

Clean Water through Solar Energy

SolarDew offers a new solution for producing clean drinking water from virtually any source of polluted, contaminated or saline water.

SolarDew uses a patented new membrane technology which optimizes the natural processes of evaporation and condensation, relying only on the sun for its energy. Clean water systems from SolarDew are simple to install, easy to maintain and affordable for families, households, or small communities.

SolarDew creates opportunities for local entrepreneurs to develop and run businesses in their regions providing water desalination and purification systems.

SolarDew One

Dependable household water purification system suitable for remote areas where access to safe drinking water is scarce and electricity is unavailable.

SolarDew Two

Automated high-tech household water purification solution for areas where municipal water quality is unreliable.

SolarDew Lifeline

Portable desalination and water purification device for disaster relief situations when the need for drinking water is urgent.

SolarDew WaterStation

Scalable community water purification system can provide safe drinking water for up to 1,000 people, or more, per day.

SOLARDEW
CLEAN WATER SOLUTIONS



An all-new solar technology
for producing safe,
desalinated drinking water.

SOLARDEW
CLEAN WATER SOLUTIONS

SolarDew International B.V.

Steenoven 5
3911TX Rhenen
The Netherlands
info@solar dew.com
+31 (317) 61 97 73
www.solar dew.com

SolarDew International B.V.
is registered in Bilthoven, The Netherlands



Clean Water for a Growing World

Safe drinking water is essential for healthy and productive lives. Despite considerable effort over the past 50 years, the goal of universal access to clean drinking water has proven to be elusive. Today almost 900 million people still live without reliable sources of clean water.

With population growth, urbanisation and climate change, for many the only available water is polluted, saline – or both. We need a simple, inexpensive means of creating safe drinking water from these sources.

Over a decade in development, SolarDew International offers a new technology that can desalinate and purify water, relying only on the sun for its energy. SolarDew systems offer cost-effective, decentralised solutions for producing safe drinking water in volumes from 5 to 5,000 litres per day, or more. The SolarDew business model includes local entrepreneurs in long-term partnerships, supplying, supporting, and ultimately manufacturing, the products in their regions.

SolarDew International is committed to sustainable solutions that contribute to the global objective of ensuring that each and every person has access to safe drinking water – now and in the future.



SolarDew Technology

HOW IT WORKS

SolarDew was originally field-tested at an oil field in south Oman, purifying saline wastewater from the oil-separation process. Ten years of subsequent research, confirm that the patented SolarDew technology can produce safe drinking water from even the most contaminated sources.

SolarDew's technology uses a unique non-porous membrane in a process called "pervaporation" to desalinate and purify water. Heated by the sun, water evaporates within the SolarDew panels passing through the patented membrane as vapour. Contaminants, including bacteria, viruses, heavy metals and salts are left behind, and clean water condenses on the other side of the membrane. As a result, the system works with any type of saline water or any level of biological or chemical contamination.¹

Filtration-based systems, such as reverse osmosis, employ porous membranes which become clogged over time and require regular cleaning or replacement. The SolarDew membrane is non-porous, and thanks to its physical and chemical properties, it is non-scaling and non-fouling. Since there is no clogging, water production does not drop-off over time and ongoing maintenance is simply not required.

