water & sanitation

Department:
Water and Sanitation
REPUBLIC OF SOUTH AFRICA

Determining Water Resources Classes and Resource Quality Objectives in the Breede-Gouritz WMA and Berg Catchment

Overview of WRCS & RQO processes Capacity Training

27th March 2017

Venue: DWS offices, Bellville, Cape Town.

Agenda

- Welcome and introduction
- Legal mandate for protection of water resources
- Overview of the WRCS and RQO process
- Discussion about DWS roles and responsibilities

LEGAL MANDATE

National Water Act

- Chapter 3 of the National Water Act (NWA) (No. 36 of 1998) deals with the protection of water resources

- Part 1: Classification System for Water Resources
  - 12: Prescription of the water resource classification system (WRCS)

- Part 2: Classification of water resources and RQOs
  - 13: Determination of Water Resource Classes (WRCs) and Resource Quality Objectives (RQOs)
  - 14: Preliminary determination of WRCs and RQOs
  - 15: Giving effect to determination of WRCs and RQOs

- Part 3: The Reserve
  - 16: Determination of the Reserve
  - 17: Giving effect to the Reserve

LEGAL MANDATE

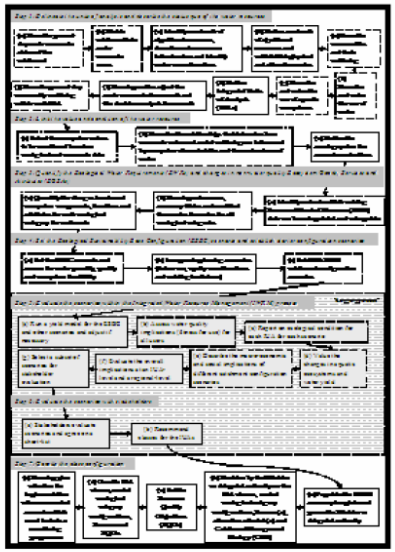
National Water Act

- **Part 1:** Development by the Minister of a system to classify the nation's water resources. Provides guidelines and procedures for determining different classes of water resources.

Definition of classes

Class 1
Description of Class I
Class II
Description of Class II
Class III
Description of Class III

Procedures to be followed to recommend a class



Supporting documentation for procedures & guidelines

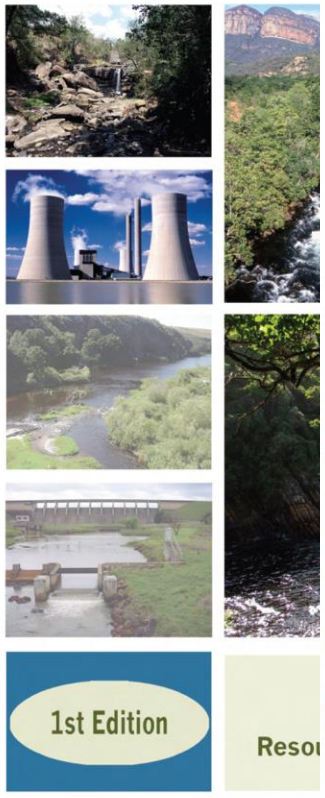
1. *Volume 1*
2. *Volume 2*
3. *Volume 3*
4. *Volume 4*

