

**AFFORDABLE**

# **SOLAR WATER**

**DESALINATION**

[www.winture.de](http://www.winture.de)



**KfW  
AWARD  
2019**  
GRÜNDEN





## COMMITTED TO SOCIAL BUSINESS

*and decent access to  
hygienic drinking and  
irrigation water.*

**Boreal Light GmbH** is a Berlin-based company specializing in renewable energy solutions for water treatment facilities. The company designs and manufactures affordable solar water desalination and filtration systems for off-grid communities around the globe. Systems manufactured by Boreal Light are capable of delivering high-quality drinking, irrigation, fish farming, and sanitation water from any kind of high-saline and polluted water resources. Powered fully by solar, simplicity of the design, and affordability of the systems manufactured by Boreal Light are the three pillars of the company.

**Winture** and **Waterkiosk** are the two registered trademarks for systems and services offered by Boreal Light.





# Winture Planet Cube

is a robust water desalination system developed by us. Powered entirely by solar energy, it is able to produce drinking and irrigation water directly from high-saline water sources. It is designed to perform under the harshest climate conditions in the most remote parts of the world. The standard Winture solutions provide from 1000 liters up to 100,000 liters of clean drinking water per hour.



The process starts by filtering contaminated resources, removing 99% of total dissolved solids (TDS) to produce clean water, devoid of organic/inorganic contaminants, bacteria, and viruses. Designed as an independent, low-maintenance, off-grid system, Winture operates without diesel generators or grid connections, using DC electricity from solar panels.

A small solar array suffices for its power needs, making it ideal for areas lacking clean water access. Globally installed Winture Planet Cubes are monitored 24/7 by Boreal Light GmbH in Berlin, ensuring optimal system performance.

## General Specification

Capacity	from 1,000l/h up to 100,000l/h
Structure	Containerized/Skid
Chassis Material	Aluminium
Filtration Technology	Simplified reverse osmosis (RO)
Membrane	Low/High pressure RO membrane
Membrane Life	five - seven years
Raw water source	Seawater, brackish water, surface water, wastewater
Water Delivery	Tap/Bulk/Drip irrigation
Contamination	Organic and inorganic, fluoride, chloride, salinity up to 50,000 TDS.
Quality of Produced Water	TDS: 1 ppm - 200 ppm
Pre-Filters	5 x 5 µm pre-filter/ 1 x activated carbon filter/ 1 x sand filter / ultra filtration
Disinfection Unit	2 x UV sterilization / Ozone
Power Supply	Hybrid (solar, wind, grid)
Backup Batteries	2 x 100Ah 24V Lithium Ion
Controlling System	Remote Monitoring / Remote controlling
Performance Monitoring	24/7 remote monitoring & controlling, 3G, 4G, SMS intake/outgoing water quality & volume, solar panels voltage, tanks status, system pressure, TDS

# The Integrated Approach

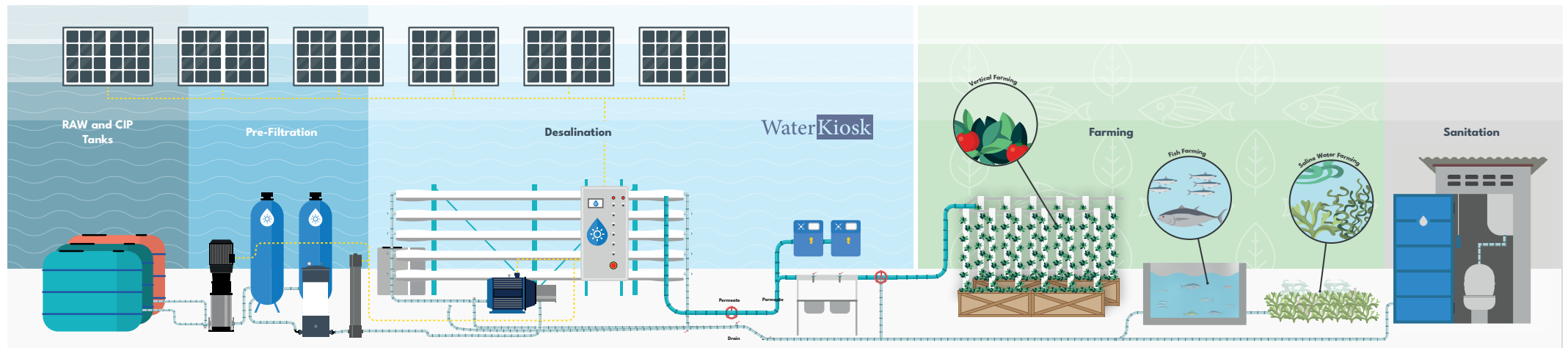
*At Boreal Light our commitment to provide water to off-grid communities is not limited to drinking water supply.*

