مبادرات محمد بن راشد آل مكتوم العالمية
Mohammed Bin Rashid
Al Maktoum Global Initiatives

جائزة محمد بن راشد آل مكتوم العالمية للمياه
Mohammed Bin Rashid Al Maktoum
Global Water Award

MOHAMMED BIN RASHID AL MAKTOUM GLOBAL WATER AWARD

THIRD CYCLE IMPACT REPORT

CONTENTS

“WITH INNOVATION, WE CAN BUILD STATES AND INSTITUTIONS; THE FUTURE BELONGS TO THOSE WITH NEW IDEAS.”

His Highness
Mohammed bin Rashid Al Maktoum,
Vice President and Prime Minister of the UAE,
Ruler of Dubai

MESSAGE FROM THE CHAIRMAN

This report is a testament to the vision and directives of His Highness Sheikh Mohammed bin Rashid Al Maktoum, Vice President and Prime Minister of the UAE and Ruler of Dubai, to combat poverty around the world. According to UNICEF, hundreds of millions of children will not have access to clean water in the future. Every day, girls and women collectively spend 200 million hours collecting water, which hinders opportunities for their education and careers. UNICEF warns that 600 million children will live in areas with severely limited water resources by 2040, putting them at heightened risk of deadly diseases.

The Mohammed bin Rashid Al Maktoum Global Water Award, which bears the name of a leader whose generosity extends to those in need anywhere in the world, is an important addition to the UAE's humanitarian legacy. It directly supports international efforts to provide drinking water to those in need, by innovating practical and sustainable solutions to water scarcity.

The UAE Water Aid Foundation (Suqia UAE) supervises the Mohammed bin Rashid Al Maktoum Global Water Award, to encourage, showcase and reward individuals and organisations that are advancing new solutions and innovations in water production and desalination powered by renewable energy. At Suqia UAE, it remains our mission to provide water to millions of disadvantaged people around the world, without any discrimination based on race, colour, religion, or culture.

I trust that this report will encourage your support and help shape a brighter future for those in need.

Saeed Mohammed Al Tayer
Chairman of the Board of Trustees
UAE Water Aid Foundation

ABOUT SUQIA UAE

THE UAE WATER AID FOUNDATION

The UAE Water Aid Foundation (Suqia UAE) supervises the Mohammed bin Rashid Al Maktoum Global Water Award. Suqia UAE, an entity under the Mohammed bin Rashid Al Maktoum Global Initiatives Foundation, is a non-profit organisation that provides humanitarian aid around the world and helps communities suffering from water scarcity by providing them with potable water. Until today, we have positively influenced the lives of over **13 million** people in **37 countries**.

Suqia UAE's goal is not limited to the provision of potable water to those in need. The foundation also identifies how innovative and sustainable technologies can be part of the solution to the global water crisis. The scale of the water crisis demands different approaches that extend beyond giving water. Hence, in line with the UAE's goal to become a knowledge-based economy with a strong focus on technology, R&D and innovation, His Highness Sheikh Mohammed bin Rashid Al Maktoum, Vice President and Prime Minister of the UAE and Ruler of Dubai, launched a USD1 million global award to find sustainable solutions to water scarcity.

AWARD VISION

“Innovation and sustainability can be part of the solution to the global water crisis”

Water is a fundamental human need and a driver for sustainable growth. Yet, water scarcity affects more than 40% of the global population. These numbers are projected to rise further, especially among communities in rural and poor urban areas. Providing access to potable water brings hope, boosts happiness and enriches life by enabling growth and prosperity.

International organisations have joined efforts to find lasting solutions to water scarcity, from establishing humanitarian aid and awareness campaigns, to setting sustainable goals worldwide to achieve water security. The UAE has earned a position of global prominence in actively finding effective solutions to ensure access to safe drinking water.

