

Water scarcity is a global issue



Food and Agriculture
Organization of the
United Nations



UN WATER
22 MARCH
WORLD
WATER
DAY

“The volume of water evaporating from the Arabian Gulf is at least 350 cubic kilometer (km³) per year which is approx. 10 times higher than the total desalinated water produced annually”

Source: [ScienceDirect](#)



“NATURAL WATER DISTILLATION” TECHNOLOGY

PATENTED DESIGNS FOR WATER PRODUCTION AND IRRIGATION



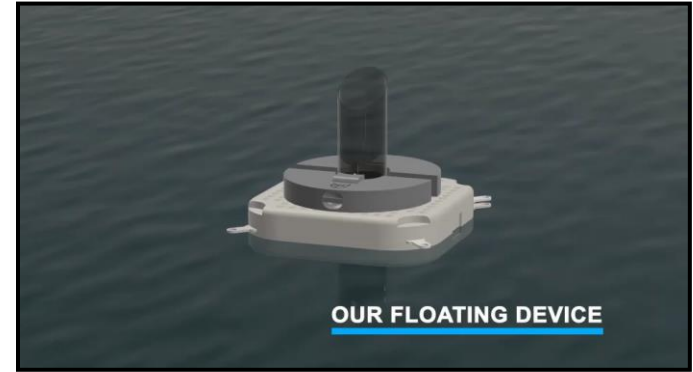
Solar still on water surfaces



Use water's natural cycle as an ally



Sustainable Irrigation



We trap the evaporated water from open water surfaces and use them for sustainable irrigation

Solution

ZERO



Proprietary Technology



Patented designs for water production, irrigation and transportation

Expertise in chemical engineering and design

Patents are issued/pending in UAE, GCC, USA, UK, China, Japan, Germany, Spain, France, Norway, Italy, India and Australia

(12) United States Patent Alkhazraji	(10) Patent No.: US 10,098,292 B2 (45) Date of Patent: Oct. 16, 2018
(54) SOLAR STILL SYSTEM AND RELATED SOLAR DRIVEN IRRIGATION APPARATUS	(2013.01); B01D 5/0057 (2013.01); B01D 5/0078 (2013.01); B01D 5/0081 (2013.01); C02F 1/04 (2013.01); C02F 2/103/007 (2013.01); C02F 2/103/08 (2013.01); C02F 2201/004 (2013.01); Y02A 20/212 (2018.01);
(71) Applicant: Saeed Alhassan Alkhazraji, Abu Dhabi (AE)	

(12) United States Patent Alkhazraji	(10) Patent No.: US 10,590,011 B2 (45) Date of Patent: *Mar. 17, 2020
(54) SOLAR STILL SYSTEM AND RELATED WATER TRANSPORTATION APPARATUS	(58) Field of Classification Search CPC B01D 1/00-305; B01D 5/0048; B01D 5/006; B01D 5/0057; B01D 5/0078; B01D 5/0081; B01D 5/009; B01D 5/0018; B01D 5/0066; C02F 1/04-18;
(71) Applicant: Saeed Alhassan Alkhazraji, Abu Dhabi (AE)	

US 20160059148A1	
(19) United States Patent Application Publication Alkhazraji	(10) Pub. No.: US 2016/0059148 A1 (43) Pub. Date: Mar. 3, 2016
(54) SOLAR STILL APPARATUS	(57) ABSTRACT There is provided a solar still apparatus for converting contaminated water contained in a contaminated water body into distillate water, the contaminated water body having a water
(71) Applicant: Saeed Alhassan Alkhazraji, Abu Dhabi (AE)	

Patents: GC0005374, GC0006380, US20160059148, US10098292, US10590011, JP2017526358A, EP3185671B1, ES2733704T3, AU2015308122B2, CN106793758B

