BASELINE STUDY ON SOURCES
OF POLLUTION IN THE
MOHOKARE RIVER CATCHMENT

TERMS OF REFERENCE

December 2019
1. Background

1.1 The Orange Senqu River Commission (ORASECOM)

The Orange-Senqu River originates in the Lesotho Highlands, from where it flows westwards to its mouth at Alexander Bay/Oranjemund on the Atlantic West Coast. The river basin is the third largest in Southern Africa, after the Zambezi and the Congo, covering a total area of 1,000,000 km$^2$ of which almost 600,000 km$^2$ is inside the Republic of South Africa. Four countries – Botswana, Lesotho, Namibia and South Africa - share the Basin, and the river forms the border between South Africa and Namibia at its lower reaches.

Lesotho, the upstream country falls entirely within the basin and contributes over 40% of the stream flow from only 3.4% of the total basin area but is one of the smallest users of water from the basin. South Africa is by far the biggest user of water from the Orange-Senqu River Basin, and this use drives the economic heartland of South Africa. The Botswana part of the Basin is entirely covered by the Kalahari Desert with very little surface runoff, but groundwater contributes to the water demands in this portion of the basin.

The water requirements in the lower reaches of the river are driven primarily by irrigation demands from both Namibia and South Africa, and the need to maintain environmental flows to the estuary. As the most downstream portion of a heavily used basin, water resources quality in this stretch is a concern. Similarly, the middle and lower reaches of the river are subject to periodic and often devastating floods. The Orange River estuary is ranked as one of the most important wetland systems in Southern Africa but has experienced environmental degradation. This wetland system was re-designated as a Ramsar Site, but because of its threatened status it was placed on Montreux Record in 1995.

The effective management of the Orange-Senqu River Basin is, therefore, particularly complex, but is also vital to the economy of the region. As a result, the riparian States prioritised this basin for the establishment of a Shared Watercourse Institution under the revised Southern African Development Community (SADC) Revised Protocol on Shared Watercourses. ORASECOM was one of the first of the Shared Watercourses Institutions to be established in SADC.

ORASECOM is an advisory body, issuing recommendations to its Member States (The Parties) aimed at optimizing the development and management of the water resources of the Orange-Senqu River Basin for the benefit of all the people in the Parties.
1.2 The ORASECOM Agreement

The Agreement establishes Council as a technical advisor to the Parties on matters relating to the development, utilization, and conservation of the water resources in the River System. The Parties may also assign other functions pertaining to the development and utilisation of water resources to the Commission. Article 5 of the Agreement empowers Council to take all measures to make recommendations on "inter alia": water availability in the basin, equitable and reasonable sharing of water, studies on the development of the River System, the extent to which stakeholders should be involved in management of the system, the prevention of pollution and the control of aquatic weeds, and plans for emergency situations.

All recommendations provided by Council to Parties must be contained in a report, signed by the leader of each Delegation. These reports must also include estimates of the cost of implementing the recommendation and may suggest how these costs may be apportioned between the Parties. Recommendations to Parties must therefore not only indicate what must be done, but also how it must be done.

1.3 The ORASECOM UNDP-GEF Project to support the Strategic Action Programme Implementation

ORASECOM, with support from UNDP, managed to secure further financial support from GEF to implement selected priority activities of SAP. The UNDP-GEF project titled, Support to the Orange-Senqu River Strategic Action Programme Implementation, will be implemented by UNDP and executed by ORASECOM in the next 5 years to support ORASECOM and its member states to implement SAP. The project has been built on the Transboundary Diagnostic Analysis (TDA) which has carried out the necessary causal chain analyses in order to identify the transboundary threats to the sustainable development and management of the water resources of the Orange-Senqu Basin. Having identified and understood the threats and their causes, it was possible to identify the barriers which are preventing the removal of these threats, so that sustainable development/management of the basins water and related resources can proceed.

The overall objective of the SAP Implementation project is the strengthening of joint management capacity for implementation of the basin-wide IWRM Plan and demonstrating environmental and socioeconomic benefits of ecosystem-based approach to water resources management through the implementation of SAP priority actions in the Orange-Senqu River basin. The project is being implemented through four components:

- Component 1: Institutional and policy reform and technical capacity building towards enhanced transboundary basin planning and joint management.
- Component 3: Addressing Changes to the Hydrological Regime through the source-to-sea application.
- Component 4: Addressing Land Degradation through community-based ecosystem management.
The project is supporting the Government of Lesotho through a demonstration project under Component 2 on reducing stress on water resources quality. The demonstration project is focused on the point-source pollution on the Mohokare river catchment. Point-source pollution is usually controlled through water-quality standards and permitting programmes which establish limits on the kind or amount of pollutants each point source may discharge into a body of water.

To this effect, in Lesotho, the draft national water quality standards for various users, including domestic, industry, agriculture and environment, have been developed. With regard to pollution prevention and control, the Lesotho water policy is based on a combined approach using control of pollution at source through the setting of emission-limiting values and of environmental quality standards. In the Water Act (2008) the Government of Lesotho provides for the management, protection, conservation, development and sustainable use of water resources. The Government of Lesotho also pledges to ensure the establishment of programmes for the monitoring of wastewater in qualitative and quantitative terms to establish a coherent and comprehensive database for wastewater within each river basin.

