

KUSINI

PURPOSE IN EVERY DROP

SPONSOR A SITE

Give water to a site of your choice, by becoming an official brand partner, you'll have access to water account management services, reporting and proof for all water projects funded, and a full library of logos, photos, videos, and stories from the field.



Table of Contents

THE KUSINI X WATER TREATMENT SYSTEM	3
Easy to Install	3
Optimised Adaptability	3
Minimal Downtime and Optimal Reliability	3
Minimal Operation Costs	3
Applications	3
Application Examples	3
WHAT TO EXPECT ONCE YOU SUPPORT A SITE	4
At The Start	4
At 1 Month	4
At 3 Months	4
At 6 Months	4
At 12 Months	4
SITE PACKAGES & COSTING	5
CURRENT KUSINI PARTNERS	6
RedBull Amaphiko	6
Mobiwash SA	6
DHL South Africa	6
T-Shirts for Change	6
INSTALLATION & MAINTENANCE OF KUSINI WATER TREATMENT SYSTEMS	7
Key Components	7
Recommendations for Installation	7
Kusini Water Treatment System	7
Water Quality Categorisation	8
Water Quality Limits	9
Water Samples	9
Service Offerings	10
Basic Maintenance Schedule	12
FREQUENTLY ASKED QUESTIONS	15

THE KUSINI X WATER TREATMENT SYSTEM

The Kusini X water treatment system produces potable water by filtering bacteria, viruses and particles from raw source water, providing a reliable and affordable water supply even in remote areas. The water treatment is based on ultrafiltration (UF) technology. Standardised treatment modules can be combined according to the specific raw water quality on site to deliver a complete water treatment unit.

Easy to Install

The Kusini Water system is flexible and easy to install. It is delivered prefabricated and prewired as plug-and-play water treatment system. Kusini Water can easily be combined with other required treatment processes such as sedimentation, sand filtration, aeration.

Optimised Adaptability

Kusini Water can be adapted to the local raw water quality.
Optional modules can be added to match the specific water treatment requirements.

Minimal Downtime and Optimal Reliability

The complete preventive maintenance schedule is delivered by Kusini.
Regular maintenance can easily be carried out by local operators.
Professional service is required only 1 to 4 times a year, depending on the raw water quality.
Kusini X Remote Management offers control and service planning.
Kusini consists of high-quality components.
Patented self-adaptive control software reacts to seasonal changes and maximises service intervals.

Minimal Operation Costs

Solar powering fully and partly possible
Low consumption of energy
Low consumption of chemicals
Long lifetime of the membrane and other wear parts
No need for a full-time operator

Applications

Kusini can operate as a stand-alone drinking water system or in combination with Kusini X water dispensers in water kiosk applications. The Kusini water treatment system can also be applied in water factories and bottling stations or at selected industrial sites, commercial buildings and estates.

Application Examples

Kusini offers a wide range of high-quality pumps, controls and intelligent water dispensers with revenue collection. When combined with the Kusini X, systems can be designed to meet project-specific requirements and criteria.

The Kusini X water treatment system with a Kusini X water dispenser is the complete solution for a sustainable water supply in rural and peri-urban areas, which are not connected to the main water network. Ground water or surface water is pumped to the Kusini X water treatment system, where it is purified. The purified water is stored in a tank, which can be connected to a water kiosk with the Kusini X water dispenser.

WHAT TO EXPECT ONCE YOU SUPPORT A SITE

At The Start

Program cycle begins

Our impact year is split into 3 quarters: Q1: Jan – March. Q2: April – June. Q3: July – Sept. We prepare to send financial contributions to the field at the completion of each quarter in which you give.

At 1 Month

We work with our partners to prepare

Before construction begins, we do extensive research, file permit paperwork and start the system build. At this stage you will get the latest information on our partners, water sources and data analytics of the beneficiaries.

You get Update Report 1!

PROJECT PROGRESS

At 3 Months

Construction & evaluation

Construction is underway! Our partners collect the construction report, depending on the complexity of the project it can vary from 1 to 5 pages.

Construction concludes

Our partners finish the work and train local communities to use and maintain their water points.