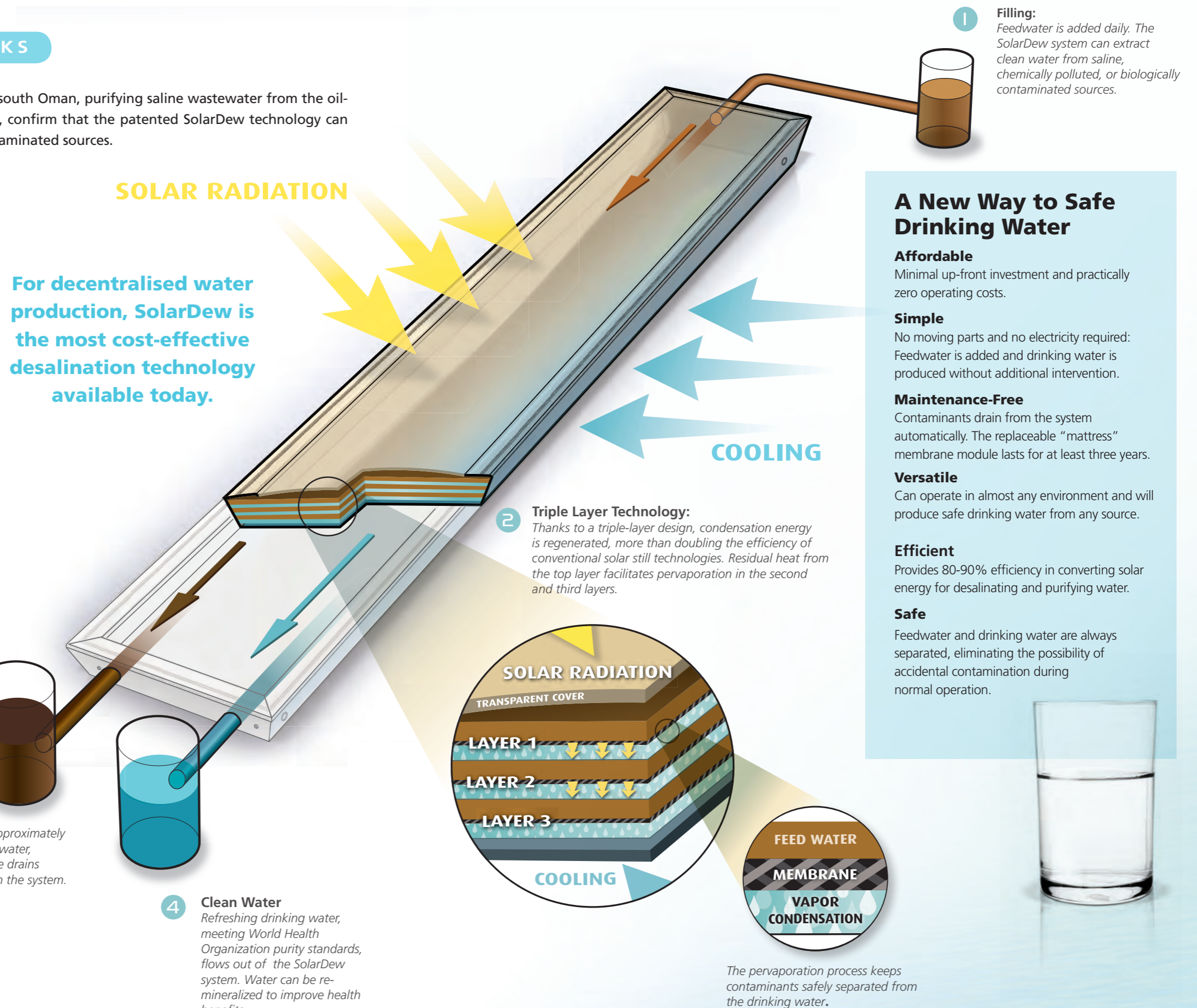
In tropical, or subtropical conditions, a three-panel SolarDew One household system, with outside dimensions of 2.0 m x 1.2 m provides 9-12.5 litres² of clean drinking water per day – enough to meet the minimum daily requirements for two to three people. With its modular design, the system can be expanded to provide more water.

3 Brine
After extracting approximately 90% of the clean water, concentrated brine drains automatically from the system.

4 Clean Water
Refreshing drinking water, meeting World Health Organization purity standards, flows out of the SolarDew system. Water can be re-mineralized to improve health benefits.

¹ Please note: volatile chemicals may pass through the SolarDew membrane. Other contaminants do not.

² This equals 5.5-8 litres/m²/day. Yield depends on available sunlight, determined by geographic location and weather. See graph on page 8 for more information.