However, in most industries (dominated by textiles) in Lesotho, the wastewater is not pre-treated before discharge, neither for discharge into the public sewerage system nor into surface water bodies. Implementation of the above-mentioned legislation and standards is severely hampered by the fact that only limited information is available on the quantity and quality of wastewater generated by industries, with no ongoing programme of industrial wastewater sampling and analysis. Likewise, there is no legislation on chemical wastes in Lesotho and the import/export of chemical substances, specifically those used in the textile industry, a major polluter in that part of the basin. The lack of robust guidelines for pharmaceutical products is also a concern. The Lower Mohokare Sub-catchment is the location for a major part of the textile production in the country and thus of priority concern.

2. Objective

The objective of this assignment is to procure the services of a short-term Consultant to undertake a baseline study on the water quality situation in Lesotho. This will identify pollution hotspots as well as management interventions that are being implemented especially by the textile industries and other regulatory agencies (DWA, DoE and LEWA).

3. Scope

This Consultancy will include (but may not be limited to) the following tasks:

i. Drafting of an Inception Report, which will contain a clearly defined programme of work and methodology to be used to undertake the assignment.

ii. Assess and document point sources of pollution (textile industries and municipal treatment) within the Mohokare river catchment (from both Lesotho and South Africa as Mohokare is a shared watercourse).
a. Collate inventory of all wet industries and their specific location within the catchment
b. Evaluate and document their wastewater management practices
c. Document the direct point sources of pollution for all industries

iii. Document the contribution of non-point sources (NPS) in the catchment
   a. Identify areas where NPS pollution is an issue and prioritise hotspots.
   b. Determine the feasibility of expanding monitoring network to these NPS.

iv. Develop an inventory of chemicals and licensing system for chemicals including agriculture and pesticide use in the country;
   a. Conduct study on the chemicals that are used in Lesotho for industry, agriculture, etc. and document their origins
   b. Based on the Convention that Lesotho is signatory to, prepare a report on how to manage the chemicals that are undesirable
   c. Based on the industry type, document the quantity of chemicals that is used and how the end product (waste) is treated or disposed based on the licence issued and how it’s being monitored;

v. Propose a detailed demonstration project on water quality monitoring that will address the identified issues.

4. Deliverables
It is envisaged that this Consultancy will produce the following deliverables: -

i. An Inception Report that contains a clearly defined programme of work and methodology to be used for the assignment, which will be confirmed with the Secretariat and the Government of Lesotho;
ii. Report on point and non-point sources of pollution in the Mohokare Catchment
iii. Inventory of chemicals and their licensing system in Lesotho and;
iv. Results of the impact the chemicals in the inventory have had on Mohokare water quality and its aquatic life.
v. Proposed demonstration project in the Mohokare Catchment to address water resources quality issues;
All Outputs must be produced in English, and presented in 10 hard copies, as well as one electronic copy in MS Word/Excel format. All deliverables can be compiled into one report at the end of the consultancy.
5. Time Schedule
The Consultancy is expected to start on 15th February 2020 and be completed by no later than 15th April 2020.

6. Submission of the tender
The Team Leader should submit separate Technical and Financial Proposals clearly detailing total number of days to complete work and daily rates inclusive of all anticipated costs in South African Rands (ZAR) during the period of assignment. The term "all-inclusive" implies that all costs (professional fees, communications, consumables, etc.) that could be incurred by the consultant in completing the assignment are already factored into the daily fee submitted in the proposal. Travel costs and daily allowance cost should be identified separately in line with allocated consulting days.

Electronic Technical and Financial proposals should be submitted with a subject line clearly titled: "Baseline study on sources of pollution in the Mohokare River catchment" through email to Mr Michael Ramaano (mike.ramaano@orasecom.org) with a copy to communication.orasecom@gmail.com no later than 1600hrs on Wednesday 22 January 2020.

Request for clarifications should be emailed to the above contacts or through telephone (+27 84 3051002 or +267 71891945) no later than 1200hrs on Wednesday 15 January 2020.

7. Requirements
The Consultant or Consultancy Team must have the following:

i. A postgraduate qualification in the fields of Freshwater Quality Monitoring or Limnology and at least 10 years working experience in the water quality field;

ii. A BSc in Biology and Chemistry with at least 20 years’ experience in water quality monitoring

iii. Extensive knowledge of the Lesotho water quality monitoring field and the enabling environment;

iv. Experience in undertaking water quality assessments;

v. Familiarity with the Orange-Senqu River Basin.
8. Institutional Arrangements

The Consulting Team is expected to commence work as soon as possible after concluding all necessary contractual arrangements with UNDP GEF ORASECOM SAP Implementation Project.

The successful Consultant will work under direct supervision of the Environment/Water Quality Expert. The Project shall be responsible for arranging meeting venues as well as transport, meals and accommodation (if required) for participants (including the consultant(s) during national workshop consultations). Unforeseen costs incurred may be reimbursed based on acceptable justification and documentation. However, the Consultant(s) shall be responsible for supplying own office facilities, equipment, transport, meals and accommodation during fieldwork.

ORASECOM and its partners will not be responsible to arrange visa requirements for Consultant/s; however, can facilitate where necessary by giving supporting letters and will oversee arranging translation services during workshops only.