RUBKONA WATER UTILITY BOARD BUSINESS PLAN 2021-2025

CONCERN worldwide

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Mission Statement

To preserve and enhance our water system so that we may provide safe drinking water at an affordable cost that will further improve the quality of life of our customers and promote economic growth

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Introduction

Protracted conflict and associated economic decline in South Sudan continue to take toll on consistent access to basic services by the people. Services like water supply and hygiene services have been severely affected across states within the country. Access to improved water sources remain a challenging across Unity State. Resource constraints – both financial and human – mean it continues to struggle to maintain services across the city and has no capacity to extend services to underserved areas without external support. Fresh fighting in Unity in July 2016, combined with the conflict-driven economic crisis, hyperinflation, shortages of fuel and consumables, and delays in paying salaries of civil servants has further strained private and public service provision systems. WASH sector in South Sudan remains embryonic, and while some guiding policies exist, legal gaps remain, and operationalization has been slow.

This Business Plan is a product of the wider consultancy assigned to CIVITRA Research and Consulting Inc. Kenya, whose aims are: To develop a policy framework to guide the management of the Rubkona emergency water supply system, support Concern staff in the identification, formulation and training utility management teams for the running of each. Secondly, is to provide recommendations on how to set appropriate tariffs setting as well as simple guidelines for drafting by–laws to support the operations and provide training for stakeholders on the implementation of the guidance. There are two main ways that urban water systems can be run:

- As a public utility
- As a profit making private company

There is also a range of other options such as cooperatives and social businesses, i.e. businesses that reinvest their profits in the business in order to achieve social goals than benefit the shareholders.

A public utility is often criticised for poor service. The immediate plan is to have the Rubkona Water Utility is run us a public water utility under an independent Water Services Board that is composed of experienced civil servants from various ministries and the town council, supervisor of the utility. With the plan to commercialize water services, a cost reflective tariff was designed, and the utility, despite being a public facility, is expected to borrow a lot of business ideals from the private sector. For instance, recruitment of strong qualified staff, and retaining them by keeping them motivated, customer focus, asset management and having business acumen that will guarantee a sound financial base. Presently water is free of charge. There are many illegal connections by Government Officers and institutions. These illegal connections are presently being organized and coordinated by the Utility staff. It is against this backdrop that this business plan is being prepared.

Purpose

I. Five year capital investment and development plan projects that totals US$ 1,140,000.

II. This Business Plan provides information generation of revenue should the State Legislative assembly debate and pass a bill cancelling universal free water, recognizing the Water Board as a statutory body and stopping all the illegal connections.

III. The Plan has details concerning in-process expansion in coverage plans and corresponding financial obligations as well as increased revenue generation

IV. A raft of accountability mechanisms that views the customers as right-holders and puts them first, is also explained in the Plan, checks and balances within the Utility, as well as citizenry.

This is a 5 year Horizon Business Plan that charts the way to growth for Rubkona Water Utility. In light of the fragile state, the push-and-pull movement of civilians between the PoC and the communities of origin, the Business Plan shows – a US$ 1,140,000 investment spread over 5 years and shared between strategic capital investment priorities, growth to realize more coverage and capacity development. Mutual accountability mechanisms - internal and external forms the pinnacle of the plan. All these can only be realized with the promulgation of a new legislation that allows for paying for water and recognition of Rubkona Water Utility as a Statutory organ.

Table 1: Core dimensions of Rubkona Utility's business implementation plan

Core dimension	Key information
WASH sector *Enabling environment*	Provides an in-depth understanding of South Sudan's Urban WASH legal and institutional framework, to ensure that operational, management, accountability and contingency plans are in line with national policies and programmes; while responding to and operating within key institutions.
Technical feasibility	Suggests technical improvements needed in the medium- to long-term, to ensure the long-term sustainability of the infrastructure, as well as staff wellbeing and retention.
Commercial viability	Depicts the profile of private buyers likely to purchase water: their patterns of consumption, their purchase power, their service expectations and willingness to pay; as well as a life-cycle cost analysis. It also provides suggestions on arrangements for collection of service charges/tariffs.
Marketing	Provides key information on the main customer base and recommends how to market water sales to each customer segment.
Local accountability mechanisms	Provides recommendations on mechanisms that the community-led operator would need to have in place in accordance with the institutional and legal framework of the sector.
Contingency planning	Provides guidance on how to implement strategies that enable the continued provision of services in the wake of an event that poses an unacceptable business risk and/or operational disruption to Rubkona Water Utility.
Research Studies	Highlights key assessments needed in order to raise the level of service and to bring the whole water facility to standard engineering design and practice. This will in turn lower operational costs, increase revenue as well as deliver quality services.

