Republic of Rwanda

Gicumbi District

DRAFT

GICUMBI DISTRICT FULL LIFE CYCLE WASH INVESTMENT PLAN

Supported by:

water for people RWANDA

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1. Introduction

Known as the "land of a thousand hills and ten million smiles," Rwanda is a small landlocked country, located in east-central Africa, it is bordered by Uganda at the north, Burundi at the south, the Democratic Republic of Congo at west and Tanzania at east. Home to approximately 10.5 million people, Rwanda supports the densest population in continental Africa, most of who engage in subsistence agriculture. A high elevation country, the region has mountains in the west and savannah in the east. The three official languages in Rwanda are Kinyarwanda, French and English. Rwanda has abundant rainfall but lacks necessary storage, collection, catchment and/or distribution systems to provide an adequate level of water service to the population, particularly in rural areas. According to the Ministry of Finance and Economic planning, 80% of illnesses afflicting Rwandans are waterborne and the average distance traveled acquires safe water is 0.5 kilometers (Final Water System Design Review Report Rulindo district, Rwanda 2013).

Over the past decades, Rwanda as made progress in the delivery of water supply and sanitation. According to the Joint Monitoring Program (JMP), 58% of the population of Rwanda had access to at least a basic drinking water and 67% to at least a basic sanitation service in 2017.

Although these figures reflect progress over the past decades, achieving the ambitious targets set by the Government of Rwanda (GoR) of reaching universal access to basic water supply and sanitation by 2024 and to safely managed services by 2030 will require addressing critical systemic issues, which include:

- Inadequate access to finance for decentralized actors.
- Human resource capacity gaps in areas of planning, project management and operation and maintenance.
- Insufficient operation and maintenance of rural and water systems.
- Depleting water resources resulting in high costs of service provision.

In response to these challenges, the GoR has committed in 2016 to trialing the District-Wide Approach (DWA). The DWA seeks to provide systemic support to districts in their WASH service authority functions, whilst also recognizing the need for a strong supportive enabling environment at national level. The DWA focuses on the district as the geographical entry point and consists in working towards the desired outcome of the district having the systems, plans, finances, human resources, skills, knowledge, coordination and accountability mechanisms to achieve sustainable universal access.

The approach has since been piloted in Rulindo, Gicumbi, Bugesera, Karongi, Ngororero, Nyamagabe, with the support of Water for People, WaterAid and WASAC. In all of these districts, efforts have been geared towards strengthening districts and collaboratively developing fully costed Full Life Cycle WASH Plans, articulating a clear district-wide vision for the provision and maintenance of WASH services.

A district Full Life Cycle WASH Plan is the output of a process, which seeks to match an objective with financial resources. The objective is to provide universal access to services to all and forever in a given district and to cover these costs with all district resources available (tariffs, taxes and transfers, otherwise known as the "3 Ts").

In practice, this translates in the consideration of all costs involved in providing services that last (i.e. not just capital costs, but long-term costs of operating and maintaining services, as well as supporting their delivery).

2. Gicumbi District Profile

Gicumbi district is located in the Northern province of Rwanda and is bordering with Uganda in the north, the City of Kigali on the South, Nyagatare and Gatsibo District on the Eastern side and finally Rulindo and Burera District in the West. It has currently a population of 424,112 people from which 231,429 are women and 211,073 are men, Gicumbi District a total area of 829 Km^2 and a population density of 534 people per Km^2. The district has 21 sectors, 109 cells and 199 planned settlements all across the district. Figure 1 shows the administrative map of the district.

Figure 1: Administrative map of Gicumbi

3. Gicumbi WASH Level of Service

In 2016 Gicumbi District signed a partnership agreement that will see the two organizations partnering together to implement WASH Projects that will bring the district to a universal WASH infrastructure coverage and a sustainable WASH services. One of the first step was to understand what is the starting point and where the district is standing in terms of WASH service delivery, to this end a baseline survey was conducted through a sampling household survey collection and a census of all the public schools and health centers to check their WASH service status.

As illustrated on the figures below, the results demonstrated that household's water level of service[1] was at 45% while sanitation was at 47.4%, for public institutions the water and sanitation level of services was found at 71.6%

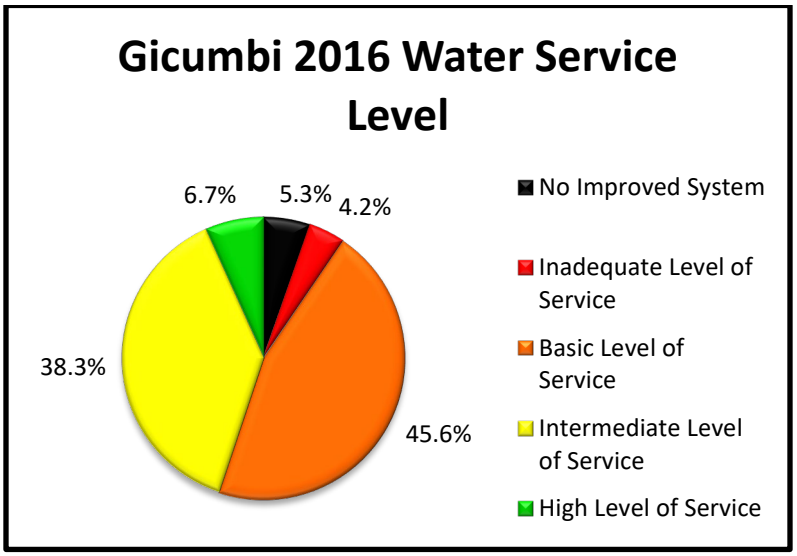

Figure 2: Water Service Level

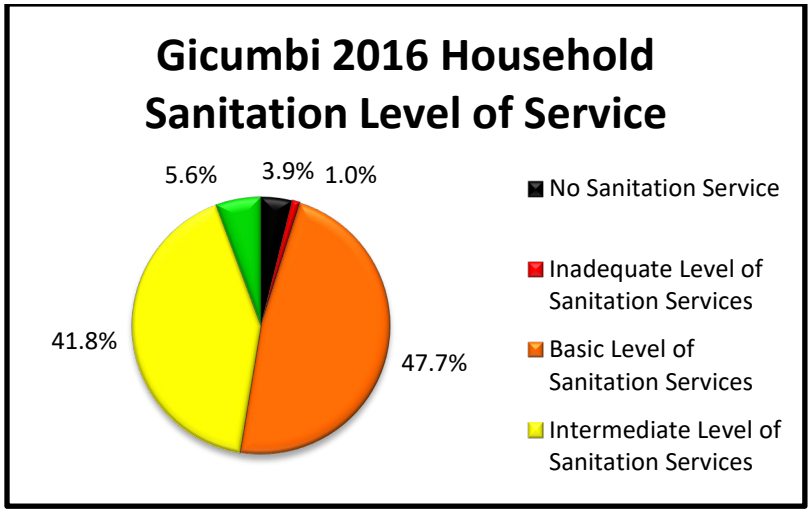

Figure 3: Household Sanitation level of Service

[1] This level of service is a combination of the high level of service and intermediate level of service, the different category of services are obtained from a scoring of indicators which are scored from a set of questionnaires asked to household and public institutions on their Water and Sanitation services.

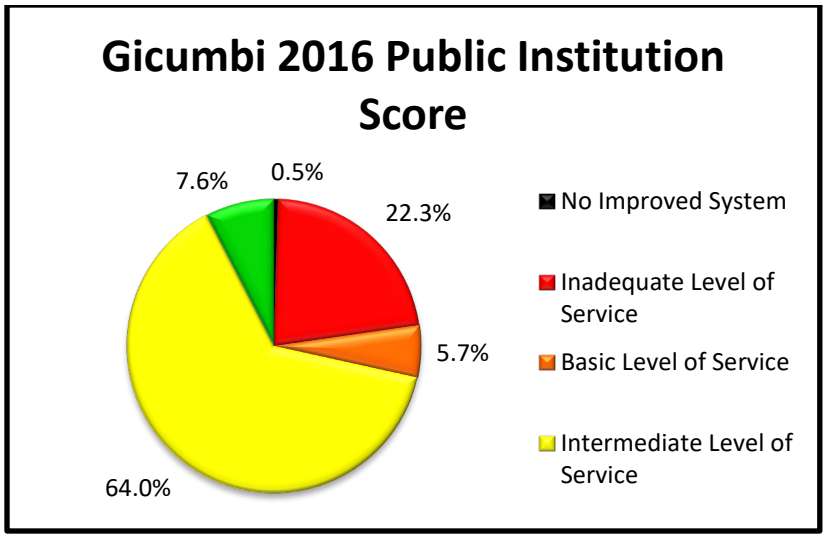

Figure 4: Public institutions Score

4. The District- Wide Approach

The WASH sector recognizes that piecemeal and project-based initiatives have not been successful at addressing systemic issues affecting WASH provision and that a fundamental shift in approach is required to achieve the ambitious SDG targets. This shift consists in moving away from fragmented initiatives and supporting harmonized approaches under a unified, government-led plan and strengthening all key building blocks that make up a strong WASH system.

Efforts need to be geared towards strengthening two key levels of the WASH sector: at central government level, a robust national framework is needed to create the conditions of success of the work at the district level. This includes having key policies and strategies, institutional capacities, financial resources and other general conditions that make up the enabling environment in place (e.g. adequate regulation, monitoring). At district level, the aim is to ensure district service authorities have systems, plans, finances, human resources, skills, knowledge, coordination and accountability mechanisms to fulfil their decentralized WASH mandates.

The District Wide Approach is the application of these principles, with a focus on the district level. It follows the usual steps of a programming cycle (assessing, planning, implementing and monitoring) to progressively strengthen all building blocks in a given district. Evidence gathered at the district level is used for advocacy at the national level to push for the model to be scaled.

In Rwanda, this approach is aligned with existing policies and strategies, including the National Sanitation Policy and Strategy and a National Water Supply Policy and Strategy (2016), which

provide clear policy directions and strategic actions towards achieving the universal access targets and re-establish the principle of decentralization towards the districts.

Water supply vs. WASH focus of the DWA. The principles and steps of the DWA apply equally to the water, sanitation and hygiene sub-sectors which should ideally be treated jointly in a Full Life Cycle WASH Plan. However, in Rwanda, the process has been initiated with a bias towards water supply and is only progressively incorporating sanitation and hygiene components. This guide reflects this focus on water supply, with examples provided focused primarily on water supply. An additional chapter on sanitation and hygiene will be added into the guide in due time.

The activities associated with the DWA at district-level can be conceptualized into five stages, summarized below and represented in figure 5:

- **Introducing** the concept of system strengthening, the district-wide approach at district level, as well as at national level.
- **Assessing** current services, assets, institutional capacities to provide universal and sustainable WASH services in the district. Data generated through this phase serves as a baseline for developing the plan.
- **Planning** for universal and sustained WASH services, using evidence generated during the assessment phase. This includes developing a vision, clear targets and a strategy for implementation, costing the vision and identifying sources of funding.
- **Implementing** the plan through harmonized and collaborative efforts of all stakeholders (government, NGOs, private sector) with technical assistance provided as and when necessary. This requires identifying management models for the services to be provided/upgraded upfront, along with a strategy for long term sustainability (in terms of capacities, support and financial resources). The implementation of the plan takes place in a sequence and considers a prioritization process, which can be revisited over time (e.g. unserved vs. poorly served, new settlements, changes in demographic growth).
- **Monitoring** the implementation of the plan to track progress to targets, improvements in service levels, WASH practices of residents, fund allocation/ expenditure, water source yield/quality. Data collected should feed into wider sector monitoring systems and lead to corrective action where the data shows gaps or weaknesses.

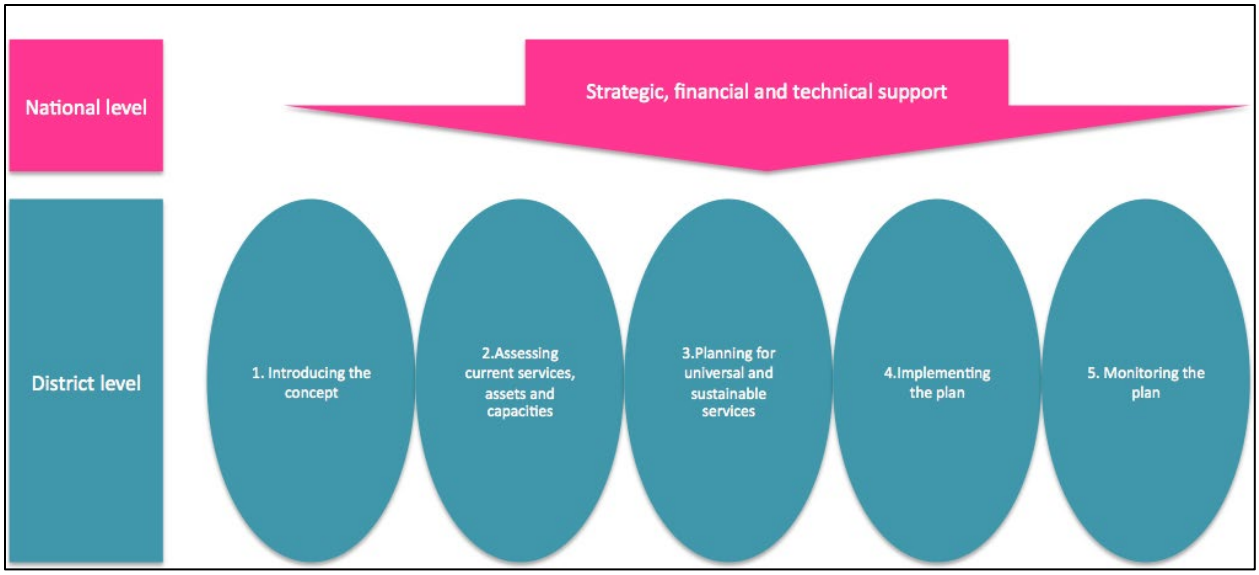

Figure 5: Key steps of the District- Wide Approach

5. District Full Life Cycle WASH Plan

5.1. Steps for Full Life Cycle Plan

Developing a full life cycle WASH Plan refers to the process, as well as an output- the plan itself, both of which support district-decision making and combine technical, strategic and consultative aspects.

