



water & sanitation

Department:
Water and Sanitation
REPUBLIC OF SOUTH AFRICA



**WP 11004: PSC MEETING 2,
18 JULY 2017**

**DETERMINATION OF WATER
RESOURCE CLASSES AND
RESOURCE QUALITY OBJECTIVES
FOR THE WATER RESOURCES IN
THE MZIMVUBU CATCHMENT:**

**SPREADSHEET OF RUs, IUAs +
WATER QUALITY INFORMATION**

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PROJECT PLAN

Step 1: Delineate and prioritise RUs and select study sites

Step 2: Describe status quo and delineate the study area into IUAs

Step 3: Quantify BHNR and EWR

Step 4: Identify and evaluate scenarios within IWRM

Step 5: Determine Water Resource Classes based on catchment configurations for the identified scenarios

Step 6: Determine RQOs (narrative and numerical limits) and provide implementation information

Step 7: Gazette Water Resource Classes and RQOs

STAKEHOLDER ENGAGEMENT

RUs + IUAs

Water quality

WATER QUALITY INPUT NEEDED FOR STEPS 4 AND 6

4. Identify and evaluate Scenarios within IWRM

How will the current state and ecological objectives be influenced by future changes in operation?

6. Determine RQOs

Supply the narrative and numerical limits and provide implementation information

- **Water quality = two broad components**
 - **Ecological, i.e. as part of the EWR or Reserve process. Output = **EcoSpecs**.**
 - **Non-ecological or Users, i.e. **UserSpecs** (excl. aquatic ecosystems + includes users such as irrigation, stock-watering, domestic, recreation and industrial).**

- **Outputs of Step 6:**
 - **Water quality** portion of the **RQOs** (aka Resource Water Quality Objectives) as the most stringent objectives considering all users (i.e. EcoSpecs (from the Reserve/EWR process) and UserSpecs)
 - Narrative and qualitative statements will be used to describe water quality objectives
 - Numerical limits provide a quantitative measure to be used for monitoring purposes and auditing compliance
- **Main focus: An assessment of whether current levels of protection are adequate for the system**
- **All RQOs are linked to the catchment configurations that make up the Water Resource Class of IUAs**

- **Present State** assessment based on available information, wq scores from WRUI, DWS Green Drop reports, wq scores from the PES/EI/ES study (DWS, 2014)
- Water quality generally good across catchment, although excessive erosion
- Wq preparation for Steps 4 and 6:
 - ID wq role players, including non-ecological e.g. irrigation, settlements
 - Start identifying indicators linked to **driving variables** associated with indicator **wq role players**, e.g. elevated **phosphate** associated with **nutrients** linked to **stock-watering**
 - Aim is to identify **pollution priority areas** and / or **priority protection areas**

DESKTOP PRESENT STATE: WATER QUALITY HOTSPOTS

SQ reach	River name	Water quality impact (rating)	Water quality issues
T32C-05273	Mzintlava	Large (3)	Pivot irrigation (dairy farming) + sediment impacts
T32D-05352	Mzintlava	Large – Serious (3.5)	Kokstad WWTW + urban pressures; extensive irrigation + an instream dam
T32D-05373	Mzintlava	Large (3)	Irrigation return flows
T32F-05464	Mzintlava	Large (3)	Mount Ayliff WWTW medium risk; extensive erosion; rural settlements; dryland cultivation.
T33A-04991	Unknown	Large (3)	Extensive erosion; large number of villages; crossings; dryland cultivation; possibly elevated nutrient levels.
T34D-05463	Tokwana	Large (3)	Mount Fletcher WWTW in high risk – so nutrient elevations expected; urban impacts; crossings.
T35F-06020	Inxu	Large (3)	Low risk WWTW in Ugie; urban impacts with irrigation + cultivation downstream.
T35K-06167	Xokonxa	Large (3)	Tsolo WWTW in critical risk; urban impacts; crossings; dryland cultivation

STUDY SPREADSHEETS

- Show finalized RUs within identified IUAs
- Show water quality priority resource units
- Show wq role players/users + their locations within RUs
- Show driving users into water quality
- Show wq variables that drive wq state or requirements
- Focus is on moderate priority (flow, habitat (wq), biota) RUs, as info for all variables included at EWR sites
- **Spreadsheets will be updated over time**

IUA	RU (and Node Name)	SQ number	River	Ecological Hotspot	RU Priority	WQ hotspot + impact rating	WQ component indicator	WQ users	WQ driving variables	Wq notes
T31E	T31-8	T31E-04931	Tswereka	3	3					
	T31-9	T31E-05055		2	2					
	T31-10	T31E-05013	Tswereka	3	3					
	T31-11	T31F-05108		2	2					
	n/a	T31F-05111	Mzimvubu	3						
	T31-12	T31F-05112	Mzimvubu	2	2	2	?	Pivot irrigation; erosion + sedimentation	Nutrients, turbidity	Cedarville impacts felt on river?
	T31-12	T31F-05134		2						

- ★ EWR Sites
- Towns - Secondary
- Toens - Other

Source data
 Department of Water Affairs
[\[http://www.dwaf.gov.za/wqs/gis_data/river/rv5500k.html\]](http://www.dwaf.gov.za/wqs/gis_data/river/rv5500k.html)
[\[http://www.dwaf.gov.za/wqs/wms/data/000key2data.asp\]](http://www.dwaf.gov.za/wqs/wms/data/000key2data.asp)
[\[http://www.dwaf.gov.za/Dr_B/S/LIMDownload/\]](http://www.dwaf.gov.za/Dr_B/S/LIMDownload/)

Catchments

- Quaternary
- Sub-quaternary
- IUA boundary

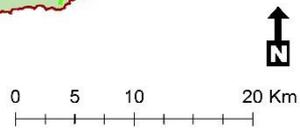
PES

A
B
C
D
E
F



Mzimvubu T31

Coordinate System: GCS WGS 1984
 Datum: WGS 1984
 Units: Degree
 27 January 2017



DATA SOURCES FOR WATER QUALITY INFORMATION

- **Desktop sources (as discussed)**
- **TTG 1 meeting for river water quality**
- **Upper Catchment Information meeting**
- **One-on-one liaison with:**
 - **Andiswa Qinisile, DEDEA: T35 catchment**
 - **Nombuyiselo Mgca, DWS Mthatha**
 - **Basetsana Khathali, Alfred Nzo District Municipality: T31, T32, T33 catchments**
 - **Noluthando Chonco, Alfred Nzo District Municipality: T31, T32, T33 catchments**



QUESTIONS FOR CLARIFICATION