SolarDew Business Model

SUPPORTING LOCAL SOLUTIONS

Like the technology, the SolarDew Business Model is focused on solutions which are practical and sustainable. For SolarDew, the key to success is developing long-term partnerships with local companies, and, through cooperation, providing products which have been fine-tuned to the local market.

Partners for Sustainable Well-Being

SolarDew International is actively developing relationships with business partners around the world who are interested in the commercial potential of the product in their country or region.

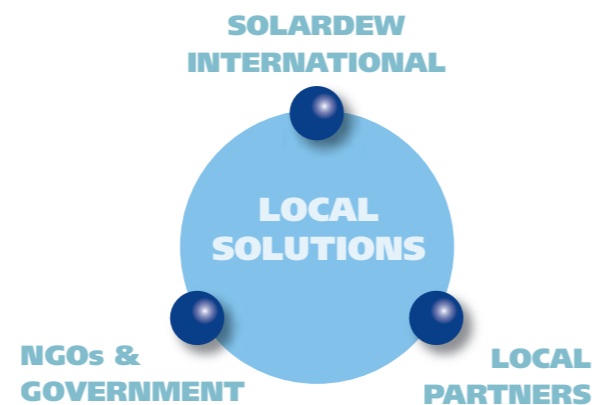


SolarDew offers both a practical desalination and purification technology – and a workable business model for local entrepreneurs who will market and support the products in the places where they are needed.

Developing long-term relationships with local partners brings meaningful benefits to the region. A fundamental human need is met through a simple, cost-effective clean water technology, and a stimulus to the local economy is provided through the creation of new jobs, technical training and entrepreneurial opportunities.

A Better Business Model

SolarDew International, based in the Netherlands, will provide designs, manufacturing support, and the patented SolarDew membrane “mattresses,” which are integrated in the construction of the different SolarDew products.



Local universities or research institutes will be contracted to conduct water quality tests ensuring local health standards are met.

Working with local governments and NGOs will allow SolarDew International and its partners to further refine their understanding of local needs and provide access to local markets in the early stages – while supporting the social objectives of participating NGOs and governments.

The details of product design, including materials, styling, and accessories parts, will be customised

according to local preferences and capabilities. Through market research and pilot projects, involving on-location prototype testing, local partners together with SolarDew will identify the specific needs of their markets.

Once this phase is completed, the product will be introduced. The local partner will progressively assume responsibility for the installation assembly, and ultimately, manufacturing of the SolarDew systems in their regions.



By partnering with local entrepreneurs throughout the product life cycle, SolarDew will make its technology available where it is needed, while supporting economic growth.

The partnership is for the long-term; local partners will work together with SolarDew International providing frontline product feedback for design refinement and future development.

Supporting Development

SolarDew can help Non-Governmental Organisations (NGOs) in meeting their development objectives, while kick-starting a sustainable local business. Once implemented, SolarDew will thus contribute to development in a region on an ongoing basis, with little or no demand on NGO resources.

Along with improved health for local populations, a reliable drinking water supply supports the local economy by adding stability to people’s lives and freeing up their time for other things.



Saving Lives

SolarDew Lifeline emergency water purification devices (see page 7) can save lives in crisis situations, and speed up recovery afterwards by ensuring a safe drinking water supply for affected populations.

Typically, SolarDew Lifeline will be offered to relief organisations and governments. They can stockpile systems directly through SolarDew International or through SolarDew’s local partners. SolarDew Lifeline devices are particularly valuable in situations where infrastructures are down, electricity is unavailable and the need for safe drinking water is urgent.

SolarDew Lifeline systems are portable, allowing displaced people to return to their homes more quickly, even if safe local drinking water sources have been not yet been re-established.

