WATER SECTOR

2025

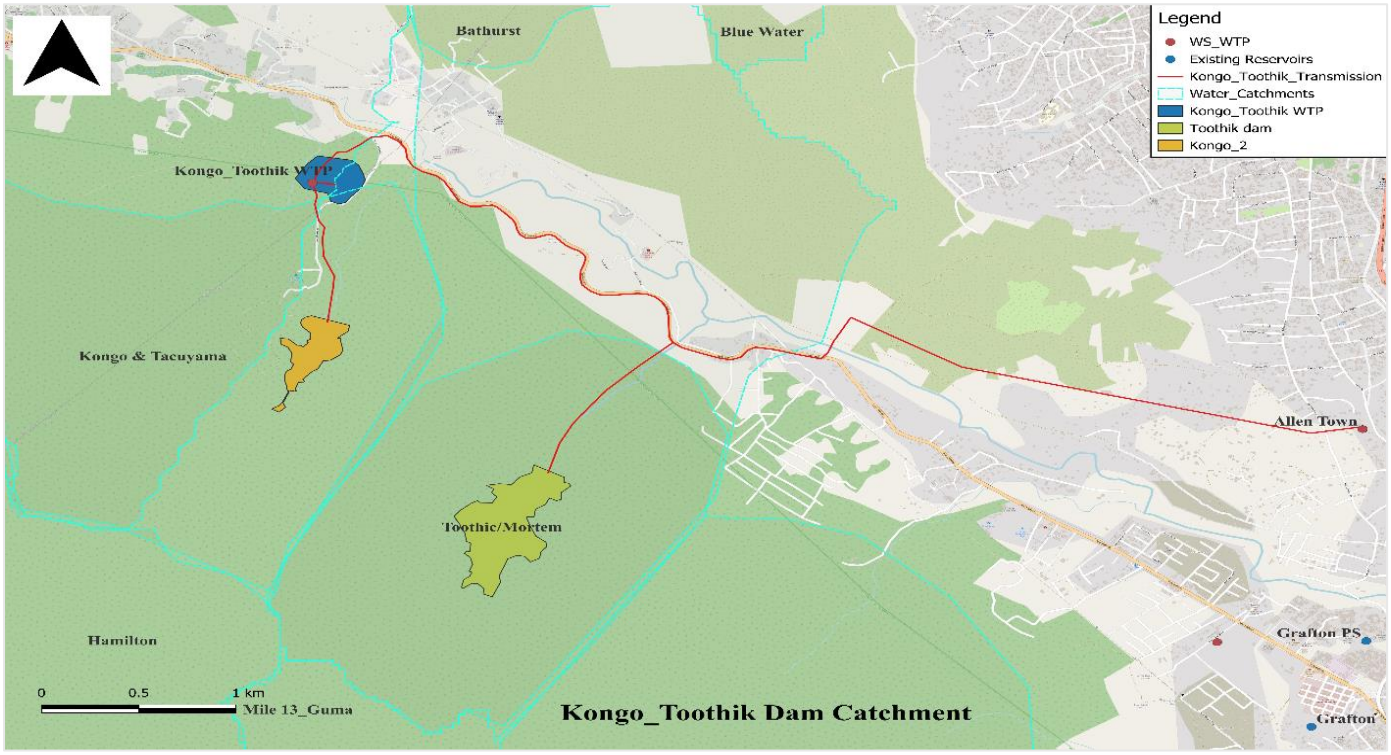
The Mountain Communities Bulk Water Supply Project

Project description



The highest priority bulk water supply project for the Guma Valley Water Company (GVWC) is the supply to Freetown's mountain communities, ultimately benefiting a current population of c.40,050. This involves designing and constructing two dams – to create Toothik and Kongo 2 reservoirs – plus a new water treatment plant and a transmission system to an upgraded water distribution network. The dams, treatment plant and transmission system are shown in the figure below.

Figure 1. Map of dams, treatment plant and transmission systems needed to create Toothik and Kongo 2 reservoirs



The project will benefit a population of c.100,640 by 2050 in the following areas: Regent, Leicester, IMATT, Hill Station, Gloucester, Fourah Bay College and Bathurst.

The capacity of the reservoirs and catchment areas is shown below. The new water treatment plant will be located between Tacugama and Charlotte.

