

## **NAWEC response to Article in the Point dated Wednesday 21<sup>st</sup> June 2023**

This letter is in response to your newspaper article of Wednesday 21st June 2023 entitled “NAWEC supplied contaminated water with high Nitrates, reveals Audit report”.

We find this article to be very disappointing and biased reporting seeing that the author did not take the time to get feedback from NAWEC and or what was NAWEC’s response to the Auditor’s comments.

As communicated to the National Audit Office (NAO) in our response, we found the report focusing more on what NAWEC ‘is not doing’ without also commenting on the good they found in the field. It must be highlighted that NAO prepared a technical performance report in a generalized manner without qualifying some of the general statements made.

Sections of the report were found to be presented based on opinions and perceptions without taking into consideration some of the challenges that NAWEC faced during the period for which the report relates – for example:

- Vandalism of facilities and equipment,
- Backlash when charges are to be collected especially from major customers. Revenue is required to run the operations and where this is not forthcoming it impacts on NAWEC’s ability to reinvest in its operations.

To address the article, we have themed the points and comments as follows:

### **Mechanism to Increase Water Production**

It must be recognized that to be able to put in place the right mechanisms to increase water production, the funds must also be available. Over the years, and except for the EXIM Bank Asbestos replacement project, there has been no investment in the water sector. This has significantly impacted NAWEC’s ability to implement the required solutions that could have increased water production.

There are now 3 projects that will help in bridging the supply demand gap - kindly refer to Appendix 1 which provides an overview of these projects.

### **Water Safety Plans**

A Water Safety Plan (WSP) is a comprehensive document that outlines the measures to be taken to - reduce the likelihood or impact of water-related incidents and ensure the quality and safety of the water supply.

NAWEC is aware that water safety plans play an important role in the management of a water supply system. Though a water safety plan was not in place it does not mean measures were not being employed to minimize the likelihood of contamination occurring nor does it mean NAWEC was not taking appropriate actions to minimize the impact if the risk did eventuate. For example, when it was observed that some boreholes registered high nitrates within the Fajara area – some boreholes were immediately decommissioned as well as other strategies applied such as dilution to ensure the nitrate levels were within the guideline values of the WHO.

In a similar incident in Bakau, where contamination was detected in the distribution system due to a broken pipe caused by the road works contractor, NAWEC responded swiftly by isolating the affected

area and installed plastic water tanks that were refilled by hired water bowzers to ensure available and safe drinking water to the community before restoration of normal operation.

These and the approach of NAWEC towards similar incidents in the past e.g in Latrikunda, Dippa Kunda, Basse and recently in Kotu area demonstrates NAWEC's commitment towards the mitigation of risks as part of our mandate to supply wholesome water to the Gambian population.

Essentially a WSP document may not have existed but in summary, measures are applied and continue to be applied as and when appropriate to mitigate risk.

### **Elevated Tanks Bypassed and Functioning Geographic Information System**

A number of tanks have and continues to be bypassed for various reasons namely:

1. Lack of investment to replace the obsolete and or damaged infrastructure.
2. The demand of the areas served is more than the capacity of the tank and hence the need to bypass this system.

As NAWEC reviews how systems are operated and maintained, we will implement robust strategies to address growth, renewal, operations, and maintenance. This practice will help in ensuring the frequency at which tanks are bypassed is minimized.

With respect to the lack of a functional GIS, we have in the past used a licensed ArcMap GIS application which got expired and the licensed not renewed due to the high subscription cost. To continue the use of GIS in the management of the Water Supply system and infrastructure, NAWEC under the World Bank funded project (IMS), procured and installed Onesait Utilities grid GIS which is currently in use but yet to be fully operationalized as data gathering is in progress.

### **High Iron Content**

There are 2 main facilities that are affected by elevated iron, that is Bansang and Gunjur. Bansang and Gunjur are in an iron belt and NAWEC cannot change those environmental conditions but can only adopt mitigation measures to ensure the iron content is within WHO standard.

In May 2022 in a bid to ensure water with elevated iron is not supplied we decommissioned the boreholes that served the Gunjur Water Treatment Plant and have re-directed a borehole from the Brikama wellfield free of elevated iron to now serve Gunjur.

With respect to the Bansang water supply, the World Bank Project will look to improve the water quality at this facility. Until this project materializes NAWEC Water Business unit have been cleaning the tanks at least twice annually and flushing the lines at least once annually. This is the operational strategies that we have employed to ensure biofilms with iron gets dislodged from the system.