SolarDew Products

CLEAN WATER SOLUTIONS

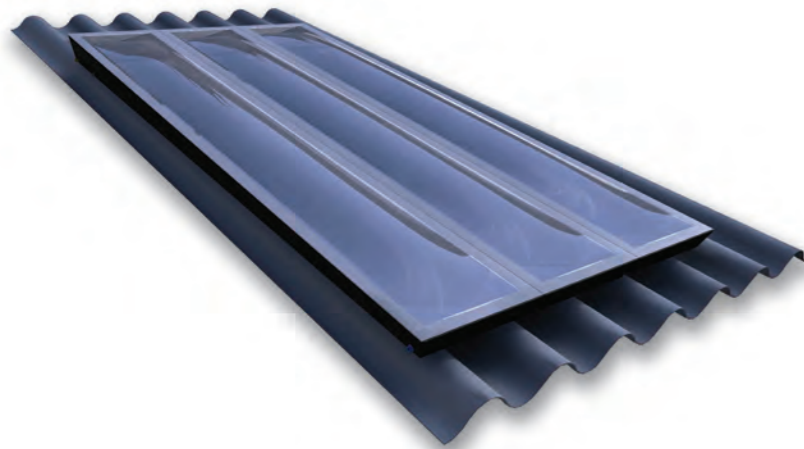
In conditions where other water purification technologies are too expensive, or too difficult to implement, SolarDew offers simple, cost-effective solutions for delivering safe, desalinated drinking water where it is needed. All SolarDew products are built around the same replaceable mattress modules, which incorporate the patented SolarDew technology.

SolarDew One

Reliable Household Water Supply

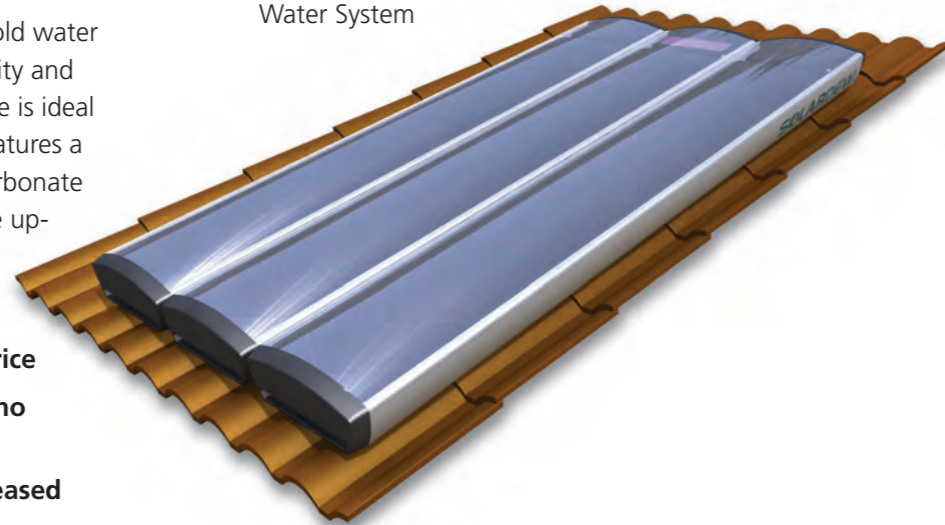
SolarDew One is an affordable household water purification system. Requiring no electricity and including no moving parts, SolarDew One is ideal for remote areas. This scalable system features a lightweight housing with glass or polycarbonate covers. Easy to install and to operate, the up-front investment is minimal and running costs are practically zero.

- **Simple package at an affordable price**
- **Requires no electricity and almost no maintenance**
- **Extra panels can be added for increased water production**
- **Replaceable SolarDew mattress module lasts three years, or longer**



SolarDew Two

High-Tech Household Water System



SolarDew Two is an advanced household system which allows owners to “install it and forget it.” SolarDew Two automates the supply of safe drinking water at a cost substantially lower than that of bottled water. Feedwater is automatically sent into the SolarDew panels via a small solar-powered electric pump. The high quality aluminium housing offers enhanced cooling features which improve efficiency and increase the yield of clean drinking water. The system can be roof-mounted, or installed in a garden or courtyard.