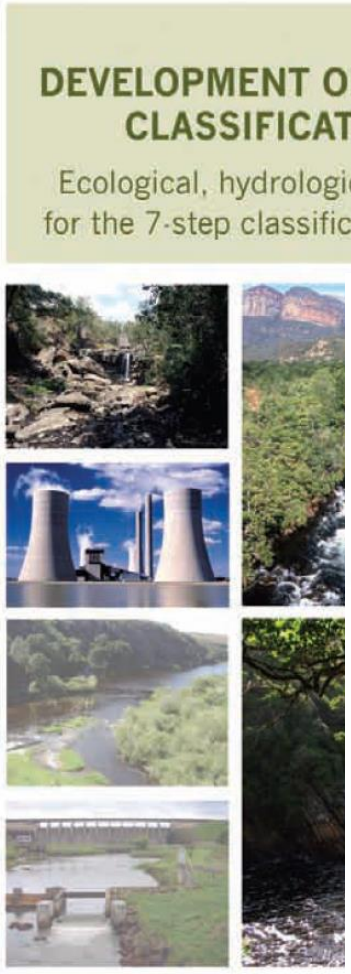
Gazetted classification system

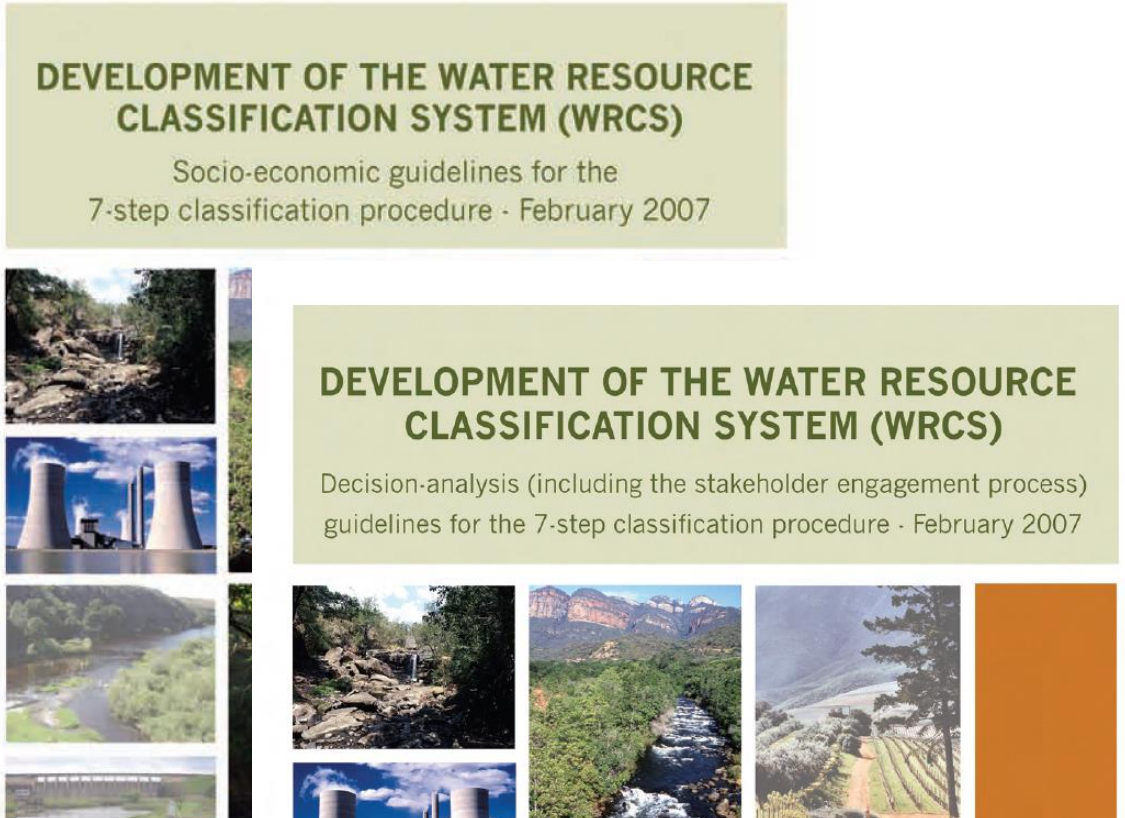
DWAF sanctioned, but not gazetted

- WRCS was published as Regulation 810 in Government Gazette No. 33541 dated 17 September 2010
- WRCS defines:
  - *the water resource classes*
  - *the procedure to determine Class, Reserve and RQOs*

Volume 1 – 4 (DWAF, 2007)







LEGAL MANDATE

Regulation 810 in Government Gazette No. 33541

2.1. The class of a water resource must describe:

(a) the extent of use of the water resource

(b) the Reserve

(c) the resource quality objectives (RQOs)

(d) the determination of the allocable portion of a water resource for use

2.2. Water resources must be classified into one of the following classes:

(a) Class I water resource

(b) Class II water resource

(c) Class III water resource

2.3. A class of I, II, III is defined as:

Class	Water resource use	Configuration of ecological categories of the water resources within a catchment results in an overall condition of that water resource
I	**Minimally** used	**Minimally** altered from its pre-development condition.
II	**Moderately** used	**Moderately** altered from its pre-development condition.
II	**Heavily** used	**Significantly** altered from its pre-development condition

