



Water resource management

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DESCRIPTION

Water is the most essential resource for all life on the planet. Only 2.5 per cent of Earth's water resource is fresh. Two-thirds of the freshwater is in the form of ice caps and glaciers. Of the remaining one per cent a fifth is in remote and inaccessible areas and much seasonal rainfall in monsoon seasons indulges into floods and cannot easily be used.

As the global population is growing faster and faster, some estimates show that with current practices and use of water resources, the world will face around 40% shortage of water resources in upcoming years. Hydrological uncertainty, chronic water scarcity and extreme weather events such as floods and droughts are some of the biggest threats to global prosperity and stability in terms water resources. Water scarcity affects more than 40% of total world's population. 70% of all deaths are related to water-disasters. Feeding billions people across the globe by 2050 will require almost 60% increase in agricultural production, (which consumes 70% of the resource today), and a 15% increase in water requirements. Besides the rise in the demand, the resources are already scarce in many parts of the world. Changes in climatic conditions has and will worsen the situation by altering hydrological cycles and conditions and making water more unpredictable and increasing the frequency and intensity of floods and droughts.

Water resource management majorly deals with planning, developing, distributing and managing the use of available water resources. It is one of the aspects of water cycle management.

Water resource management helps in healthy and sustainable utilization of resources. It also helps in the betterment of agriculture and developing an efficient irrigation practices. This precious resource can be saved by starting of proper utilization of water in our homes. As we know that our accesses to portable drinking water is limited and people consuming and depending on it are increasing therefore it becomes more important to sustainably manage our resources.

There are various methods through which water resources could be managed and preserved. Some of them are:

Rainwater harvesting

It is the method of collecting and storing the rain water rather than allowing it to runoff. It can be collected from rooftops of houses buildings etc. and then directed into the tanks, wells, reservoirs etc. for further use. Rainwater harvesting helps in avoiding the depletion of groundwater.

Groundwater recharge

Usually groundwater is recharged naturally by rain and snow melts and to smaller extent by rivers and lakes. Some human activities like paving, logging, development etc. may lead to the loss of top-soil which results in reduction in groundwater recharge. Therefore, to enhance the natural groundwater supplies some man-made conveyances are used like dams, infiltration basins, trenches, wells etc. ASR (Aquifer storage and recovery) it is a specific type of groundwater recharge practices widely with the purpose of increasing groundwater and also recovering for the future use.

Drip irrigation or trickle irrigation

It is a type of micro-irrigation system that helps to save water and nutrients by allowing water to slowly flow into the soil and to roots of plants, either from surface of the soil or buried below the surface. In this system water is distributed through valves, pipes, tubing, emitters etc.

Grey water

It is waste water majorly from non-toilet plumbing systems (bathroom sinks, showers, tubs, and washing machines). Though grey water contains dirt, food, grease, hair etc. but it is safe and beneficial source for irrigation.

Sewage water treatment

It is a process of removing contaminants from municipal waste water and sewage water along with industrial wastewater. The sewage sludge, a by-product of sewage treatment, has to be further treated for being suitable for application on land and also for disposal.

Some other water resource management methods are desalination, aquifer storage and recovery and conjunctive use.

The water resource management methods should be implemented strategically, keeping in mind the need of adaptation.