- **SolarDew Two is entirely solar powered**
- **Automated water circulation ensures constant drinking water supply**
- **Enhanced cooling offers improved efficiency**
- **Automatic brine disposal**
- **Attractive light-weight housing**

SolarDew WaterStation

Safe Drinking Water for Communities

The **WaterStation** is a scalable desalination and purification facility designed to meet the needs of small communities. It can supply safe drinking water for 1,000 people, or more, at a lower per capita cost than household models. The system is ideal for communities where access to clean drinking water is limited, and is economical for production of up to 5,000 or more litres per day.

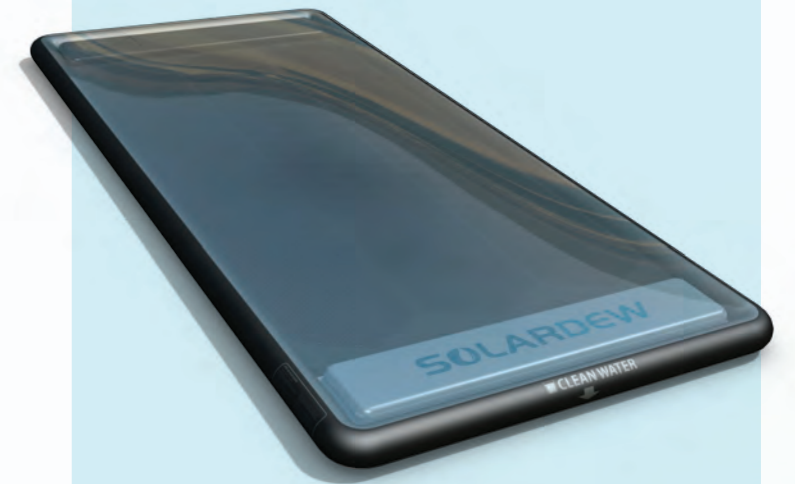


The SolarDew WaterStation is a scalable system and can be mounted on the borders of communities as “WaterFields,” or as outdoor roofing to provide shaded areas for additional businesses in public areas within towns or villages.

- **Small daily expenditures are easier for many people to manage**
- **Local entrepreneurs can operate the system, providing new source of income**
- **Provides local populations with reliable drinking water supply without requiring their involvement in operating the system**

SolarDew Lifeline

Emergency Water Desalination and Purification



The **SolarDew Lifeline** is an emergency desalination and purification device designed for rapid deployment in crisis situations where the need for safe drinking water is urgent.

The SolarDew Lifeline is lightweight and flexible, resembling an inflatable mattress. Folded, it is compact and easily transported. To use it, the SolarDew Lifeline is simply unfolded and inflated on smooth ground and placed in the sun. The devices can be shipped in large quantities, airdropped or distributed in preparation for disasters, such as flooding.

- **Can be quickly deployed in large quantities in emergencies.**
- **Portable: people can carry the devices with them.**
- **Requires no energy other than the sun**



Artist's conception of “Waterfield”

SolarDew Specifications

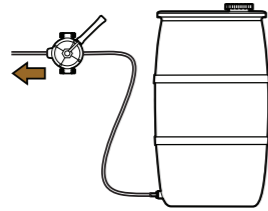
PRODUCT DATA

For decentralised water production, SolarDew offers the most economical solution for small- to medium-scale operations. In these cases, SolarDew is more cost effective to implement than other desalination technologies, and is more efficient than other low-cost water purification technologies.

Operating the SolarDew System

1. Feedwater Input

Feedwater is pumped through a pre-filter into the panels where it is stored in buffer tanks at the top of each panel. The buffers hold enough water to supply the system for approximately two days.



2. Drinking Water Storage

Purified water is collected in a fresh water storage container, ready for use. Re-mineralization or disinfectant cartridges can be attached to the cap of the container to improve health benefits, or to prevent secondary contamination.