LEGAL MANDATE

Regulation 810 in Government Gazette No. 33541

2.4. Procedure to determine the different classes of water resources must comprise of the following 7 steps:

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

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

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

(d) Step 4: Determine an ecologically sustainable base configuration scenario

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

(f) Step 6: Evaluate the scenarios with stakeholders

(g) Step 7: Gazette and implement the class configuration

LEGAL MANDATE

Regulation 810 in Government Gazette No. 33541

3. For each water resource class, the procedure for the determination of the Reserve must comprise of the following 8 steps:

(a) Step 1: Initiate the basic human needs and ecological water requirements assessment

(b) Step 2: Determine eco-regions, delineate resource units, select study sites and, where appropriate, align with Step 1 of the classification process

(c) Step 3: Determine the reference condition, present ecological status and the ecological importance, and sensitivity of each of the selected study sites

(d) Step 4: Determine the basic human needs and ecological water requirements for each of the selected study sites and, where appropriate, align with Step 3 of the classification process

(e) Step 5: Determine operational scenarios and its socio-economic and ecological consequences

(f) Step 6: Evaluate the scenarios with stakeholders and align with Step 6 of the classification process

(g) Step 7: Design an appropriate monitoring programme

(h) Step 8: Gazette and implement the Reserve

LEGAL MANDATE

Regulation 810 in Government Gazette No. 33541

4. For each water resource class, the procedure for establishing resource; quality objectives must comprise of the following 6 steps:

(a) Step 1: Identify water users within each water resource management unit and, where appropriate, align with Step 1 of the classification process

(b) Step 2: Determine the present state per water user and, where appropriate, align with Step 5 of the classification process

(c) Step 3: Determine the desired water quality per user and, where appropriate, align with Step 6 of the classification process

(d) Step 4: Determine water user specifications and, where appropriate, align with Step 6 of the classification process

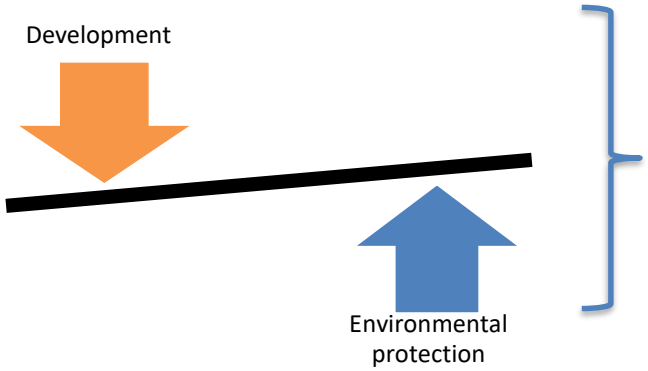
(e) Step 5: Determine water quality requirements of water uses and, where appropriate, align with Step 6 of the classification process

(f) Step 6: Gazette and implement the resource quality objectives

LEGAL MANDATE

National Water Act

- **Part 2:** Minister is required to use the classification system established in Part 1 to determine the class and RQOs of all or part of water resources considered to be significant.
  - Purpose of the RQOs is to establish clear goals relating to the quality of the relevant water resources.
  - A balance must be sought between the need to protect and sustain water resources on the one hand, and the need to develop and use them on the other.



Balance must consider 3 main elements:

1. Ecology
2. Economic benefits
3. Societal benefits

- Once the class of a water resource and RQOs have been determined they are binding on all authorities and institutions when exercising any power or performing any duty under this Act.

LEGAL MANDATE

National Water Act

13.1. As soon as reasonably practicable after the Minister has prescribed a system for classifying water resources the Minister must, subject to subsection (4), by notice in the Gazette, determine for all or part of every significant water resource -

(a) a class in accordance with the prescribed classification system
(b) resource quality objectives based on the class determined

13.2. A notice in terms of 13.1 must state the geographical area in respect of which the resource quality objectives will apply, the requirements for achieving the objectives, and the dates from which the objectives will apply.