The award reflects His Highness Sheikh Mohammed bin Rashid Al Maktoum, Vice President and Prime Minister of the UAE, Ruler of Dubai's vision for the UAE to be among the world’s most innovative nations, by creating a platform that showcases cost-effective and renewable-powered sustainable solutions that can meet the needs of developing communities lacking access to the most basic of needs, clean drinking water.

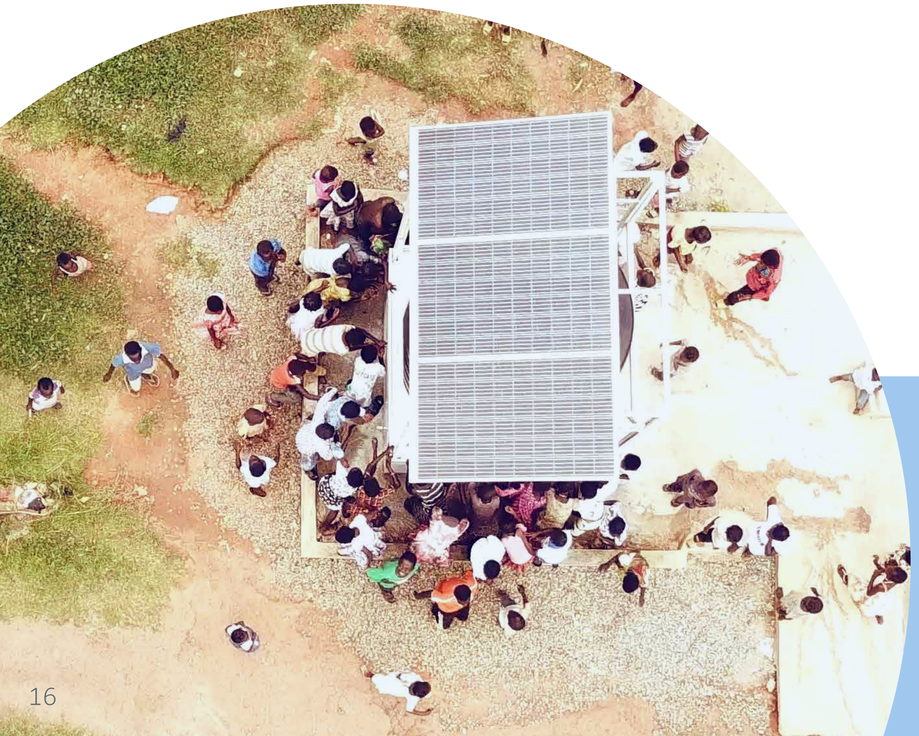
The biennial Award encourages leading corporations, research centres, institutions, the youth and innovators from across the world to find sustainable and innovative solutions to the problem of water scarcity.

ABOUT THE AWARD

In the 1st and 2nd cycles of the award, 20 applicants, including individuals, pioneering organisations, and research centres, were awarded for their innovative models that produce clean water using solar energy. While the two previous cycles were quite successful, the scope of the award has been expanded in the new cycle to include new technologies that produce, distribute, store, monitor, desalinate and purify water using renewable energy. A renewable energy source includes solar, wind, biomass, ocean, gradient salinity and geothermal technologies. It excludes nuclear energy and carbon capture and storage systems.

Furthermore, a new category, the 'Innovative Crisis Solutions Award', has been introduced to recognise innovations that can provide relief within the most critical first 48 hours after internationally declared emergency situations. We believe that rapid access to safe drinking water becomes a particularly crucial element for survival in crises and natural disasters.

The award supports R&D to develop new and innovative technologies for production, desalination and purification of water using renewable energy. It further elevates the UAE's role in enabling innovating solutions for challenges faced by poor and crisis-inflicted communities worldwide.



AWARD CATEGORIES

The Award is comprised of 4 main categories that target pioneering organisations, research centres, individuals, educational institutions, and innovators from around the world and motivate participants to come up with innovative, renewable energy powered solutions with the aim to produce, distribute, store, monitor, desalinate and/or purify water.