South Sudan Water Policy

The main focus of the policy is to avail water of sufficient quantity and quality to sustain healthy standards of living and a robust economy, while at the same time ensuring the protection of the ecosystem, e.g. the Sudd as Ramsar site (wetland of international importance). Approved in 2007, the Water Sector Policy outlines how the water sector will evolve in South Sudan, including establishing basic principles with an aim to provide distinction to the broad sub-sectors of the sector, namely: Water Resources Management (WRM), Rural Water Supply and Sanitation (RWSS), and Urban Water Supply and Sanitation (UWSS). In addition to setting up of the Sector Institutions such as a Water Council and preparation of an Investment Plan, the WASH Cluster partners are urged to coordinate their efforts more closely with MWRI and State level actors to ensure that longer term operational sustainability issues are addressed. The policy support States, Counties and communities to develop their own sustainable solutions for service provision, e.g. through private service providers. It is on these basis that Concern Worldwide is supporting the Town Council and the Ministry for State Infrastructure, Housing and Roads to chart a business road map for the next 5 years.

Lastly, According to the Presidential Decree 2008, MWRI also has a regulatory mandate to oversee the performance of UWS services, to inspect rural water facilities and to set water tariffs for urban and rural water. It is also overseeing water resources development, conservation and management[1].

[1] MWRI (2011) Water, Sanitation & Hygiene (WASH) Sector Strategic Framework – "Water for Life and Development, Sanitation and Hygiene for Healthy and Productive Citizens". Ministry of Water Resources & Irrigation: Juba

Description of Present Assets

The Water supply network in the town consists of a pump intake, a treatment plant, clear water tank, and an elevated tank and transmission and distribution network. The intake is located at coordinates (Latitude: 9.283755°N and Longitude: 29.810382°E).

- A simple pipe intake and suction pipe in the Bahr-el-Ghazal River. The suction pipe is 2 inches HDPE pipe of length 15m which terminates at the raw water pumping station on the bank.
- Raw water pumping station consisting of 2 No. diesel pumps Model PTD 306. Each has a discharge capacity of 902 L/Min and head of 28m. The pumps deliver water to flexible water holding canvass containers
- These 4 No. canvass containers act as coagulation and sedimentation basins. There are 3 No. each with capacity of 30m3 and the other 2 No. each with capacity of 20m3. The total capacity is 110m3. The detention time in these basins is approximately 2 hours. The water is then pumped to clear water tank for chlorination.
- The ground steel panel clear water tanks have a total volume 260 m3 (2 No. each capacity 95 m3 and 1 No. 70m3).
- The steel elevated tank at the Rubkona intake is used to serve mainly bulk water consumers (donkey carts and water tankers). It is also used to serve the town during emergencies. It has a capacity of 15 m3 and a height of 12.8m
- This steel elevated tank is the main reservoir serving Rubkona town. It is approximately 2.67km from the intake. Treated water from the intake is pumped directly into it. It has a capacity of approximately 22m3 at a height of 11m
- 1 No. Online Chlorine dozer.
- 1 No. Aluminium Sulphate dozing machine
- 3 No. diesel IC engines as Prime Movers of the Pumps: 1 No. raw water pump at the intake, 1 No. for pumping water into the overhead tanks, 1 No. for Alum pumping and finally.
- A typical public/communal water-point within the Rubkona supply network. They consists of 4 taps.
- Bulk water tankers and donkey carts supplied via a dedicated dispenser at the treatment plant.

