



Terms of Reference

for

A Study to Identify, Characterize, Map Sources and Recommend Environmental-Friendly Solutions for Water Pollution Mitigation Actions in the Incomati and Umbeluzi River Basins in Mozambique

1. Background

Maputo, the capital of Mozambique, is the largest city in the country and also the corporate and commercial centre where 20,2% of country's GDP is generated. According to the census of 2017, about 4% of the country's population is in Maputo and about 11% of the country's population live in the city and in the Maputo province, collectively known as the Greater Maputo Region. In recent years, a noticeable economic growth has been recorded in the greater Maputo region with a large decline in poverty levels. The good conditions for sugarcane production and horticultural activities in the capital's green belt provides livelihoods for thousands of people that rely on cultivation of vegetables, driving the local economy and the importance of freshwater. The region is served by the Umbeluzi and Incomati river basins that provide surface water and by the Greater Maputo Aquifer for groundwater.

Due to effects of climate change, the Greater Maputo Region is recurrently affected by floods and droughts, with severe effects to the economy and to the local communities' livelihoods. Although the current rainy season (2020/2021) has been characterized by floods and recovery of the storage capacity for the Pequenos Libombos and Corumana dams, the region has been severely affected by droughts since 2014/2015. The most severe drought ever recorded was in 2015 and it threatened several water-dependent private and government projects as well as the biodiversity and the local communities.

With large investments, high influence and high level of impact on potential stewardship interventions but also very influential on water governance and socio-economic and environmental aspects, the private sector is undoubtedly a relevant stakeholder to engage with when discussing water resources management in the region. The water availability and quality in the Greater Maputo Region is highly dependent on the upstream uses. Despite the fact that there are international agreements for water allocation and regulations on patterns for environmental quality and effluent emissions, concerns on water availability for different uses and on water quality have been increasingly raised and calling attention to the fact that more informed decision-making on water management cannot be postponed.

The Government have invested in building the Moamba major dam (in the Incomati river, whose construction started in 2014 but was paralyzed due to financial issues) and for completion of Corumana dam (in the Sabie river, aiming to raise its storage capacity in 40%). These investments and increased capacity for flood and salt intrusion control have unquestionable positive impacts to the water availability for different uses in the region, and also have raised importance of environmental and social aspects on water quality. For the case of Corumana, whose completion works were finished in 2020, new areas are predicted to be flooded and families and their assets will be displaced, impacting their livelihoods and raising



issues related with water quality since cattle grazing and watering is done within the reservoir and, on the other hand, unsustainable fishing methods are also contributing for water quality issues and complaints on decreasing of fish catches. The recent train accident in the Umbeluzi basin that caused leakage of about 360,000 litres of diesel fuel into the Umbeluzi river upstream of the Pequenos Libombos reservoir, and the use of fertilizers for small and large scale agriculture are discharging pollutants to the rivers and threatening the quality of water in the region.

In cognizant of the region's water related challenges, WWF Mozambique went into a corporate engagement with ABInBev in 2019 to develop actions for tackling water related issues and convene different stakeholders in order to pull together efforts for multi-stakeholders' solutions including gathering and providing scientific-based information for improved water resources management in the region. Indeed, WWF conducted a study on shared water risks and opportunities on water resources management in the Greater Maputo Region from 2019 to 2020 that has provided a clear image of the context, challenges and risks for water management as well as potential typology of responses, screening process for defining portfolio of interventions that should be taken.

In carrying on from the study, WWF Mozambique seeks to support *ARA-Sul* (the Government institution for water resources management in the South of Mozambique) with a consultancy to identify, characterize and map out the sources of water pollution in the Umbeluzi and Incomati river basins and recommend environmentally-friendly mitigation actions, including nature based solutions, for water pollution, that can be implemented by different actors.

2. Objective(s) of the Consultancy

The overall objective of the consultancy is to identify, characterize and map out the sources of water pollution in the Umbeluzi and Incomati river basins and make recommendations on mitigation actions for different actors in the basin.