You get Update 2!

PROJECT COMPLETION

At 6 Months

Final data collection

Our partners collect photos, laboratory test results, and water meter data of the completed projects and send information about the specific communities you've served.

At 12 Months

Our final review

We complete baseline and impact data for a final report, we average out the amount of liters flowing daily and we compare laboratory test results in the 12 months period. You get a close out report and we continue to send you monthly reports.

You get your Completion Report!

SITE PACKAGES & COSTING

We have four options when it comes to choosing a Site Setup. Each allowing for varying degrees of water filtration and processing depending on site size.

Full System \$ 10'000 / R 160'000

- 2x 5'000L Raw Water Storage
- Raw Water Pump
- 1'500 liters per hour Water Treatment System
- 5'000L Clean Water Reservoir
- Distribution Booster Pump

Solar Package:

- 2x Solar Panels
- 5 Kva inverter
- Backup Battery Storage
- Remote Monitoring System

Essential System \$ 5'000 / R 80'000

- 1x 5'000L Raw Water Storage
- Raw Water Pump
- 1'500 Liters per hour Water Treatment System
- 5'000 L Clean Water Tank
- Distribution Booster Pump
- Remote Monitoring

Bare System \$ 3'000 / R 48'000

- 2x Water Tanks for Raw and Clean Water
- 1'500 Water Treatment System
- Booster Pump

Custom Build System

- 1x 5'000L Raw Water Storage
- Raw Water Pump
- 1'500 liters per hour Water Treatment System
- 5'000L Clean Water reservoir
- Distribution Booster Pump

Solar Package:

- 2x Solar Panels
- 5 Kva Inverter
- Backup Battery Storage
- Remote Monitoring System

R 6'000

R 1'500

R 48'000

R 23'000

R 9'500

R 48'000

R 18'000



CURRENT KUSINI PARTNERS



Red Bull Amaphiko

We have partnered with our friends at Red Bull to bring water since 2017 to bring water to the community of Mowabisi in the Western Cape, iNanda in KZN and through many events such as Red Bull Boxcart, Wings For life and other events we have raised brought water to 4 communities with an average of 1 million liters a month.



Mobiwash SA

Our friends at Mobiwash ensure that for every wash they give free water to people who most need it. Mobiwash gives 20 liters of clean water to our site in Temba, Hamaanskraal and they aim to build new ablution facilities through their car wash fundraising.



DHL South Africa

As part of their 50th anniversary DHL South Africa is bringing water to 50 communities throughout South Africa, DHL South Africa has sponsored the installation of Kusini Water filters in The Western Cape, KZN, Eastern Cape, Gauteng, Limpopo, Mpumalanga, North West and Free State.



T-Shirts for Change

T-Shirts for change takes plastic and turns it into t-shirts. RE-Wear tees are proudly made in SA using a unique blend of 65% polyester made from recycled plastic and 35% cotton, each RE-Wear tee recycles two plastic bottles or more. RE-Wear tees are helping to prevent plastic pollution from ending up in our landfills and ocean. Each tee sold makes a direct impact on reducing plastic pollution.

INSTALLATION & MAINTENANCE OF KUSINI WATER TREATMENT SYSTEMS

Key Components

- Water Source
- Kusini X Pump Solution
- Kusini X Water Treatment System
- Water Tank
- Kusini X Water Dispenser
- Kusini X Remote Management GRM
- Kusini X100 S Solar Panels

Option 1:

3 solar panels are connected in series, 5 sets of 3 solar panels each are connected in parallel.

Option 2:

2 solar panels are connected in series, 7 sets of 2 solar panels each are connected in parallel.

Recommendations for Installation

- Select a configuration that matches the local water quality.
- Select the distribution module to be able to pump the treated water to the elevated water tank.
- Include a level sensing module to make sure, that the Kusini system runs in accordance with the water consumption.

Kusini Water Treatment System

Kusini X should be installed inside a solid building for protection from vandalism and tampering. The building should be accessible only to authorized people.