- The Rubkona supply system covers an approximate supply area of 1.77km2. The network is divided into three branches. The network has a total pipeline length of approximately 8.27km. This is summarized in Table 2 below:

Table 2: Rubkona Network pipe information

Pipe Name	Length (m)	Material	Pipe Diameter (Inch)
Raising Main	2,666	HDPE	4
Transmission Main	541	HDPE	4
Branch 1	496	HDPE	4
Branch 1 – 1	577	HDPE	2
Branch 2	374	HDPE	4
Branch 2 – 1	375	HDPE	2
Branch 2 – 2	688	HDPE	2
Distribution	2,555	HDPE	2

- There are 21 No. water points No. are communal taps/yard taps/Institutional taps, 2 No. water kiosks and 1 No. bulk dispenser. The institutional water points and yard taps are still shared with the community. Pumping is done for 8.5 hours in a day.
- The operation and maintenance of the scheme is wholly funded by the Concern Worldwide NGO with nil water user fees levied.
- The Asset Base is presently valued at US$ 231,700, majorly composed of pipework

Branch 1	Branch 2
Mankuai A	Mankuai C
Mankuai B	Mankuai D
Chlobor	Dinka A
Mathoyo	Dinka B
Keah Thor bar	Chilak A
Guol mathoyo	Bor Nyal

Rubkona Town Institutional Population

Institution	Population
SPLM 4th Infantry Division Barracks	
IOM Primary Health Care Unit	
Rubkona Primary School	975
CARE Medical Clinic	
Nyuel Jurr Primary School	1,917
MSF Dispensary	

Present Reach and Five Years Projections

Table 3: Customer Projections

Utility	Now in 2021	After 5 years
Rubkona	28, 390	33,243[1]

Water Consumption per HH

20L/P/D. with the accrued public health benefits, increased uptake of hygiene promotion messages, and with the increased number of people having disposal income and demanding increased level of service in the form of house connections, this figure is expected to increase to 35L/P/D on average by year 5.

Rubkona Town Scheme Extensions

The proposed extensions would lead to additional 9 No. water points. The total pipeline length would then be 12,522m (12.522km), which would be an increase of 4,435m (4.435km). The new service area would be 2.57 km^2, an increase of 0.8km^{21}. The additional villages that would be served by these lines are as follows;

- Suan
- Nonguk
- Mankuai A, C, and D
- Mathoyoh
- Airport

For the above rehabilitation to happen, the below listed activities with corresponding financial commitment will have to be done as shown in Table 4 below.

Table 4: Rehabilitation and Extension Plan[2]

	Construction of Rubkona SWAT System	
Sn/no	**Item**	**Cost (USD)**
A1.1	Preliminary and General items	11,200.00
A1.2	Intake & Treatment Plant works including storage units	25,700.00
A1.3	Transmission Pipeline to Rubkona town + water points	170,000.00
A1.4	Generator, Pumps and Pump House	12,400.00
A1.5	Sub- Total	**219,300.00**
	Add 15% contingency	32,895.00
	Grand total	**252,195.00**

Rubkona Water Utility Board Composition

It is proposed that oversight of Rubkona Water Unity is delegated by the Town Council (Government Government) and the State Ministry of Land, Housing and public Utilities to a Water Board that consist of ten members as follows:

- 2 No. Respected members from the Community for each of the Utility (male & female), example a School teachers, Nurse, social worker
- 4 No. Professional in the community – preferably : Lawyer, Engineer, Accountant/Finance backgrounds (not a must)
- 4 WTO

All tariff changes and loans must be approved by the Rubkona Water Utility Board and Town Council.

1 Concern worldwide, (2020), Final Hydraulic Modelling & Technical Assessment Report Juba: South Sudan

2 Source: CWW-SSD Engineer in Rubkona

Burgeoning Population due to improved security and the proposed dissolution of the PoC

With the possibility that the PoCs and IDP Camps at the Hub might be dissolved, and with people returning to their homes and communities to resume normal life, the elevated tanks in both utilities might need to be raised need to 1.5 or two-fold to provide more pressure in order for meet the demand of the increased coverage. Problems portend of excessive pressure in the vicinity of the respective utilities. McKenzie et al., (2002) pointed out that through considerable research, it has been shown that burst frequency is very sensitive to maximum system pressure. An effective leakage management strategy should take into account the pressure dynamics of a water distribution network. Break Pressure Tanks (BPTs) will also need to be constructed along the supply lines for water points in the vicinity of the Water Utility.

Customer Base

There are currently approximately 28, 390 people (2020) in Rubkona. On a per capita basis connected customers use 20 lpd. This is projected to rise to 33,243 people in the next four years.

Bulk Suppliers

There are donkey carts that make trips each day to the Utility to get safe water to supply business in the market and food kiosks/restaurants. A donkey cart carries a capacity of 400L. Each trip is charged at 100 SSP.

Access to Water[3]

Most of the respondents (93.5%; N=399) mainly accessed drinking water from known safe sources in the locality. Only 6.3% stated that they accessed their drinking water from the river. This is as shown in the table below.