- Technical: the plan is developed on the basis of evidence generated through data collection activities and technical studies.
- Strategic: the plan articulates a vision supported by district-level decision makers, which is includes a long-term horizon and medium-term targets.
- Consultation of all parties (decision-makers as well as service providers and users) is part of the process to ensure needs and demands are understood and services provides are owned, used and adequately maintained.

The process of developing a Full Life Cycle WASH Plan is characterized by the following:

- A broad scope should be considered, to include all types of WASH services (water, sanitation and hygiene), considering both domestic services as well as services in public institutions (schools and health care facilities). The process can however consider one type of service and progressively be adjusted as more information becomes available, depending on the targets set. Similarly, this process should consider water resources at all the various stages (from an assessment to costing to planning).

- Different timescales are considered in the process (short, medium, long), so the plan considers a long- term horizon (i.e. 10 years) and derives medium term targets and short- term activities (1 to 3 years) from there. The plan includes a high level of detail for the first years and the level of detail decreases over time.
- A trade-off between strategic vision and detailed analysis: the process should seek to articulate the district's broad vision to achieve universal and sustainable services as well as the steps required to achieve it in terms of construction, maintenance or support activities and financing. At each step of the process, a balance is sought to ensure formulation of a broad vision, whilst also providing timely data to calculate ballpark cost estimates required for a long-term plan.
- Consideration of services under the district's remit: in some districts, a proportion of services are managed by WASAC (e.g. most of the districts in the Eastern Province). In these cases, although districts might step in to finance major maintenance, the responsibility for minor and major maintenance rests with WASAC. For that reason, these services are not considered in the process described below.

The development of a district Full Life Cycle WASH Plan follows a five-stage approach with distinct outputs associated with each stage. Figure 6 presents the process in a linear way for clarity but should be understood as iterative for various reasons:

- Assessments carried out initially provide the basis for developing a vision and approach. However, this vision is revisited based on financial resources available.
- Costing of services and identification of financial resources can either be calculated after developing the vision, but key elements (such as current operational costs and standard capital expenditure) can be included in the initial assessment.

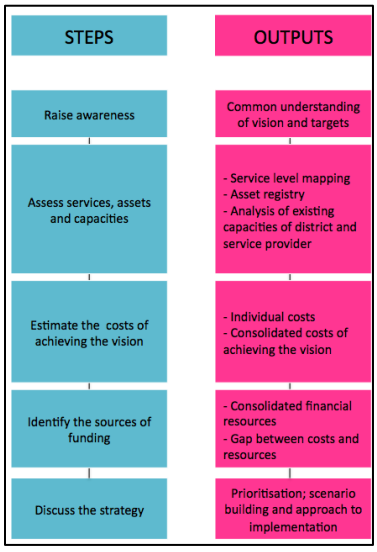

Figure 6: Steps for developing a Full Life Cycle WASH Plan

5.2. Assessment of current services, assets and capacities

The district, with the support of its partners, assesses i) the age and conditions of assets, ii) the status and sustainability of water resources, ii) service levels, iii) the capacity of the district authority to fulfil its WASH mandate to plan and budget, as well as to regulate and support service providers and monitor service quality and iv) the technical and financial capacity and performance to delivery appropriate services, of the different service providers in charge of operation and maintenance.

This step can be thought of as a "baseline" as it seeks to gather both quantitative and qualitative evidence to serve as a basis for characterizing current WASH delivery status in the district, identifying the needs in terms of WASH services (new and existing) and strengthening existing capacities for service delivery and support. It results in three outputs:

- An asset registry, providing details on existing water asset components, their age, condition and level of priority for maintenance activities, used to identify new investments and for costing capital maintenance needs.
- An overview of the levels of water services at district level. These are presented against a standard service ladder, defined on the basis of JMP standards as well as national standards and used to validate access levels.
- An assessment of districts capacities and gaps used for calculating required direct support costs.
- A water resources assessment used to plan for conservation and protection works around WASH infrastructure.

Table 1: Overview of outputs and tools

Output	Recommended approach	Description of the tool
Asset registry	- Use existing country-wide WASAC asset inventory - Update the data in the WASAC inventory when new systems are built, or existing ones are upgraded	WASAC carried out an asset inventory in 2018 throughout the country, available in the form of a database.
Status and sustainability of water resources	Assess the current status of water resources (quantity and quality) and their sustainability to plan for conservation and protection works around the water and sanitation infrastructure	There is no specific tool available, but hydrogeological studies follow a similar logic and sequence.
Service level assessments	Use national Monitoring Information System (MIS) to validate progress in levels of access The frequency and modalities (sampling or census) of update will be considered by MINIFRA	The National WASH Management Information System (MIS) was identified and developped for the monitoring of the process towards SDG6 targets. It is a Web-based and will allow collection, storage and analysis of all WASH relevant data. It has a modular structure and different user levels in order to meet the needs of the various stakeholders of the different sectors and administration levels

		starting from the village
Capacity assessment of service authority and service providers	On the basis of the Excel-based tool used in pilot districts capturing required time, staff dedication and skills: - Analyse staffing data in the pilot districts using the Excel-based tool to identify sector-wide recommendations on staffing - Complete the analysis of current staff time in the existing tool Discuss results with MINIFRA to include their own capacity development in their plans	The Excel-based tool used in pilot districts is the "District Capacity assessment tool" which supports the assessment of existing skills against core functions, budgets and maps days spent against key activities.
	Check existing questions on service providers in the MIS and KPIs of Private Operators in the reports to RURA and districts and consider using those to develop a service provider assessment	In the MIS we have the following indicators for POs: - % of public water supply systems managed by a contracted private operator - No. of active connections - NRW (non-revenue water) - % metered connections - Water sales [volumes] - Continuity of supply - Revenue collected - Collection efficiency

5.3. Estimate the costs for full life cycle cost plan

This step consists in calculating the cost of achieving the vision. This includes identifying the costs of providing new services (Capital Expenditure or CapEx) as well as those required to maintain existing services (operation, maintenance- CapManEX and direct support activities-DsExp). These activities (i.e. calculating OpEx) can also be carried out as part of the assessment step but are grouped here for logic.

The outputs and processes followed in this step are as follows:

- Costs required to maintain existing services (OpEx, CapManEx)[2]: these are calculated for current services and projected in the future. These are done separately for OpEx and CapManEx and brought together into a consolidated overview.

[2] Sanitation cost was not considered for these cost category same for household sanitation CapEx as there was not specific tool to estimate them during the writing of this document, there is an ongoing initiative on how these cost

- Costs required to provide new services (CapEx). In Rwanda, this is done by carrying out detailed engineering designs at district level and is used for projecting investment costs and supporting future fund mobilization.
- Costs required to support service delivery (DsExp): using the initial capacity assessments, the activities required to support service provision are identified (e.g. monitoring visits to communities, training of service providers), costed and projected overtime to bridge the gap between current and ideal costs.
- Consolidated costs over time: this consists in i) bringing all costs together, ii) applying additional parameters like inflation, demographic changes etc. to adjust the overall costs and iii) spreading costs overtime to provide an overview of total costs of achieving the vision. It should be noted that whilst some costs will be "naturally" spread over time (i.e. asset replacement based on age will be dependent on the remaining useful life of the asset), others will require prioritization.

Once all costs of achieving the vision are identified, all financial resources are projected over a 10-year period to identify the funding gap. This includes financial resources which districts have no control on (e.g. tariffs) as well as financial resources which they have control over their use (e.g. transfers).

This is done by adopting a two-stage approach: i) all known financial resources (tariffs, taxes and transfers) currently available for WASH are identified and are ii) individually projected applying a series of assumptions.

The assumptions vary per type of financial resources:

- The amount generated from tariffs will depend on i) the level of tariff, ii) the number of users, iii) the tariff collection rate.
- The amount generated from transfers will depend on existing and planned projects in the districts from donors or other external parties.
- The amount generated from taxes will depend on the district's ability to generate taxes in its jurisdiction that can be mobilized for the WASH sector.

The information is inputted in the consolidated costing tool to produce an overview of financial resources over time and an understanding of the funding gap (figure 7).

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can be assessed, this document will be updated and incorporate those once the tool is finalized and successfully tested

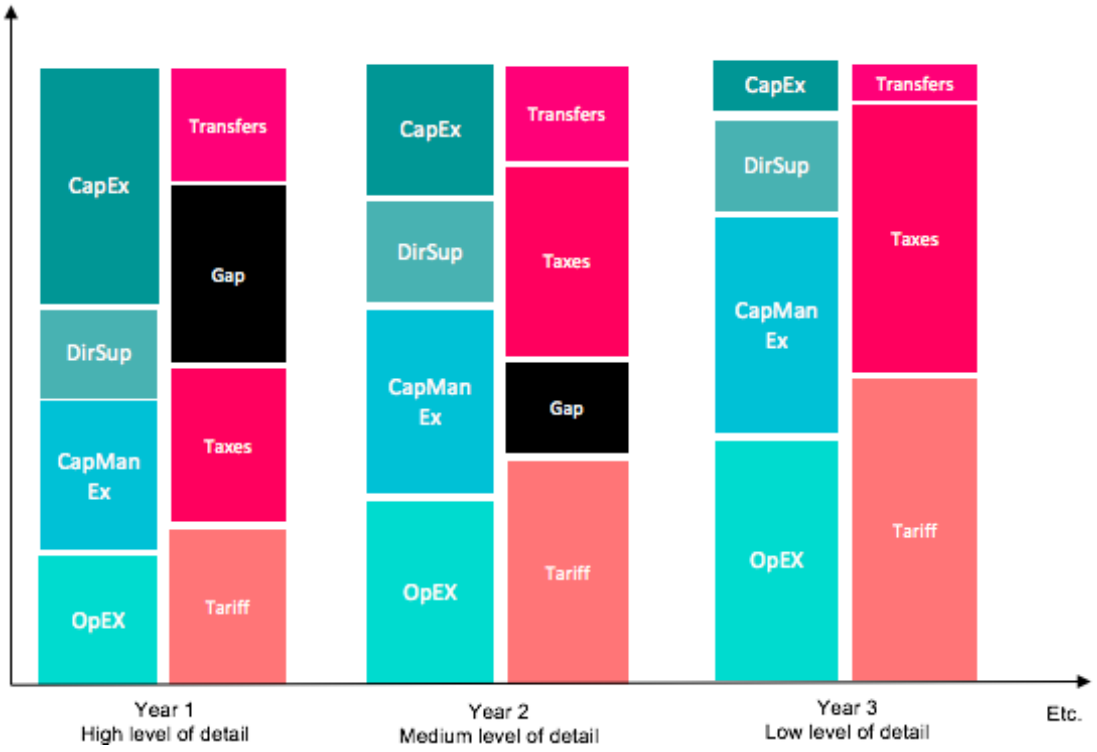

Figure 7: **Identifying the funding gap between overall costs and financial resources**

6. WASH Capital Expenditures cost (CapEx)

6.1. Water supply infrastructure development

Within Gicumbi WASH program, infrastructure development was key to sustainable WASH services access for the local population. Gicumbi district currently lacks well-functioning infrastructure of water supply. Given the elevations and topography of the district, most systems are pumping systems.

The actual water supply systems have been constructed in the eighties and have not been rehabilitated. Thus many diesel motor pumps are no longer functioning and they will be electrified within the course of this program.

The assessment conducted by Water for People, in coordination with the district and WASAC, identified an implementation plan of 92 systems, either gravity or pumping systems, that will cover all the 199 planned settlements across the district.

Among the ninety two systems that need to be developed or rehabilitated, 29 systems are new water systems, 51 are to be totally rehabilitated, 11 are partial rehabilitations and one is the reinforcement of Gicumbi city water supply network.

The system for Gicumbi city is dissociated to other systems as it is more complex, involving upgrading and reinforcement of Nyamabuye water system (existing plant constructed in 1980) and the construction of a new water treatment plant on Mwange river to supplement Nyamabuye Water treatment plant.

The proposed systems have been designed for a life span of 25 years, and this explains the many total rehabilitations that are proposed for the district.

The table in Annex I summarizes the implementation plan regarding water supply infrastructure development in Gicumbi district per fiscal year. The table also contains details regarding the localization of water supply systems based on the main sectors, the length of each network as well as the number of population that is to be served by the networks.

6.2. Sanitation infrastructure in Schools and Health centers

Sanitation activities in schools and health facilities consist in constructing ecosan toilets as well as providing rainwater harvesting systems. Ecosan technology is promoted by Water for People as the technology has proven itself to be sustainable as it gives the opportunity to recycle human waste into manure and provides a good business opportunity to schools and health facilities by selling the manure to locals.

