SARVAJANIK EDUCATION SOCIETY
SMT. SHARDARANI RAMESHCHANDER
Luthra INSTITUTE OF MANAGEMENT

LEARNNOVATOR

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EDITORIAL

One of the defining issues of the century is universal but felt locally: The global water crisis,commonly known as water scarcity. The interesting fact is that the earth's surface is covered by 70 % of water and only 2.5 % of it is fresh water, the rest is saline water. Further, out of this 2.5 % of fresh water, just 1 % of it is easily accessible and only 0.007% fresh water is available to more than 6 billion people on earth

The amount of fresh water has remained mostly constant over a period of time by continuous recycling through the atmosphere. Hence, the real cause of the freshwater crisis is not insufficient fresh water but population explosion. Freshwater use has grown at more than twice the rate of population increase in the last century. Every year with an increasing population the competition for clean and fresh drinking water is intensifying. According to the United Nations, by 2025 around 3.4 billion will be living in highly water-stressed countries (mostly developing). Freshwater has become like a luxury for the people in places like Sub-Saharan Africa

In a country like India, the water crisis has different forms within the country. At some places people have to deal with limited water supply whereas in some other regions the quality of the water is an issue. Further in rural India, people have to cover long distances and face harsh weather conditions to get access to clean and safe water

It is high time that we realize the graveness of the situation and take concrete steps to save water. The challenge that we are facing can be dealt by how effectively we conserve, manage, and distribute fresh water. Let's start an initiative to save water by preserving it and not polluting it. Remember considerable water saving is possible by making small changes in our daily routine

Dr. Jimmy M. Kapadia
Director
S.R. Luthra Institute of Management, Surat

RAIN WATER HARVESTING

As you know water occupy almost 66% of earth surface but did you know there is a probability about next world war may be done due to Water

Out of all world water resources, only 3% is drinkable water, so in spite having dams & reservoirs, world is hardly able to retain water properly for drinking purpose

One of the easiest way to retain water is in ground,but current groundwater scenario in India is also not in good shape. Water is depleting drastically, as 60% of India's districts are facing over-exploitation of ground water and also facing serious water quality issues. Based on a report submitted by the Committee on Restructuring the Central Water Commission (CWC) and the Central Ground Water Board (CGWB), in 2016, it is stated that while groundwater provides 80% of the country's drinking water needs, it also caters to two-thirds of the irrigation requirements too

As we know, Surat is located on the Tapti river where it meets the Arabian Sea. Surat considered as 4th fastest growing city in the world. Due to growth prospects, migration population in Surat is very high. Surat has almost reached to 6 Million populations. Looking to all aspects, Surat is already facing water scarcity now and will be critical in near future

Surat is fully dependent on Tapi river for drinking water. Due to climate change issue, precipitation ratio is very uncertain and due to this Tapi catchment area gets not enough rainfall every year. Surti's are using water for 1 billion litter per day and almost 800 million litter wastewater is generating. Though majority of waste water primarily treated and released in the sea. The city is not getting water as per its needs and water scarcity shall emerge anytime. Many people still withdrawing water from the ground and this ground water seek recharge. The same problem is faced by textile and Hazira industries

Due to continous water withdrawal from the ground, ground level water is in the severe situation and its impact on water quality, energy cost, increasing salinity, land fertility issues and many more. The government has no control to stop using groundwater due to some constraints, hence Surat Municipal Corporation has come with effective Rain Water Harvesting policy to improve ground water level and recharge its quality too

After 2008, every building has to come with Rain Water Harvesting (RWH) in their plan and implement it before taking Building Use Certificate (BUC) and those who have already built their houses without RWH structure, SMC will give them a subsidy to build RWH in their premise. Even SMC will go to an audit of the existing RWH system in the city and will come with an effective roadmap for 2030

Let's support and co-operate for Rain Water Harvesting system, where ever we can

Let's avoid third world war by managing water properly. Let's learn to use water wisely wherever we are

Mr. Mehul Patel
Director
Resilience Strata Research & Action Forum, Surat

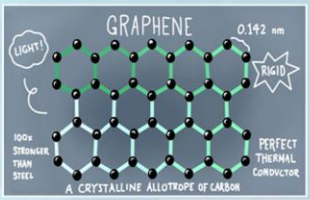
TECHNOLOGICAL INNOVATIONS ADDRESSING THE CRISIS IN NOVEL WAYS

A number of creative technologies aim to increase access to clean water in developing countries. Two water experts – Vincent Casey, senior water and sanitation adviser at WaterAid, and Hannah Safford, an energy and environmental policy analyst, in their article has mentioned some of the most creative approaches

A) *In partnership with non-profit Water is Life*, researchers at Carnegie Mellon University developed this education and filtration tool. Each page of the book provides basic water and sanitation advice, such as the importance of keeping contaminants like rubbish and faeces away from water, often unknown in developing countries. Perhaps more novel is that the advice is printed on "scientific coffee filter" paper that can be used to purify drinking water and reduce 99.9% of bacteria. Each book has enough filtration sheets to provide its reader with clean water for four years. It's being distributed in Ghana, Kenya, Haiti, Ethiopia, India and Tanzania, and a Farsi version of the book is in development