Table 5: Respondent Sources of Water[4]

Water Source	No. of Respondents (N)	Respondent %
Water Point/Borehole	131	32.8
Yard Tap in Compound	48	12.0
Water kiosk/Tap Stand	186	46.6
Water tanker	3	0.8
Donkey cart vendor	5	1.3
River/stream	25	6.3
Other	1	0.3
Total	398	100

Most of the respondents (90%; N= 399) reported that their primary water source is accessible throughout the year.

Competitors:

As shown in Table 5 above, boreholes comes second after piped water in terms of water access. The Water Utility will therefore have to compete with borehole owners in water services delivery. Rain water also represents a huge financial risk to the operational and tactical goals of Rubkona Water Utility

Unsatisfied demand:

Due to the transient nature of the urban population and people doing business at Rubkona market, it is possible to determine unsatisfied demand.

Tariff:

Currently there is no tariff payment. Communities in Unity are thus eager for solutions to chronic issues such as dilapidated infrastructure, lack of investment and unfair pricing. Ongoing safe access to potable water amid South Sudan's protracted crisis is fundamental to people's survival, and represents a step towards developing a situation of normality and ultimately one in which the people can thrive. A cost reflective tariff of 15 SSP per 20 L Jerrycan has been established (CIVITRA Research and Consulting Company, 2021). A program of education of the community, institutional set up as well as a raft of legislations by the State Assembly and Government is expected before mid-2021 in or order to operationalize payment for water services. to professionalize, and to consolidate management arrangements capable of responding to the community's water needs before, during and after shocks (including spikes in conflict, significant deteriorations in the health situation, including but not limited to cholera, and economic disruption).

3 Concern and Unicef (2019), Assessment Report Willingness to pay water services report Rubkona and Rubkona, Unity: South Sudan

4 *Ditto*

Risk:

Short- to mid-term prospects for public investment in infrastructure (including WASH infrastructure) are bleak, with peace building efforts curtailed by the ongoing conflict, to which the vast majority of the state budget is being channelled. Furthermore, South Sudan's WASH sector remains at an embryonic stage, and while some guiding policies exist, legal gaps remain, and operationalization has been slow. This has contributed to the dilapidation of existing service delivery systems, as well as a lack of clarity of sectoral roles and responsibilities, leading to fragmentation and duplication of such roles, exacerbated by weak accountability and oversight systems.

Contingency planning

Rubkona Water Utility provides a vital service to the community. Safeguarding its continued operation before, during and after a crisis is thus crucial to enable the communities to be minimally prepared and to endure and bounce back faster from shocks. Rubkona faces a high security threat, due to the warring clans. Although the town has remained stable for a while, insecurity generated by the crisis is a reminder of how socially and politically volatile the city remains. Rubkona Water Utility and Concern Worldwide acknowledge that Rubkona is also likely to be affected by flooding due to its proximity to the river. Given how vital the water supply is to communities in withstanding crises and bouncing back more quickly from them, it is essential that plans are developed to safeguard its operation during shocks.

Table 6: Proposed Sources of Revenue

		Present	Future
Description[2]		**Approx. Annual Amount ((US$)**	**Approx. Annual Amount (US$)**
1	Tariff (@US$ 0.123/M^3)	107,328.34	128,794
2	Grants	40,000	40,000
	Universal Connection (as per water points) 14 No. Water points @US$ 25 service fee	350	300
4	Kiosks (1 No.) @US$ 100 service fee	0	1200
5	INGOs Connection (1 No.) MSF Hospital @US$ 250 service fee	100	250
6	Gvmnt Connection (1 No.) Hospital @US$ 250 service fee	250	250
	Gvmnt Connection (9No.) Ministries & allied offices @US$ 100 service fee	900	1400
5	Gvmnt Connection (6 No.) Schools@US$ 100 service fee	600	1100
6	Connection (as per HH with good disposal income expecting higher level of service) (5No.) @US$ 100 service fee	500	800
7	Meter Renting @US$ 50 service fee (47 No.)	2,350	1,500
8	Reconnection fees for defaulters	3,000	9,000
9	Penalties for offenders (contravention of the By laws)	1,000	1,000
		156,378	185,594[3]