*The Plug&Play characteristic of Winture solutions assures farmers in the most remote parts of the world to have a minimum of hassles and difficulties over installing the machine, running such a technology and taking care of the maintenance. In addition, farmers deal with many kinds of pollution in their intake water. Winture removes all salts, chloride, fluoride, bacteria, and viruses from any kind of seawater, high brackish water, surface water, and even municipal wastewater.*

While providing drinking water is allowing people to survive, providing them with irrigation water is what makes them prosperous. Winture's integrated approach is offering an affordable, all-in-one smart irrigation solution, added to the Winture Planet Cube solar desalination system, to provide irrigation water and fertilizer to farm lands.

A variety of sensors constantly analyze characteristics and communicate with Winture's main controller. The smart controller then runs the drip irrigation system and releases the right dosage of fertilizer that plants may need.

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The system runs **100% on solar energy**. No external power source or power buffer is needed, resulting in the perfect island solution.

A variety of **pre-filtration methods** are taking all non-dissolved particles out of the water. A UV lamp as well as possible ozone treatment is killing 99,9% of all viruses and bacteria.

A **high-pressure pump** is pushing the water through reverse osmosis membranes, where the dissolved salts are separated from the water.

The **permeate water** has drinking water quality. It can either be filled by hand, with a Water-ATM System, or be distributed by piping systems.

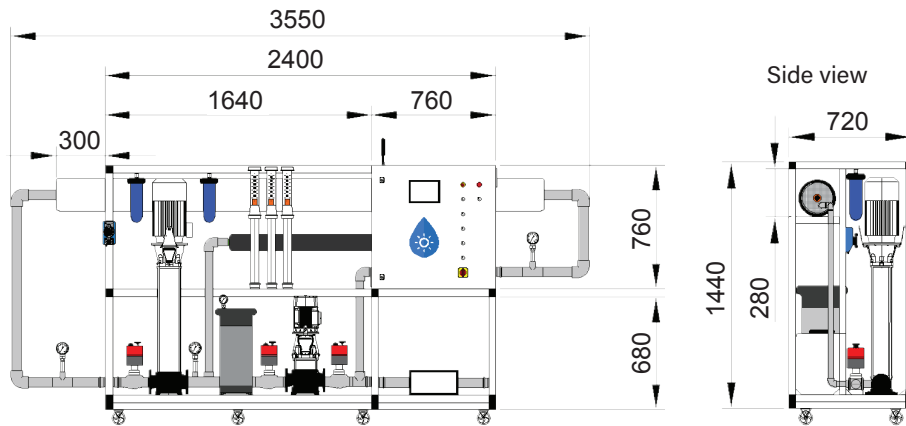
An attachable vertical farming plant is automatically irrigated with the **high-quality permeate water**.

The chemical-free **drain water** can be used for fish farming of salt water fish, as well as algae farming.