The assessment of needs in schools was based on the guidelines of the ministry of Education of Rwanda that recommend 40 students per toilet cabin in single shifts schools and 80 students per cabin in double shift schools. All the primary schools in Gicumbi are double shifts. The assessment was done with the great support of the district's education department which provided information regarding the status of toilets and rainwater harvesting systems as well as number of students.

The unit price of toilets was based upon the number of cabins needed at each school and an assessment of prices done by Water for People in 2015. The Table 1 bellow shows the prices per number of cabins in Water for People's database. Notice that the exchange rate is considered to be 1USD=830 RWFs. It is interesting to notice that some schools, even though they have toilets, the toilets are in so bad shape that they are almost falling down. In this case, totally new toilets were proposed for these schools. This decision was taken in collaboration with the District and sector education officers.

Table 2: Unit costs of Toilets cabins (Water for People, 2015)

Number of Cabins	Unit cost toilets	Unit cost (USD)
16	19,133,517	23,052.43
12	13,184,218	15,884.60
10	10,566,164	12,730.32
8	7,562,954	9,111.99
6	6,777,134	8,165.22
4	4,570,589	5,506.73

The assessment conducted with the district regarding rainwater harvesting took into account the years of construction of blocks that did not have rainwater harvesting systems. Some classrooms are very old, constructed in the early fifties while others have been constructed after the genocide of 1994. Hence, the assessment only took into account the blocks that are fairly new and do not have rainwater harvesting systems. The unit price was considered based on charity water estimations of 2016 in Rulindo district for a ten cubic meters tank installation.

Table in ANNEX II shows the results of each assessment regarding the number of toilets needed the rainwater harvesting as well needed for the schools.

Table in ANNEX III shows the same assessment for health facilities. The figures in the annex are derived from official records carried out by the Health department of the district from a recent enquiry made in 2016. In the assessment of needs in health posts (small compared to health centers), health posts without any toilet facility are proposed to have 4 cabins, 2 for men and other 2 for female patients.

6.3. Sanitation Public Infrastructure

6.3.1. Feacal sludge management

Gicumbi city, which covers three main sectors: Byumba, Kageyo and Rukomo is characterized by its growth in terms of urban development. The current population of the city is around 99,998 and currently the city does not have an feacal sludge management facility. Currently, when

toilets are full, the population just dig another pit latrine. Given the scarcity of land due to high slopes, the problem of toilets is becoming more apparent.

Through a field visit, sponsored by Water for People-Rwanda, in Lira in the northern Uganda, a team of engineers from WASAC, the District and Water for People recommended the construction of a DEFAST technology in Gicumbi in order to overcome the problem of feacal sludge management in the city.

The DEFAST Plant (Decentralized Faecal Sludge Treatment plant) was developed in order to promote the principle of Sanitation as a Business (SAAB).

The technology is aiming at treating faecal sludge in order to improve sanitation status in small cities. The technology is designed to have six units of inlet screen for non-biodegradable solids, the dewatering unit, anaerobic baffled reactors, anaerobic filters, planted gravel filter and drying bed as shown in the Figure 5 bellow.

Figure 8: DEFAST technology

The technology would be a very sustainable as it does not only provide the treatment of feacal sludge but additionally provides an opportunity to sell treated matter in form of manure or briquettes. Additionally, the technology would help address the problem of emptying of toilets mainly in the schools (GS ACADEMIE DE LA SALLE; GS BYUMBA CATHOLIQUE; GS BYUMBA EAR; GS BYUMBA INYANGE; GS KIBALI; EP GACURABWENGE; GS NDBC BYUMBA; EP NYANDE; GS DE LA SALLE), Byumba hospital, Gihembe refugee camp, a public market and other administrative facilities. Currently the refugee camp hired emptiers that carry the feacal sludge to Kigali for disposal (Source: American Refugee Committee ARC Gicumbi).

Following discussions with Water for People-Uganda office, the estimate for the design and the construction of a DEFAST for Gicumbi city would cost one hundred and twenty thousand USD (120,000 USD). This is an estimate, and a more realistic value should be expressed after a detailed study from experts.

6.3.2. Solid Waste Management

Despite facing feacal sludge management problems, Gicumbi city faces a serious problem of solid waste management as well. Currently, the waste of the city, mainly the market and the schools, are dumped in a dumpsite in Rukomo sector. Most of the population in the urban area does not benefit from the services of the services of the management of the dumpsite and they prefer to dump their waste in their backyard. The Figure 6 bellow show the current status of the dump site of Rukomo.

Figure 9: Rukomo dumpsite current status

Additionally, the camp of Gihembe, with thirteen thousand and a hundred people (Source: American Refugee Camp) does not have any mean of disposing their solid waste. Kageyo sector borrowed the camp a dumping site for their waste disposal but there is no further treatment that is done on the waste.

According to the management of the district, there are many problems, mainly health issues, occurring due to the mis-disposal of these wastes to local population

In this regard, taking basis on Landfill construction studies done by Lake Victoria Water Supply and Sanitation Program (LVWATSAN) in other six cities of Rwanda, an estimate was advanced for the city of Gicumbi of Five hundred millions Rwandan Francs (500,000,000RWFs) equivalent to six hundred and three thousand (603,000 USD). All partners agree that a further detailed design should be carried out with the support of WASAC.

6.4. Water Resources management plan

Water for People supported the district in developing its Water sources management plan. The aim of the support was to develop a concise plan of actions that can be undertaken by the district in protecting water supply infrastructure from the source up to the end user.

The production of the plan costed 80 million RWFs (96,400USD). The provided a district-based approach to catchment management that provides water supply decision makers relevant information to sustainably manage their drinking water infrastructure. By identifying the appropriate protection measures for the catchment areas feeding the water infrastructure, expensive multi-stage treatment and continual development of new sources can be avoided.

For water quantity analysis, the water consumption scenario considered were 20, 40, 60, 80 and 100 l/c/day projected in a period of 25 years. The analysis showed that if protection measures are not taken to allow recharge of the source catchments few sectors will not have a deficit for all the scenario, and majority of them will have a deficit in all the years whatever the consumption. The water quality results showed that for all the parameters measured, total coliforms were observed in most of the springs and lower value of pH were observed.

Based on the findings, protective measures were proposed for larger catchment protection as follows:

- Agroforestry with progressive terraces/cutoff drains
- Agroforestry with cutoff drains/horizontal trenches
- Agroforestry with radical terraces/gully treatment
- Forest plantation, and
- Natural forest.

Additional measures for protecting the immediate source area were also identified including diversion ditches, fences, planting grass, removal eucalyptus, and progressive terraces, installation of chlorination units (as disinfection facilities) and pH regulator.

Findings also highlight the need for increased institutional capacity to manage water resources within water user associations along with sector and district-level committees. Opportunities for increased stakeholder engagement were also identified.

The total cost for WRM measures was estimated at 76,845,565,231 FRW (~79,200,000 USD) in Gicumbi District

7. Water Supply Capital Maintenance Expenditure Cost (CapManEx)

Capital Maintenance Expenditure (or CapManEx) is defined as the occasional cost of repairing the components of a water scheme to ensure that services continue at the same level of performance that was first delivered. It is based on the age and the physical state of the components. For example, replacing an engine on a power pump, cleaning a water tank, etc. (Franceys & Pezon, 2010).

As part of DWA implementation a CapManEx tool was developed and aims to i) calculate the capital replacement costs of existing services and ii) feed into the broader cost calculations required to achieve the district's vision of achieving universal and sustainable services.

The tool is excel-based. Because, its calculation uses the asset registry as a basis it is recommended to add the tab corresponding to the CapManEx tool to the existing asset registry excel document and to link it to the needed cells.

UNDERLYING PRINCIPLES

- It uses asset registry as the entry point to determine the CapManEx required based on two parameters: i) the asset components' age and the asset components' condition (or physical state);
- CapManEx based on age are spread over time using the remaining design lifetime of each asset component as a basis;
- CapManEx costs based on the physical state are spread over time based on the high, medium or low priority to repair or replace the components defined in the asset registry. The estimated costs are spread over time with the assumption that high priority repairs should take place in the coming 3 years, medium priority repairs between 4 and 5 years and low priority repairs between 6 and 10 years.
- CapManEx costs based on the physical state and the remaining life are combined and costs identified beyond the 10-year threshold ignored;
- This tool has been designed to support districts in Rwanda. For that reason, minor repair (or OpEx), which fall outside of the District's responsibility are calculated but not used in the CapManEx tool. If used in a different context the OpEx could be taken into consideration, but this would require to modifications to the tool.

This tool was used in Gicumbi District with asset registry data collected with the support of Water For People, the data were updated in 2020 after Water For People, WASAC and Gicumbi District have implemented some of the infrastructure as part of the Gicumbi WASH Program implementation. The CapManEx costing considered only 32 water supply systems that are considered to be functional as part of the assessment. The remaining systems that are not

functional were consider in the CapEx cost assessment and it is recommended that the CapManeEx cost should be updated at least every three years to incorporate new systems developed and damages that might have occurred.

For the water supply systems assessed, the following was obtained:

Table 3: List of water supply system with defecting components:

Water supply systems	components
Bucyazo	2 tap stands
Gisiza	1Intake Structure; 1 Conduction Line ; 2 Tap stands
Kabakene	
Kamushenyi Nyande	2 Concrete structure, 1 Distribution network; 1 Tap stand
Kamutora	
Kanyirabuki Cyeya	2 tap stands
Karwanira Bannyahe	1 Tap stand
Kigogo	1 Tap stand
Kiriba Mabare	1 Tap stand
Mburamazi Kayungwe	
Miriku	1 Distribution network, 2 Tap stands
Mugera Gatuna	1 Tap stand
Muhondo	2 Storage tanks; 1 Distribution network; 2 Tap stands;
Mutete Zoko	2 Storage tanks; 1 Tap stand;
Nyakeru	
Ruboroga 1	2 Concrete structures
Ruhurura	1 Intake Structure; 1 Storage tank; 2 Concrete structures; 2 Tap stands
Rusebeya Mulindi	1 Intake Structure; 1 Storage tank; 1 Distribution network; 2 Tap stands
Rusekera Miyove	2 Storage tanks; 2 Tap stands
Rwungo Manyagiro	1 Concrete structure

The associated cost for their replacement cost is as follow:

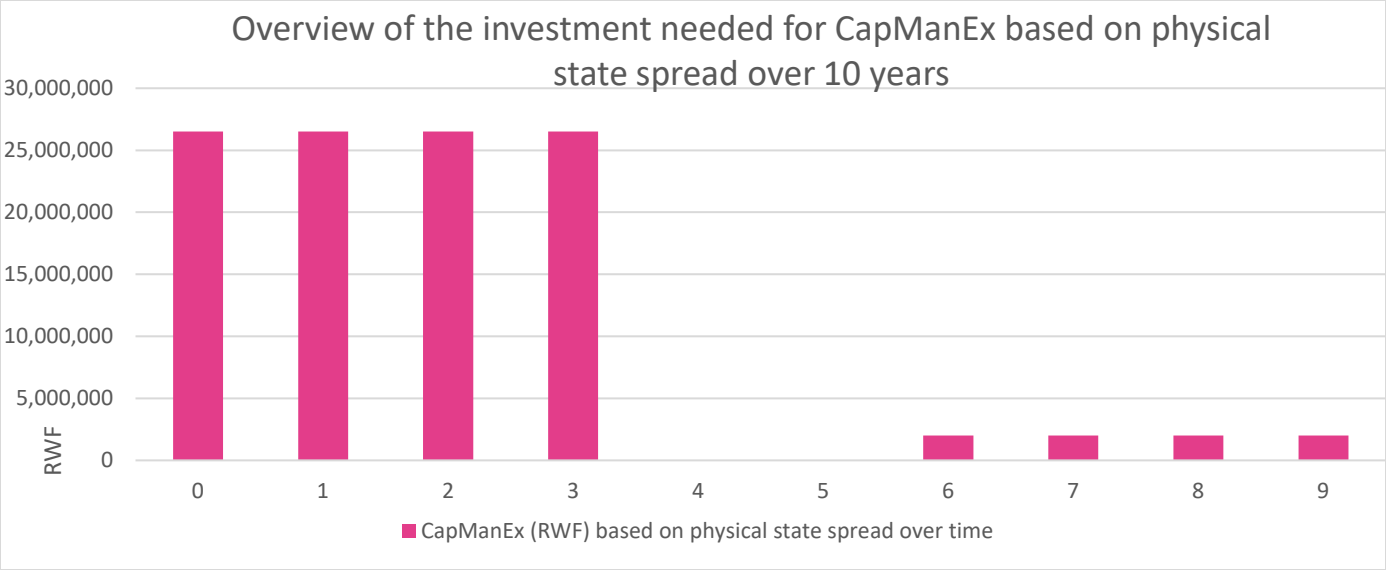

Figure 10: Cost of capital replacement based on the physical status of their components

The cost spread over time was done based on prioritization of water supply system by number of components to be replaced, this cost is flexible and district can decided if they want to implement all the cost in a particular year or over a short time.