Table 7: Foreseen capital expenditures to realize Payment for water services

		Present	Future
Description		Approx. Annual Amount ((US$)	Approx. Annual Amount (US$)[4]
1	Purchase of Bulk Water Meters (5No. - @for raw water/intake, for production and 3 No. District Meters for the three mainlines for leakage reduction program) @ US$ 250	1,250	
2	Purchase of Water Meters (21 No.) @ US$ 70	1,470	
3	Construct 7 Water Kiosks @US$ 1,200		8,400
4	Purchase PRV – Pressure Reducing Valves for the three main-lines for leakage reduction program) @ US$ 250	1250	1500
	Total Operational Costs including paying for Capital Asset de-preciation costs	107,328.34	128,794[5]
6	Meter Testing Costs by third party		2,000
7	Leakage detection program costs		6,000
8	3 No. Motorbikes		3,500
9	2 No. Computer		2,500
	4 Additional critical staff		2,000
	Office Operational Expenses		2,000
	Expenditure on phones and communications		1,000
	Seminar & Workshops on sensitization of customers (education of land lords as stakeholders should be prioritized)		3,500
	Systems Strengthening (a) Making digitized as built drawings, Mapping the Network (b) 3No. GPS Hand-held gadgets purchase (c) transformation from a single entry manual accounting sys-tem to an automated double entry accrual based accounting sys-tem (d) a restructured organization that is closer to customers and more accountability for operational and customer service results, (e) a revised tariff structure that has produced signifi-cantly more revenues and provides appropriate subsidies for poor customers, (f) a complete inventory and valuation of Rub-kona's fixed assets and (g) Marketing and Advertisements		60,000
		111,293	151,194

Note the items above aren't included in Table 4 of the Business Plan

Five Year Capital Improvement Plans and Development Projects

In addition to completing proposed extension project by UNICEF and Concern and following the proposals by the March 2020 Hydraulic Modelling study, and the Report on the Training of Board members', recommendations, the projects listed in Table 13 of this plan shall be carried out over the FY 2021 to F2025 time period.

Table 8: Capital Improvement Plans and Software (Capacity Building) for 5 Years

	5 Year Plan	Estimate FY 2021	Projected FY 2022	Projected FY 2023	Projected FY 2024	Projected FY2024
Investments						

i.	Rehabilitation/Upgrading Rubkona Water Utility	252,195	120,000	132,195			
ii.	Purchase of Bulk Water Meters (5No. - @for raw water/intake, for production and 3 No. District Meters for the three mainlines for leakage reduction program) @ US$ 250	1,250		1,250			
iii.	Purchase of Water Meters (47 No.) @ US$ 70	3,290		3,290			
iv.	Construct 7 Water Kiosks @US$ 1,200	8,400		8,400			
v.	Purchase PRV – Pressure Reducing Valves for the three mainlines for leakage reduction program) @ US$ 250	1250		1250			
vi.	Meter Testing Costs by third party	2,000		2000			
vii.	Leakage detection program costs	6,000		6000			
viii.	Fire Hydrants	8,000		8,000			
ix.	Air Compressor and related horse pipes of appropriate size and pressure gauges – for Pipes, Pumps and IC Engine Cleaning	12,000	12,000				
x.	Pressure gauges/Meters at the Pump House, Storage Supply tank, and one per main lines (3No. Mainlines)	2,000	2,000				
Studies							
i.	NRW: Leakage Studies and detection	15,000			15,000		
ii.	Mapping and Digitization of the as-built designs and drawings (includes calibration of the network for Hydraulic Models to function)	15,000				15,000	
iii.	Operational , Human Resources and Financial Systems Study	10,000		10,000			
iv.	Complete inventory and valuation of Rubkona's fixed assets	7,500	7,500				

v.	Solarization of the System to save at least 30% of the energy costs(Hybrid Model Study)	10,000					10,000
Operational Projects							
i.	Transformation from a single entry manual accounting system to an automated double entry accrual based accounting system	8,500				8,500	
ii.	4 Additional critical staff	2,000				2,000	
iii.	Customer Complaint Center	500	500				
iv.	Customer Meter Replacement	4,000					1,000
v.	1 No. Motorbikes (125 cc capacity engines) and 5 Bicycles	1,850		1,850			
vi.	1 No. Computer	1,250			1,250		
vii.	Washouts[6]	1,500		1,500			
viii.	Regular Pipe Cleaning[7]	*4,000*		*1,000*	*1,000*	*1,000*	*1,000*
ix.	Pipe Marker Posts in the fields that are frequently set on fire	*900*	*900*				
x.	Pipe repairs, replacements, and rehabilitations and extensions	*16,000*	*3,200*	*3,200*	*3,200*	*3,200*	*3,200*
xi.	Valve Chambers and Section Valves	7,500	3,500	3,500			
		401,885	***149,600***	***183,435***	***40,900***	***59,400***	***15,200***

