

A scenic view of a river flowing through a lush, green landscape with hills in the background. The river is the central focus, surrounded by dense vegetation and trees. The sky is clear and blue.

# RESOURCE CLASSIFICATION: Harmonising People and Nature's Needs

*The need for a fundamental change in South Africa's approach to water management is largely underpinned by the country's Constitution. The Department of Water Affairs & Forestry (DWAF) is in the process of gazetting a water resources classification system (WRCS), viewed by many to be a revolutionary approach to give effect to integrated water resources management, writes Harrison Pienaar, DWAF Chief Director: Resource Directed Measures.*

At present, DWAF is confronted by various challenges: the infinite nature of water resources; redressing past imbalances in water allocation and ensuring equity between generations simultaneously; aligning water resource management with water services provision; combining surface and groundwater resource quality; and applying resource directed measure methodologies to surface and groundwater resources comprising highly variable characteristics to name but a few.

WRCS is a set of guidelines and procedures for determining the different classes of water resources. It is a serious attempt towards harmonising the ecological sustainability of water resources with social and economic needs. The system is therefore aimed at recommending a normative desired condition for each water resource in a particular catchment.

According to Section 12 of the National Water Act (NWA) the Minister must prescribe a system for classifying water resources. This requires gazetting the WRCS. The gazetted WRCS will provide a definition of the classes that are to be used and the procedures to be followed to recommend a class.

The NWA requires that the WRCS be gazetted for comments for at least 60 days. All comments received will be recorded and considered. The National Assembly and National Council of Provinces may require information on how particular comments are addressed. As soon as reasonably practical after the Minister has prescribed a system for classifying water resources, he or she must, subject to subsection four of the Act, by notice in the Government Gazette, determine for all or part of every significant water resource:

- A class in accordance with the prescribed classification system; and
- Resource Quality Objectives (RQOs) based on the determined class.

Important principles have been developed during the country's water law

### “The water resources classification system is a serious attempt towards harmonising the ecological sustainability of water resources with social and economic needs.”

reform process, with the following extracted principles strongly considered when embarking on the development of a water resources classification system:

**Principle 2** – which recognises the fact that all water is linked in the hydrological cycle, with all water having consistent status in the law, irrespective of where it exists within that cycle;

**Principle 5** – in a relatively arid country such as South Africa, it is necessary to recognise the unity of the water cycle and the interdependence of its elements, where evaporation, clouds and rainfall are linked to groundwater, rivers, lakes, wetlands and the sea, and where the basic hydrological unit is the catchment;

**Principle 7** – which states that the objective of water management is to achieve long-term environmental sustainability with social and economic benefit to accrue for the overall benefit of society; and

**Principle 26** – which links the regulation of water services to broader local government frameworks.

### CONTEXTUALISING THE WRCS

The desired characteristics of the resource are represented by a management class. The economic, social and ecological implications of choosing a management class will need to be established and communicated to all interested and affected parties during the classification process.

The outcome of the classification process will be the setting of the management class and RQOs by the Minister or her/his delegated authority for every significant water resource (i.e. river, wetland, estuary, and aquifer). This will be binding on all authorities or institutions when exercising any power or performing any duty under the NWA.

