



# Gariep Watch

P.O. Box 2536, Upington, 8801

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**ATTENTION: MR. CLINTON GEYSER**

**REVIEW OF THE DRAFT ENVIRONMENTAL IMPACT REPORTS: BOEGOEBERG, GROBLERSHOOP, GROOTDRINK, OPWAG, TOPLINE AND WEGDRAAI**

Gariep Watch reviewed the draft Environmental Scoping Reports as part of the public participation process and commented on each separate report on 22 September 2020. We note with disappointment that all our comments have not been incorporated into the specialist reports or draft EIR's. These raised issues remain unresolved.

Our further comments on the draft EIR's have been narrowed down to apply to all six of these development proposals, and are provided below:

**PROTECTION OF DRAINAGE LINES, CORRIDORS AND RIPARIAN ZONES**

Drainage lines, corridors and riparian zones close to these township developments are being used for illegal dumping and ablutions with rainfall that washes pollutants towards the lower Orange River. Measures to prevent and mitigate stormwater contamination should be investigated with cognisance of the expected run-off from these catchments, including the new development areas. It should, however, be endeavoured to avoid any development close to watercourses/dry drainage lines.

We note and agree with the recommendation in the May 2020 Freshwater Report by Watsan Africa that a buffer zone of 50 m should be left undeveloped around all natural drainage lines. However, the township layout plans as shown in, for example, Figure 23 of the draft Boegoeberg EIR does not take cognisance of this recommendation. These buffer zones have been indicated in Appendix 2D (preferred layout site plan). The draft EIR's should be updated to include the correct plans that show the buffer zones.

We disagree with the low-risk ratings that were awarded in the draft EIR's impact assessment for the destruction and contamination of the drainage lines. The draft EIR's do not address the design specifications of numerous road crossings that will be required when new erven are developed in close proximity to these drainage lines.

Storm water runoff from many of these new townships will first flow through an agricultural zone before it reaches the Orange River. The mitigation of storm water that is contaminated with solid waste and sewerage has not been properly addressed as the impact on down-slope producers have not been evaluated. There is no clear plan to prevent solid waste from entering the drainage lines, polluting storm water and subsequently ending up in the Orange River.



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No link is made between the identified Critical Biodiversity Areas on the development sites and the drainage lines, corridors and riparian zones. The specialist studies in support of this application were therefore produced in isolation without any integration of results. Corridors protect environmentally sensitive areas by providing avenues for wildlife movement, buffers between natural and human communities as well as green space for humans.

The exiting and visible high risk of contamination and destruction of the drainage lines cannot summarily be downgraded to a **low risk** as reported in the Freshwater Reports risk assessment and the draft EIR's. The threat to these drainage lines will increase profoundly with these proposed new developments, its associated infrastructure and human pressure.

### EXISTING SEWERAGE MALPRACTICES

The existing problems and adverse impacts pertaining to sewerage disposal malpractices should be addressed before embarking on any new developments. Years of bad governance by this dysfunctional municipality simply will not change overnight. It is dishonest to give the !Kheis Municipality the benefit of the doubt when assigning risks to new developments that will most likely just amplify the existing problems. Past behaviour predicts future behaviour.

New sewerage oxidation dam systems or WWTW's have been proposed in the draft EIR's. The question is asked whether these new bigger facilities will be properly maintained and operated if the modest existing pump stations and sewerage dams are not.

In the context of existing challenges pertaining to sewerage water treatment at !Kheis Municipality, we cannot agree with the assumption made in the freshwater impact assessment and the draft EIR's that an increased volume of sewerage poses a **low** risk.

Table 1 was prepared from information contained in the October 2020 Bvi Engineering reports and show the expected cumulative sewerage flows per day.

**Table 1:** Expected sewerage flows

TOWNSHIP	EXPECTED NEW SEWERAGE FLOW l/day
WEGDRAAI 360 stands	461 500
TOPLINE 248 stands	272 000
OPWAG 730 stands	365 000
GROOTDRINK 370 stands	546 000
GROBLERSHOOP 1500 stands	889 600
BOEGOEBERG 550 stands	531 050
<b>TOTAL</b>	<b>3 065 150 l/day</b>



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These calculations show that the expected cumulative volume of sewerage that will need to be treated with the development of 3 758 new erven, will amount to **3 065 m<sup>3</sup>/day**.

This cumulative volume of sewerage that will need to be discharged near the lower Orange River is significant. It can be expected that downstream users, aquatic ecosystems and ground water users down-slope of these developments may be adversely affected. These cumulative impacts have not been addressed in the draft EIR's. The re-use of treated wastewater should be investigated as part of impact management and mitigation measures.

## **GROUND WATER CONTAMINATION**

Ground water quality down-slope from the proposed developments and the existing settlements should be investigated. It is believed that, in the absence of adequate wastewater services at many of these settlements, much sub-surface pollution may reach the shallow aquifer and neighbouring boreholes. These down-slope boreholes are being used for irrigation, livestock watering and potable purposes and may pose a serious risk to public health.