Based on the remaining life of components of the water supply systems, the following replacement cost was calculated as follow:

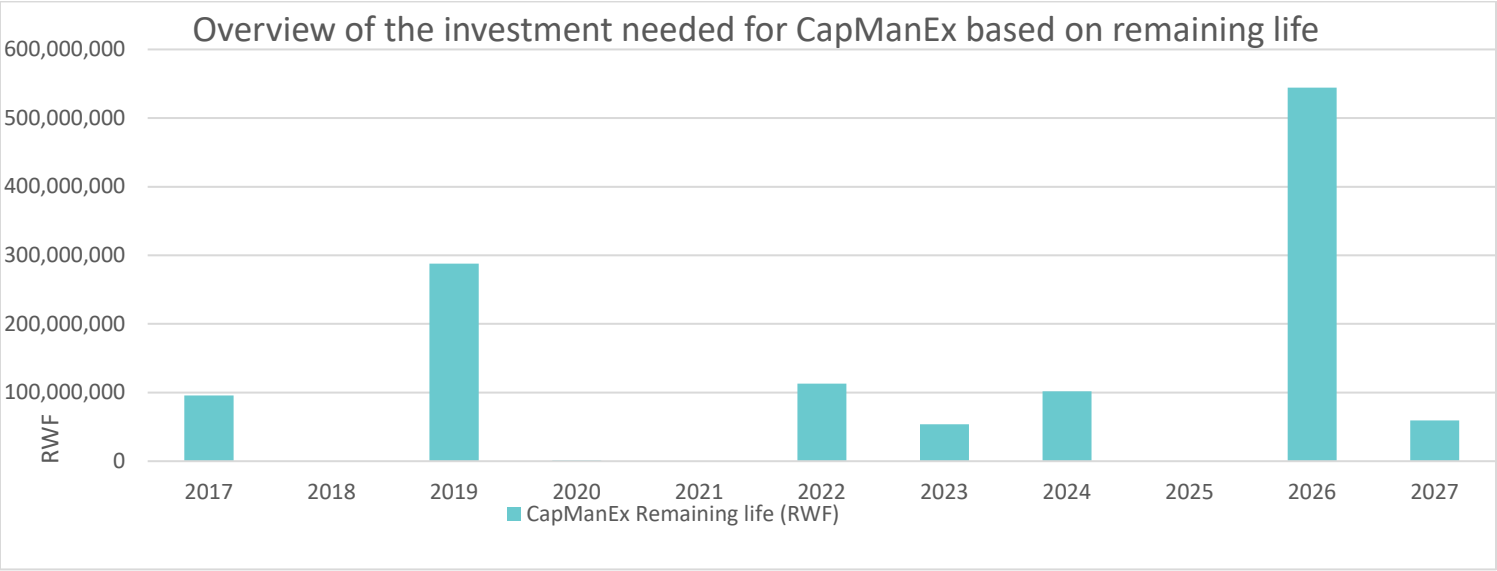

Figure 11: Replacement cost based on remaining life of water supply components

The CapManEx cost tool provides details of components in the years where their replacement is requested.

Combining the cost of the replacement cost based on the physical status of the components and their remaining life, we have the following cost:

Table 4: Combined replaced cost of water supply components based on their physical status and remaining life

Overview of the global CapManEx (RWF)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
CapManEx based on age	96,000,000.00	-	288,025,791.84	1,286,020.80	-	113,169,830.40	53,584,200.00	101,809,980.00	-	544,415,472.00	59,478,462.00
CapManEx based on physical state			26,504,979.35	26,504,979.35	26,504,979.35	26,504,979.35	-	-	1,998,331.20	1,998,331.20	1,998,331.20
Total	96,000,000.00	-	314,530,771.19	27,791,000.15	26,504,979.35	139,674,809.75	53,584,200.00	101,809,980.00	1,998,331.20	546,413,803.20	61,476,793.20

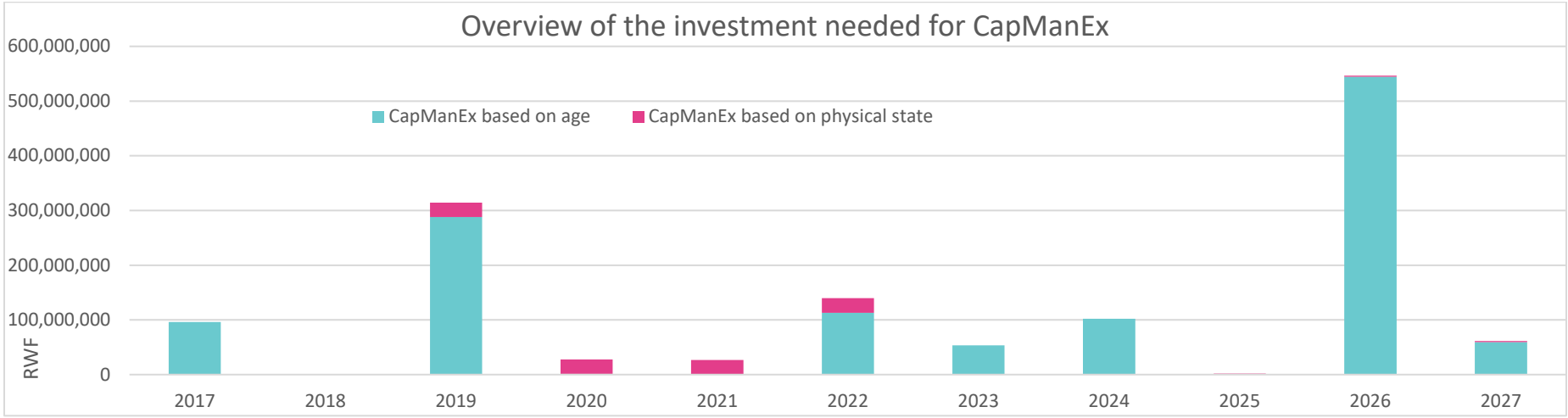

Figure 12: Overall capital replacement cost in Gicumbi based on physical status and remaining life of water supply systems components

8. Water Supply Operational and Maintenance Expenditure cost (OpEx)

In Rwanda, water supply operational and maintenance expenditure falls under the responsibility of the service provider and it is covered under the charged tariff. Even though this is not responsibility of the District, we assessed this cost to know what could be the minimum cost that the service will use in a period of 10 years per year. The assessment was done using the AtWhatCost model which is a tool that looks at all the revenues and expenses of the service provider system by system and project the cost for selected period in the future.

In Gicumbi District there are two service providers responsible for providing the water supply service delivery in Rural areas while WASAC is responsible for the service delivery in the urban part of the district.

The following graph indicates the needed OpEx cost in the coming 10 years for water supply services delivery.

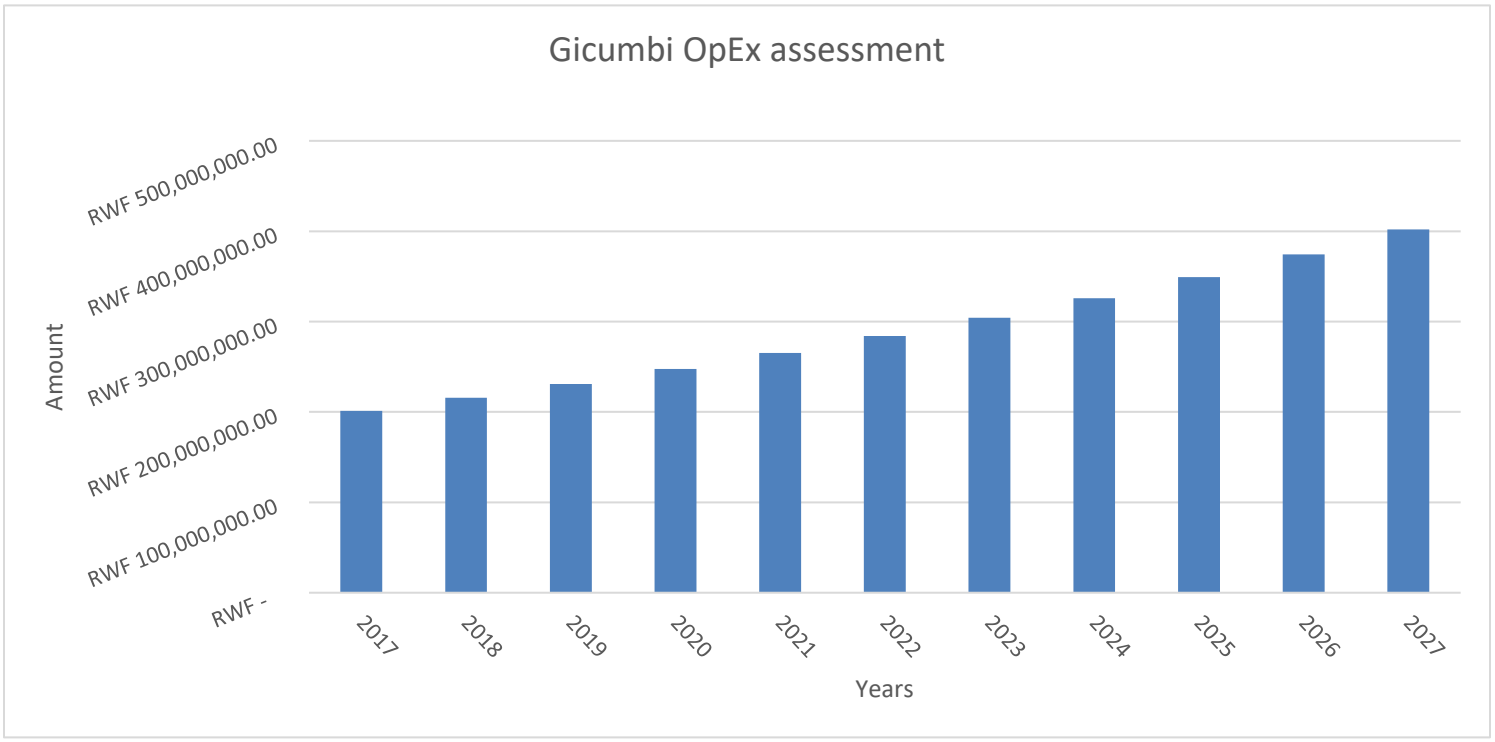

Figure 13: OpEx required for water supply service delivery in Gicumbi District

9. Direct Support Cost Expenditure (DsExp)

In order to ensure that the WASH service is effectively and timely delivered to the population, the district need to have all the financial and human resources needed to achieve that. For a continuous and sustainable service delivery, the district need have all these costs required at all time and ensure that institutional functional roles are fulfilled, and everyone is playing his role.

To assess these costs, a District capacity assessment tool was used, it is composed of three parts:

- First part is to evaluate if the entire institution has enough human and financial resources
- Second part is to evaluate skills and capacity of individual staff.
- Third part is to evaluate if the district has the enabling environment to ensure sustainable water service delivery

The cost was estimated based on the actual number of staffs versus staffs needed based on the number of working days and the work to be done, the cost was cost computed based on the approved salary of the districts and the cost related to field visit, workshop and meetings.

The assessment provided the following results:

	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Current Direct Support expenditure per year	250,963,720.80	250,963,720.80	250,963,720.80	250,963,720.80	250,963,720.80	250,963,720.80	250,963,720.80	250,963,720.80	250,963,720.80	250,963,720.80	250,963,720.80	250,963,720.80
Ideal / Required Direct Dupport expenditure per year	407,232,287.40	435,738,547.52	466,240,245.84	498,877,063.05	533,798,457.47	571,164,349.49	611,145,853.95	653,926,063.73	699,700,888.19	748,679,950.37	801,087,546.89	857,163,675.17
Gap between current and required direct support expenditure	156,268,566.60	184,774,826.72	215,276,525.04	247,913,342.25	282,834,736.67	320,200,628.69	360,182,133.15	402,962,342.93	448,737,167.39	497,716,229.57	550,123,826.09	606,199,954.37

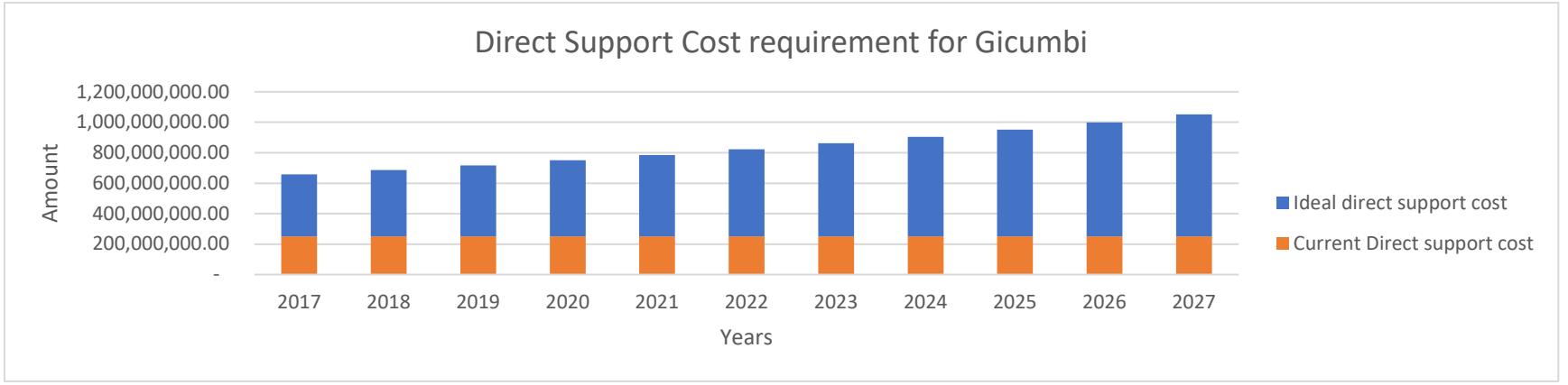

Figure 14: Current direct support cost Vs Ideal support cost for Gicumbi District

From the above graph it is obvious that the current direct support cost not match the realistic cost required to ensure sustainability of WASH services with a difference of around 156,000,000 Frw (156,000 USD), this is mostly justified by the fact the staff needed assessment indicated that there is a need to double the of water and sanitation engineer from 2 to 4 and to have permanent District WASH Board permanent staff.