### **Chlorination of Water**

Chlorine is generally added to water to treat bacteriological contamination. The water sourced from underground and that which is supplied to the communities by a NAWEC system is normally free from bacteriological contamination. This is evidenced in PURA 's water sample analysis results showing absence of bacteriological contamination for approximately 100 samples collected every 3 months across the networks within NAWEC service areas.

It must be noted that in the case of NAWEC, chlorine is only added as a barrier to contamination within the network as the water is transported from source to tap . In some parts of the world where the source water is free from bacteriological contamination chlorine is not added to the water supply .

The World Health Organization Guideline values for residual chlorine at the extreme of the network is 0.2mg/l – as noted this is just a guideline and is not obligatory on the utility considering there has been no detection of bacteriological contamination within the network and hence the comments around chlorine deficit is just raising alarms and creating mistrust on the wholesomeness of the water provided which is unfortunate.

The Gambian public should be assured that the water supplied is potable (safe).

### **Master Plan**

It is unclear what deficiencies are there in the master plan that requires updating. As per NAWEC's response to this aspect of the NAO report, it was recognized that the Masterplan of 2005 was not updated and or reviewed within the timeframe specified. However, it must also be recognized that a feasibility study was conducted into the water supply situation within the GBA between 2019/2020. As part of that study, demand projections were revised with recommendations for a new master plan to be developed. This feasibility study was submitted to The NAO at the time of their audit.

### **Strategic Development Plan**

The National Audit office was provided with copies of NAWEC's approved strategic plan for 2015 to 2019 and from 2019 to 2025 in an email dated 26th August 2022, with the objective of the NAO revising their report to reflect the correct situation and avoid misleading information to be published in their final report.

### **Faulty Water Meters**

If a meter is faulty, it means that the meter is not functional and hence no reading can be taken and hence there were no reliance on using faulty meters to inform our production. Where meters have been faulty, NAWEC has in the past used historical figures based on pump capacity and pump run hours to estimate its production. This is a common practice where reliable data is not available.

### **Standby Power**

It must be noted that by 2021 all facilities within the Provincial areas were equipped with functional standby generators. In addition, all major facilities within the GBA with the exception of Brikama treatment plant had functional generators. Hence the statement that NAWEC failed to provide its water facilities with functional standby power is very misleading.

## Asset Life

Assets have a theoretical life and an operational life and hence it's not necessary to have assets replaced based solely on its theoretical life as the elapse of theoretical life alone does not imply imminent failure – the condition of the asset is also important.

With the limited investment over the years, NAWEC as an institution has ensured that assets are not replaced just because they have reached their theoretical life and saw it fit to prolong the life of the assets in order to continue the supply of water to the communities served. It is very concerning that this is seen as bad management/performance on NAWEC's part, instead we believe NAWEC should be commended.

In summary it is not acceptable and borders on irresponsible for NAO to make such generalized statement without understanding the conditions and variations in useful lives of water supply assets.

# APPENDIX 1

## PROJECTS OVERVIEW

### 1.0 WASIB/AFD Project

#### Overview

The WASIB project is a French Government intervention project supported by the French Development Agency (AFD) in fulfillment of commitments made during the donor conference in 2017 to support the Government of the Gambia towards the realization of the National Development plan. The project with initial funding of Euro 16.5 million secured an additional funding of Euro 12.5 million in March 2023 to augment the initial funds.

#### Project implementation

The project will be implemented in 4 phases - with the potential for works under phase 4 to be carried out under both phases 1 and 2:

- Phase 1 – Emergency Works
- Phase 2 – Medium Term works and
- Phase 3 – Long term Master planning
- Phase 4 – Additional funding

## Scope of works

### ***Phase 1 – Emergency works***

The works are as detailed below.