3. Brine Disposal

Brine drains automatically from the panels via a slow drip mechanism. The brine collection container should be emptied weekly.

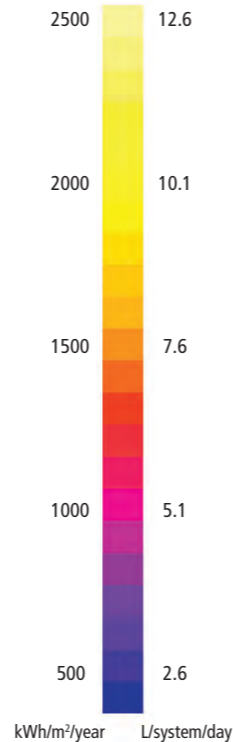


How Water Production Varies by Region

The average daily output for a SolarDew system is 5.5 to 8 litres for each square meter of active surface. This is based on an average day in a tropical or subtropical area where solar radiation varies between 1750 and 2500 kWh/m²/year. For a typical SolarDew One installation, that translates into an average of 7 to 12.5 litres of clean water per day.

Due to their improved efficiency, output for SolarDew Two and SolarDew WaterStation systems is slightly higher.

Contact SolarDew International for information specific to your region.



Product Specifications	Household Solutions			Medium-Scale Solutions	
	SolarDew One	SolarDew Two	SolarDew Lifeline	SolarDew WaterStation 2000	SolarDew WaterStation 5000
No. of Modules	3	3 (or more)	1	8 (or more)	40
Length (mm)	2000	2000	2000	n/a	n/a
Width (mm)	1020	960	1100	n/a	n/a
Height (mm)	100	100	250	n/a	n/a
Area (m ²)	2.04	1.92	2.20	256	640
Pump	Manual	Automatic	Manual	Automatic	Automatic
Brine Disposal	Weekly	Automatic	Weekly	Automatic	Automatic
Cover	PMMA	PC	PC foil	PC Foil	PC Foil
Housing	HDPE	Aluminium	PC foil	Stainless Steel	Stainless Steel
Daily Output (litres)	7 – 12.5	8.5 – 15	7 – 12.5	1300 – 2600	3250 – 6450

Product Specifications

This chart provides the specifications and average daily production ranges for standard configurations of the SolarDew systems.

With the exception of SolarDew Lifeline, clean water output for all SolarDew systems can be increased by adding panels.

The daily output ranges are dependent on local conditions. See above ("How Water Production Varies by Region").

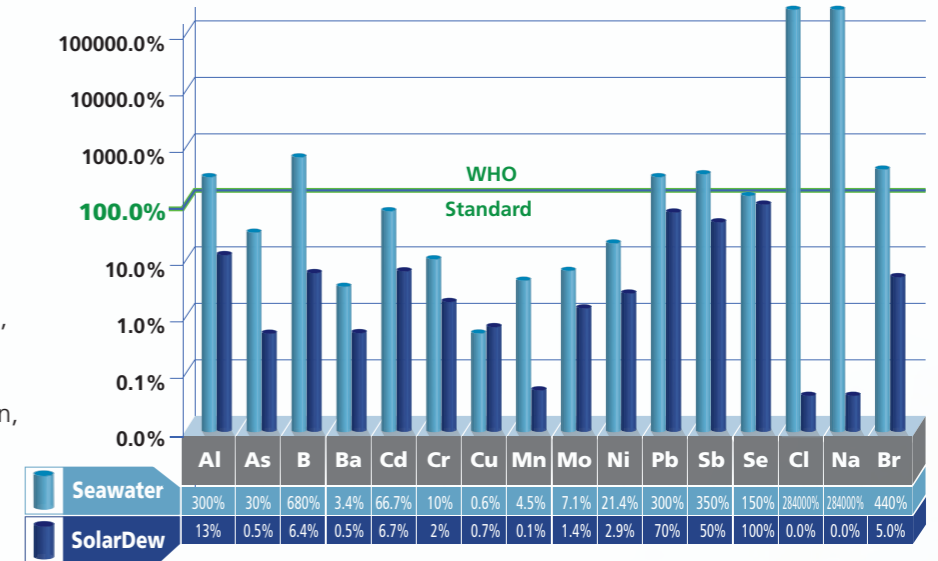
HDPE = High Density Polyethylene. PC = Polycarbonate. The WaterStation modules area = 2000 x 8000 mm.