Innovative Projects Award

- Small Projects Award
- Large Projects Award

Innovative Individual Award

- Distinguished Researcher Award
- Youth Award

Innovative R&D Award

- National Institutions Award
- International Institutions Award

Innovative Crisis Solutions Award

FIRST CYCLE

The first cycle of the Mohammed bin Rashid Al Maktoum Global Water Award received an overwhelmingly positive response. On April 27th 2017, His Highness Sheikh Maktoum bin Mohammed Al Maktoum, Deputy Ruler of Dubai, awarded 10 candidates from 8 different countries, who were chosen for their innovative solutions for water desalination and purification.

INNOVATIVE PROJECTS AWARD

SMALL PROJECTS

1ST PLACE: Elemental Water Makers – The Netherlands

2ND PLACE: Temak S.A. - Greece

3RD PLACE: Solar Water Solutions - Finland in collaboration with P7 Global – UAE

INNOVATIVE RESEARCH AND DEVELOPMENT AWARD

NATIONAL INSTITUTIONS

JOINT 1ST PLACE: Masdar Institute in Khalifa University – UAE

JOINT 1ST PLACE: Khalifa University – UAE

3RD PLACE: Petroleum Institute in Khalifa University – UAE

INTERNATIONAL INSTITUTIONS

1ST PLACE: Netherlands Organization for Applied Scientific Research (TNO) - The Netherlands in collaboration with Qatar General Electricity & Water Corporation (KAHRAMAA) - Qatar

2ND PLACE: Ecole Polytechnique Fédérale de Lausanne - Switzerland

3RD PLACE: Simon Fraser University - Canada

INNOVATIVE INDIVIDUAL AWARD

YOUTH*

WINNER: Dr. Marta Vivar - Spain

*** Previously Innovative Youth Award**

SECOND CYCLE

The second cycle of the Mohammed bin Rashid Al Maktoum Global Water Award advanced the accomplishments of the first cycle. On January 29th, 2020, His Highness Sheikh Ahmed bin Mohammed Al Maktoum, Chairman of the Dubai Media Council, awarded 10 candidates from 8 different countries, who were chosen for their sustainable solutions to water scarcity.

INNOVATIVE PROJECTS AWARD

SMALL PROJECTS

1ST PLACE: GivePower Foundation - USA

2ND PLACE: Boreal Light GMBH - Germany

3RD PLACE: International Business Ventures - IBV - UAE and Zero Mass Water, Inc. - USA

INNOVATIVE RESEARCH AND DEVELOPMENT AWARD

NATIONAL INSTITUTIONS

1ST PLACE: Khalifa University - UAE

INTERNATIONAL INSTITUTIONS

1ST PLACE: Liquinex Group PTE ltd - Singapore

2ND PLACE: Plasma Waters - Chile

3RD PLACE: Project Maji - Ghana

INNOVATIVE INDIVIDUAL AWARD

YOUTH

JOINT - WINNER: Jan Rädel - Germany

JOINT - WINNER: Dr. Muhammed Wakil Shahzad - Pakistan

DISTINGUISHED RESEARCHER

WINNER: Dr. Mahmoud Shatat - Palestine

THIRD CYCLE

The third cycle was launched on 16 November 2020. We received applications from across the world that not only presented breakthrough technologies, but also featured inspiring stories of how innovation can change lives of people living in the most disadvantaged communities. Eleven winners from eight countries representing companies, universities and individuals were selected to receive the award this cycle for their sustainable solutions to water scarcity.

INNOVATIVE PROJECTS AWARD

LARGE PROJECTS

JOINT 1ST PLACE: Agua Para El Pueblo - Honduras

The technology designed by Agua Para El Pueblo is an electricity-free technology that removes turbidity from contaminated surface water sources, and is scalable to fit the needs of many communities. Their water treatment plant uses a semi-automatic hydraulic chemical doser, vertical flocculation, upflow sedimentation, floc blanket, plate settlers, stacked rapid sand filtration and disinfection technologies to treat contaminated surface water and convert it to potable drinking water.