Annex 5 shows in details the staffs need assessment from the Direct Support cost tool.

10. Overall investment plan

The Government vision 2020/2050 presents the country's overarching vision, cascaded into a 7-year government programs under the name of National Strategy for Transformation (NST1). The strategy is expected to lay the foundation for decades of sustained growth and transformation that will accelerate the move towards achieving high standards of living for all Rwandans. The NST 1 targets are ambitious but achievable, for WASH it is expected that all Rwandans should have universal access to WASH services by 2024 and all measures should be undertaken to ensure sustainability by 2030. Realizing this target will require strengthening collaboration and partnership among all stakeholders and enhancing ownership at all levels.

These frameworks are translated into i) a 3- year District Development Strategies (DDSs), which articulate the district's vision across sectors. WASH is included in the DDS, but currently only consists in a short paragraph, as well as ii) annual plans and budgets, annual performance contracts, or Imihigo, for each fiscal year (i.e. from July to June), detailing activities/funding arrangements to implement the DDS. The main gap is to understand ALL the cost required to reach the overall targets but also to breakdown the overall cost that can be easily monitored. It is foreseen that the WASH investment plan would be derived from the national Strategy for Transformation and feed into the DDS to support its 5-yearly update

In April 2016 the Government of Rwanda signed a Memorundum of Understanding (MoU) with the population of Gicumbi and Water for People-Rwanda in order to achieve the goal of a 100% WASH infrastructure coverage in Gicumbi district as per government existing policies and strategies. The MoU between partners stipulates that all partners: District of Gicumbi, representing the population of Gicumbi, WASAC (Water and Sanitation Corporation), representing the government of Rwanda and Water for People, should contribute to the financing of the programs as follow:

Water supply infrastructure development:

- 15% of the total cost by the District of Gicumbi
- 30% of the total cost by WASAC and

- 55% of the total cost by Water for People

Sanitation infrastructure in schools and health facilities:

- 20% of the total cost by the District of Gicumbi
- 80% of the total cost by Water for People

After assessing all the cost separately, all the costs were consolidated and projected in a period of 10 years based on the existing arrangement of the districts with its development's partners. This consisted in i) bringing all costs together, ii) applying additional parameters like inflation, demographic changes etc. to adjust the overall costs and iii) spreading costs overtime to provide an overview of total costs of achieving the vision. It should be noted that whilst some costs will be "naturally" spread over time (i.e. asset replacement based on age will be dependent on the remaining useful life of the asset), others will require prioritization. The prioritization process is district-specific and should be articulated clearly on an annual basis (i.e. areas with no service, population size, or other).

Once all costs of achieving the vision were identified, all financial resources were projected over a 10-year period to identify the funding gap. The fund allocation was based on current district budget flow from development partners. This included financial resources which districts have no control on (e.g. tariffs & national taxes) as well as financial resources which they have control over their use (e.g. Development partners transfers and local taxes).

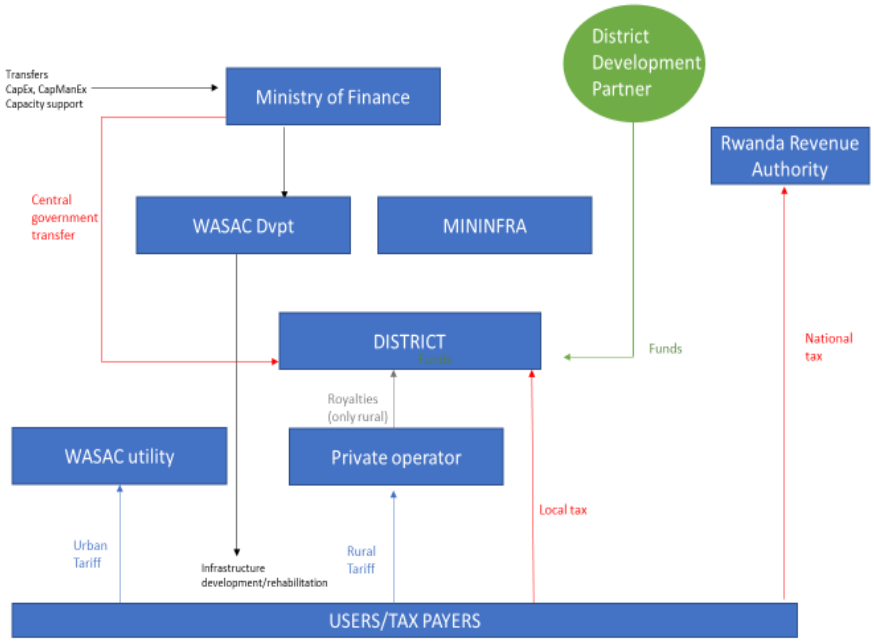

Figure 15: Gicumbi District WASH current Financial flow for WASH services

After assessing the existing financial flows, the distribution of the costs were done as follows:

Table 5: Gicumbi WASH cost distribution based on the source of funding

Service provider	CapEx	CapManEx	OpEx	DSexp
WASAC utility	NA	NA	Entity: WASAC utility Source: Tariff	Entity: District Source: Central government transfers, Local taxes, Royalties and District development partners
Private operator	NA	NA	Entity: PO Source: Tariff	
Community/ Districts/ Government	Entity: WASAC Dvpt, District Source: Central government transfers, Local taxes and District development partners	Entity: WASAC Dvpt, District Source: Central government transfers, Local taxes and District development partners	NA	
Development Partners	Entity: WASAC Dvpt, District Source: Central government transfers and District development partners	NA	NA	

The following table indicates the different WASH cost needed:

Table 6: WASH Cost service provision needed in Gicumbi District

COSTS OF SERVICE PROVISION

Source of information from other tools	Engineering design		CapManEx Tool		
	CapEx		CapManEx		
Total					
2017	RWF	-	RWF	96,000,000.00	
2018	RWF	742,089,307.00	RWF	-	
2019	RWF	1,053,758,828.00	RWF	314,530,771.19	
2020	RWF	6,060,929,471.00	RWF	27,791,000.15	
2021	RWF	4,719,482,908.00	RWF	26,504,979.35	
2022	RWF	5,430,636,741.33	RWF	139,674,809.75	
2023	RWF	5,619,642,683.33	RWF	53,584,200.00	
2024	RWF	4,127,388,715.00	RWF	101,809,980.00	
2025	RWF	6,339,532,646.00	RWF	1,998,331.20	
2026	RWF	-	RWF	546,413,803.20	

COSTS OF SERVICE PROVISION

Source of information from other tools	Engineering design	CapManEx Tool	AtWhatCost	Direct Support Cost

	CapEx	CapManEx	OpEx	Dsexp
Total				
2017	RWF -	RWF 96,000,000.00	RWF 201,183,293.75	RWF 407,232,287.40
2018	RWF 742,089,307.00	RWF -	RWF 215,609,485.93	RWF 435,738,547.52
2019	RWF 1,053,758,828.00	RWF 314,530,771.19	RWF 231,019,963.68	RWF 466,240,245.84
2020	RWF 6,060,929,471.00	RWF 27,791,000.15	RWF 247,524,158.63	RWF 498,877,063.05
2021	RWF 4,719,482,908.00	RWF 26,504,979.35	RWF 265,167,258.45	RWF 533,798,457.47
2022	RWF 5,430,636,741.33	RWF 139,674,809.75	RWF 284,061,136.50	RWF 571,164,349.49
2023	RWF 5,619,642,683.33	RWF 53,584,200.00	RWF 304,312,712.90	RWF 611,145,853.95
2024	RWF 4,127,388,715.00	RWF 101,809,980.00	RWF 325,991,612.96	RWF 653,926,063.73
2025	RWF 6,339,532,646.00	RWF 1,998,331.20	RWF 349,307,207.22	RWF 699,700,888.19
2026	RWF -	RWF 546,413,803.20	RWF 374,475,076.29	RWF 748,679,950.37

After getting all the cost and associating them with their respective sources of funding, the following table was obtained:

Table 7: WASH cost needed and associated sources of funding over 10 years

SOURCES OF FINANCE

	Corresponding cost	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Tariffs	OpEx	RWF 201,183,293.75	RWF 215,609,485.93	RWF 231,019,963.68	RWF 247,524,158.63	RWF 265,167,258.45	RWF 284,061,136.50	RWF 304,312,712.90	RWF 325,991,612.96	RWF 349,307,207.22	RWF 374,475,076.29
Royalties	Dsexp										
Central government transfers	CapEx	RWF -	RWF 333,940,188.15	RWF 474,191,472.60	RWF 2,727,418,261.95	RWF 2,123,767,308.60	RWF 2,443,786,533.60	RWF 2,528,839,207.50	RWF 1,857,324,921.75	RWF -	RWF -
	CapManEx	RWF -	RWF -	RWF -	RWF -	RWF -	RWF -	RWF -	RWF -	RWF -	RWF -
	Dsexp										
Local taxes	CapEx										
	CapManEx										
	Dsexp	RWF 250,963,720.80	RWF 250,963,720.80	RWF 250,963,720.80	RWF 250,963,720.80	RWF 250,963,720.80	RWF 250,963,720.80	RWF 250,963,720.80	RWF 250,963,720.80	RWF 250,963,720.80	RWF 250,963,720.80
District development partners	CapEx	RWF -	RWF 408,149,118.85	RWF 579,567,355.40	RWF 3,333,511,209.05	RWF 2,595,715,599.40	RWF 2,986,850,207.73	RWF 3,090,803,475.83	RWF 2,270,063,793.25	RWF -	RWF -
	CapManEx										
	Dsexp										

Figure 16: Gicumbi District needed WASH Cost, sources funding and gap analysis

From the above assessment, the following was observed:

- From the existing arrangement with development partners, the district has secured all the funds for all the new infrastructure, but there is a gap in 2025 due to the construction of a new treatment plant to increase/improve water supply in Byumba towns
- The current tariff as set up by the Rwanda Utility Regulatory Authority is fully cover OpEx and no gap was observed in the 10 years as per the service provider assessment, however the existing tariff does not include any cost related to required treatment (disinfection and pH regulation) of the water before it is supplied in the pipes
- The district does not allocate budget for capital replacement cost and should start planning for that based on the result of the capital maintenance cost provided in the assessment, the plan for capital investment will go up to 2025 which means starting 2026, the district budget will mainly focus on capital maintenance cost for the existing infrastructure.
- The district capacity assessment indicated that there is a needs to increase the number of staff and budget to cover the gap identified especially by providing two additional engineers and full permanent staffs for the District WASH Board for an effective WASH service delivery monitoring.

ANNEXES

ANNEX I: Water supply infrastructure development plan

Item number	Name of Network	Type of networks	Length (km)	Number of Beneficiaries	Number of Water points	Main sector	Fiscal year 2016/2017	Fiscal year 2017/2018	Fiscal year 2018/2019	Fiscal year 2019/2020	Fiscal year 2020/2021
1	Gahama	Gravity	9.486	2256	10	Bukure					x
2	Cyakabali	Gravity	1.551	1693	2	Bukure					x
3	Kareranyama	Gravity	8.303	5278	9	Bukure					x
4	Ryaruganzu	Gravity	11.657	1,918	17	Bwisige		x			
5	Rwangabo	Pumping	46.24	11,106	43	Bwisige			x		
6	Kagomero	Gravity	3.198	987	4	Bwisige					x
7	Kanyirabuki	Gravity	6.546	3,456	8	Bwisige				x	
8	Distribution Byumba City	Gravity				Byumba				x	
9	Nyamugali network	Gravity				Byumba				x	
10	Reinforcement Nyamabuye	Gravity+ Pumping				Byumba			x		
11	Mwange	Pumping				Byumba				x	x
12	Bulindi-Cyumba	Pumping	25.42	14,756	30	Cyumba			x		
13	Bureranyana-Tanda	Gravity	29.959	7,346	19	Giti		x			
14	Kanyana-Nyamirambo	Gravity	7.07	1,763	3	Giti					x
15	Rushinya-Ruhondo-	Pumping	27.114	5,861	22	Giti					x

Item number	Name of Network	Type of networks	Length (km)	Number of Beneficiaries	Number of Water points	Main sector	Fiscal year 2016/2017	Fiscal year 2017/2018	Fiscal year 2018/2019	Fiscal year 2019/2020	Fiscal year 2020/2021
	Nyakagezi										
16	Rwagahunde-Nyamirambo	Gravity	1.87	1,574	3	Giti				x	
17	Extension on Murama_Rwamiko-Bukure pumping	gravity	2.3	1,732	4	Giti				x	
18	Nyaruvumu	Gravity	0.97	985	2	Kageyo					x
19	Gahanda	Gravity	1.31	594	2	Kageyo					x
20	Nyabageshi	Gravity	3.1	863	2	Kageyo					x
21	Ngabira Network/ Rukurura	Gravity	1.8	584	3	Kaniga					x
22	Rugenda Network	Gravity	1.54	490	3	Kaniga					x
23	Ruhita-Kabeza	Gravity	2.42	1214	7	Kaniga					x
24	Nyamabare_Mushunga Network	Gravity	4.534	1170	7	Kaniga					x
25	Nyakagera Network	Gravity	4.988	1132	6	Kaniga					x
26	Rugarama Network	Gravity	2.288	994	6	Kaniga					x
27	Gashiru Network	Gravity	2.258	668	4	Kaniga					x
28	Extension on Ruboroga pumping (Cyasaku) and Mulindi Kagorogoro	Gravity	4.26	1443	6	Kaniga					x