#### ***Water Supply***

- Replacement of 8 damaged elevated water tank's internal liner.
- Design and build of 1 new elevated water tank for replacement (Serrekunda old tank – 500 m<sup>3</sup>) – including foundations and tower.
- Design and build of 1 new water ground level reservoir for replacement (Serrekunda reservoir – 900 m<sup>3</sup>);
- Replacement of 3 damaged elevated water tanks' galvanised tank panels (tank only).
- Replacement of 9 old transfer pumps (Serrekunda to Banjul pumps, Serrekunda small pumps, Miles 2 booster pumps);
- Upgrade of 2 transfer pumping stations (Brikama north line and Kotu Ring line).
- Design and build of 2 boreholes in the airport sector (Airport 2 and 3), including equipment and connection to the transmission line to the Yundum new tank and MV line.
- Equipment of 1 borehole (Airport 1) in the airport sector and connection to the transmission line to the Yundum new tank and MV line;
- Connection of 1 borehole (NASA) in the airport sector to the transmission line to the Yundum new tank and MV line.
- Design and build of 2.58 km DN150-DN300 uPVC transmission main between NASA well and Yundum new elevated tank, including all joints, valves, accessories, and structure. Including topographic survey.
- Purchase and implementation of bulk water metering: 36 on wells, 27 inlets/outlets of water tanks, 17 for treatment plants and pumps. Including 21 emitters for tanks outlet meters and 35 emitters for wells meters.
- Construction of 8 new chambers for implementation of meters.
- Replacement of faulty non-return valves: 27 at the inlet of elevated tanks, 32 for transfer pumps.
- Replacement of inlet and outlet pipes of 8 elevated tanks.
- Implementation of 21 regulation valves on elevated tanks.
- Implementation of 6 float valves on elevated tanks.
- Implementation of telemetric remote control-command of 21 elevated tanks, 16 wells of Brikama well field and 19 stand-alone wells.
- Equipment of two control rooms for telemetric system and training (Brikama and Serrekunda);
- Replacement of existing water treatment plant chlorination system by calcium hypochlorite, and O&M training on 5 WTPs.

### **Operational and Maintenance Equipment :**

- Purchase of wells spare submersible pumps, motors and impellers.
- Supply and delivery of trucks with mounted cranes for maintenance of submersible pumps.
- Purchase of 10 000 customer water meters.
- Laboratory equipment upgrades and training.

### ***Phase 2 – Medium Term Work***

The works under phase 2 are as detailed below,

- Improvement of pumping system features (depth, rate etc)
- Development of new sub-shallow well-field in Kitty/Sifoe
- Development of MAASTRICHTIAN aquifer
- Construction of the new wellfield and Maastrichtian boreholes
- Construction of the new well fields and Maastrichtian boreholes raw water transmission lines
- New treatment plant and storage
- Clear water transmission line from new wellfield to Brikama plant (10km 400mm in diameter transmission line)
- Telemetric and monitoring system of the new well field and Maastrichtian boreholes.
- Reinforcement of transmission lines bottlenecks
  1. Kotu – Serekunda bottleneck (0.9km OF 315mm main)
  2. Brikama Transmission lines (2.8km of 400mm diameter mains and 1.8km of 250mm mains).
- Upgrading of transfer pumps
- Extension of distribution lines – approximately 100km of secondary and tertiary network and/or reinforcement of primary network
- 8000 new service connections

### ***Phase 3 – Long term Work***

- The long-term component will finance a Water Supply and sanitation Master Plan, to help establish sector investment priorities through strategic documents and ensure smooth coordination with donors.

### ***Phase 4 - Additional Funding***

- rehabilitate three existing water tanks,
- Upgrade existing storage of Brikama water treatment Plant, with associate upgrade in pumping capacity and construct 1 additional (500m<sup>3</sup>) water tank and
- construction of 16km of reinforcement transmission line of size ranging in diameter from DN 500mm – DN700mm

The illustrations below provide a visual of the location of the proposed works.

PROPOSED SIFOE  
- KITTY WELLFIELD  
& TRANSFER LINE  
TO BRIKAMA  
WATER  
TREATMENT  
PLANT



Figure 36: Transfer line layout between the new well-field and Brikama WTP (in blue on the map)



PROPOSED LOCATIONS FOR  
MAASTRICHIAN BOREHOLES

- Sifoe Water Treatment Plant
- Brikama Water Treatment Plant
- Sukuta Water Treatment Plant
- Serrekunda Water Treatment Plant

The construction period for phase 1 will take 12 -15months with the overall project expected to be completed in 2026. Presently for and for phase 1 we are at the procurement stage to procure the contractor for the physical works. Phase 2 has already started with the consultant on board and is currently in the design studies (data gathering) phase.

## 2.0 OIC Project

### Overview

The Gambia Government secured funding from the Saudi Fund for Development through the Gambia OIC Secretariat to finance key priority projects for the 15<sup>th</sup> OIC summit. One of these identified projects was the Water Production, Transmission and Distribution Project in the OIC concentrated of the Greater Banjul Area (GBA).