JOINT 1ST PLACE: South Asian Forum for Environment (SAFE) - India

South Asian Forum for Environment (SAFE) presented a solar-powered reverse osmosis based water-ATM. The project involves installation of four 7.5 KVA solar power plants to power four 100 LPD (litres per day) reverse osmosis water treatment plants. Currently, the total number of registered beneficiaries for the WASH project is around 26,977 people across six villages in the Sunderbans area of India.

3RD PLACE: Alternative Indigenous Development Foundation Inc. (AIDFI) - Philippines

AIDFI's innovative hydraulic invention pumps water to waterless communities living at higher elevation. The pump operates without fuel or electricity, avoiding greenhouse gas emissions. It increases daily water volume from 8 to 80 litres of water per person. It is currently installed in 590 villages and benefits around 290,000 people.

INNOVATIVE PROJECTS AWARD

SMALL PROJECTS

1ST PLACE: SAFE Water & Aids Project in partnership with University of Illinois - Kenya & The United States of America

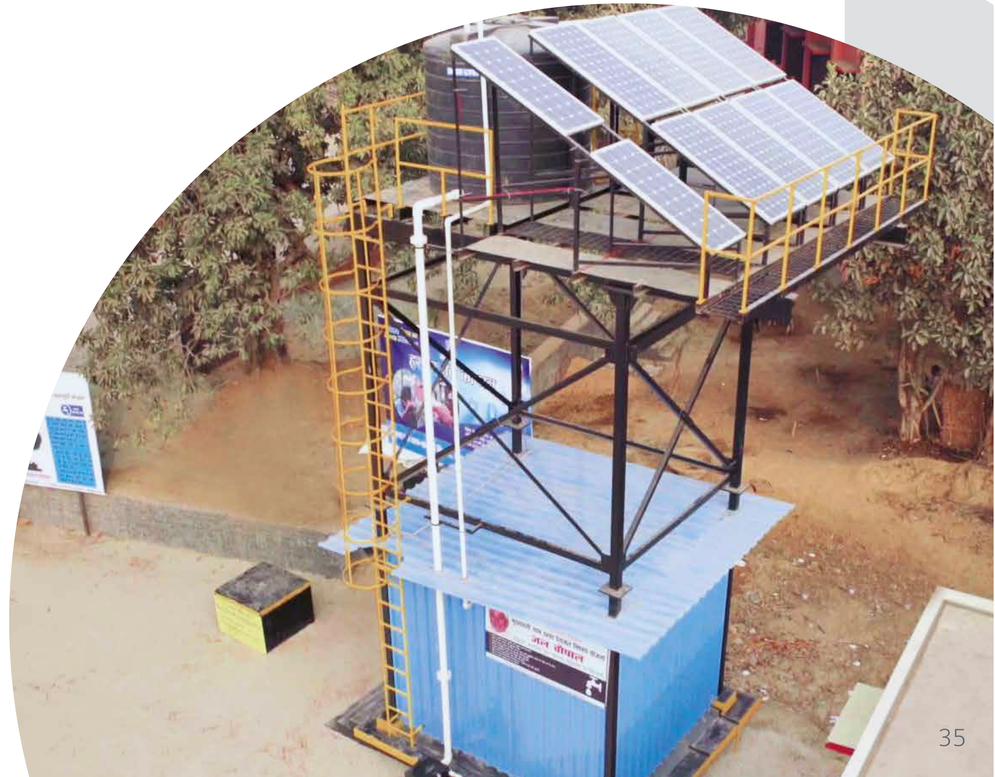
University of Illinois, Chicago - School of Public Health, in partnership with Safe Water & Aids Project from Kenya, developed a solar-powered drinking water ozonation project. This innovative project uses ozonation for the treatment of drinking water. It uses microplasma technology to generate ozone onsite and in small quantities, using only solar power. It is the world's first drinking water treatment system to use microplasma technology. It has a capacity of 500 litres per hour with an average output of 3,000-3,500 litres per day.