Water Quality

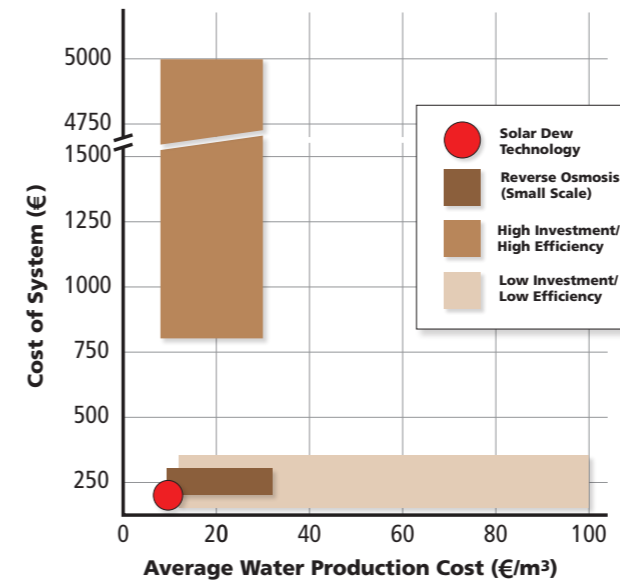
SolarDew produces safe drinking water from virtually any source of seawater or freshwater, removing dangerous concentrations of various chemicals to meet World Health Organization standards. The SolarDew membrane prevents the passage of nonvolatile substances, such as salts, heavy metals, bacteria and viruses.

In this chart, which depicts desalination, all concentrations are expressed as a percentage of the maximum amount considered safe for human consumption, as determined by the WHO.

Please contact SolarDew International for detailed water analysis data.



Understanding Actual Water Production Costs



This chart compares water production costs (averaged over system lifetime) with the purchase costs for each technology.

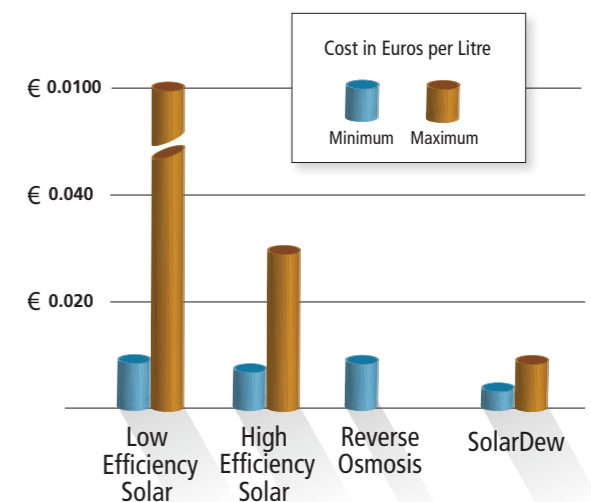
Low efficiency solar technologies and household reverse osmosis units, are cheaper up front, but due to limited lifetimes, lower efficiencies or high running costs, end up being much more. High efficiency systems are usually more durable, but the initial investments are unrealistic for most households and water production costs are not significantly reduced.

SolarDew stands alone with low initial investment costs and low water production costs.

SolarDew is the most economical solution for small- to medium-scale drinking water production.

Most technologies either offer lower priced products with high operating costs, or high efficiency solutions, which are unaffordable due to a high initial investment required to purchase the systems.

Generally, other technologies are economical for water production of at least 5,000 litres per day, and therefore not ideal for rural households.



This chart shows the range of water production costs for the different desalination technologies available.