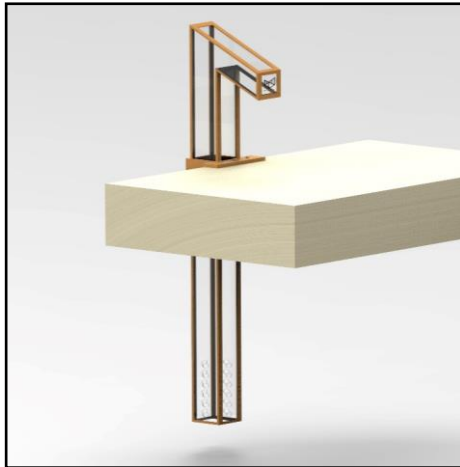
Prototypes



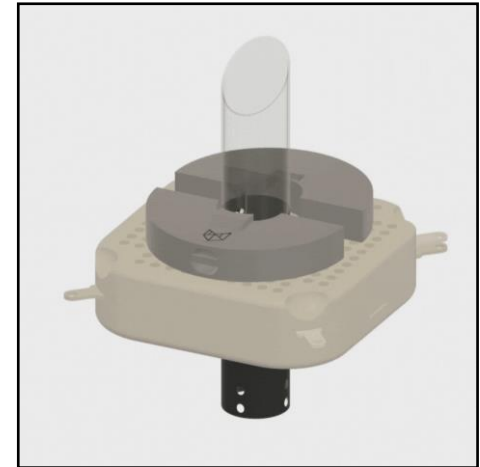
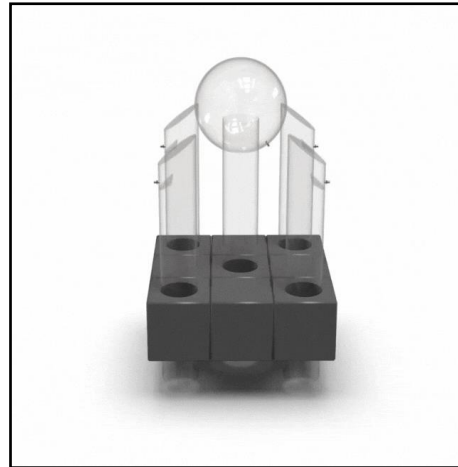
Technology Readiness Level - 6



Anchored design



Floating designs



Case Study



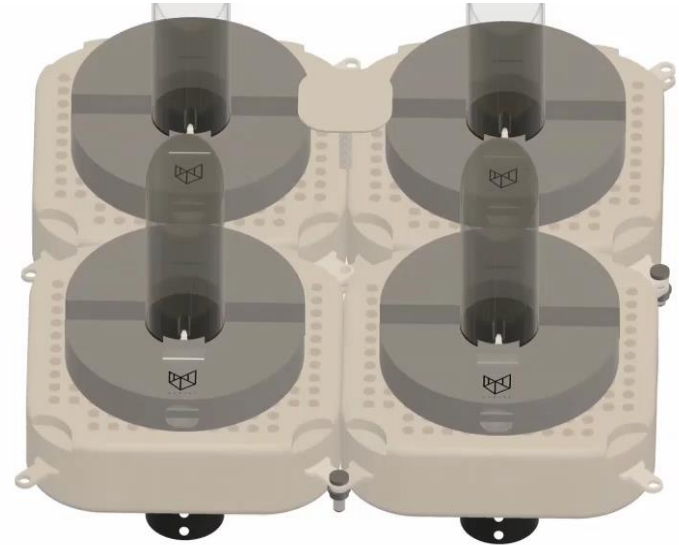
- Male (Capital of Maldives) have desalination plant that produces 5800 m³/day of fresh water
- Our technology can provide the same amount of water by covering an seawater area of 1.16 km² at current projected production rate
- This can be improved technically (producing more with the same area) and economically (lowering the cost of unit installed to produce said water)



Scalability



- **Our floating devices will allow the scalability of the solution to a larger market.**
- **Floating designs also help to mitigate rising sea levels due to climate change.**
- **Our patent derivatives endow floating farming.**



Watch the [video here](#)

Floating Farm



Watch the [video here](#)

Value Proposition



**Sustainable
Coastline Irrigation**

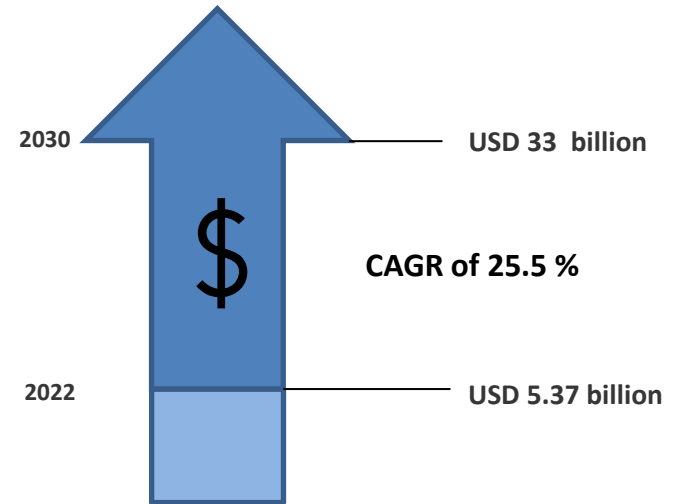


**Floating
Organic Farms**

The Market



Global **vertical farming** market is projected to reach a total value of **\$33 B**, according to the forecasts published by Grand View Research