2ND PLACE: Easy Water for Everyone - The United States of America

Easy Water for Everyone presented an innovative project that repurposes hemodialysers to purify water for drinking, washing and cooking in remote villages of Sub-Saharan Africa. The device consists of eight repurposed hemodialysers with the appropriate tubing connections to provide water free of pathogens, through a gravity flow-based method. The project uses a mix of renewable and conventional energy, with plans to use only renewable energy at a larger scale.

3RD PLACE: Membrane Filters (I) Pvt Ltd - India

Membrane Filters (I) Pvt Ltd presented its stand-alone solar operated water filtration plant that removes inorganics like iron, arsenic and fluoride from groundwater. The solution uses IoT based remote monitoring on mobiles with a SIM card, allowing adaptability to different water quality by remotely adjusting the system through the control panel.



INNOVATIVE RESEARCH & DEVELOPMENT AWARD

INTERNATIONAL INSTITUTIONS

1ST PLACE: University of Malaya in collaboration with Sunway University - Malaysia

The universities demonstrated a smart auto-backwash ultra-filtration system that can treat different types of water sources to produce clean water without using any chemicals, while maintaining membrane performance for a long duration. The system can produce 500 to 700 litres of clean water per hour.

2ND PLACE: Sustainable Livelihood Initiative India (SLII) Pvt. Ltd - India

Sustainable Livelihood Initiative India (SLII) Pvt. Ltd showcased its 'Vardan' purifier, an easy to use, frugal and sustainable water purifier providing clean water without any membranes, filters or external energy. Vardan does not waste water, has simple mechanical parts, does not need replacements, and uses solar cells made from e-waste that last for at least ten years, with minimal maintenance.

3RD PLACE: Maithri Aquatech in partnership with Jain University - India

Maithri Aquatech, in partnership with Jain University, developed a hybrid water solution that combines sustainable water generation and food preservation. The Meghdoot Atmospheric Water Generator sustainably generates potable water while also providing a solution to preserve perishable foods by using cold air obtained as a side product.

INNOVATIVE INDIVIDUAL AWARD

DISTINGUISHED RESEARCHER AWARD

WINNER: Professor Peng Wang - Hong Kong, China

Professor Wang possesses an impressive track record of achievements in clean water production. For the award, he presented three technologies to produce inexpensive, clean drinking water for small-to-medium-sized communities. This includes a PV-Membrane distillation (PV-MD) technology that uses waste heat from standard

PV panels to drive multiple stages of membrane distillation for seawater desalination. The second uses atmospheric water vapour harvesting technology to produce energy-efficient and low-cost clean water in places with limited access to regular water sources. This technology extends to cooling PV panels, with field tests demonstrating that it increases PV panel electricity generation by as much as 19%. The third is a new seawater desalination brine treatment process that has zero liquid discharge (ZLD) and is powered by solar energy.

INNOVATIVE CRISIS SOLUTIONS AWARD

WINNER: Mascara NT - France

Mascara NT's winning project Osmo-Watt, combines two industrial and patented solutions: Osmosun, a battery-free solar powered desalination solution, and the Mobil-WATT, a containerised solar generator by Ecosun. It is designed for quick installation and commissioning in a humanitarian, military or natural disaster relief aid context. Both the water treatment unit and the solar power generator are in the form of a small shipping container that comes pre-wired and pre-connected, and can be deployed in less than 2 hours. The container, fitted with an insulated, air-conditioned control cell, includes piping for universal raw water intake. The system has a remote monitoring feature that allows monitoring parameters like inlet water quality, flow, TDS, turbidity and pH. The system has been designed to provide relief in humanitarian, natural or war-related disasters.

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