Specifically, the consultancy will:

- Identify, characterize and locate on GIS maps sources of water pollution (existing and potential) from the various socio-economic activities that are developed and implemented in both river basins by private actors, governments and local communities in the Greater Maputo Region;
- Establish the trend on water quality in the basins over the last 5 years (2016 – 2020) on the following parameters: Ph., Dissolved Oxygen, Turbidity, Colour and Organic Matter;
- Identify and characterize any invasive aquatic species and produce GIS location maps with clear indication of their geographical extent in the Incomati and Umbeluzi river basins;
- Identify and characterize the effects of the identified pollution on people, livelihoods, companies and biodiversity in the Greater Maputo Region;
- Recommend environmentally-friendly mitigation actions, including nature based solutions, for each type of pollution source and effect, including identifying key stakeholders key for implementation of those recommendations;



- Review national water quality regulations and produce recommendations for its improvement.

3. Scope & Methodology

This consultancy will be carried out in the Greater Maputo Region, specifically in the Incomati and Umbeluzi river basins. The consultant is expected to use a detailed methodology for the study that should include a combination of desktop research (related to water quality in the Incomati and Umbeluzi river basins in Mozambique or South Africa and Eswatini Kingdom), stakeholder engagement (via telephone, internet and/or in-person interviews, followed by a stakeholder validation workshop by basins committees in both Incomati and Umbeluzi), and field visits and meetings for data collection, analysis and processing. The consultant is also expected to do statistical analysis to the existing data collected by *ARA-Sul* and *Águas da Região de Maputo* and establish the trend on water quality over the last 5 years (2016 – 2020) on the following parameters: Ph., Dissolved Oxygen, Turbidity, Color and Organic Matter.

The list of stakeholders to engage with should include but not limited to:

- Government: ARA-Sul, AdEM, FIPAG and DNGRH;
- Private Sector: Bananamozi, Tongaat Hullet, Illovo, CDM, Mozal, CTA, AFORAMO and others;
- Academic: UEM and UP;
- District governments in Namaacha, Moamba, Manhiça, Magude and Marracuene and municipalities of Maputo, Matola and Boane.
- Local communities from Boane, Namaacha, Moamba, Manhiça, Magude and Marracuene and municipalities in Maputo and Matola.

4. Deliverables/Expected Outputs

The consultant(s) is expected to deliver the following:

Deliverable	Details/Contents
Inception report	-With a maximum of 20 pages (font: Times New Roman; font size: 12, line spacing: 1,5) excluding cover page and annexes; -In both English and Portuguese with clear description of methodology, data collection tools and a work plan for carrying out the study
Preliminary report	-With a maximum of 20 pages (font: Times New Roman; font size: 12, line spacing: 1,5) excluding cover page and annexes; -In both English and Portuguese with clear description of findings, conclusions and recommendations from the study
Multi-Stakeholder	-Presentation, in Portuguese, using Microsoft PowerPoint, of the findings, conclusions and recommendations (including GIS maps) for validation.



Validation presentation	
Final report	<p>-With a maximum of 50 pages (font: Times New Roman; font size: 12, line spacing: 1,5) excluding cover page and annexes; -In English and Portuguese, covering:</p> <ul style="list-style-type: none"> • Brief context overview of water quality situation and threats in Umbeluzi and Incomati river basins; • Findings, including identified existing and potential sources of water pollution, invasive aquatic species, effects of pollution for people, livelihoods, companies and biodiversity in both Incomati and Umbeluzi river basins; • Conclusions; • Recommendations and environmental-friendly mitigation actions, including nature based solutions on how best to deal with each type of source and effects of pollution and with invasive aquatic species; • Annexes including location maps of identified sources of pollution, extent of aquatic weeds and water quality monitoring points, itinerary of the field visits to the study and contacts.
Summary of Final Report to be shared to key stakeholders	-5-10 page summary of the report in Portuguese for communication to stakeholders

