Water Conservation

Manisha Mani
Packaging technologist

Water is one of the important elements that propagate life on earth. About 70% of the earth's surface constitutes water and is home to the aquatic system. Life forms on earth and water are majorly interdependent. One-quarter of the earth is facing looming causes due to water crisis and scarcity.

The first reason that is causing water stress around the world is the growing human population at the same time as the water supply has remained the same. The second reason is the uneven concentration of the global population.

There is not a clear link between the presence of the population in some regions and the presence of water, in other words, water is not where we want it to be every time. For example, there is, what we call, a 'triangle of thirst' from southern Spain, to Pakistan, to the Horn of Africa, and back again. In this triangle, you have around two billion people in a very water-scarce region.

SOURCE- lovepic

SOURCE- stockunlimited

Water scarcity involves water crisis, water shortage, water deficit or water stress. Water scarcity can be due to physical water scarcity and economic water scarcity.

Physical water scarcity refers to a situation where natural water resources are unable to meet a region's demand while economic water scarcity is a result of poor water management resources.

Hence the main need of the hour becomes how to supply or overcome the challenges of water scarcity in this water scarce region on the earth affecting the health of the people. When there is no rain in drought-affected areas, the crop cycle gets affected due to less irrigation. If water scarcity persists over a longer period, it may also lead to the destruction of whole habitats. Animals and plants may no longer be able to get enough water and may therefore die or have to move to other regions.

SOLUTION FOR WATER SCARCITY AND CONSERVATION

Rainwater Harvesting - Water Recycling

Since freshwater reserves like rivers, groundwater, and other water bodies are becoming scarce, rainwater harvesting is the alternate source of clean water reserves. Rainwater harvesting (RWH) is the collection and storage of rain, rather than allowing it to run off. Rainwater is collected from a roof-like surface and redirected to a tank, cistern, deep pit (well, shaft, or borehole), aquifer, or a reservoir with percolation so that it seeps down and restores the groundwater. Installations can be designed for different scales including households, neighborhoods, and communities, and can also be designed to serve institutions such as schools, hospitals, and other public facilities. In regards to urban agriculture, rainwater harvesting in urban areas reduces the impact of runoff and flooding. Solar panels can be used for harvesting most of the rainwater falling on them and drinking quality water, free from bacteria and suspended matter, can be generated by simple filtration and disinfection processes as rainwater is very low in salinity.

SOURCE- 123RF

SOURCE- shutterstock

Rainwater harvesting provides the independent water supply during regional water restrictions, and in developed countries, it is often used to supplement the main supply. It provides water when a drought occurs, can help mitigate flooding of low-lying areas, and reduces demand on wells which may enable groundwater levels to be sustained and can be made cost affective from collective approach.

SOURCE- dreamstime

Portable Water

Potable water, also known as drinking water, comes from surface and ground sources and is treated to levels that that meet state and federal standards for consumption. Water from natural sources is treated for microorganisms, bacteria, toxic chemicals, viruses and fecal matter. The State Water Resources Control Board ensures the actual levels are close to Public Health Goals while setting standards called “notification levels” for contaminants not specified by the EPA.

Wastewater treatment

Wastewater or sewage treatment is a process used to remove contaminants from wastewater and convert it into an effluent that can be returned to the water cycle. Once returned to the water cycle, the effluent creates an acceptable impact on the environment or is reused for various purposes called water reclamation. Water is used in the industrial sector for production and wastewater is generated as part of the product cycle. These water can or effluent needs to be treated before its reuse or disposal to avoid further environmental impact. Types of wastewater treatment plants include agricultural wastewater treatment plants and leachate treatment plants.

SOURCE- 123RF

Sedimentation is the primitive method used for wastewater treatment. Phase separation using filtration is also used. Biological and chemical treatments are the most commonly used effluent treatment methods these days. Activated sludge treatment, distillation, desalination, filtration, osmosis, and aerobic and anaerobic treatment are the various method used according to chemical and biological entities present in the wastewater.

SOURCE- dreamstime

SOURCE- shutterstock

Save Water Initiatives

Educating people dealing with scarcity of water can help in curbing the water related issues by effective use of water generation technology and minimal usage. Water distribution should be managed effectively by gauging the need and supply of the water . Some voluntary initiatives to save water with minimal wastage can help to reduce the consequences of water scarcity by limiting the use of water, the use of washing machines, taking short showers instead of full baths. Educating farmers for better irrigation methodologies can help in maintaining the crop cycle and yield. Support clean water initiatives by being part of the organizations located all over the world that are looking to bring clean water to areas that don't have it. Consider donating to these organizations, either with your time, your skills, or your finances whichever you can afford to give to them.