B) *It looks like a well, but instead of withdrawing groundwater, the Water Seer* uses the surrounding environment to extract water from the atmosphere. It is planted six feet below the surface, where its lower chamber is surrounded by cool earth. Above ground, wind spins a turbine which spins fan blades inside the device. These blades send the air into an internal condensation chamber where, as the warm air cools, the vapour condenses on the sides of the chamber. Water then flows down to the lower chamber and can be extracted with a simple pump and hose. In ideal conditions, it can collect 37 litres of water a day. Developed by VICI labs in the US, the project is being tested by the National Peace Corps Association and will be piloted later this year

DRINKABLE BOOK



GRAPHENE FILTERS

SOLAR CROP

WATER SEER

FOG CATCHERS

C) *Desalination, converting saltwater into freshwater,* has historically been too expensive and energy-intensive to serve as a widespread solution for improving access. However, Lockheed Martin has developed and patented a Perforene Graphene filter which it claims would reduce the energy cost of conventional reverse osmosis desalination by 20%, while withstanding higher pressure and temperatures. The perforated, hyper-permeable filter is one atom thick and is said to improve the flow of water compared to conventional methods by 500%. While the technology would be hugely beneficial to the oil and gas sector, which reportedly produces 18bn gallons of wastewater each year, the company is also researching other applications for the technology, including in food and energy generation

D) *Vast mesh nets capture moisture from fog*, which drips into collection trays after condensation. The largest of these projects is on the slopes of Mount Boutmezguida, a microclimate in Morocco where 6,300 litres of water can be harvested per day. The water is clean, free and instant, which is perhaps why Dar Si Hmad – the non-profit responsible for the project –was awarded the UN's 2016 Momentum for Change award. First developed in South America, fog catching systems also exist in Chile, Peru, Ghana, Eritrea, South Africa and California

E) *In hot and dry climates, many farmers pump groundwater to irrigate crops*, and there has been a growth in the use of solar-powered pumps. A problem arises when farmers view solar energy as free, as it can cause over-irrigation. A part-technological, part policy and management solution by CGIAR's research programme on water, land and ecosystems, and in partnership with the International Water Management Institute (IWMI), incentivises farmers using solar pumps to sell excess power back to the grid. The guaranteed buy-back scheme produces a "triple win"; farmers gain income, the state gains electricity reserves, and the water source is conserved by curbing usage – all while reducing carbon emissions. The scheme is being piloted in Gujarat, and IWMI estimates that solarising India's 20m irrigation wells could reduce carbon emissions by 4-5% per year

For more details kindly browse this link: https://www.theguardian.com/global-development-professionals-network/2017/feb/13/global-water-crisis-innovation-solution

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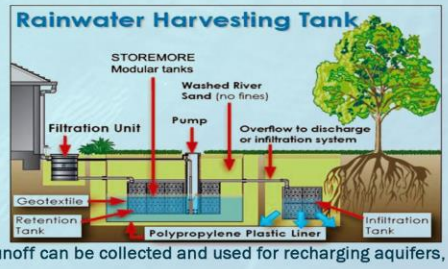
SAVE RAIN TO BE AWAY FROM PAIN

The level of drinking water under the ground is becoming less because of the disturbance in the natural filtering system. Deforestation and lack of plants causes rain water to run away instead of going inside the ground. Rainwater harvesting (RWH) is becoming attractive in domestic as well as agriculture sector and it should be encouraged by Government of India by providing subsidies for rain water harvesting resources purchasing (catching ducts, filtration unit, pump and overhead rainwater storing roof with appropriate plumbing). Particularly, rainwater harvesting in tropical countries should be implemented to domesticated areas. The filtered and stored rainwater can be used to irrigate the home garden, lawn, taking shower (filtered and dis-infected), toilets and also in small scale agriculture. Harvesting rainwater by digging ponds, lakes, canals, channels, expand the size of existing water reservoir in rural areas would help to cultivate short time economical yielding plants



Different Methods Being Adopted for RWH

Rooftop RWH

In urban areas, this is the most popular method. In Bengaluru, this has been adopted successfully in many households. Residents can plan the installation on the building's terrace, courtyard or lawn of the residential complex. The simple system, uses conduits or pipes, to carry the water to the harvesting or storage area. A plot of size 12 metres by 18 metres (40 ft x 60 ft), can yield as much as 1,84,000 litres of water, in a geographical location that receives 100 cm of rain in a year

Surface RWH

In many areas, rainwater falling on the ground, often flows away as surface runoff. This runoff can be collected and used for recharging aquifers, by adopting appropriate methods

Ground water recharge

The natural water table in many areas (between 150 ft and 1,500 ft below the surface) is rapidly depleting, owing to urbanisation and the demand from an increasing population. To alleviate this situation, rainwater falling on a property can be made to percolate into the earth, to eventually recharge the groundwater