13.3. The objectives determined in terms of 13.1 may relate to -

(a) the Reserve
(b) the instream flow
(c) the water level
(d) the presence and concentration of particular substances in the water
(e) the characteristics and quality of the water resource and the instream and riparian habitat
(f) the characteristics and distribution of aquatic biota
(g) the regulation or prohibition of instream or land-based activities which may affect the quantity of water in or quality of the water resource
(h) any other characteristic, of the water resource in question

LEGAL MANDATE

National Water Act

13.4. Before determining a class or the RQOs in terms of 13.1, the Minister must in respect of each water resource –

(a) publish a notice in the Gazette -

(i) setting out -

– the proposed class

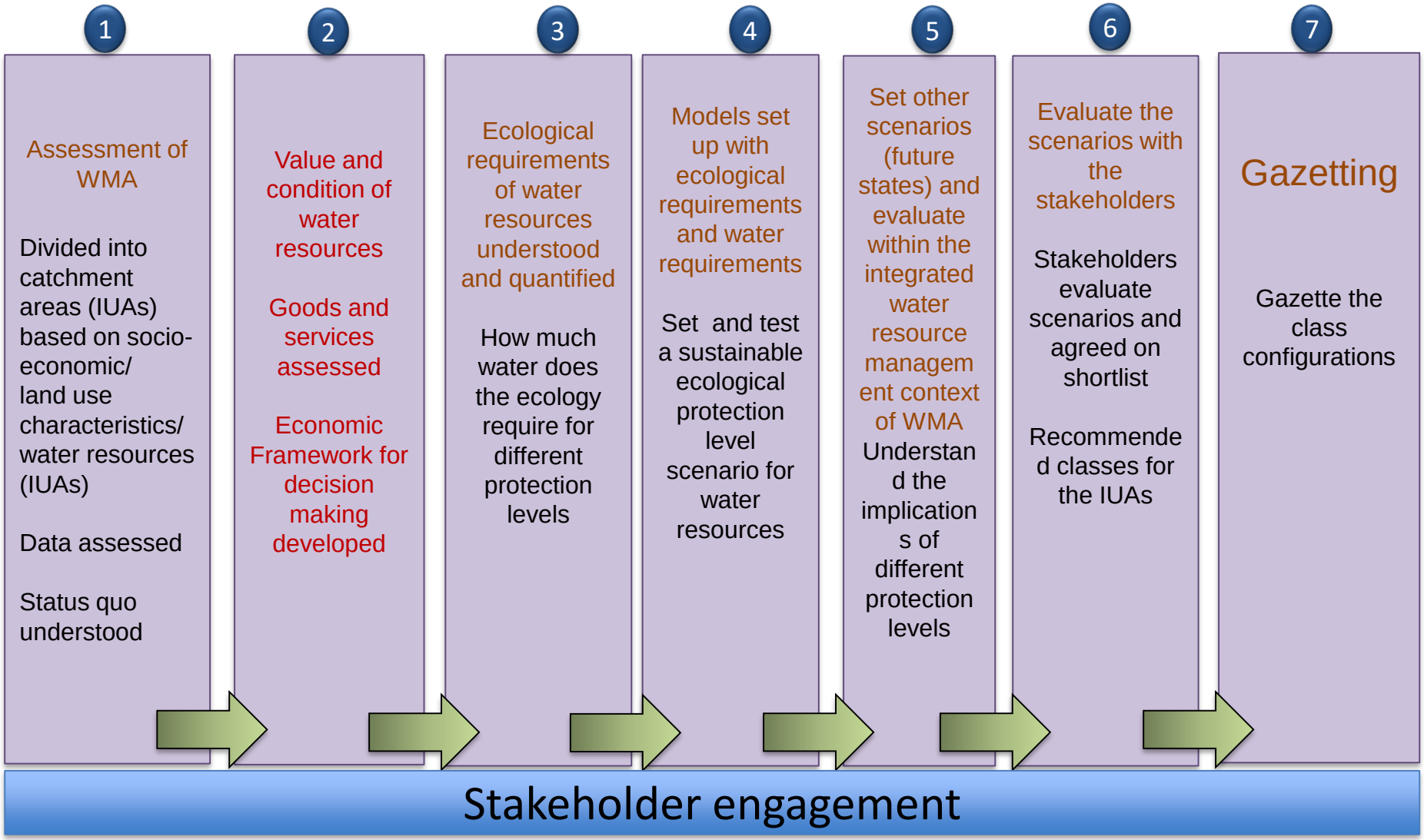
– the proposed RQOs

– the geographical area in respect of which the objectives will apply

– the dates from which specific objectives will apply

– the requirements for complying with the objectives

Classification Steps



Determination of Water Resource Classes

Classification defines the **desired state** of the water resources by setting Water Resource Classes;

Each class represents:

- a different **level of protection** that is required for the water resource, and
- **the extent to which the water resource can be used.**

Classification is used in two ways:

- To describe the **present status** of the water resource
- To describe the state towards which the water resource needs **to be managed** sustainably (**future state**).