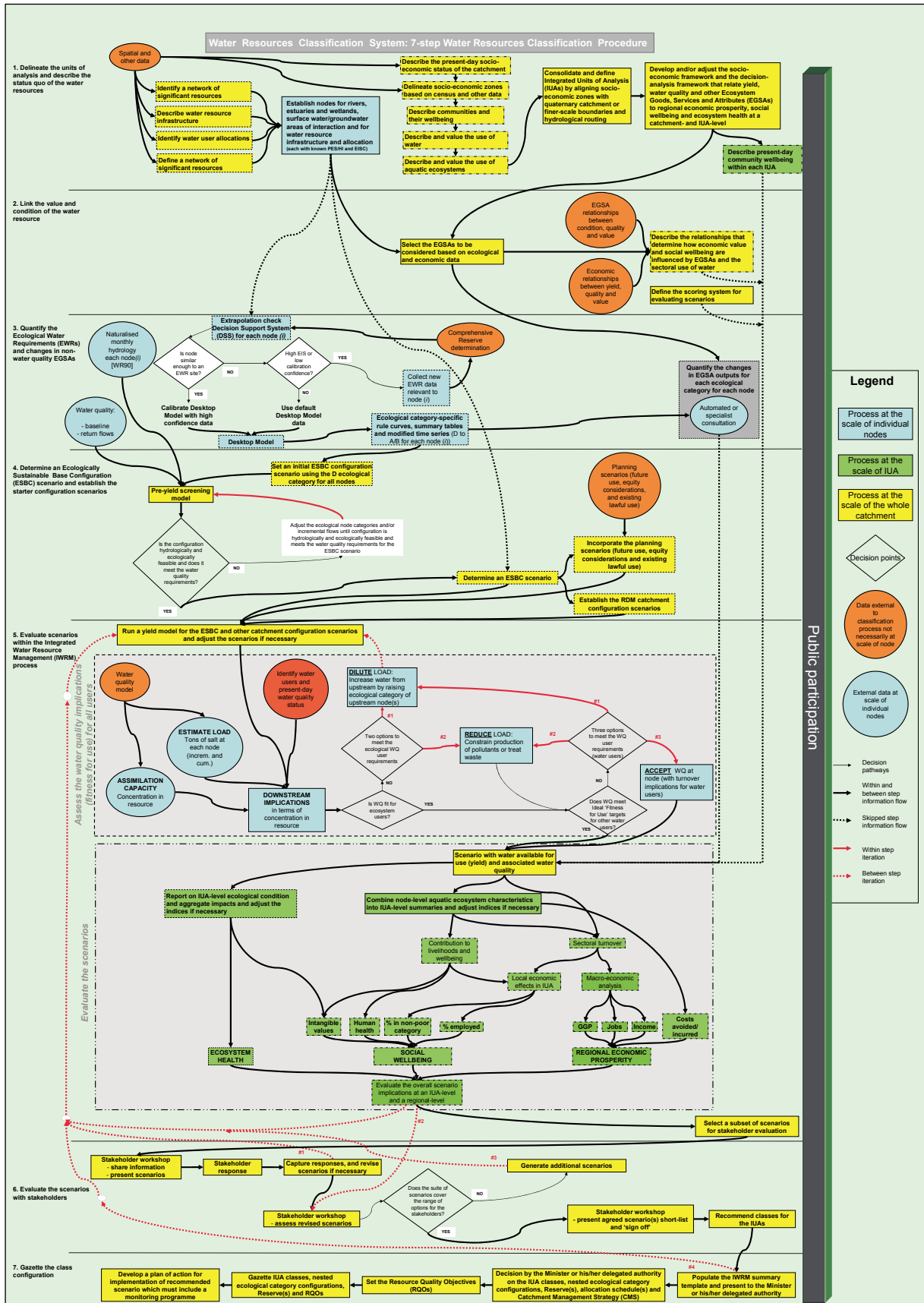
This management class essentially describes the desired condition of the water resource and along with that the degree to which it can be utilised. In other words, the management class of a water resource sets the boundaries for the volume, distribution and quality of the Reserve and RQOs, and thus the potential allocable portion of a water resource for off-stream use. This has considerable economic, social and ecological implications.

### PROPOSED STEPWISE WATER RESOURCES CLASSIFICATION PROCEDURE

The seven major steps are mostly followed in sequence, although where feasible, some of the steps can be done in parallel. In the **first step**, the team responsible for classifying the catchment(s) water resources begins by identifying and describing all potential water resources and all existing lawful water users, and then develops a representation of the catchment as a simplified network of spatial management units. Each of these management units is represented by a modelling 'node'. The nodes are grouped into sub-regions called integrated units of analysis on the basis of social, economic and hydrological similarity.