Water Tank

- The tank must be high enough for gravity feed. It is not possible to feed the dispenser directly from a Kusini system on the same level. The tank outlet should be placed at least 3m above the Kusini dispenser inlet. Kusini X can provide a pump solution.
- The tank should have a lateral water outlet to avoid sediment entering the dispenser. Install the tank in a way that it can be emptied and cleaned.

Water Quality Categorisation

The Kusini system consists of different modules. The quality of the raw water on site determines, which modules are necessary for the water treatment process.

The first step in the selection of the appropriate combination of modules is to determine the water treatment challenge at hand. For this purpose, we developed the Kusini X raw water matrix, which enables you to categorise the raw water into four water types: blue, green, brown and orange. The basis for this categorisation is the content of selected pollutants, referred to as water quality parameters in the table below.

Parameter group	Water quality parameter	Blue water Ground water, rain water or public water	Green water Pond water	Brown water River water in wet Season	Orange water Rivers and lakes in tropical area
		Low fouling	Organic fouling	Inorganic fouling	Organic & Inorganic fouling
Solids	Turbidity [NTU]	<3	3-10	10-100	10-100
	TSS [mg/l]	<5	5-10	>10	5-50
	SD15	<5	5	<5	>5
Dissolved organics	DOC [mg/l]	<5	5-10	<5	10-20
	UV254[1/m]	<0.1	0.1-0.3	<0.5	0.3-0.5
	COD[mg/l]	<15	15-30	<15	30-50
	Oil[mg/l]	<0.1	0.1-0.3	<0.1	0.3-0.5
Dissolved inorganics	Fe/Mn [mg/l]	<0.05	0.05-0.2	>1	>0.5
	Water hardness [mg/l] (CaCO ₃)	<60		>60	
	Conductivity [mg/l]	<500		500-1000	
Water chemistry and temperature	pH	6-9			
	Temperature [°C]	10-35			

Water Quality Limits

UF membranes are very effective barriers for pollutants. Coarse pollutants bigger than 300µm and abrasive particles must be removed from the water entering the system.

The customer is responsible for the relevant pre-treatment of the water. Before entering the UF treatment process, the water quality must comply with the values stated in the table below. Otherwise the warranty is voided.

Parameter group	Water quality parameter	Required feed water quality
Solid	Turbidity [NTU]	<5
	TSS [mg/l]	<5
	SD15	<5
Dissolved organics	DOC [mg/l]	<10
	UV254[1/m]	<0.3
	COD[mg/l]	<20
	Oil[mg/l]	0
Dissolved organics	Fe/Mn [mg/l]	<0.1
	Water hardness [mg/l] (CaCO ₃)	<60
Water chemistry and temperature	Conductivity [mg/l]	<1000
	Cl ₂ [ppm]	Max 0.5 continuously
	pH	6–9
	Temperature [°C]	10–40

Water Samples

Kusini X highly recommends to take representative water samples on a regular basis, to be able to observe the values of the determined water parameters.

It has to be considered to:

- Take several samples from different spots due to changes in the aquatic system
- Ensure that the values account in the middle of the range and not to the critical boundaries
- Consider seasonal changes in the water quality.

Take several samples covering a broad time range and weather conditions.

Service Offerings

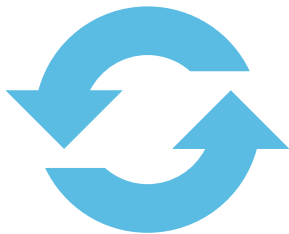
The service offerings described here ensure optimal functioning of the Kusini system with respect to:

- Highly optimised system performance
- Minimal energy consumption
- Reduced operational costs
- Low downtime on site

All service offerings listed below can be purchased individually and locally at Kusini X Service & Solutions. Our Authorised Service Partner network helps us secure a dependable and global availability of service products.