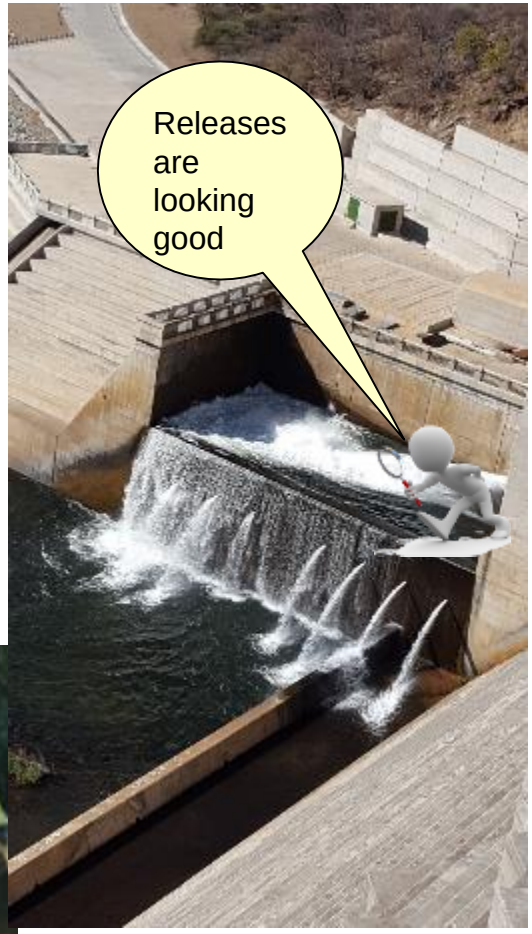
	Description of use	Majority of ecological categories
Class I	**Minimally used**	**A-B**
Class II	**Moderately used**	**C**
Class III	**Heavily used**	**D**

Ecological Category (EC) - means the assigned ecological condition to a water resource . It is measured by determining how much the ecosystem has changed from natural (pre-development condition). The scale is A (near natural) to F (critically modified)

Determining Resource Quality Objectives

These objectives provide statements about:

- what the **quantity** of the water should be (water level, pattern, timing)
- what the water **quality** should be (physical, chemical and biological
- what the **condition** of the **instream and riparian** (river bank) habitat should be
- what the **condition** of the **aquatic** (water) animal and plant life should be.



Berg Catchment: Classification Steps 1-7 (Stakeholder engagement throughout)

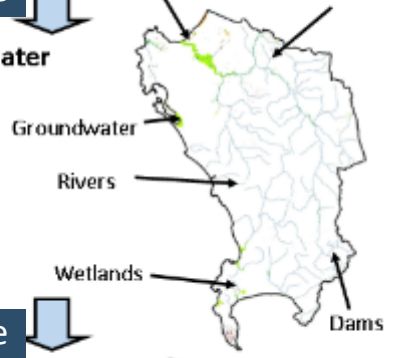
STEP 1: DELINEATE CATCHMENT & DESCRIBE STATUS QUO

Outcome: Integrated Units of Analysis with nested sub-units (nodes) and overview of status quo of Water Management Area (WMA) concerning all aspects of water resources.

Socio-economic Zones

Complete

Significant water resources



Complete

Integrated Units of Analysis

Complete

STEP 2: LINK ECONOMIC & SOCIAL VALUE

Outcome: Set of qualitative relationships determining how economic value and social wellbeing are influenced by ecosystem characteristics and the sectoral use of water.

SOCIAL WELL BEING

ECOSYSTEM INDEX

ECONOMIC PROSPERITY

Draft

STEP 3: QUANTIFY THE ECOLOGICAL WATER REQUIREMENTS AT EACH NODE

Outcome: Quantification of the Ecological Water Requirements (EWRs) and description of changes in non-water quality EGSAs. Provide a table of EWRs for each node at various levels of ecological integrity.