5. Timeline

The assignment should be done within 30 working days, non-consecutive and distributed over a maximum period of 3 months after the signing the contract. Indicatively, the timeline is as follows:

Phase	Months											
	April			May			June					
Inception												
Inception workshop and submission of Inception Report				■								
Desktop Research												
Data collection and submission of progress report and preparation for field visits				■	■	■						
Field work												
Field visits and meetings with different stakeholders for data collection					■	■	■					
Report												
Report elaboration and submission of the 1 st draft								■	■			
Presentation of initial findings to Multi-Stakeholder in Umbeluzi and Incomati										■		
Addressing comments and submission of final version of the report											■	

6. Logistical Support and Other Information



WWF Mozambique will provide access to information existing in our database (e.g. national plans, legislation and policies that are relevant for this work, national and regional case studies, other reviews and contextual information). However, the consultant should endeavor to collect additional documentation from interested parties.

The consultant will be responsible by setting up bilateral meetings with stakeholders (ARA-Sul, AdEM, FIPAG, DNGRH, Bananamoz, Tongaat Hullet, Illovo, CDM, UEM, UP and others) for data collection. WWF will support the consultant(s) with an introductory letter for their engagement, and allocate staff to facilitate contacts with partners at national, provincial and district levels.

The workshops with stakeholders will be organized by WWF, and all related costs (e.g. travel costs for participants, venue, translation and other meeting costs) will be covered by WWF.

WWF will also provide cover the consultant(s) costs for accommodation, air-tickets, meals, local transportation and meetings in Mozambique for field visits.

7. Assignment Work Station

The assignment will be carried out primarily from consultants' offices, but with travel to Boane, Namaacha, Moamba, Magude, Manhiça, Marracuene, Maputo and Matola. The consultant(s) may need to use online resources (e.g. Skype, Zoom) to consult stakeholders at district level due to COVID-19.

8. Eligibility/Qualification of Consultants

The consultant(s) must have the following qualifications, skills and competencies:

- Master's Degree in water resources management, biology, environmental science, chemistry, biochemistry, microbiology, water and wastewater treatment and natural resources management
- At least 10 years of proven experience in water quality, natural capital, climate change, water stewardship, agriculture, fisheries, livestock, and freshwater related projects;
- Extensive knowledge in environmental engineering and chemistry data collection and data analysis and reporting using qualitative data methods;
- Knowledge of watershed management and freshwater systems in Mozambique or other African countries;
- Knowledge, expertise and experience with GIS software (Arc-GIS and Q-GIS etc) and data collection using GPS
- Experience working with government, private sector, NGOs and local communities;
- Excellent written and oral communication skills in both Portuguese and English;

9. Application

Interested candidates should submit, in separate files, the following by email to: concursos@wwf.org.mz with the name of consultancy in subject by April 23rd, 2021 at 17 hours, Maputo time.



(a) **Technical Application/Proposal** - responding to the ToRs and demonstrating a solid understanding and ability to deliver the requirements of the assignment, suitability for the assignment (institutional capacity and expertise (CVs of key personnel)) and experience (at least three examples of past relevant experience), and a methodology (approach and tools) to be used to execute the assignment.

(b) **Financial proposal** - comprising a detailed quotation for the assignment, showing working days and daily expected fee/costs, as well as travel needs from/to point/country of origin. Note that the costs associated with the execution of the assignment on the ground in Mozambique (transport, accommodation and food) will be covered by WWF Mozambique Country Office. The prospective consultant(s) shall bear all costs associated with the preparation and submission of the proposal.

All applications shall be submitted in English and where applicable only shortlisted applicants will be contacted for a face-to-face interview and presentation, which shall be conducted also in English.

10. Evaluation of Applications

Applications/proposals would be evaluated based on technical soundness and merit of methodology to execute the assignment (40 points); organizational capacity and expertise to execute the assignment (30 points); past performance relevant to the assignment (20 points); and financial offer (10 points).