For further information go to: kusiniwater.co.za

Service Stage



Commissioning

- **Check of installation**
During commissioning, all aspects of your Kusini X system are checked, if it is correctly installed and ready for start-up.
- **Commissioning**
Commissioning is crucial to avoid breakdown of the Kusini X system during operation.
- **Train the operator**
Certified service staff trains your operator in the basic maintenance tasks and writes a detailed report including the activities realised, the parameters measured, and gives recommendations.
- **Your operator will be able to keep the system running at optimal conditions.**

Service contracts

- **Professional maintenance and repair service**
With a Kusini service contract, you get dependable and professional service and maintenance, making sure that your installation remains in top condition and runs in an energy efficient manner.
- **Two-level service contract**
To suit your needs, two different levels of service contracts are available: Basic and Advanced.
- **Maximal reliability at low costs**
Regular scheduled service work with replacement of components maximises the reliability of the system and keeps the running costs low

Repair and Maintenance

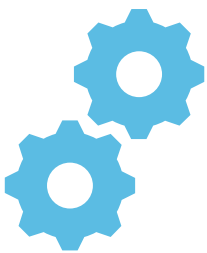


On-site repair

Certified service staff takes care of maintenance and repair tasks. This provides you with the following advantages:

- Minimised downtime and expenditure due to fast and efficient repair work
- Repair work is performed in such a way that the product warranty remains valid
- No need to spend time and resources in dismantling installations, sending components for repairs, and reassembling installations afterwards
- Clear overview of repair costs

Spare Parts and Maintenance Kits



Spare Parts and Maintenance Kits

Each maintenance kit is tailor-made for one specific maintenance operation.

- One-stop shop solution: You'll get all the suitable original spare parts and maintenance kits at one place.
- Spare parts can be ordered at the local Kusini sales company or the Service and Sales Partner.
- Kusini Distribution Service offers 24/7 global delivery options

Surveillance and Mobility



Kusini Remote Management

Expert service engineers perform remote monitoring of the key parameters of your Kusini X system.

- When a critical event occurs, you are informed immediately by a warning or alarm, which avoids a breakdown of your system.
- Your operator receives assistance and recommendations
- Site visits for troubleshooting are coordinated
- A detailed report that highlights potential problems, gives recommendations and analyses data is sent periodically.

Basic Maintenance Schedule

The basic preventative maintenance activities expected to be carried out by the user described in the following table, in order to keep the system free from troubles and to avoid unexpected breakdowns

Interval	Module	Task	See section
Weekly	Whole Kusini X system	Perform a visual inspection. Check the presence of warnings or alarms, water, leaks, abnormal noise or vibrations.	
		Visually inspect strainers () and (). Clean, if necessary.	Strainers
	Whole Kusini X system	Clean the strainers () and ().	Strainers
	Air Sourcing	Check that there is no water in the transparent hose.	
	Solar package	Clean the solar panel in order to obtain the maximum efficiency.	
Monthly	Whole Kusini X system	If necessary, clean all system surfaces with a dry and clean cloth.	Cleaning the system
		Check the feed water supply.	Checking the feed water supply.
	UV disinfection	<p>Heck the UV intensity value displayed at the UV controller. The UV controller can be found at the lower back side of the Kusini X control cabinet. Actions should be taken according to the displayed value:</p> <ul style="list-style-type: none"> • >65%: No action required. • 65–50%: Clean the quartz sleeve and the sensor of the UV system () soon. • <50%: An alarm is displayed and the system is stopped. Clean the quartz sleeve and the sensor of the UV system (). 	UV disinfection module

The position reference in the table refer to the PID.



Warning

Danger of personal injury or damage to the equipment!
The following tasks must be performed by certified service staff. The staff must have received proper training from Kusini before any work on the system

Interval	Component	Task	See section
Every 6 months	Whole Kusini system	Inspection of general installation conditions. Log statistics, alarm history, check system for functionality, leaks, abnormal conditions.	
	Feed pump (/) / Backwash pump (/)	Inspect shaft seal, tighten up connections, tighten electrical connections on terminal box.	
	Pressure relief valve (/)	Check that no leak is present.	
	Motor valves (/)	Check functionality of valves.	
	Filters (/), (/)	Replace filter screens.	Strainers
	UF membrane (/)	Perform integrity test.	Performing integrity test (without air scouring module)
	Control cabinet	Retighten electrical connections. Clean mat of cooling filter.	
	Internal CIP	General check of circulation pump (/). Retighten mechanical and electrical connections.	
	Air sourcing	General check of air compressor (/). Retighten mechanical and electrical connections	
	GAC filter (/)	Replace activated carbon (/) in filter vessel (/) and check the filter cartridge in cartridge filter (/). Inspect strainers and riser pipe for damages or clogging. Test functionality of multiport valve (/).	Activated carbon filter
UV disinfection	Clean UV sleeve and sensor of UV system (/). Check intensity value. Check functionality of solenoid valve (/).	UV disinfection module	
Chlorination	Check level sensor (/) and suction line. Check that no sediments are in chemical tank (/). Check that the sodium hypochlorite solution meets the specifications. Calibrate dosing pump (/) and retighten dosing head screws.		