Node: refer to different Ecological Base Condition

Draft

STEP 4: SET A BASELINE FOR ECOLOGICAL SUSTAINABILITY

Outcome: Provide a ESBC and establish starter catchment configuration scenarios. This scenario will give lowest feasible level of protection required for sustainable use of entire catchment.

Water Resource Classification Procedure

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STEP 5: EVALUATE SCENARIOS WITHIN INTERATED WATER RESOURCE MANAGEMENT PROCESS

Outcome: Evaluate scenarios within IWRM process so that subset of catchment configuration scenarios can be put forward for stakeholder evaluation

STEP 6: EVALUATE SCENARIOS WITH STAKEHOLDERS

Outcome: Evaluate scenarios with stakeholders and decide upon an agreed upon configuration short-list for the Minister's consideration. This is an iterative process between step s 5 and 6.

STEP 7: GAZETTE WATER RESOURCE CLASS CONFIGURATIONS

Outcome: A Water Resource Class configuration (and associated RQOs) for the entire catchment is published by the Minister in the Government Gazette as required in the National Water Act of 1998.

Breede-Gouritz WMA: Classification Steps 1-7 (Stakeholder engagement throughout)

STEP 1: DELINEATE CATCHMENT & DESCRIBE STATUS QUO

Outcome: Integrated Units of Analysis with nested sub-units (nodes) and overview of status quo of Water Management Area (WMA) concerning all aspects of water resources.

Complete

Complete

STATUS QUO: Draft

STEP 2: LINK VALUE & CONDITION OF WATER RESOURCE

Outcome: Set of qualitative relationships determining how economic value and social wellbeing are influenced by ecosystem characteristics and the sectoral use of water.

Draft

SOCIAL WELL BEING

ECOSYSTEM INDEX

ECONOMIC PROSPERITY

STEP 3: QUANTIFY THE ECOLOGICAL WATER REQUIREMENTS & CHANGES IN EGSAs

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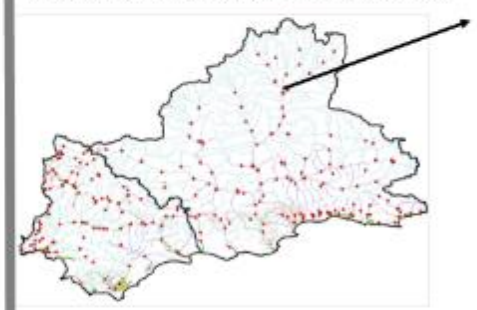
Outcome: Quantification of the Ecological Water Requirements (EWRs) and description of changes in non-water quality EGSAs. Provide a table of EWR for each node at various levels of ecological integrity.



STEP 4: SET AN ECOLOGICALLY SUSTAINABLE BASE SCENARIO & ESTABLISH STARTER SCENARIOS

Draft

Outcome: Provide a ESBC and establish starter catchment configuration scenarios. This scenario will give lowest feasible level of protection required for sustainable use of entire catchment.

Water Resource Classification Procedure

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STEP 5: EVALUATE SCENARIOS WITHIN INTEGRATED WATER RESOURCE MANAGEMENT PROCESS

Outcome: Evaluate scenarios within IWRM process so that subset of catchment configuration scenarios can be put forward for stakeholder evaluation

STEP 6: EVALUATE SCENARIOS WITH STAKEHOLDERS

Outcome: Evaluate scenarios with stakeholders and decide upon an agreed upon configuration short-list for the Minister's consideration. This is an iterative process between steps 5 and 6.