Item number	Name of Network	Type of networks	Length (km)	Number of Beneficiaries	Number of Water points	Main sector	Fiscal year 2016/2017	Fiscal year 2017/2018	Fiscal year 2018/2019	Fiscal year 2019/2020	Fiscal year 2020/2021
29	Ruboroga-Gatuna	Gravity	5.5	1537	6	Kaniga					x
30	Rwungo-Manyagiro	Pumping	21.091	11,217	32	Manyagiro	x				
31	Gitaba-Mafurebo	Gravity	2.888	1,792	7	Manyagiro					x
32	Nyarukombe-Rusebeya	Gravity	2.875	2,863	7	Manyagiro					x
33	Rubindi	Gravity	0.32	594	2	Manyagiro					x
34	Extensions on Rusekera-Miyove	Gravity	8.50	3047	11	Miyove		x			
35	Kadogo network	Gravity	1.8	649	3	Miyove				x	
36	Mureko network	Gravity	3.04	731	3	Miyove				x	
37	Maya network	Gravity	0.25		2	Miyove				x	
38	Gitoma network	Gravity	2.12	908	3	Mukarange				x	
39	Kagusa pumping network	Pumping	20.9	5117	16	Mukarange				x	
40	Nangara-Gacwamba network	Gravity	2.18	1351	5	Mukarange				x	
41	Rwengwe network	Gravity	5.96	1745	7	Mukarange		x			
42	Cyamuhinda network	Gravity	7.002	3194	13	Muko					x
43	Rudogo network	Gravity	2.40231	280	2	Muko					x
44	Mayora network	Gravity	1.04654	552	3	Muko					x

Item number	Name of Network	Type of networks	Length (km)	Number of Beneficiaries	Number of Water points	Main sector	Fiscal year 2016/2017	Fiscal year 2017/2018	Fiscal year 2018/2019	Fiscal year 2019/2020	Fiscal year 2020/2021
45	Ruboroga-Rugaragara	Gravity	6.256	1962	8	Muko		x			
46	Marumba network	Gravity	2.32	1121	2	Mutete					x
47	Gahondo network	Gravity	2.464	1021	4	Mutete					x
48	Kagombero network	Gravity	1.56	740	3	Mutete					x
49	Reinforcement Kisaro_Mutete_Zoko pumping network	Pumping	10.4	9637	3	Mutete					x
50	Rusave network	Gravity	3.8	1274	4	Mutete					x
51	Kaliku network	Gravity	6.29	2894	11	Mutete					x
52	Rwimbogo-Gaseke network	Gravity	6.9	2751	11	Mutete		x			
53	Nyamata-Gasharu network	Gravity	3.04	1332	5	Mutete					x
54	Extension on Kisaro_Mutete _ Zoko Pumping	gravity	6.4	3514	9	Mutete					x
55	Extension on Mugomero-Gaseke	Gravity	1.91	863	2	Mutete					x
56	Kamaganga network	Gravity	1.858	938	3	Mutete					x
57	Jamba_Muko	Pumping	52.59	16455	47	Nyamiyaga					x
58	Nyiraruzenga	Gravity	7.65	2335	6	Nyamiyaga		x			

Item number	Name of Network	Type of networks	Length (km)	Number of Beneficiaries	Number of Water points	Main sector	Fiscal year 2016/2017	Fiscal year 2017/2018	Fiscal year 2018/2019	Fiscal year 2019/2020	Fiscal year 2020/2021
59	Gasave	Gravity	2.142	1557	3	Nyamiyaga					x
60	Nyamabuye II	Pumping	46.69	44075	53	Nyamiyaga					x
61	Miyove -Prison	Pumping	8.4	3,612	10	Nyankenke					x
62	Museke	Pumping	22.6	13,663	21	Nyankenke			x		
63	Kinishya	Gravity	0.98	493	7	Nyankenke					x
64	Kivugiza -Yaramba	Gravity	0.65	304		Nyankenke					x
65	Kigogogo	Gravity	6.9	2,380	8	Nyankenke					x
66	Extension on Kabeza-Bugwe	Gravity	3.56	1,153	5	Rubaya		x			
67	Kiriba-Mabare-Gihanga	Gravity	11.9	4,094	21	Rubaya				x	
68	Gatoki	Gravity	3.4	2,087	5	Rubaya					x
69	Gishambashayo-Gatuna	Gravity	20.3	3,700	11	Rubaya		x			
70	Cyarugarama	Gravity	1.92	836	3	Rushaki					x
71	Kabakene	Gravity	1.88	1,737	4	Rushaki					x
72	Kamutora	Gravity	1.14	1,439	4	Rushaki					x
73	Kivomo-Bigerero	Gravity	14.25	3,230	10	Rushaki		x			
74	Nyagahanga	Gravity	3.08	550	4	Rushaki					x
75	Nyakagezi	Gravity	6.14	2,093	7	Rushaki					x

Item number	Name of Network	Type of networks	Length (km)	Number of Beneficiaries	Number of Water points	Main sector	Fiscal year 2016/2017	Fiscal year 2017/2018	Fiscal year 2018/2019	Fiscal year 2019/2020	Fiscal year 2020/2021
76	Nyakare	Gravity	3	1,084	6	Rushaki					x
77	Rurumbira	Gravity	2.24	515	3	Rushaki					x
78	Mbuga	Pumping	26.19	6,853	20	Rushaki					x
79	Rutare Reinforcement	Pumping	5.803	27116	4	Rutare				x	
80	Gatare-Nyagatoma	Gravity	19.9	4496	16	Rutare					x
81	Rutare	Pumping	64.46	27116	88	Rutare				x	
82	Gakeri-Bukure	Gravity	18.6	9490	13	Rutare					x
83	Butyazo network	Gravity	9.48942	4299	19	Ruvune					x
84	Zimirindi network	Gravity	1.439	652	3	Ruvune					x
85	Kagomero network	Gravity	1.956	836	3	Ruvune					x
86	Kabingo network	Gravity	3.642	1124	4	Ruvune					x
87	Byimana network	Gravity	10.542	3628	13	Ruvune		x			
88	Nyakagezi-Rwesero	Gravity	4.76	1,277	7	Rwamiko					x
89	Rwamiko Bukure (WASAC)	Pumping	65	31,770	59	Rwamiko		x			
90	Ruhondo	Gravity	8.8	2,809	11	Shangasha					x
91	Kitazigurwa	Pumping	39.574	12,605	44	Shangasha		x			
92	Nyakabingo	Pumping	22.332	8,331	24	Shangasha		x			

ANNEX II: Assessment of needs in schools in terms of toilets and rainwater harvesting systems

SN	Location	School name		Total Population	Number of Rainwater tanks needed			Number of Ecotoilets					
					Number of Rain Water Tanks in need	Unit cost	Total Estimate	Number of Existing toilet Cabins	Double shift?	Standard number of toilet cabins	Needed	Number of cabins to be constructed	Price
1	BUKURE	E S BUKURE	Secondary	253	3	1,878,501	5,635,502	23	No	6	-17		-
2	BUKURE	EP SANCTA MARIA KARAMBO	Primary	808	2	1,878,501	3,757,001	25	Yes	10	-15		-
3	BUKURE	ES SANCTA MARIA KARAMBO	Secondary	389	5	1,878,501	9,392,503	25	Yes	5	-20		-
4	BUKURE	G S BUKURE	Primary	1,687	6	1,878,501	11,271,003	6	Yes	21	15	16	19,133,517
			Secondary	171				24	No	4	-20		-
5	BUKURE	G S KARUSHYA	Primary	1,218	6	1,878,501	11,271,003	24	Yes	15	-9		-
			Secondary	364				24	No	9	-15		-
6	BUKURE	EP KARAGARI	Primary	747	1	1,878,501	1,878,501	14	Yes	9	-5		-
8	BWISIGE	ES BWISIGE	Secondary	374	4	1,878,501	7,514,002	30	No	9	-21		-
9	BWISIGE	G S BWISIGE	Primary	620	4	1,878,501	7,514,002	12	Yes	8	-4		-
			Secondary	130				12	No	3	-9		-
10	BWISIGE	G S GIHUKE	Primary	823	3	1,878,501	5,635,502	12	Yes	10	-2		-

SN	Location	School name		Total Population	Number of Rainwater tanks needed			Number of Ecotoilets					
					Number of Rain Water Tanks in need	Unit cost	Total Estimate	Number of Existing toilet Cabins	Double shift?	Standard number of toilet cabins	Needed	Number of cabins to be constructed	Price
			Secondary	119				12	No	3	-9		-
11	BWISIGE	G S MUKONO	Primary	1,105	6	1,878,501	11,271,003	24	Yes	14	-10		-
			Secondary	354				24	No	9	-15		-
12	BWISIGE	EP NDAYABANA	Primary	709	3	1,878,501	5,635,502	12	Yes	9	-3		-
13	BWISIGE	EP NYAMUGALI	Primary	514	2	1,878,501	3,757,001	2	Yes	6	4	4	4,570,589
14	BYUMBA	G S ACADEMIE DE LA SALLE	Secondary	160	6	1,878,501	11,271,003	16	No	4	-12		-
16	BYUMBA	G S BYUMBA CATHOLIQUE	Primary	1,204	0	1,878,501	-	18	No	30	12	12	13,184,218
			Secondary	408				12	No	10	-2		-
17	BYUMBA	G S BYUMBA EAR	Primary	1,122	4	1,878,501	7,514,002	9	Yes	14	5	6	6,777,134
			Secondary	150				9	No	4	-5		-
18	BYUMBA	G S BYUMBA INYANGE	Primary	732	4	1,878,501	7,514,002	18	No	18	0		-
			Secondary	827				20	No	21	1	4	4,570,589
19	BYUMBA	G S KIBALI	Primary	2,220	2	1,878,501	3,757,001	36	Yes	28	-8		-

SN	Location	School name		Total Population	Number of Rainwater tanks needed			Number of Ecotoilets					
					Number of Rain Water Tanks in need	Unit cost	Total Estimate	Number of Existing toilet Cabins	Double shift?	Standard number of toilet cabins	Needed	Number of cabins to be constructed	Price
			Secondary	254				12	No	6	-6		-
20	BYUMBA	EP GACURABWENGE	Primary	704	2	1,878,501	3,757,001	19	Yes	9	-10		-
21	BYUMBA	GS NDBC BYUMBA	Secondary	756	2	1,878,501	3,757,001	107	No	19	-88		-
22	BYUMBA	EP NYANDE	Primary	537	3	1,878,501	5,635,502	5	Yes	7	2	4	4,570,589
24	BYUMBA	GS DE LA SALLE	Secondary	778	1	1,878,501	1,878,501	50	No	19	-31		-
25	CYUMBA	E S MUKONO EAR	Secondary	238	10	1,878,501	18,785,005	27	No	6	-21		-
26	CYUMBA	G S CYUMBA	Primary	1,133	5	1,878,501	9,392,503	31	No	28	-3		-
			Secondary	448				24	No	11	-13		-
27	CYUMBA	G S RUKIZI	Primary	559	3	1,878,501	5,635,502	8	No	14	6	6	6,777,134
			Secondary	227				12	No	6	-6		-
28	CYUMBA	EP MUKONO CATH	Primary	755	6	1,878,501	11,271,003	12	Yes	9	-3		-
29	CYUMBA	EP MUKONO EAR	Primary	595	6	1,878,501	11,271,003	0	Yes	7	7	8	7,562,954
30	CYUMBA	EP MURORE	Primary	504	2	1,878,501	3,757,001	22	Yes	6	-16		-

SN	Location	School name		Total Population	Number of Rainwater tanks needed			Number of Ecotoilets					
					Number of Rain Water Tanks in need	Unit cost	Total Estimate	Number of Existing toilet Cabins	Double shift?	Standard number of toilet cabins	Needed	Number of cabins to be constructed	Price
31	GITI	G S GITI	Primary	1,234	4	1,878,501	7,514,002	30	Yes	15	-15		-
			Secondary	441				24	No	11	-13		-
32	GITI	G S KAGOGO	Primary	1,062	2	1,878,501	3,757,001	14	Yes	13	-1		-
			Secondary	87				6	No	2	-4		-
33	GITI	G S TANDA	Primary	1,213	2	1,878,501	3,757,001	24	Yes	15	-9		-
			Secondary	101				10	No	3	-7		-
34	GITI	EP GATOBOTOBO	Primary	526	2	1,878,501	3,757,001	0	yes	7	7	8	7,562,954
36	KAGEYO	E S KAGEYO	Secondary	294	5	1,878,501	9,392,503	27	No	7	-20		-
37	KAGEYO	G S GICUMBI	Primary	1,057	4	1,878,501	7,514,002	24	Yes	13	-11		-
			Secondary	156				12	No	4	-8		-
38	KAGEYO	G S KAGEYO	Primary	1,585	5	1,878,501	9,392,503	18	Yes	20	2	4	4,570,589
			Secondary	788				24	No	20	-4		-
39	KAGEYO	G S MUHONDO	Primary	1,392	5	1,878,501	9,392,503	18	Yes	17	-1		-