Commercial loans terms are onerous and include interest rates of approximately 10% and repayment terms of no more than eight years. For these easons, the water expansion, main replacements and operational projects will need to be funded from utility earnings. However, it is expected that with improved systems, active board and payment for water services, the credit rating/viability increases and the Utility will be able to fund some its capital improvement costs through loans. The Consultants recommends that due to the necessity of some of these items as they are meant to bring the Water Utility to Standard practice, grants should be sought to complete these items.

Financial Projections

Key Assumptions

Rubkona Utility's investment plan and cash flow projections that are included on the following pages have been prepared based on information provided by the Utility's management. The key assumptions that were used as the basis for the investment plan and cash flow projections are as follows:

1. The number of private (domestic) connections will increasing. Of course this is dependent on the volatile security situation in the country and the State in particular.
2. The number of non-domestic connections will increase following the passing of the bill into law on cancellation of Universal Free Water and the recognition of the Board.
3. Billed water use per customer per month will increase fowling assertiveness of the new Board.
4. Water tariffs will increase 20% in FY 2022 in order to provide necessary funds for projects.
5. The estimated collection rate will increase gradually from 0% in FY 2021 to 98% in FY 2023.
6. Salary and wage rates will increase 10% annually.
7. NRW will decrease 3% per year from 2022 to 2015 as the NRW project initiated by Rubkona Water Utility is implemented.
8. Electricity expense will increase based on the percent increase in annual water production plus 50%. The all-in unit cost of energy will increase 7% annually.
9. Chemical expense will increase based on the percent increase in annual water production plus an assumed annual increase in the unit cost of chemicals of 10%.
10. Fuel and lubricate expense will increase at annual rate of 15%
11. Maintenance and repair expense will increase at an annual rate of 10% plus estimated increments for new boreholes and additional vehicles (5%)
12. Loans from the Financial Markets will bear interest at 12 % and will be payable over a 25 year repayment period.

Additional explanatory notes are included with the Investment Plan and Cash Flow Projections on the following pages. Details of revenues, expenses and debt service are also included in this section of the business plan.

Cash Projections

Table 9: Five Years Cash Projections for Rubkona Utility

Maint. & Repr incr. is 5%	105%					
sal. Incr. is 10%	110%		tariff incr.	120%	Fuel incr. is15%	
			is 20%		115%	
	5 Year Plan	**Esti-mate FY 2021**	**Project-ed FY 2022**	**Project-ed FY 2023**	**Pro-jected FY2024**	**Projected FY2024**
Operating Revenues						
Water Sales	798,695	107,328	128,794	154,553	185,463	222,556
Other operating revenues	365008	49,050	58,860	70,632	84,758	101,709
Total operating revenues		156,378	187,654	225,184	270,221	324,265
Operating Expenses						
Salaries & Wages	40,263	6,595	7,254	7,980	8,778	9,656
Chemicals	94,546	15,486	17,035	18,739	20,612	22,674
Fuel & Lubricants	119,774	19,619	21,581	23,739	26,113	28,724
Maintenance & repairs	191,723	31,404	34,544	37,999	41,798	45,978
Other operating expenses	12,210	2,000	2,200	2,420	2,662	2,928
Total operating revenues	448,862	75,104	82,614	90,876	99,963	100,304
Cash flow from Operations	714,841	81,274	105,039	134,309	170,258	223,961

Water Sales Projections

Table 10: Water Sales Projections

	Esti-mate FY 2021	Projected FY 2022	Projected FY 2023	Projected FY2024	Projected FY2025
1. Number of Customers		*1.01*	*1.05*	*1.04*	*1.05*
Private - Domestic	28,390	28,674	30,108	31,312	32,877
Non-Domestic	2,892	2,921	3,067	3,190	3,349
	31,282	31,595	33,175	34,502	36,227
2. Billed Annual in Use (Cubic meter)	87,600	105,120	126,144	151,373	181,647
3. Composite Water tariff (US$/ M3)	1.23	1.48	1.77	2.13	2.55
4. Total Water Billed (R2 X R3)	107,748	155,157	223,426	321,734	463,297
5. Estimated Collections	100%	65%	75%	83%	90%
6. Total Water Sale (R4 X R5)	107,748	100,852	167,570	267,039	416,967