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Toothik

Dam parameter	Value
Estimated storage volume	9.17 Mm^3
Catchment area	2.47 km^2
Dam height	60 m / 440 MASL
Yield (95% assurance of supply)	31 ML/day
Proposed dam wall material	Earth / rock-fill with clay core

Kongo

Dam parameter	Value
Estimated storage volume	3.86 Mm^3
Catchment area	1.66 km^2
Dam height	45 m / 435 MASL
Yield (95% assurance of supply)	17 ML/day
Proposed dam wall material	Earth / rock-fill with clay core

Investment proposition

In response to the critical water supply situation in the Western Area, GVWC is actively seeking a partner to collaborate on providing bulk potable water to its distribution system in the mountain communities of Regent, Leicester, IMATT, Hill Station, Gloucester, Fourah Bay College, and Bathurst.

This will involve the construction of new dams, a new treatment plant and the necessary transmission and distribution pipelines. The preferred partnership model is the design, build, operate and transfer arrangement under a sub-concession to GVWC. Additionally, the Government of Sierra Leone (GoSL) are open to considering a full concession to directly supply the communities.

The project is currently in the pre-feasibility stage and is part of the GVWC master plan.

If private sector investment is not forthcoming, GoSL will continue to explore funding options such as concessional loans or donor grants to support the design and feasibility stage of the project.

Key facts

The estimated funding requirements of the project are as follows:

- Design and feasibility: US$1.5 million
- Dam construction: US$69 million
- Water treatment plant: US$21 million
- Transmission pipeline: US$3.5 million
- Total: US$95 million

The ongoing management of the facilities to meet regulatory and contractual commitments is estimated at 3% of capital expenditure.

The plan is for GVWC to seek concessional loans or grants of US$14 million for the distribution pipeline and storage costs alongside private sector investment. If a private sector investor takes on a full concession for water supply, the distribution cost would be included.

The weighted average tariff approved by the Sierra Leone Electricity and Water Regulatory Commission in 2021 was US$1.09. Currently, losses occur through weak transmission and distribution pipelines, amounting to 30% of production. Additionally, an estimated 20% of loss is due to water theft and other sources of unbilled authorised consumption, resulting in a total system loss of 50%. It is assumed that when planned water supply interventions are implemented, physical losses will be eliminated, and other non-revenue water including water theft and unbilled authorised consumption will be reduced to about 3% in 2035.

Financial analysis during the pre-feasibility studies used discount rates of 4%, 5% and 6% per annum with operational expenditure fixed at 3% of capital outlay for the year. The net present value for this project, based on benefits derived, was positive for the long-term at a discount rate of 4%.

Project revenues to meet capital and operating costs will be derived by payment for the bulk supply of water to GVWC. The tariff and related terms will be agreed upon in principle at the early stage of project development and will be confirmed at subsequent stages, subject to political and regulatory approval.

The GVWC master plan indicates a need to double existing tariffs to recover the capital investment. GoSL is committed to cost-reflective pricing of water supply, with any affordability needs covered by targeted subsidies only. It recognises the need for private sector investors to receive assurances and appropriate guarantees regarding future revenues from the project.

GoSL further acknowledges the urgent need to protect water resources and has established the National Water Resources Management Agency to prevent encroachment during the design and planning phases. GoSL is also committed to addressing environmental concerns and any resettlement costs related to the Mountain Communities Bulk Water Supply Project.

Benefits of bulk water supply projects

This project is one of several bulk water projects identified, which combined will lead to significant socio-economic benefits including:

- Bulk water supply is positioned as the most promising within the water sanitation and hygiene sector.
- Revenue from the sale of water is poised to significantly offset investment costs in most areas.
- According to the GVWC master plan, the increased supply of high-quality water is expected to significantly drive economic activity, leading to substantial job creation and growth across multiple industries and sectors such as drink and beverages production, hospitality and tourism.

The projects will effectively reduce the time the population spends, particularly women and children, searching for water. They will also decisively lower overall household expenses and improve household health outcomes.

- It is confidently estimated that these indirect benefits will save more than US$72 million annually by 2035 for all planned water supply investments, with a specific intervention estimated to save US$8 million per year. This represents the significant productivity gains achieved when adequate water supply allows women and children to engage in other productive activities.