SN	Location	School name		Total Population	Number of Rainwater tanks needed			Number of Ecotoilets					
					Number of Rain Water Tanks in need	Unit cost	Total Estimate	Number of Existing toilet Cabins	Double shift?	Standard number of toilet cabins	Needed	Number of cabins to be constructed	Price
			Secondary	548				36	Yes	7	-29		-
40	KAGEYO	EP GIHEMBE	Primary	-	0	1,878,501	-	36	No	0	-36		-
42	KANIGA	E S MULINDI	Secondary	419	3	1,878,501	5,635,502	24	No	10	-14		-
43	KANIGA	G S BUGOMBA	Primary	586	4	1,878,501	7,514,002	0	yes	7	7	8	7,562,954
			Secondary	304				18	No	8	-10		-
44	KANIGA	G S KANIGA	Primary	574	2	1,878,501	3,757,001	12	No	14	2	4	4,570,589
			Secondary	81				12	No	2	-10		-
45	KANIGA	G S KIZINGA	Primary	856	3	1,878,501	5,635,502	16	No	21	5	6	6,777,134
			Secondary	323				9	Yes	4	-5		-
46	KANIGA	G S MULINDI	Primary	769	2	1,878,501	3,757,001	7	yes	10	3	4	4,570,589
			Secondary	257				12	No	6	-6		-
47	KANIGA	EP MUYANGE	Primary	637	5	1,878,501	9,392,503	14	yes	8	-6		-
48	MANYAGIRO	EP BUSHINGAMUHETO	Primary	1,213	3	1,878,501	5,635,502	12	Yes	15	3	4	4,570,589

SN	Location	School name		Total Population	Number of Rainwater tanks needed			Number of Ecotoilets					
					Number of Rain Water Tanks in need	Unit cost	Total Estimate	Number of Existing toilet Cabins	Double shift?	Standard number of toilet cabins	Needed	Number of cabins to be constructed	Price
49	MANYAGIRO	G S KAGOROGORO	Primary	637	2	1,878,501	3,757,001	12	yes	8	-4		-
			Secondary	238				12	No	6	-6		-
50	MANYAGIRO	G S Manyagiro	Primary	1,542	4	1,878,501	7,514,002	12	Yes	19	7	8	7,562,954
			Secondary	88				12	No	2	-10		-
51	MANYAGIRO	EP MAFUREBO	Primary	1,157	3	1,878,501	5,635,502	18	yes	14	-4		-
52	MIYOVE	G S MIYOVE	Primary	1,401	5	1,878,501	9,392,503	24	Yes	18	-6		-
			Secondary	507				24	No	13	-11		-
53	MIYOVE	G S RUMULI	Primary	1,009	4	1,878,501	7,514,002	12	Yes	13	1	4	4,570,589
			Secondary	192				12	No	5	-7		-
54	MIYOVE	EP MUBUGA	Primary	885	4	1,878,501	7,514,002	12	Yes	11	-1		-
55	MIYOVE	EP MUKAKA	Primary	785	2	1,878,501	3,757,001	24	Yes	10	-14		-
56	MIYOVE	EP RUMULI CATH	Primary	421	2	1,878,501	3,757,001	6	Yes	5	-1		-
57	MUKARANGE	G S KIRUHURA	Primary	722	4	1,878,501	7,514,002	24	Yes	9	-15		-

SN	Location	School name		Total Population	Number of Rainwater tanks needed			Number of Ecotoilets					
					Number of Rain Water Tanks in need	Unit cost	Total Estimate	Number of Existing toilet Cabins	Double shift?	Standard number of toilet cabins	Needed	Number of cabins to be constructed	Price
			Secondary	114				12	No	3	-9		-
58	MUKARANGE	G S MUKARANGE	Primary	1,426	7	1,878,501	13,149,504	21	Yes	18	-3		-
			Secondary	260				24	No	7	-18		-
59	MUKARANGE	G S NYAGAKIZI	Primary	484	11	1,878,501	20,663,506	16	Yes	6	-10		-
			Secondary	206				24	No	5	-19		-
60	MUKARANGE	EP MUGINA	Primary	653	2	1,878,501	3,757,001	6	yes	8	2	4	4,570,589
61	MUKO	COLLEGIO SANTO ANTONIO MARIA ZACCARIA	Secondary	416	5	1,878,501	9,392,503	46	Yes	5	-41		-
62	MUKO	G S MUKO	Primary	1,061	4	1,878,501	7,514,002	24	Yes	13	-11		-
			Secondary	308				32	No	8	-24		-
63	MUKO	G S MWENDO	Primary	637	6	1,878,501	11,271,003	12	Yes	8	-4		-
			Secondary	497				24	No	12	-12		-
64	MUKO	EP KIGOMA	Primary	916	5	1,878,501	9,392,503	8	Yes	11	3	4	4,570,589

SN	Location	School name		Total Population	Number of Rainwater tanks needed			Number of Ecotoilets					
					Number of Rain Water Tanks in need	Unit cost	Total Estimate	Number of Existing toilet Cabins	Double shift?	Standard number of toilet cabins	Needed	Number of cabins to be constructed	Price
65	MUKO	EP NGANGE	Primary	533	3	1,878,501	5,635,502	12	Yes	7	-5		-
66	MUKO	EP RUGARAGARA	Primary	656	3	1,878,501	5,635,502	16	Yes	8	-8		-
67	MUTETE	E S MUTETE	Secondary	376		1,878,501	-	24		9	-15		-
68	MUTETE	G S GASEKE	Primary	827	6	1,878,501	11,271,003	11	Yes	10	-1		-
			Secondary	189				24		5	-19		-
69	MUTETE	ES SAINT LAURENT DE GASEKE	Secondary	72	5	1,878,501	9,392,503	10		2	-8		-
70	MUTETE	G S MUTANDI	Primary	490	3	1,878,501	5,635,502	12	Yes	6	-6		-
			Secondary	103				12		3	-9		-
71	MUTETE	G S NYAMABUYE	Primary	823	2	1,878,501	3,757,001	12	Yes	10	-2		-
			Secondary	76				12		2	-10		-
72	MUTETE	EP KAVUMU	Primary	496	1	1,878,501	1,878,501	12	Yes	6	-6		-
73	MUTETE	EP RUHONDO	Primary	604	3	1,878,501	5,635,502	8	Yes	8	0		-
74	MUTETE	EP MUTETE	Primary	1,451	4	1,878,501	7,514,002	8	Yes	18	10	10	10,566,164

SN	Location	School name		Total Population	Number of Rainwater tanks needed			Number of Ecotoilets					
					Number of Rain Water Tanks in need	Unit cost	Total Estimate	Number of Existing toilet Cabins	Double shift?	Standard number of toilet cabins	Needed	Number of cabins to be constructed	Price
75	NYAMIYAGA	G S KAGAMBA	Primary	1,381	3	1,878,501	5,635,502	24	Yes	17	-7		-
			Secondary	170				16		4	-12		-
76	NYAMIYAGA	G S MUGINA	Primary	1,030	2	1,878,501	3,757,001	25	yes	13	-12		-
			Secondary	151				11	no	4	-7		-
77	NYAMIYAGA	GS NYINAWIMANA	Primary	2,567	5	1,878,501	9,392,503	17	Yes	32	15	16	19,133,517
			Secondary	574				17		14	-3		-
78	NYAMIYAGA	EP RUNANGA	Primary	799	4	1,878,501	7,514,002	32	Yes	10	-22		-
79	NYANKENKE	EP CYANKARANKA	Primary	844	2	1,878,501	3,757,001	34	Yes	11	-23		-
80	NYANKENKE	G S KIGOGO	Primary	1,349	5	1,878,501	9,392,503	8	yes	17	9	10	10,566,164
			Secondary	150				10		4	-6		-
81	NYANKENKE	G S KINISHYA	Primary	1,523	4	1,878,501	7,514,002	22	yes	19	-3		-
			Secondary	348				32		9	-23		-
82	NYANKENKE	G S RWAGIHURA	Primary	1,117	3	1,878,501	5,635,502	17	yes	14	-3		-

SN	Location	School name		Total Population	Number of Rainwater tanks needed			Number of Ecotoilets					
					Number of Rain Water Tanks in need	Unit cost	Total Estimate	Number of Existing toilet Cabins	Double shift?	Standard number of toilet cabins	Needed	Number of cabins to be constructed	Price
			Secondary	185				11		5	-6		-
83	NYANKENKE	EP RUSASA	Primary	763	2	1,878,501	3,757,001	8	Yes	10	2	4	4,570,589
84	RUBAYA	G S RUBAYA	Primary	1,637	4	1,878,501	7,514,002	28	yes	20	-8		-
			Secondary	372				14		9	-5		-
85	RUBAYA	EP KABEZA	Primary	253	3	1,878,501	5,635,502	11	Yes	3	-8		-
86	RUBAYA	GS GISHAMBASHAYO	Primary	598	2	1,878,501	3,757,001	12	Yes	7	-5		-
			Secondary	80				0		2	2	4	4,570,589
87	RUKOMO	EP CYEYA	Primary	690	4	1,878,501	7,514,002	12	Yes	9	-3		-
89	RUKOMO	EP RUMARANGOGA	Primary	397	4	1,878,501	7,514,002	10		10	0		-
90	RUKOMO	G S BISIKA	Primary	1,397	6	1,878,501	11,271,003	25	Yes	17	-8		-
			Secondary	698				22		17	-5		-
91	RUKOMO	G S MABARE	Primary	703	3	1,878,501	5,635,502	30	Yes	9	-21		-
			Secondary	167				12		4	-8		-

SN	Location	School name		Total Population	Number of Rainwater tanks needed			Number of Ecotoilets					
					Number of Rain Water Tanks in need	Unit cost	Total Estimate	Number of Existing toilet Cabins	Double shift?	Standard number of toilet cabins	Needed	Number of cabins to be constructed	Price
92	RUKOMO	G S MUNYINYA	Primary	1,537	2	1,878,501	3,757,001	20	Yes	19	-1		-
			Secondary	298				10		7	-3		-
93	RUKOMO	EP MESHERO	Primary	1,084	3	1,878,501	5,635,502	19	Yes	14	-5	4	4,570,589
94	RUSHAKI	COLLEGE RUSHAKI	Secondary	456	3	1,878,501	5,635,502	38		11	-27		-
95	RUSHAKI	E S KAMUTORA	Secondary	262	3	1,878,501	5,635,502	24		7	-17		-
96	RUSHAKI	G S GITEGA	Primary	611	6	1,878,501	11,271,003	18	Yes	8	-10		-
			Secondary	116				12		3	-9		-
97	RUSHAKI	G S MUYUMBU	Primary	1,660	3	1,878,501	5,635,502	**12**	Yes	21	9	10	10,566,164
			Secondary	190				**12**		5	-7		-
98	RUSHAKI	EP KARAMBI	Primary	647		1,878,501	-	12	Yes	8	-4		-
99	RUSHAKI	EP KARAMBO	Primary	328	2	1,878,501	3,757,001	12	Yes	4	-8		-
100	RUSHAKI	EP NGABIRA	Primary	162	**2**	1,878,501	3,757,001	**12**	Yes	2	-10		-
101	RUSHAKI	EP RUSHAKI	Primary	1,091	3	1,878,501	5,635,502	24	Yes	14	-10		-

SN	Location	School name		Total Population	Number of Rainwater tanks needed			Number of Ecotoilets					
					Number of Rain Water Tanks in need	Unit cost	Total Estimate	Number of Existing toilet Cabins	Double shift?	Standard number of toilet cabins	Needed	Number of cabins to be constructed	Price
102	RUTARE	COLLEGE APEGIRUBUKI	Secondary	468		1,878,501	-	18		12	-6		-
103	RUTARE	G S KABIRA	Primary	1,529	3	1,878,501	5,635,502	24	Yes	19	-5		-
			Secondary	445				12		11	-1		-
104	RUTARE	G S KIRWA	Primary	1,264	4	1,878,501	7,514,002	12	Yes	16	4	4	4,570,589
			Secondary	569				31		14	-17		-
105	RUTARE	G S NYAGATOMA	Primary	935	3	1,878,501	5,635,502	12	Yes	12	0		-
			Secondary	118				12		3	-9		-
106	RUTARE	EP KINJOJO	Primary	1,010	2	1,878,501	3,757,001	15	Yes	13	-2		-
107	RUTARE	EP MUREHE	Primary	611	2	1,878,501	3,757,001	12	Yes	8	-4		-
108	RUVUNE	EP BURIMBI	Primary	336	3	1,878,501	5,635,502	8	Yes	4	-4		-
109	RUVUNE	EP BUSHWAGARA	Primary	532	2	1,878,501	3,757,001	19	Yes	7	-12		-
110	RUVUNE	COLLEGE DE REBERO	Secondary	345	6	1,878,501	11,271,003	26		9	-17		-
111	RUVUNE	G S NYARURAMA	Primary	582	5	1,878,501	9,392,503	18	Yes	7	-11		-