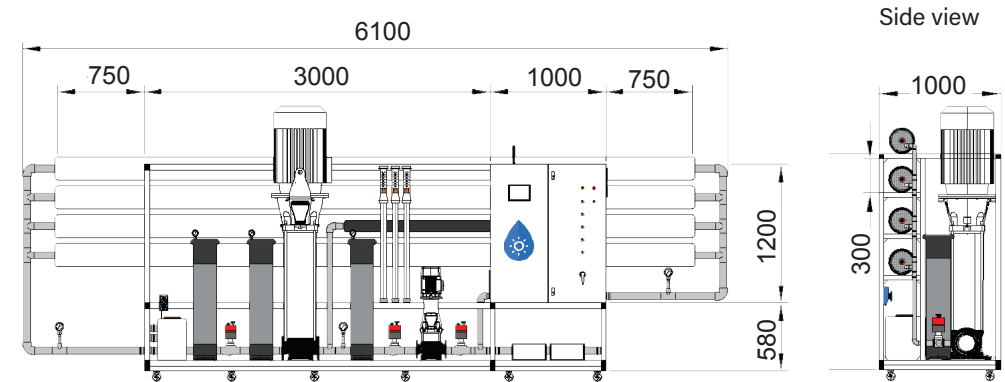
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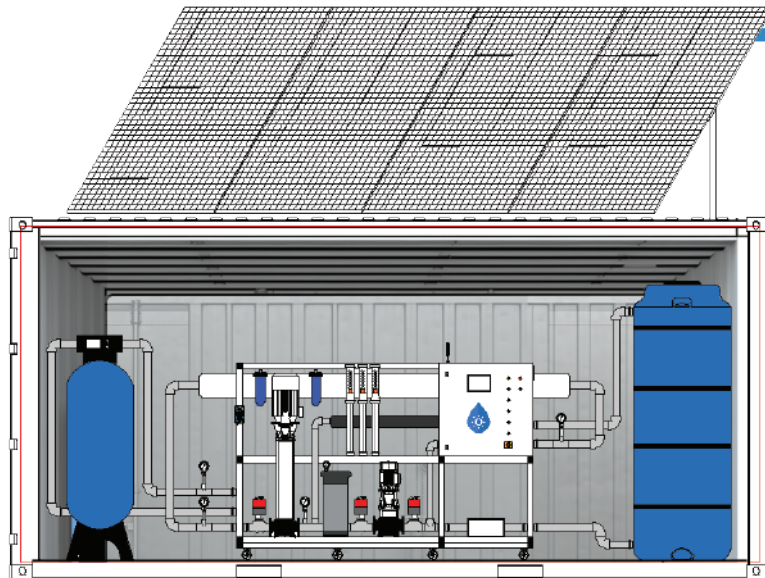
## 2,000 l/h System



