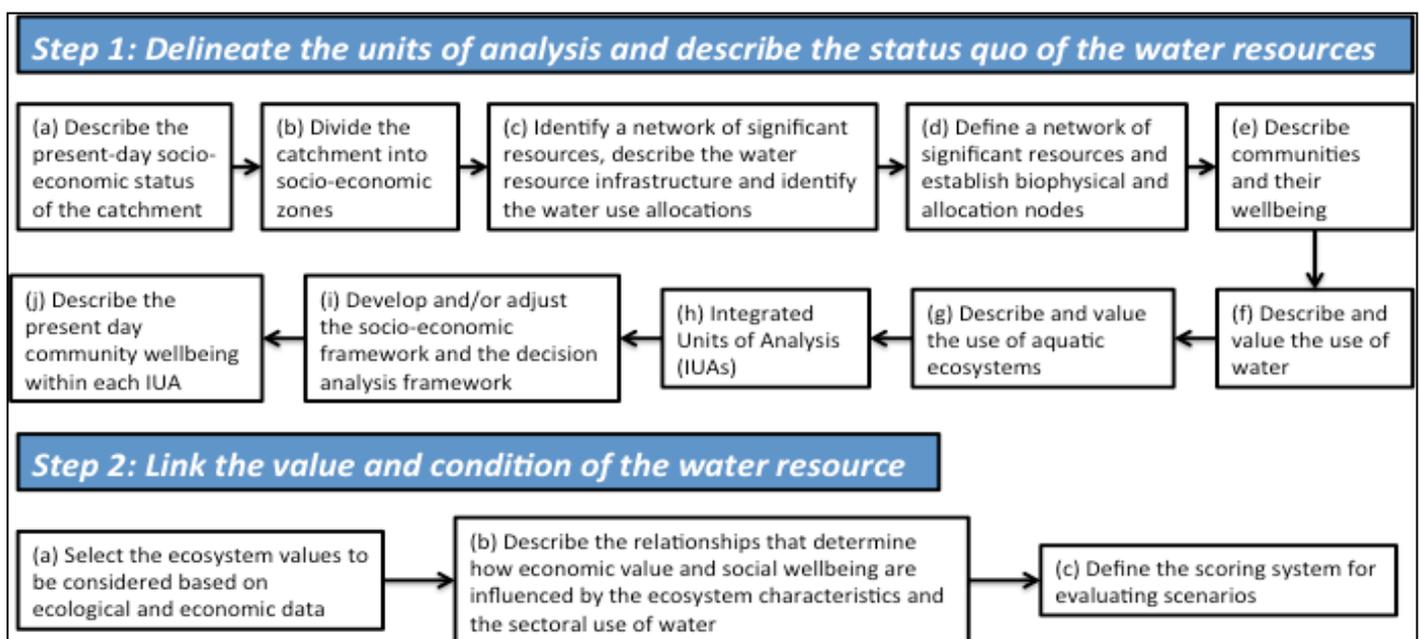


Figure 2: Step 1 and 2 expanded.

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

- A summary of available economic data essentially describing the present-day socio-economic status of the WMA;
- Measurement of economic value and the measures of economic implications and social well-being;
- A socio-economic valuation framework that links changes in water resource variables, such as yield, water quality and aquatic ecosystem health, to economic benefits and social well-being; and
- A decision-analysis framework developed to make provision for assessing the current socio-economic status and the potential economic and social implications related to future water resource management scenarios implied by each management class. The framework incorporates commonly used economic modelling techniques that form the basis for the cost-benefit analysis for evaluating implications of water resource management scenarios on the regional economy and social well-being.

TECHNICAL WORKING GROUP

The socio-economic analysis is dependent on (a) acquiring relevant information through acceptable data sources, (b) developing an appropriate decision-analysis framework to enable modelling and cost-benefit comparison of the future water resource management scenarios, and (c) development and assessment of plausible future water resource management scenarios. Thus a Technical Task Group meeting has been scheduled to enable relevant role-players to contribute effectively to the finalisation of the socio-economic components of the classification process in the Inkomati. Given the importance of this component to the broader process, participation is strongly encouraged.