The **second step** defines methods for linking different water use scenarios within a region to the social well-being of the people who live there, the region's economic prosperity and the overall health of its ecosystems. Steps 1 and 2 occur in parallel for most catchments.

The **third step** involves quantifying the volume, distribution and timing of



Proposed stepwise classification procedure.



categories of ecological water requirements at each of the nodes identified in Step 12. In order to provide the information needed in Steps 4 to 6, flows are calculated for four increasing levels (or categories) of ecological sustainability at each node.

In the **fourth step**, a set of about six to ten different scenarios are developed which capture a range of possible future desired conditions for the catchment's water resources. This is followed in **step 5** by guidelines for evaluating the economic, social and ecological implications of each of these scenarios.

Although stakeholders are involved throughout the water resources classification process, they play a more prominent role in **step 6**. Accordingly, this step provides guidance for stakeholder consultation regarding the scenarios and their implications. **Step 7** then allows for the final selection of an overall catchment configuration of classes by the Minister. When published in the Government Gazette, this decision about the desired condition of water resources in the catchment becomes legally binding.

## HARMONISING ECOLOGICAL SUSTAINABILITY WITH SOCIAL AND ECONOMIC GOALS

In recent years following the development of welfare economics and ecological, environmental and resource economics, three main policy goals for integrated water resource management have emerged: efficiency, equity and sustainability. The economic goal for efficiency relates to maximising economic returns from water resources, or achieving the greatest possible net benefit. This can also be seen as fulfilling the goal of economic development.

The social goal of equity is to ensure that the economic benefit derived from utilising water resources, and the costs incurred in water supply development, are distributed fairly. In South Africa, this needs to be done in the context of the

legal imperative of reducing poverty and redressing historic inequities.

The goal of ecological sustainability recognises the limits to resources in the light of population growth and economic development. It thus promotes the use of resources in such a way as not to compromise the economic opportunities and social well-being of both present and future generations. Ecological goals may also include meeting national and international biodiversity conservation obligations as well as ensuring an acceptable state of health of resources in the short and long term.

However, these economic, social and ecological goals are potentially conflicting and are not easy to solve simultaneously. A number of trade-offs will therefore have to be considered in the classification process that will require a suitable, integrated analytical and decision-making system (i.e. the WRCS).

The following guiding principles were identified for the evolving WRCS to help make the classification process open, transparent and reasonably predictable, and to help reduce the level of potential contestation:

**Principle 1 (Balance and trade-off for optimal use):** The chosen management class should balance protection of the resource with its utilisation in line with societal norms and values. Utilisation of the resource provides economic and social benefits. It also has the potential, however, to compromise ecosystem integrity, which has economic and social costs. This balance will require trade-offs. The WRCS should therefore clearly outline the implications of different management classes to facilitate informed decision-making.

**Principle 2 (Sustainability):** The principle reason for the protection of water resources is to maintain ecosystem integrity at a level which ensures the continued delivery of desired ecosystem goods, services and attributes for use. The WRCS therefore needs to provide a

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framework to help facilitate the sustainable use of water resources. It is also recognised that there is a sustainability baseline that if crossed could result in the non-delivery of the goods, services and attributes necessary for economic growth, poverty alleviation and the redress of historical inequality.

**Principle 3 (National interest and consistency):** A management class may produce solutions that are acceptable at a local level, but are sub-optimal when considered at a national level. Catchment-level decisions therefore need to be evaluated against national-level interests (and, where appropriate, international-level constraints, for example, international obligations). The WRCS should also outline a clear intention with respect to the characteristics of different management classes and provide for consistency in this regard.

**Principle 4 (Transparency):** Stakeholders should be consulted both in the development of the WRCS and in the process of classifying the nation's water resources. The approach should be legitimate and transparent, and ensure that the valuation method used for determining trade-offs is fair, as the management class has considerable economic, social and ecological implications. 