Aspects pertaining to ground water contamination and its impact on downslope landowners and the Orange River were not addressed in the draft EIR's. The geotechnical report by Cederland Geotechnical Consult only briefly makes mention of a ground water aquifer that may be less than 15 metres deep, which means that a shallow ground water aquifer does exist.

No boreholes were identified in the development zones and no ground water samples were analysed. The total disregard of this potential serious impact is a critical omission in the draft EIR's.

It is disconcerting that no surface or ground water samples were analysed as part of the Freshwater Impact Report. Historical data was also ignored. The outcome of freshwater risk assessments for each development area cannot be trusted without any information on fresh water.

## **NEW INFRASTRUCTURE REQUIREMENTS**

The existing wastewater services at the development areas are clearly inadequate and are inefficiently maintained. New infrastructure should be designed, built and maintained to prevent any sewerage water from polluting the groundwater or the lower Orange River.

The design of new sewerage water infrastructure as performed by Bvi Civil Engineers neglected to specify whether oxidation dam systems should be equipped with an impermeable lining.

The Gariep Watch water quality monitoring program clearly show that polluted shallow aquifers close to the river impact adversely on the Orange Rivers' water quality. A river profiling study close to a township such as Brandboom will in all likelihood show increases in *E. coli* as the river progresses past the township. These increases will be in the absence of any visible surface flow or point sources of sewerage pollution.



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Cederland Geotechnical Consult identified shallow aquifers at these !Kheis Municipality development sites and these aquifers must be protected according to law. No mitigation was proposed in the draft EIR's or associated specialist studies because this risk was not evaluated. The Gariep Watch comments on the draft Scoping Report were therefore ignored.

Every township in the development area is littered with glass, plastic and chemicals that may cause water pollution. Licenced municipal waste disposal facilities should be developed to cater for any new development before it is undertaken. These facilities should be properly maintained.

## **BIOMONITORING IN SUPPORT OF A WATER USE LICENCE APPLICATION**

Wide-ranging assumptions were made in the Freshwater Reports to substantiate desktop ecological scores without site-specific field work. SASS5 is just one of the recognized rapid bioassessment methods, making use of benthic macroinvertebrates to assess ecosystem integrity in rivers. It is of limited use without information on instream water quality, flow, habitat, etc.

Caution is therefore needed in applying rudimentary SASS surveys as the sole protocol when determining a rivers Present Ecological State (PES), Ecological Importance (EI), Ecological Sensitivity (ES) and for the completion of an aquatic ecosystem risk assessment. No fish, sediment, hydrology, geomorphology, water quality, diatom, habitat or riparian vegetation assessments were performed. The Freshwater Report's outcome is therefore based on opinion and not on scientifically credible research.

Gariep Watch is maintaining a detailed biomonitoring program on the lower Orange River and one of our sites are situated at EWR02 (Boegoeberg). A Boegoeberg SASS5 score of **146** was calculated by accredited practitioners of Clean Stream Biological Services for Gariep Watch during September 2019.

The DWS's River Health database as well as a 2010 macroinvertebrate survey for the DWS supports this score at EWR02. The SASS5 scores at twelve Orange River localities including the Boegoeberg area as sampled by Watsan Africa ranged between 18 and 50. This major discrepancy between our finding of 146 and those reported by Watsan Africa in their Freshwater Reports is disturbing, especially because these low scores are blamed solely on toxic agricultural runoff. There is no basis for this assumption and all findings in the Freshwater Reports should then be viewed with circumspection.

Proof of the accreditation of Watsan Africa's SASS practitioners are requested.

## **ECOLOGICAL WATER REQUIREMENTS**

A comprehensive Reserve determination for the lower Orange River WMA was conducted for the Orange Senqu River Commission (ORASECOM) and the DWS in 2016. This DWS report deals with the ecological water requirements for surface and ground water in the lower Orange River and includes a site EWR02, which is located at Boegoeberg in Management Resource Unit C (Prieska to Boegoeberg). No mention or reference is made to this important DWS Report No. RDM/WMA06/00/CON/COMD/0216 of August 2016 in the Freshwater Reports.



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The 2016 Ecoclassification at site EWR02 showed that the Ecological Importance and Sensitivity (EIS) is **High**, the Present Ecological State (PES) is moderately modified (Category C) and the Recommended Ecological Category (REC) falls in Category B/C.

Another relevant report has also not been considered by the compilers of the Freshwater Reports and draft EIR's. Rivers for Africa as the professional service provider for DWS compiled a report on the ecological requirements for surface and ground waters in the lower Orange River WMA (Report no. RDM/WMA06/00/CON/COMP/0217 of July 2017). This report provides valuable input towards the implementation of an ecological reserve downstream from the development area.