Monitoring and Evaluation

Table 11: Performance Indicators

	Unit	2021 Baseline	2022	2023	2024	2025
EQUITABLE SERVICE						
1. Population served with access to water supply	%	-	76	80	83	87
2. Population with household connection	%	-	27	29	31	33
3. Operating cost coverage ratio (op. rev/op. exp.)	%	-	150+	150+	150+	150+
4. Water consumption	L/p/d	-	36	37	37	38
EFFICIENT SERVICE		-				
5. Ratio of staff per thousand water connections	%	-	9.2	8.6	8.2	7.8
6. Revenue/ Bill collection efficiency	%	-	90	92	94	96
7. Staff with vocational qualification or above	%	-	26	32	38	44
8. Unaccounted for Water (w. delivered- w. billed)/w. delivered)	%	-	29	28	27	26
9. Energy efficiency (kWh / water delivered)	Ratio	-	TBD	TBD	TBD	TBD
SUSTAINABLE SERVICE		-				
10. Pipe extension executed	Km	-	21	21	22	23
11. No. of pipe breaks (per year/per km)	Ratio	-	TBD	TBD	TBD	TBD
12. No of water samples testing with negative coli forms against total	%	-	87	89	91	93
13. Training Program (training hours/employee)	Ratio	-	5	7	7	10

Table 12: Recommended indicators for physical losses and NRW (Source: Alegre et al., 2000)

Function	Level	Performance Indicator
Financial: NRW by volume	1 (Basic)[8]	Volume of NRW [% of system Input Volume]
Operational: Physical losses	1 (Basic)	[Litres/service connection/day] or [litres/km of mains/day](only if service connection density <20/km)
Operational: Physical losses	2 (Intermed.)[9]	[litres/service connection/day/m pressure] or [litres/km of mains/day/m pressure][only if service connection density is<20/km)
Financial: NRW by cost	3 (Detailed)[10]	Value of NRW[% of annual cost of running system]
Operational: Physical Losses	3 (Detailed)	Infrastructure leakage index (ILI)

Further, the Business Plan envisages the promulgation of a legislation that will stop Universal Free Water, and therefore stopping all the illicit connections and water theft, subsequently reducing commercial/apparent losses, therefore increasing water production and sales and revenue.

Rubkona Water Utility Board should develop systems and procedures to be able monitor and report on the above performance measures in a way that can be periodically verified by external stakeholders.

Accountability

Although financial constraints matter, they do not constitute the only barrier. WaterAid's report Bridging the gap – Citizens' Action for accountability in water and sanitation[5]argues that the missing ingredient needed in order to reach poor people is accountability to the people, which necessitates the meaningful involvement of users in the planning, delivery and monitoring of water services. This increases the chances of delivering reliable, sustainable and affordable water services to more urban inhabitants.[6]

The engagement of users in utility reforms and ongoing service improvement processes is crucial, since reforms to improve efficiency (inevitably the main driver for reforms) do not "necessarily translate into geographical equity or a commitment to serve the poor… without incentives, a clear mandate to serve the poor or a 'champion', companies chase markets that are 'easy', offer the highest returns and do not require subsidies".[7]However, user engagement is far from simple and its outcomes far from predictable. Table 13 and 14 below expound on the provider and user side accountability tools to be deployed.

5 WaterAid 2006
6 WB 2009
7 Castro and Morel 2008 p291

Table 13: Provider-side accountability tools

Aim	Mechanism	Description	Leading Agency	How often
Information and consultation	User outreach/ad hoc user meetings and forums	Display public information on: - Water tariffs - Opening hours - Complaint phoneline - Emergency numbers	Rubkona Water Utility Board General Assembly	Beginning of operations and update as needed
	Publication of performance data	• Display public information on: - Amount of water produced - Amount of water sold - # of complaints, type of complaints and how long it took to resolve - Water quality • Produce quarterly financial and technical reports	Rubkona Water Utility Management Users' Committee	Information on monthly basis; report every quarter to be shared with local government authorities, Concern Worldwide and Rubkona Water Utility Board