SN	Location	School name		Total Population	Number of Rainwater tanks needed			Number of Ecotoilets					
					Number of Rain Water Tanks in need	Unit cost	Total Estimate	Number of Existing toilet Cabins	Double shift?	Standard number of toilet cabins	Needed	Number of cabins to be constructed	Price
			Secondary	100				6		3	-4		-
112	RUVUNE	G S REBERO	Primary	1,124	4	1,878,501	7,514,002	17	Yes	14	-3		-
			Secondary	194				24		5	-19		-
113	RUVUNE	G S RUHONDO	Primary	1,051	4	1,878,501	7,514,002	19	Yes	13	-6		-
			Secondary	219				12		5	-7		-
114	RUVUNE	EP MUTI	Primary	405	2	1,878,501	3,757,001	10	Yes	5	-5		-
115	RUVUNE	EP NYABIHU	Primary	864	2	1,878,501	3,757,001	10	Yes	11	1	4	4,570,589
116	RWAMIKO	G S GITOMA	Primary	583	6	1,878,501	11,271,003	11	Yes	7	-4		-
			Secondary	79				6		2	-4		-
117	RWAMIKO	G S RWAMIKO	Primary	1,153	6	1,878,501	11,271,003	26	Yes	14	-12		-
			Secondary	397				17		10	-7		-
118	RWAMIKO	G S RWESERO	Primary	896	3	1,878,501	5,635,502	10	Yes	11	1	4	4,570,589
			Secondary	188				12		5	-7		-

SN	Location	School name		Total Population	Number of Rainwater tanks needed			Number of Ecotoilets					
					Number of Rain Water Tanks in need	Unit cost	Total Estimate	Number of Existing toilet Cabins	Double shift?	Standard number of toilet cabins	Needed	Number of cabins to be constructed	Price
119	RWAMIKO	EP NYANZA	Primary	815	6	1,878,501	11,271,003	12	Yes	10	-2		-
120	SHANGASHA	EP BUSHARA	Primary	905	4	1,878,501	7,514,002	20	Yes	11	-9		-
121	SHANGASHA	G S NYABISHAMBI	Primary	1,269	4	1,878,501	7,514,002	28	Yes	16	-12		-
			Secondary	147				7		4	-3		-
122	SHANGASHA	G S SHANGASHA	Primary	1,866	3	1,878,501	5,635,502	54	Yes	23	-31		-
			Secondary	616				48		15	-33		-
123	SHANGASHA	EP KITAZIGURWA	Primary	453	4	1,878,501	7,514,002	24	Yes	6	-18		-
117	0					**Total tanks**	**775,820,707**					**Total toilets**	**99,530,265**

ANNEX III: Assessment of needs in health facilities

No	Health facility	Available cabins of toilets	Needed toilets	Existing water tanks	Needed water tanks	Number of cabins needed	Price for toilets	Unit price per tank (RWFS)	Tank Prices
1	Bushara	8	2	5	2	4	4,570,589	1,878,501	3,757,001
2	Bwisige	5	2	4	4	4	4,570,589	1,878,501	7,514,002
3	Byumba	6	2	2	1	4	4,570,589	1,878,501	1,878,501
4	Cyumba	18	0	12	0	0	-	1,878,501	-
5	Gisiza	6	6	3	3	6	6,777,134	1,878,501	5,635,502
6	Giti	6	4	6	2	4	4,570,589	1,878,501	3,757,001
7	Kigogo	8	8	4	3	8	7,562,954	1,878,501	5,635,502
8	Manyagiro	5	2	4	4	4	4,570,589	1,878,501	7,514,002
9	Miyove	6	4	6	4	4	4,570,589	1,878,501	7,514,002
10	Muhondo	12	0	8	0	0	-	1,878,501	-
11	Mukarange	10	0	12	0	0	-	1,878,501	-
12	Muko	6	3	6	3	4	4,570,589	1,878,501	5,635,502
13	Mukono	2	8	1	8	8	7,562,954	1,878,501	15,028,004
14	Mulindi	9	0	5	3	0	-	1,878,501	5,635,502

No	Health facility	Available cabins of toilets	Needed toilets	Existing water tanks	Needed water tanks	Number of cabins needed	Price for toilets	Unit price per tank (RWFS)	Tank Prices
15	Munyinya	6	10	7	3	10	10,566,164	1,878,501	5,635,502
16	Musenyi	2	6	3	3	6	6,777,134	1,878,501	5,635,502
17	Rubaya	5	12	5	0	12	13,184,218	1,878,501	-
18	Ruhenda	2	5	1	3	6	6,777,134	1,878,501	5,635,502
19	Rushaki	10	0	3	4	0	-	1,878,501	7,514,002
20	Rutare	20	0	9	1	0	-	1,878,501	1,878,501
21	Ruvune	5	3	6	0	4	4,570,589	1,878,501	-
22	Rwesero	12	0	2	3	0	-	1,878,501	5,635,502
23	Tanda	7	4	5	2	4	4,570,589	1,878,501	3,757,001
24	Byumba Hospital	11	6	54	12	6	6,777,134	1,878,501	22,542,006
25	Health Posts		64		16	4	73,129,425		30,056,008
	SUB TOTAL						**180,249,551**		**157,794,042**
	TOTAL HEALTH FACILITITIES								**338,043,593**

ANNEX IV: District Capacity Assessment results

Work Activity (annual) (to edit for local context)	Engineers/Technicians	Finance	Planning, M&E	Executive committee	Support staff	DWB
Formulation of a project						
Request from the community to District						1
Selection of community				1		
Identification of needs	3					
Discussion with different authorities to have common understanding	1		1	1		1
Prioritize the needs				1		1
Agreement between parties			1	1		
Formulation of the scope of the project	3					
Establish the goals of the project	1					
Present the project to the local authority and request the authorization				1		
Identification of key actor and responsibility of the project	1		1	1		
Survey and planning						
Socio-economic survey	1					
Sector situation survey			1			
Natural condition survey	1					
Topographic survey	7					
Water quality survey	1					
Soil testing and investigation	2					
Water source survey	2					
Survey of procurement condition						

Basic plan						
Water demand projection	1					
Elaboration of basic plan						
Facility planning	1		1			
Structure of implementation	2					
Environmental Impact Assessment						
Economic and financial appraisal	1					
Design						
Outline design	1					
Design plan	1					
Determination of basic parameters	1					
Calculation of basic quantity	1					
Construction plan	2					
Procurement plan	1					
Plan of design and construction supervision	2					
Plan of construction schedule	1					
Plan of operation and maintenance	1					
Planning of capacity building	1					1
Cost estimation						
Structure of implementation cost	1					
Estimate of implementation cost	1					
Method of cost estimation	1					
Management cost	1					
Preparation cost	1					
Construction cost	1					
Procurement cost	0.428571429					
Design and supervision cost						
Provisional cost						

Operation and maintenance cost						
Fund mobilization						
Identification of potential sources of funds	0.428571429			1		
Mobilize funds	2		1	2	1	
Preparation of implementation						
Preparation of project time frame	0.5		0.5	0.5		
Setting indicators of the project progress	1					
Tendering						
Preparation for tender documents (for contractors and supervisors)	5					
Advertisement of tender	0.142857143			0.1428571		
Opening and evaluation of tender	3			3	3	
Selection of contractors and supervisors	3			3	3	
Preparation of contract documents	2			2		
Signing the contract	1			1		
Implementation of construction works and supervision						
Kick-off meeting of the project (District, Contractor, Supervisor and WASAC)	1		1	0.4285714		
Implementation of construction works and supervision		4	7	5	3	10
Community mobilization for O&M						
Conducting community mobilization	16			32		3
Monitoring and evaluation of implementation						
Site visit	160					
Preparation of progress reports	8		8	4		3
Annual monitoring	1					

Handover of the facilities to District						
Inspection of the facilities	3			1		
Handover of the facilities to District	1		1	1	1	
Issue of completion certificate for approval of payment to the contractors	4			4		
Preparation of O&M plan						
Preventive maintenance plan	1					
Curative maintenance plan	1					
Spare parts procurement plan						1
Rehabilitation plan	1			1		1
Preparation of guideline and manuals	1					1
Assessment of present situation of the water facilities						
Site visit	12					24
Reporting of the assessment	1			0.4285714		2
Community mobilization for O&M						
Set up of the structure of management						
Preparation of PPP contract	1					0.5
Determination of selecting method of PO	1					
Determination of qualification of PO	1					
Preparation of contract documents						
Selection of PO	3			3		
Confirmation of the condition of existing facilities						
Preparation of tender documents for selecting PO						
Tender notice	1			0.5		
Distribution of tender documents						
Pre-qualification of candidates of bidder (PO)	1			0.5		

Site visit	12					12
Question & Answer						
Preparation of technical proposal by bidder						
Evaluation of proposal						
Tendering and selecting PO						
Signing contract						
Handover of water supply systems to PO	1			1		
Execution of PPP contract	1					
Conducting O&M of water supply systems by PO	12					4
Establishment of district water board	1			1		
Establishment of water users committee	21					21
Carry out capacity building						
Meeting with Water Users Committees	21					21
Ensuring hygiene and protection of water facilities	12					4
Technical intervention for O&M	12			4		4
Monitoring of execution of PPP contract						
Determination of method of monitoring						1
Determination of method of evaluation						1
Determination of items and parameters of monitoring	2			0.5		1
Water quality						1
Customer satisfaction						768
Water tariff						
Royalty	12					12
Condition of facilities						4
Revenue and expense						4
Evaluation						4
Taking action in case performance is over required standard						4
Taking action in case performance is below required standard						4
Notice of results of performance to the public						2

Data management						
Preparation of DWASHB reports and financials	4			4		4
Review complaints sent by Water Users	48			2		4
Reporting for O&M						
Providing feedback to Water Users Committees and private operators	12			6		230
Review of O&M plan						
Revising PPP contract if necessary	1					
Termination of PPP contract	1			1		
Evaluation of the execution results of PPP contract						
Inspection of functioning of water supply systems	12					
Handover of water supply systems from PO to District	21			1		
Issue of certificate for termination of PPP contract	0.5			1	0.142 86	
Development of evaluation plan (technical, financial, socio-economic)						
Defining indicators (ex. water coverage)						
Setting evaluation methods						
Data sources						
Timeline						
Roles and responsibilities						
Evaluation of executed works						
Reporting of evaluation						
DWB Meetings						
Quaterly meetings	1		1	1	0.142	1

					86	
Office meetings						
Management meetings	48	48	48	48	48	
Steering committee	2		2	2	0.28571	
Reflection meeting	2			2		2
Workshops, trainings and other meetings	54		6	6		8
Follow up Sanitation services	144					4
Hygiene promotion	144					4
total number of work days needed to support wash in district	**885**	**52**	**80.5**	**152**	**59.5714**	**1179**
Number of staff needed	4	0	0	1	0	5

ANNEX V: Current Direct Support Cost

CURRENT SCENARIO			N of hours spent per person on different activities identified as part of current local government direct support to water supply service																			
Posts	Current number of people in the	Current yearly gros salary for the role	Supervision of works	Technical support to artisans and	Monitoring functionality & service delivery	Planning & coordination	Others	Acitivty x	Acitivty x	Acitivty x	Acitivty x	Acitivty x	Acitivty x	Acitivty x	Acitivty x	Acitivty x	Acitivty x	Acitivty x	Acitivty x	Acitivty x	Acitivty x	Acitivty x	Acitivty x
Director of department	1	13,200,000.00	1	1	0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Land manager at sector level	21	7,500,000.00	0	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Water and sanitation officer / engine	2	11,700,000.00	7	5	8	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sanitation & hygiene officer	1	11,700,000.00	5	1	5	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Health & sanitation officer	1	7,500,000.00	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Planning & Monitoring officer	1	11,700,000.00	3	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Budget officer	1	12,285,000.00	0.5	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Executive committee	1	24,000,000.00	0.5	1	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Executive secretary of district & 2 vic	3	13,644,324.00	1	0.5	0.5	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Envi health officer at HCF	21	7,500,000.00	0	0	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
District WASH B permanent Secretar	0	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
x	0																					
x	0																					
x	0																					
x	0																					
x	0																					
x	0																					
x	0																					
x	0																					
x	0																					
		Per diems of staff (am	7000	7000	7000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Transport costs (fuel,	40000	40000	40000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Other Direct Support fixed costs	Total yearly
Office costs and admin (in total per month)	636000
Costs of meetings and workshops (meals,	795000
Other costs	657200

ANNEX VI: Required Direct Support Cost investment

IDEAL / REQUIRED SUPPORT SCENARIO			List of activities identified as part of ideal local government direct support to water supply service																			
Posts	Ideal number of people in the role	Current yearly gros salary for the role	Supervision of works	Technical support to PO and	Monitoring functionality & service delivery	Planning & coordination	Others	Community Mobilization and Service delivery monitoring	Acitivty x	Acitivty x	Acitivty x	Acitivty x	Acitivty x	Acitivty x	Acitivty x	Acitivty x	Acitivty x	Acitivty x	Acitivty x	Acitivty x	Acitivty x	Acitivty x
Director of department	1	13,200,000.00	4	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Land manager at sector level	21	7,500,000.00	2	2	2	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Water and sanitation officer / engine	4	11,700,000.00	6	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sanitation & hygiene officer	1	11,700,000.00	1	5	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Health & sanitation officer	1	7,500,000.00	1	5	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Planning & Monitoring officer	1	11,700,000.00	2	1	5	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Budget officer	1	12,285,000.00	2	1	5	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Executive committee	1	24,000,000.00	1	2	2	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Executive secretary of district & 2 vic	3	13,644,324.00	1	2	2	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Envi health officer at HCF	21	7,500,000.00	2	2	2	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
District WASH B permanent staff	5	11,700,000.00	1	2	2	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
x			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
x			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
x			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
x			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
x			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
x			0	0	0	0	0	0														
x			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
x			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
x			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
x	0	Per diems of staff (am	7000	7000	7000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Transport costs (fuel,	40000	40000	40000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

0

Other Direct Support fixed costs	Total yearly
Office costs and admin (in total per month)	408000
Costs of meetings and workshops (meals, room, per diems, transport) in total per month	510000
Other costs	421600