Benefits

There are many advantages of harvesting rainwater, some of which include ease of installing the RWH system, free and clean source of water, used for many different purposes, environment friendly, excellent source for irrigation, reduced dependence on ground water

In addition, water conservation plans can be implemented by new planning, management, technology and regulatory enforcement in water supplying systems and re-habilitating water usage habit of individuals. The key point in water conservation plans is monitoring the water sources and reservoirs of stream flows, surface water resources and ground water levels. Efforts should be channelized to preserve physical and chemical properties of the water for reuse

For further details you can refer the link: https://theconstructor.org/water-resources/methods-of-rainwater-harvesting/5420

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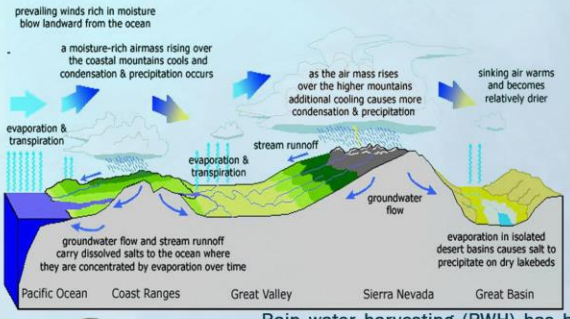
WATER CONSERVATION: THE NEED OF THE HOUR

Lack of poor management of water at present can be disastrous for years to come. Water once an abundant natural resource has become a more valuable commodity due to droughts and overuse. It's time to address issues relating to water mismanagement. One severe drought can set back all development work for years. The severity of same cane be known as government had declared 8 states in India as drought affected in 2017. India had faced two back to back drought years before it could receive a healthy monsoon in 2016, though some parts of country still received below normal rains. Sudden rise in temperature in different parts of country in summers has added to the concerns of an impending water crisis. Similarly climate change has also made drought and water scarcity more frequent



In today's time of fresh water scarcity, water can be saved by taking small steps without changing our lifestyle. More than a billion people around the globe survive over just 1 gallon(4 litres) of water per day. Wherein in India an average person uses approximately 240 litres per day as per study. When we segregate the usage of water only a small portion of fresh water is used for drinking and cooking. Rainwater can become a substitute for other usages like gardening, bathing, laundry, flushing etc. Saving water at sink, shower, toilet by each household can create a big difference. Moreover awareness about the easy availability of water at present in each household which may not be the scene in future is necessary. If water not used judiciously keeping in mind the scarcity of fresh water which is fit for human consumption, days are no longer that we may end up paying huge water tariffs and limited supply for use in near future

Rain water harvesting (RWH) has become the need of current time. In today's India water demand has increased considerably with continuously rising population and rising agriculture & industrial activities. Urban water supply systems are under tremendous pressure to meet the need for water. Increased need has resulted into low ground water tables & depleted reservoirs. More usage of rainwater will help to conserve & augment the storage of ground water. Many times cities are facing severe water crisis & on the other hand they are flooded with rainwater in monsoon. Rain water harvesting is the conscious collection and storage of rain water to cater to demands of water. The two main ways of harvesting rainwater, one is collecting it from the roofs & second is collecting surface runoff- the water that flows off land when it rains, through proper channelization of water it is collected into ponds. Simple measures at low cost can be implemented at each place say it be a any house, apartments, schools, colleges, companies or any organisation

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WATER CONSERVATION: THE NEED OF THE HOUR

Water conservation should become compulsory for each household, building and organisations. Many success stories of rain water harvesting in India have set aexample for further implementation in many other parts in the country. In Bangalore, 9 years back, RWH made mandatory for certain sites and now 50% of city's water requirement is met through rain water harvesting. Similarly in Chennai 17 years down the line since 2001 the mandatory implementation of RWH scheme for all government and residential buildings the .tables have turned to speak

We need to stop the over exploitation of ground water which is currently going on. There has been an alarming fall of ground water levels in India as per various reports. India is the largest user of ground water in the world says World Bank report. If current trend continue it will have serious implication for sustainability of agriculture, long term food security, livelihood and economic growth. Government is paying lot of attention to river cleaning but it would be best if ground water replenishment is also coupled with this initiative. And rainwater harvesting can be a major turning point in current situation. And it's high time to revisit rain water harvesting on a major scale and in almost all states. What is needed is action, so let us all make all efforts to save this precious natural resource for generations to come

Kindly refer to the link for some more insights: http://www.ecoindia.com/education/water-conservation.html



Ms. Farhin Saiyed Student from Semester III has cleared NISM exams in different modules as well as she had presented paper in National Conference

We congratulate her on her endevour

Summer Internship Programme 2018

22 companies

133 Students had been placed

FORTH COMING SUBJECT

" MEDICAL TOURISM"

Interested readers are invited to contribute their ideas/ views/ opinion on the above subject

at: learnnovaor.srlim@gmail.com before 15th September,2018

S.R. Luthra Institute of Management

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