Standard setting and regulation	Contract with service provider	Performance contract between Rubkona Water Utility and Water Facility O&M Team, which specifies expectation of service provided (water quality standards, opening hours, etc.)	Rubkona Water Utility Management Users' Committee	Beginning of operations
	Regulation	Development and ratification of customer charter and integrity pacts	Draft by Concern Worldwide and agreement by Rubkona Water Utility Management Users' Committee	
Performance monitoring and feedback	Retrospective performance/ perception surveys	Conduct customer satisfaction surveys to follow up on service commitments and identify inefficiencies and problem areas	Rubkona Water Utility Management Users' Committee	Quarterly basis
Redress and recourse	Internal complaint/grievance mechanisms	Define how people complain, to which point of contact, how long it takes for complaints to be resolved and what kind of responses are given	Rubkona Water Utility Management Users' Committee	Beginning of operations

Table 14: User-side accountability tools

Aim	Mechanism	Description	Leading Agency	How often
Information and consultation	Citizen's charter	Rubkona Water Utility Users' Charter: Rubkona users spell out Provider responsibilities and service standards for ratification by provider, with regular monitoring meetings to evaluate progress	Users' Group representatives (HH, bicycle vendors, water tankers)	Beginning of operations and meetings on regular basis
Performance monitoring and feedback	Citizens' user platforms	Rubkona Water Utility users' platforms: users meet to reach coherence and consensus as to service challenges	Users' Group representatives (HH, bicycle vendors, water tankers)	Meet when needed, initially supported by Concern Worldwide
Redress and recourse	Use of complaint mechanisms	Rubkona Water Utility Users' make use of complaint mechanisms to individually or collectively voice grievances that help improve services and receive compensation	Rubkona community	When needed

Financial sustainability

To demonstrate Rubkona' commercial viability, the plan has also projected cash flow following the principles of the life-cycle cost analysis and cost recovery. Using these approaches, it is possible to account for expenses to enable the Rubkona Water Utility's short-term and long-term operationality, including provisions to replace, extend and enhance the water supply system (Tables 7, 8 and 9). By calculating the level of expenditure, it is in turn possible to demonstrate just how much the community-based operating agency would have to charge to operate on a cost-recovery. Calculations revealed that even charging the very minimum, in an optimal scenario, the Rubkona Water Utility's financial sustainability was assured. This demonstrated that, if transparent and effective cash handling procedures were followed, money generated through the sale of water would be enough to cover monthly expenditures (operations and minor maintenance), while setting aside enough for major replacements and even a surplus that could be used as a community revolving fund to finance activities for the wider benefit of people living in the Rubkona area. Most sources of expenditure are considered, but moving forward it is likely that new costs will be incurred. For example, taxes are not included in initial calculations because the concept of social enterprise in South Sudan is new, and it remains unclear how the government will tax this busines

(Footnotes)

1 At a population growth rate of 3.2% per annum

2 As per MWRI (2011) Water, Sanitation & Hygiene (WASH) Sector Strategic Framework – "Water for Life and Development, Sanitation and Hygiene for Healthy and Productive Citizens". Ministry of Water Resources & Irrigation: Juba, for example in Juba in 2011, UWC had a total of 2504 customers, each paying between US$ 2.5 and US$ 40per month i.e. an average of US$ 8.4 per month. In addition, UWC charges a connection fee of 255 SDG (USD 102).

3 Note that a major part of this is loan (@US$120,000). It is expected that with Governance and Board oversight, including capacity building on financial management, the credit rating for Rubkona Water Utility should raise and so is the capacity to source money from domestic financial market

4 From Table 3, this will be a 20% increase in population

5 The same value in Table 6 future water production costs. As this is a Non-Profit public body production costs is approximately the same as sales costs with zero profit margin. Note that Annuity for Capital recovery costs has been factored in already

6 Required for minimum 10m drop in elevation. This can be found on the worksheets of the Hydraulic Modelling Report (March, 2020). Fortunately, Sud swamp is relatively plain/flat and so not so many wash-outs will be required.

7 Is based on Hydraulic Modelling studies and the installation of fire hydrants and valves

8 Level 1 (basic): Is a first layer of indicators that provides a general management overview of the efficiency and effectiveness of the water supply undertaking.

9 Level 2 (intermediate): Additional indicators that provide a better insight than the Level 1 indicators; for users who need to go further in depth.

10 Level 3 (detailed): Indicators that provide the greatest amount of specific detail, but are still relevant at the top management level.

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