As the Gambia is to host the summit of the Organization of Islamic Cooperation with over one thousand (1000) expected delegates and other participants, there will be significant impact on the acute water

supply system in the OIC concentrated Area of the Greater Banjul Area. It was therefore important that the water supply system in the Greater Banjul Area be upgraded with the aim of ensuring that all delegates, participants and the general public have an acceptable level of water supply at an adequate pressure during and after the summit.

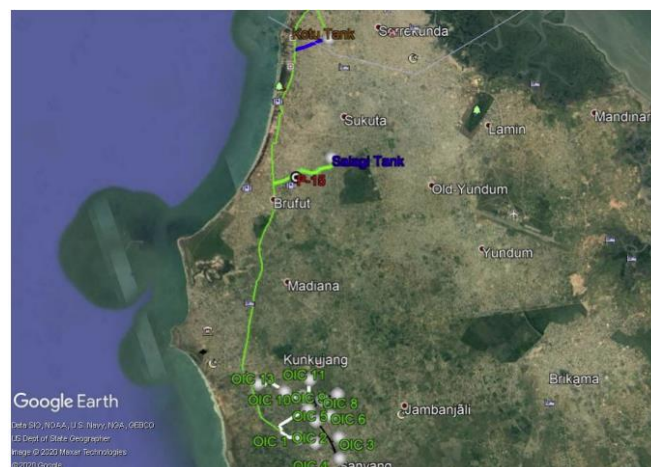
## Scope of Works

The Scope of this Project includes the following:

- Drilling of New Water Production Boreholes with all required operational accessories to meet the requirements of wholesome water production.
- Construction of Water Treatment plant with all requirements such as;
  1. Stand by generator for continuous operations.
  2. Water treatment facility
  3. Underground Water Reservoir
  4. Equip with all maintenance and operational requirements.
  5. Pump House
  6. House for operators and station Manager
- Construction of a medium voltage Power line (11KV) for the operation of the Boreholes
- Installation of a Scada system for the remote control of the system
- Construction of Raw transmission lines from the Boreholes to the treatment plant.
- Construction of Clear Water Transmission lines from the Treatment Plant to the demand centers and Elevated tank sites.
- Construction of elevated water Tanks
- Expansion and Rehabilitation of the Water Distribution Network in GBA.

Areas for examples Kunkujang Mariama, Maidiyama, Salagi to name a few will benefit from the works under the OIC.

The project is expected to be completed in 2024. At this stage we are in the procurement stage to secure a contractor for the physical works.





## 3.0 World Bank Project

### Overview

The Gambia Energy Restoration and Modernization Project (GERMP) additional financing was approved by the World Bank Board of Directors on 29 June 2020. As part of this Project approximately US\$13M was set aside to address the water issues within the Gambia and referred to as component 4 and 5 of that project.

The components of the project are outlined below:

1. **NRW reduction plan** - The key activities will include the creation of District Metered Areas (DMAs), physical and commercial loss reduction, and pressure management and capacity building.
2. **New connections** - Replacement of faulty meters and system improvements of tertiary network. The project will also expand water supply services to some critical areas in GBA.
3. **Rehabilitation and re-construction of storage tanks** -for Albion 1 and 2 tanks and the Brikama Nema tank.
4. **Water quality improvement** - A feasibility study on improving the quality of water at the treatment plants in Gunjur and Bansang.
5. **Rehabilitation and Construction of New Boreholes**: Rehabilitation Fencing has already been undertaken for four existing boreholes, with additional six currently been done.

In addition, to improve access to water supply in the country, six additional boreholes are to be drilled in the Greater Banjul area and six in the provinces.

The World Bank Project is set to be completed by Dec 2024

## 4.0 Summary

In summary, the three named projects will cumulatively address some of the main issues plaguing the water supply system with short-term actions of

- Mitigating the immediate critical problems by improving water supply continuity,
- Improving the monitoring of water losses and regulation of the water supply
- Reducing water losses
- Increasing water production capacity to match with the current water demand,
- reinforce water quality control and improve operational safety.

The medium-term and long-term actions will

- look to increase water production and augment the production capacity.
- Extend the water network to unserved areas to improve the coverage, accessibility and to successfully respond to the medium-term increase of the water demand.
- diversify water sources, alleviate risks of urban contamination, and introduce water source resilient to climate change and more importantly to:
- provide a long-term plan which will be used to secure further funding to implement works to cater for a population up to and including 2050. To improve coverage and accessibility.