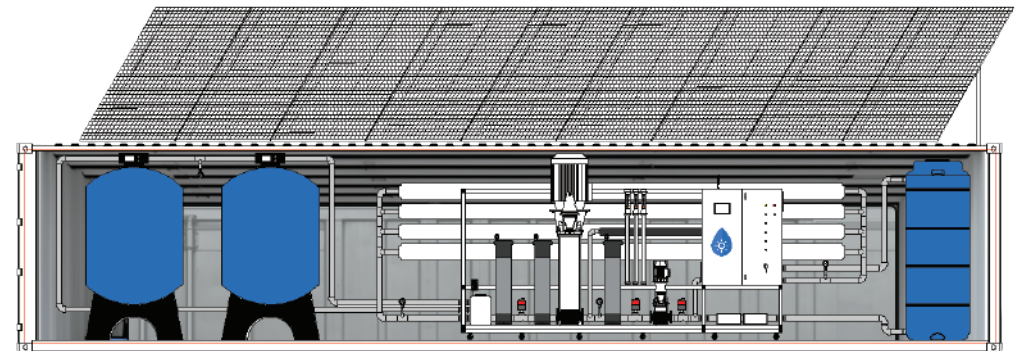
## 50,000 l/h System



# INSIDE THE MACHINES

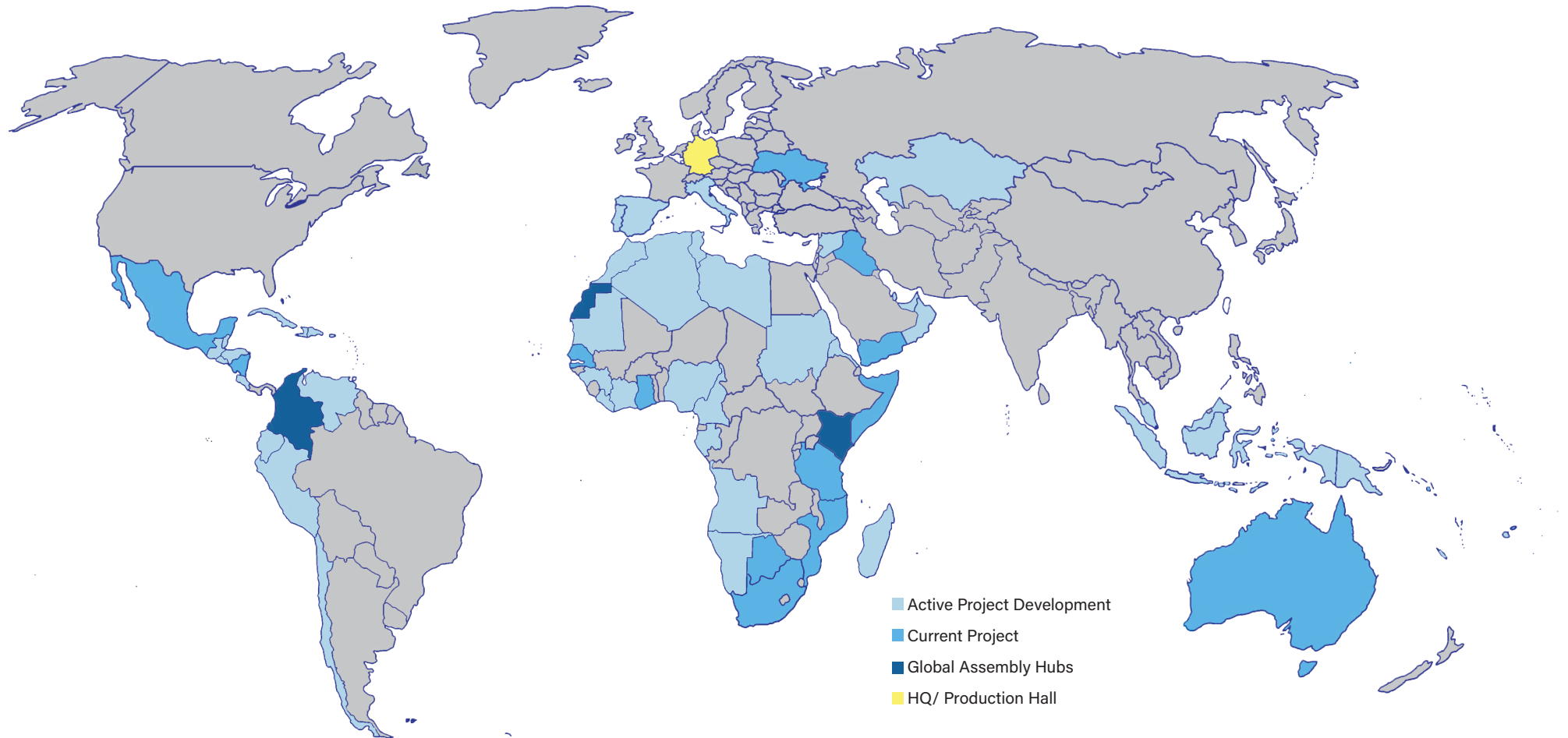


20ft Containerized Solar Desalination System



40ft Containerized Solar Desalination System





250+

Systems Operational  
in 20 Countries

8M

People are benefiting  
from our systems

3 | **Regional  
Assembly Halls**

East Africa 2021  
West Africa 2024  
Latin America 2025



Visit our projects

## An Ideal Island Solution.



Winture systems from Boreal Light GmbH provide modern and simple solutions for off-grid communities lacking water and electricity. Fully solar-powered, Winture offers a flexible and well-suited option for its target market's needs



## From Sea To Glass!



Winture systems deliver 100 to 30,000 liters per hour of pure drinking water, eliminating 99% of total dissolved solids (TDS) and ensuring water is free from organic, inorganic contaminants, bacteria, and viruses.



## 24/7 Service



A mixture of remote monitoring and management and local representation of technical teams assures communities that they are not left alone! Boreal Light GmbH's eyes and hands stay with our clients wherever they are.



## Community Projects



Boreal Light is deeply committed to engaging local communities in all its projects worldwide. Creating 3 permanent jobs and 10 value added jobs in each of the single projects largely impacts the host communities.

## Simplicity

Simplifying a technology that been known to be complex! A plumber with a wrench and a screwdriver can take care of over 70% of the maintenance!



## Affordability

Carefully designed for low-income communities with all their needs and requirements. Reducing the cost of access to drinking water by 90%.