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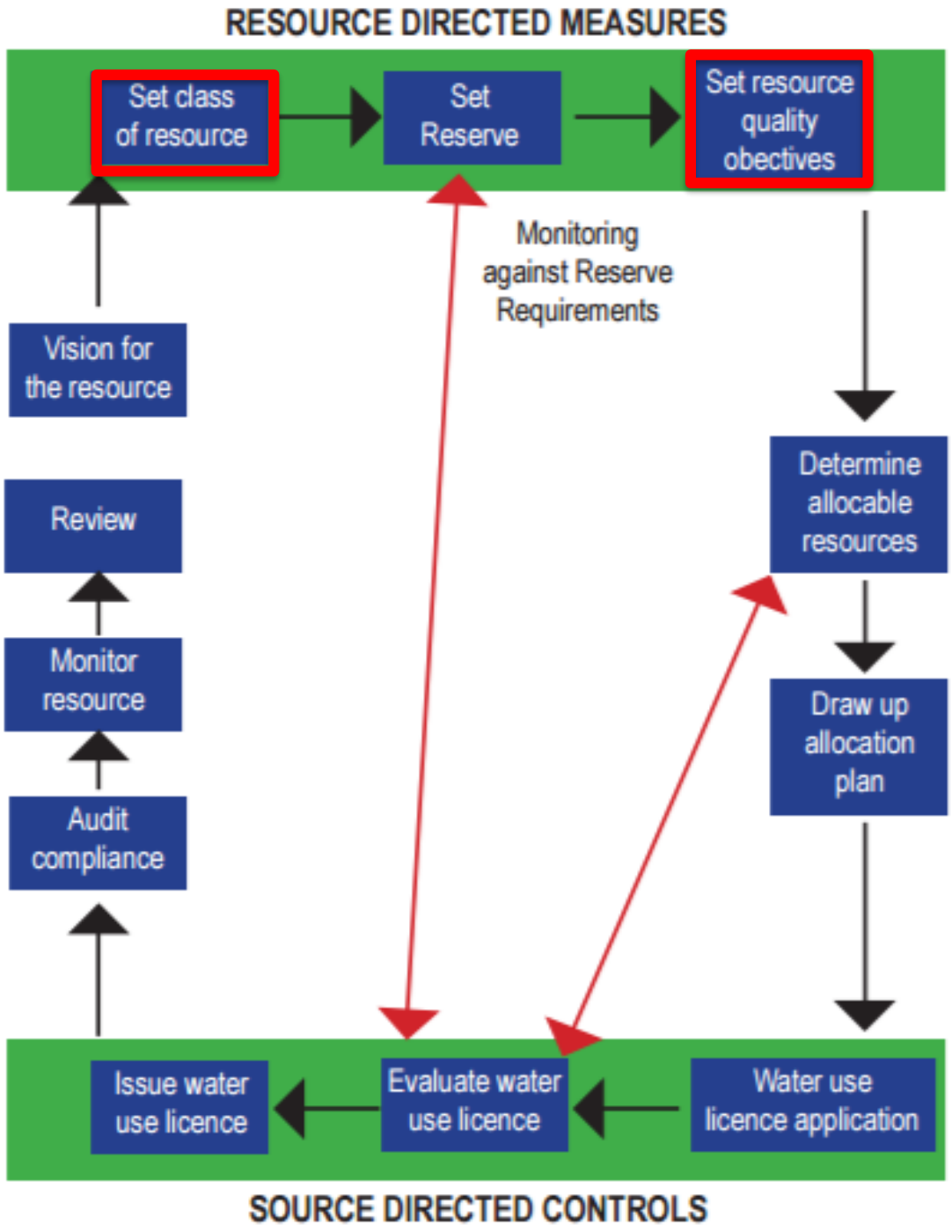
Outcome: A Water Resource Class configuration (and associated RQOs) for the entire catchment is published by the Minister in the Government Gazette as required in the National Water Act of 1998.

LEGAL MANDATE

National Water Act: MANAGEMENT

- A determination in terms of section 13 supersedes a preliminary determination.

- 15: The Minister, the Director-General, an organ of state and a water management institution, when exercising any power or performing any duty in terms of this Act, must give effect to any determination of a WRC and the RQOs and any requirements for complying with the RQOs.



MANAGEMENT

The implementation of Gazetted Class, Reserve & RQOs may necessitate the Department to:

- Revise General Authorisations
- Update Discharge Standards
- Initiate Compulsory licensing
- Update Monitoring Programmes

- The outcome of the WRCS provides water resource managers with specific targets which must be met by addressing the impacts associated with various water use activities within a catchment.

- Once an WRC has been determined, it is the responsibility of all water users to manage the impacts of their water uses by complying with water use authorisation conditions in order to meet the requirements of the WRC

DISCUSSION

- DWS roles and responsibilities
- CMA roles and responsibilities