Every 12 months	Prefilter	Replace filter screen	Self-cleaning prefilter
	Air sourcing	Replace intake filter of compressor ()	
	GAC filter	Replace filter cartridge in cartridge filter.	Cartridge filter
	UV disinfection	Replace UV lamp of UV system (). Perform sensor cleaning. Reset intensity value to 100%.	UV disinfection module
	Solar packages	Tighten electrical connections, measure voltage of batteries.	
Whole Kusini system	Perform external CIP to remove sediments and other particles.	Performing external CIP	
Every 24 months	Feed pump (/Backwash pump ())	Replace shaft seal, wear kit, gaskets and motor bearings	
	Prefilter	Replace non-return valve. Replace cylinder () and elbow fitting.	Self-cleaning prefilter
	Internal CIP	Replace non-return valves.	
	Air sourcing	Replace non-return valves.	
	Chlorination	Replace diaphragm and valves of dosing pump ().	
	External CIP unit	Replace non-return valves.	
Every 60 months	UF membrane element	Replace membrane	
	Internal CIP	Replace pump head of circulation pump ().	
	Air sourcing	Replace intake vanes of compressor.	
	Solar power	Replace batteries	

Note

After maintenance, the certified service staff is responsible for setting the new scheduled maintenance date in the service menu at the HMI. Details can be found in the separate HMI manual, which is supplied to certified service staff only.

FREQUENTLY ASKED QUESTIONS

Q: What am I paying for when I sponsor a water project?

100% of your contribution goes directly to the water project. Private companies and our commercial activities cover all overheads and expenses so your money can go directly to the respective water projects. Part of our project involves improving or adding new ablution facilities, especially in schools and clinics.

Data shows that most waterborne diseases affect mostly dense places and kids up to 10 years old, we therefore add latrines and ablution facilities as part of your contribution.

Q: What's included in my report?

We send out 3 reports for each project, a project cycle report in the first month, a project progress report, and a close out report. When each site is complete, we work with our partners to compile a completion data report (approx. 12 months), we assemble and send you a report with the following information:

- Water Flow data you can access through our platform
- GPS coordinates of the site
- Population data
- Impact Matrix analytics: age breakdown from the site, health indicators
- Photos from the site

Q: How much is the community involved in building a charity: water project?

We work entirely with local partners and communities. We involve the community as much as possible. We don't consider our projects "complete" until the community receiving them is engaged and empowered to care for them.

Our maintenance models for each project relies on our local partners and the community. Working with the community also offers us an extra level of safety for our site, we believe in order to be sustainable and allow sites to continue to work we can only do this by working with the community.

Q: Can I pick the location where my donation goes?

Each quarter, we have specific water project opportunities available in various regions.

Get in touch to learn about the specific locations we're working in this month, and how your gift can sponsor some of our most urgent needs.

If you make an undesignated gift online, we will send your donation to the site where it will make the greatest impact. If you'd like to talk about where we work before you give online, email us!

Q: How much does your water cost for the community?

All our communities get water for free from us, we do not charge for the water supplied and anyone who has access gets to use this water.

Q: How do you keep the water free for communities?

Thanks to our corporate sponsors and clients we use a 1 for 20 model, for every R1 we make we make 20 liters available for free in our respective sites, our corporate sponsors would choose to either fund an entire community or part of a community from their enterprise development or marketing budget. This allows us to put up the infrastructure and helps keep the water flowing.