## Off-Grid

Fully off-grid solution, running on solar energy with no need for expensive battery banks or diesel engines.

*At Boreal Light, we are not only a technology company, but also social business.*

***We care beyond technology: Social business and following the SDGs are getting the same attention as the perfection of our machines.***





## Hospitals

Winture Planet Cube+ is a hospital tailored-design version of a solar water desalination system manufactured by Boreal Light GmbH. While the machine treats general pollution, the hospital version adds ozone disinfection for both the reservoir and wastewater of the infection department, making sure no bacteria and viruses remain in the outflow.



## Wastewater

The Winture Planet Cube excels in treating high-contaminant wastewater from industries like apparel, mining, and biogas production. It effectively removes hazardous minerals and heavy metals, allowing for safe reuse or discharge into the environment, without increasing the facility's electricity consumption.



## Farming

Boreal Light's Winture Planet Green, a complement to the Winture Planet Cube, transforms farming in underprivileged communities with smart irrigation. This system utilizes advanced sensors to assess and communicate water needs directly to the main controller. Precise water delivery through drip irrigation ensures efficient and sustainable crop growth.

## Sea Water

Winture Planet Cube effectively processes both seawater and brackish water, even with salinity levels as high as 48,000 PPM, proven in the Red Sea. Its simple design and cost-effectiveness make it suitable for diverse water supply needs in both rural and urban areas. Each Seawater Winture Planet Cube module yields 1,000 to 20,000 liters per hour.





# EXAMPLE PROJECTS

## Integrated Solar Water Desalination Project for Drinking, Irrigation, Fish Farm, and Waste Recycling at Lodwar Hospital, Kenya

Lodwar County & Referral Hospital is now equipped with a solar water desalination system, enhancing its drinking, irrigation, and sanitation systems with a capacity of 5,000 l/h. This project also introduces a vertical farm capable of housing 7,200 plants and a fish farm with a water volume of 200 cbm and a fish capacity of 4,500 cbm. Additionally, the initiative includes plastic recycling machinery that treats over 100kg of plastic waste daily. A 25 cbm biogas system processes organic waste from the hospital, supplying gas to the kitchen and power to the plastic recycling facilities. This comprehensive system also produces over 150 liters of organic fertilizer daily.

### Impact achieved

- Daily hygienic drinking water production capacity: 60,000 litres per day
- Number of people benefitting: 150,000 people annually
- Fresh fish production: Min. 2.8 tons per harvest
- Fresh vegetable production: Min. 3 tons per harvest
- Volume of plastic waste recycled: 100 kg per day
- Volume of organic waste recycled: 150 kg per day
- Burning capacity for flames: 10 cbm gas per day
- Electricity generation from biogas: 5 kw/h
- Organic fertilizer project: 150 litre per day
- CO2 offset: 1000 tons annually
- Solar Array: 34 kWp
- Direct Jobs: 5
- Indirect Jobs: 15



## Revitalizing La Guajira: Sustainable Water and Energy Solutions for Colombia

In La Guajira, Colombia, the Santa Ana Wayú community is now tackling water and electricity shortages with an advanced technical solution. The initiative includes three machines, each with a capacity of 1000 l/h, collectively providing 3000 liters of clean drinking water per hour. Complementing this, the project integrates a vertical farming module capable of hosting 1800 plants.

This holistic approach not only ensures a reliable water supply but also supports sustainable agriculture, demonstrating

the transformative power of innovative technologies in enhancing living conditions in resource-limited environments.

### Impact achieved

- Daily hygienic drinking water production capacity: 48,000 litres per day
- Number of people benefitting: 120,000 people
- Fresh vegetable production: Min 750 kgs per harvest
- CO2 offset: 800 tons annually
- Solar Array: 33 kWp
- Direct Jobs: 2
- Indirect Jobs: 10