The aquatic impact assessments in the Freshwater Reports and draft EIR's have not incorporated relevant, available and credible scientific research. These reports can therefore not be relied on to plan for the mitigation of aquatic biodiversity-related risks that may be associated with the proposed developments.

The cumulative impact of these six major developments on ecological water requirements in the lower Orange River were not considered in the draft EIR's. A water use licence in terms of Section 21 of the NWA should not be granted if this impact is not properly understood.

## **WATER QUALITY**

Freshwater Reports without any reference to surface or ground water quality information should be viewed with caution. It is stated in the Freshwater Reports by Watsan Africa that pesticides in agricultural return flow is responsible for a heavy impact on biomonitoring results, resulting in a reduced SASS score. Detailed pesticide analyses of agricultural return flows and DEEEP toxicity studies were performed for Gariep Watch by Clean Stream and BiotoxLab. These analyses did not show any pesticides or environmental toxicity in the agricultural return flows or in the lower Orange River.

The impact assessments that pertain to water quality in the Freshwater Reports and subsequent draft EIR's are based on speculation and not on credible scientific research. In the absence of water quality data, any conclusions made in these reports cannot be used to plan for the mitigation of any surface or ground water quality risks that may be associated with the proposed developments.

Gariep Watch do appreciate and support Watsan Africa's viewpoint that further developments will exacerbate the current sewerage treatment and disposal malpractices. This forewarning by the project team's own specialists was shrewdly not carried over to the draft EIR's or risk assessment matrix.

These Freshwater Reports were also prepared in support of a water use licence application (WULA) as required in terms of Section 21 of the National Water Act. Outdated and speculative information were provided therein, and a new water use licence could not in all conscience be approved by the DWS. The context of current sewerage treatment and disposal malpractices should be taken into consideration when reviewing new licence applications.



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## WATER ABSTRACTION

The abstraction of additional water resources from the lower Orange River was not addressed in the specialist studies or draft EIR's. The cumulative impact of all !Kheis township development proposals should be evaluated. This is a serious omission and considered to be another fatal flaw in the environmental application process.

Available research should be used to prepare a credible water use licence application that takes cognisance of the Ecological Reserve. Relevant reports are DWS Report No. RDM/WMA06/00/CON/COMD/0216 of August 2016 and Report no. RDM/WMA06/00/CON/COMP/0217 of July 2017.

Table 2 was prepared from information enclosed in the Bvi Engineering reports and show the existing annual average daily water demands compared with the expected growth in annual average daily water demand.

**Table 2:** Existing and new annual average daily water demands.

TOWNSHIP	CURRENT AVERAGE DAILY DEMAND m <sup>3</sup> /day	EXPECTED NEW DAILY DEMAND m <sup>3</sup> /day	ADDITIONAL WATER REQUIREMENT m <sup>3</sup> /day
WEGDRAAI 360 stands	535	319	216
TOPLINE 248 stands	428	279	149
OPWAG 730 stands	488	106	382
GROOTDRINK 370 stands	681	459	222
GROBLERSHOOP 1500 stands	3496	1172	2324
BOEGOEBERG 550 stands	710	380	330
<b>TOTAL</b>	<b>6 338 m<sup>3</sup>/day</b>	<b>2 715 m<sup>3</sup>/day</b>	<b>3 673 m<sup>3</sup>/day</b>

Table 2 shows that the total cumulative new water demand will increase to **9 053 m<sup>3</sup>/day**, which include the developments additional cumulative water demand of **3 623 m<sup>3</sup>/day**.

This additional water requirement from the lower Orange River for the development of 3 758 new stands is significant. It can be expected that downstream users and especially the aquatic ecosystems may be affected during low flow conditions. These cumulative impacts have not been addressed in the draft EIR's.



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## PROCEDURAL SHORTCOMINGS

Gariep Watch commented on the draft Scoping Report on 22 September 2020. These comments should have been addressed by the various specialists for its inclusion into the draft EIR's, which is dated January 2021. The Freshwater Reports are dated May 2020, which means that the Sept 2020 Gariep Watch comments have been ignored and not included in these reports or the draft EIR's.

This is a serious shortcoming in the interactive public participation process that should be followed for such an important and expansive development proposal.

The draft EIR's by EnviroAfrica conclude with an assertion that the proposed development does not pose **any** significant impact, should the proposed mitigation measures be implemented. We strongly disagree with this misleading statement and view it as a fatal flaw in the process. The real risks to the lower Orange River as highlighted by Gariep Watch has been ignored and were therefore not included in the environmental decision-making process that leads to mitigation.

We believe that there is a high likelihood that existing adverse impacts associated with untreated sewerage discharges from the !Kheis Municipality will merely continue and new developments will compound the severity of these impacts. Prevailing malpractices at the !Kheis Municipality should be resolved before embarking on any new extensions.

Please feel free to contact Gariep Watch if there are any questions or queries.

Yours sincerely

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