Market Potential



Vertical farming

TAM
Addressable market

GLOBAL

\$5.37 bn (in 2022)
\$33 bn (by 2030)
25.5% (CAGR)

SAM
Serviceable market

MENA

\$0.57 bn (in 2022)
\$1.86 bn (by 2030)
26.4% (CAGR)

SOM
Obtainable market



\$0.57 mn (in 2022, 0.1%)
\$37.2 mn (by 2030, 2%)

Source: [Market Data Forecast](#)

Competition



SUSTAINABLE



- Zero carbon, electricity and brine
- Customizable
(Lower volume production)



- Noise and are heavy
- Non- green sources to power
(in some instances as AWGs require more power for higher volume)

CAPEX
INTENSIVE



- Produces salt



- Require electricity

LOW CAPEX



- Small scale

UNSUSTAINABLE



Traction

MEDIA



RECOGNITIONS/ENDORSEMENTS



WORLD FUTURE ENERGY SUMMIT





The TOP 10

DUBAI SMARTPRENEUR COMPETITION 6.0

Manhat

1 Saeed Masood Alhasan, founder and CEO of Manhat, is deep technology startup that provides sustainable water production solutions without desalination, based on the latest high-tech water desalination technology. The production of the low-cost water system is geographical location, water availability, power requirements, and other factors. "Manhat says," "Our solution contributes to the overall knowledge of the field by providing a simple and low-cost production system without electricity and any additional production equipment, which is only 20% of the cost of the current market."

A BORN-TO-LEAD ENTREPRENEUR and American entrepreneur in the United Arab Emirates, Saeed Alhasan is the founder and CEO of Manhat, a deep technology startup that provides sustainable water production solutions without desalination, based on the latest high-tech water desalination technology. The production of the low-cost water system is geographical location, water availability, power requirements, and other factors. "Manhat says," "Our solution contributes to the overall knowledge of the field by providing a simple and low-cost production system without electricity and any additional production equipment, which is only 20% of the cost of the current market."



February 2022 / ENTREPRENEUR.COM / 41

Can you turn seawater into fresh water without electricity? The start-up that says yes

► Manhat founder Saeed Alhasan is on a mission to improve water and food security in the Gulf but is facing a major hurdle



Dr Saeed Al Hassan
Founder of Manhat

So currently, the farm is irrigated by water pulled from the underground.



[For more details](#)

Milestones



2018
PATENT

FIRST PATENT granted
US10098292



RAISED
MONEY

Patent Sponsor - Takamul program under
ABU DHABI DEPARTMENT OF ECONOMIC DEVELOPMENT



2019
FOUNDED

MANHAT is incorporated in
Abu Dhabi, UAE

UPLINK, WORLD ECONOMIC FORUM initiative
Top endorsed solution – Ocean challenge



2020
TEAM ASEMBLED

Demonstrated on Abu
Dhabi beach



2020
SOLUTION ACCEPTED

SECOND AND THIRD PATENT granted
US10590011 & US10814245



MINIMUM VIABLE
PRODUCT

Collaboration agreement with ABU DHABI PORTS



World Alliance for Efficient
Solutions membership –
Solar Impulse Foundation

PILOT PROJECT
REVENUE GENERATION



2021
Khalifa Innovation Center
Incubation Program



WINNER
Food for Future Summit
UN FAO and UAE ministry of
climate change and environment



2022
TARGET

Team



Ibrahim: advisor

CEO of Saudi Industrial Development Fund and Board member of Samba Financial Group, Raidah Investment Company, Awqaf Investment Company, and the Arab Mining Company with a PhD in management science and engineering from Stanford University.



Saeed: founder

Associate professor at Khalifa University with PhD in Chemical Engineering from Case Western Reserve University. Served as Director of Gas Research Center and he oversaw the growth of the center that provided technical solutions to ADNOC Gas Processing.



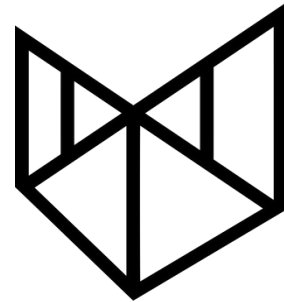
Vishnu: co-founder

Master of Technology in Nanotechnology from Amity University with 7 years of research/project experiences across research centers in the UK, India, France, and UAE





“We are aiming to produce one percent of the total food requirement by 2050”



M A N H A T



WINNER



TOP 10 FINALISTS SMARTPRENEUR COMPETITION 6.0



AMONG 20 STARTUPS SELECTED GLOBALLY



TOP ENDORSED SOLUTION



MEMBER