# URBAN INFRASTRUCTURE SOLUTIONS

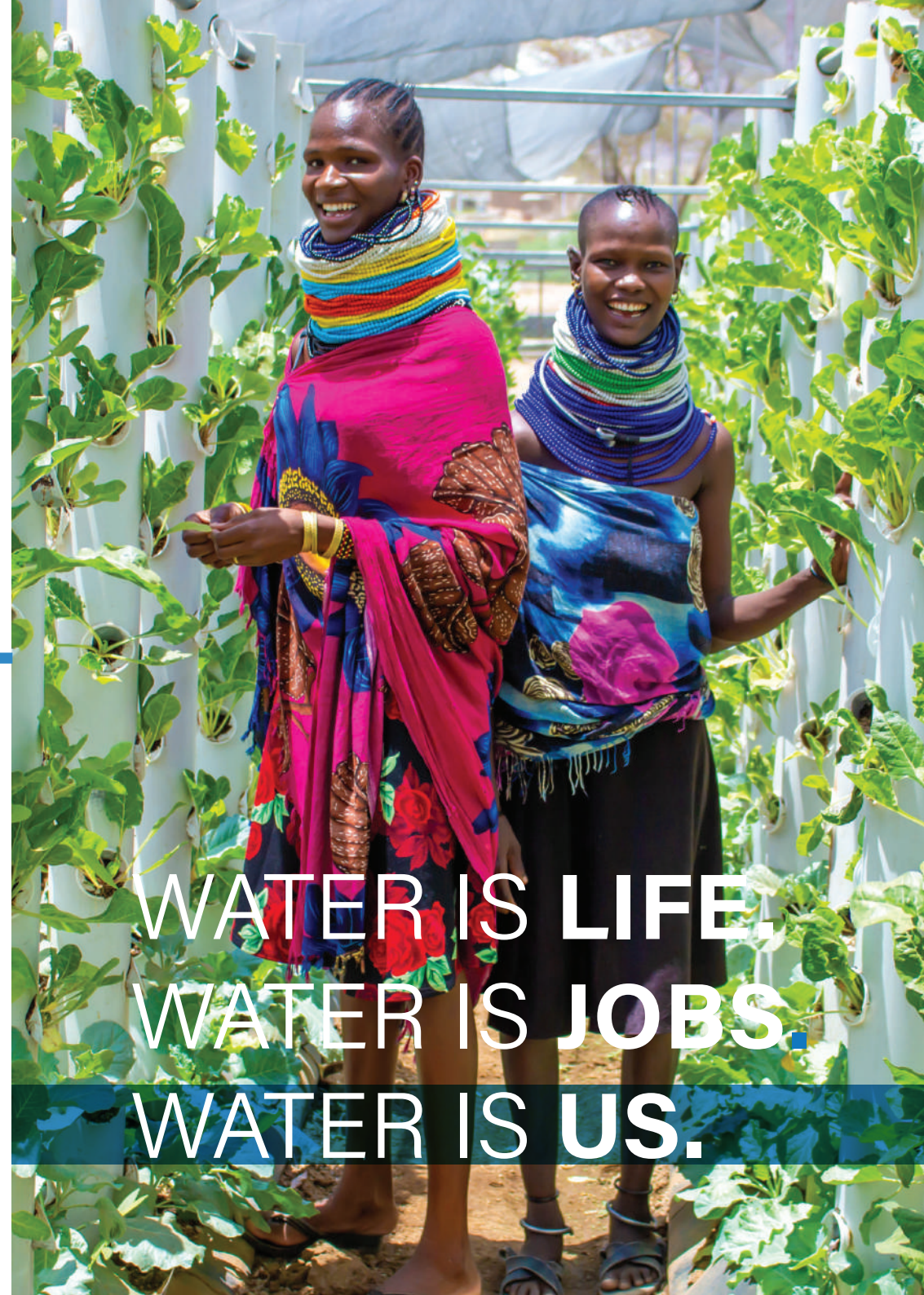
Boreal Light's Winture Planet Cube demonstrates its versatility beyond traditional applications. Designed for both remote and urban settings, these solar-powered water desalination systems have been effectively utilized in large cities facing complex water and electricity challenges.

Featuring modular designs with capacities of 50cbm/h and 100cbm/h, the Winture Planet Cube units are engineered to provide reliable, hygienic drinking water to millions of people in urban communities.

These systems offer a sustainable solution to water scarcity in cities, showcasing Boreal Light GmbH's ability to deliver practical, scalable water infrastructure solutions.



Solar Water Desalination System, South Iraq, 50cmh, 120 kWp Solar Panels



WATER IS LIFE.  
WATER IS JOBS.  
WATER IS US.



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