Innovations In Smart Water Technology To Fight The Global Water Crisis

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The global water crisis is a soaring issue calling for a holistic approach inclusive of wise investments, innovation in technology, change in behaviour and collaborative policies. The growing water concern needs immediate attention as United Nation's global analysis confirm that by 2025, 1.8 billion people will be residing in countries facing critical water scarcity and by then two-third of the world's population will have minimal access to water.

It is not that the world leaders are unaware of the situation. Many countries are forging ahead with innovative ideas and cutting-edge technology into making water an easily accessible resource. To witness this global revolution, have a look at the water chapter below.

Countries Pioneering In Smart Water Technology

Israel

Being a country located in desert, Israel has always proved its potential in conserving water through upgraded technology. And this potential has now turned into a full fledged economic benefit. 85% of the wastewater produced in the country is recycled and reused. Israel is home to 300 smart water technology industries which hold expertise in desalination. Due to the fact, the country is able to transport water to others countries thereby receiving $2 billion each year. By 2020, the country aims at providing 50% of recycled water to the agricultural sector.

Saudi Arabia

A kingdom surrounded by sea water and desert is a desalination expert since many years. Owing to the fact, today Saudi Arabia leads the world's list by being the largest producer of desalinated water. Not to mention, the process of desalination is carried out by the renewable solar energy which can be seen in the city of Al Khafji – a place known to have the largest solar based desalination plant in the world. Currently, the country is aiming at powering every desalination plant with solar energy by 2019.

United States Of America

Despite being a world leader in economy, California state in the US has suffered water crisis in the form of droughts. This period of water stress in California emerged to be the biggest motivation behind the construction of the largest desalination plant in the west. One of the most sophisticated plants of the world, this plant situated in Southern California desalinates 50 million gallons of seawater each day with the aid of 10 miles long delivery pipeline.

United Kingdom

The best in class, smart water metering technology is found in the United Kingdom. The online smart system facilitates the residents to keep a track on every day water usage. The meters provide precise information on how the water is used and in how much quantity. This encourages the residents to

conserve water through efficient water saving home appliances. All the more, the smart metering technology avidly finds out the leaks and saves on costs.

Greece
The Island of Milos is a place in Greece where geothermal energy is found in abundance due to its geographical location on the Aegean Volcanic Arc. The magma flowing beneath heats up the underground water, thus giving rise to natural geothermal reservoirs. These geothermal reservoirs are employed to generate geothermal energy which is used to convert seawater into potable water. The geothermal energy is found here in abundance making the place perfect for construction of geothermal desalination plant.

5 Novel Innovations To Beat The Water Crisis

Water technology is breaking new grounds to make drinkable water easily accessible in developing countries. In the path to achieve the goal, novel innovations have come to life which are as follows:

The Drinkable Book
Researchers at Carnegie Mellon University in association with a non-profit organisation Water is Life have created a water filtration cum educational tool called as the 'drinkable book'. This book has pages printed with information about basic hygiene and importance of how water should be kept clean from contaminants. The innovation here lies in the creation of a 'scientific coffee filter' – a paper that purifies drinking water and eliminates 99.9% germs from it. The book provides filtration sheets that can be used per person for a span of 4 years. This book is being circulated in some African countries like Ghana, Kenya, Tanzania, Ethiopia, Haiti and also in India.

Graphene Filters
Desalination is a process which consumes a great amount of energy making it a highly expensive procedure. To cut down on the cost, Lockheed Martin UK has invented a Perforene graphene filter – a tool that would make energy cost of conventional reverse osmosis desalination reasonable by 20%. The

tool is equipped with perforations and an ultrafilter that is one atom thick. The set-up would ensure an increase in the flow of water by 500% compared to the typical method. The filter will be highly beneficial for oil and gas sector where gallons of wastewater is produced.

WaterSeer

WaterSeer is the creation of VICI labs in the US. The device collects water by extracting it from the surrounding atmosphere. The device is installed 6 feet deep below the surface of the lower chamber completely buried. Above ground, the wind stimulates the motion of turbine which in turn spins the fan blades of the WaterSeer. The blades direct the air towards the condensation chamber where the water condenses on the walls. Further, the water gets collected in the innermost chamber from where the water is pumped out for use. In optimal conditions, the device is fit to produce 36 litres of water in a day. This project is still under test phase and is reported to launch by the end of the year.

Fog Trappers

The foggy atmosphere has the highest amount of water retention capacity than other weathers. Keeping this in mind Dar Si Hmad a non-government organisation developed giant mesh nets that can trap atmospheric water and condense it down to water droplets which are collected in large water trays. For this innovative idea, the organisation received Momentum for Change award from the United Nations in 2016. Today this project is largely active on the slopes of Mount Boutmezguida in Morocco where 6,300 litres of water is produced every day. The water is absolutely clean and potable. This fog trapping technology is working in many other countries like California, Chile, Eritrea, South Africa and Ghana.

Solar Powered Crops

By every means, agricultural sector consumes 70% of the water available for use. To meet the existing needs, a sustainable solution with cost effective policies is important. To contribute in this area, a solar powered pump is deployed in the farming lands to pump the underground water for irrigation. This system is not just profitable for farmers but even for the government.

Through this the carbon emissions are reduced by 5%, electricity is retained and the usage of water is made justifiable. Currently, the solar pumps are used in the state of Gujarat in India where the climate is hot and dry.

Suqia – The UAE Water Aid Foundation

Suqia is a well-disposed initiative launched in 2014 under the guidance of HH Sheikh Mohammed bin Rashid Al Maktoum, the prime minister of UAE and the ruler of Dubai in particular. The foundation is devoted to overcome the water scarcity problem across the world through intense research and sustainable water solutions accompanied with making provision for clean drinking water through solar energy. Furthermore, the initiative encourages investment support and cooperative measures at the international level to improve living standards in developing countries. The primary objective of the organisation is to fight poverty and disease by helping the needy. By far, the foundation has been successful in providing potable water to 8 million people in 19 countries through their novel water projects.

Countries, organisations and innovative strategies like these can definitely serve as revivers in the long run and ward off the water scarcity problems completely from the world through synergistic approach.