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Water Conservation Advantages and Disadvantage

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INTRODUCTION

Water, Paani, Jal, Tanni, L'eau, Wasser, Acqua perhaps the most familiar and widely used word in the world. Water needs no introduction, the importance of this is known to one and all. However, despite water being the basic human need, this precious resource is being wasted, polluted and getting depleted. Every drop of water is precious but we continue to waste it like it is a free natural commodity. 98% of water on this planet is salty and is not fit for human consumption. Out of the 2% of fresh water reserves, 1% is locked up in form of ice in various regions around the world. Hence, only 1% of total water reserves are available for our domestic & industrial use. Many cities in India and around the world are already facing sever water shortages due to reduced rainfall, man-made climatic changes, reduction in ground water levels, population explosion, industrialization and staggering amount of water wastages because of negligence by users & dilapidated water supply systems. The importance of water in a country's economic growth should not be undermined.

WATER CONSERVATION

Water conservation can be defined as:

1. Any beneficial deduction in water loss, use, or waste.
2. A reduction in water use accomplished by implementation of water conservation or water efficiency measures; or,
3. Improved water management practices that reduce or enhance the beneficial use of water a water conservation measure is an action, behavioral change, device, technology, or improved design or process implemented to reduce water loss, waste, or use.

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Water efficiency is a tool of water conservation. That results in more efficient water use and thus reduces water demand. The value and cost-effectiveness of a water efficiency measure must be evaluated in relation to its effects on the use and cost of other natural resources.(e.g. energy or chemicals)

CONSERVATION TECHNOLOGIES :

Process of conservation may be synonymous of preservation against loss or waste. Briefly stated it means putting the water resources of the country for the best beneficial use with all the technologies at our command. Water conservation basically aims at matching demand and supply. The strategies for water conservation may be demand oriented or supply oriented and/or management oriented. The strategies may vary depending upon the field of water use, domestic, irrigation or industrial use.

1) **Rainwater harvesting-** Rainwater harvesting essentially means collecting rainwater on the roofs of building and storing it underground for later use. Not only does this recharging arrest groundwater depletion, it also raises the declining water table and can help augment water supply. Rainwater harvesting and artificial recharging are becoming very important issues. It is essential to stop the decline in groundwater levels, arrest seawater ingress, i.e. prevent seawater from moving landward, and conserve surface water run-off during the rainy season .

Advantages

1. Provides self-sufficiency to water supply.
2. Reduces the cost for pumping of ground water.
3. Provides high quality water, soft and low in minerals.
4. Improves the quality of ground water through dilution when recharged.
5. Reduces soil erosion & flooding in urban areas.

2) Better Irrigation Practices- Conservation of water in the agricultural sector is essential since water is necessary for the growth of plants and crops. A depleting water table and a rise in salinity due to overuse of chemical fertilizers and pesticides has made matters serious. Various methods of water harvesting and recharging have been and are being applied all over the world to tackle the problem. In areas where rainfall is low and water is scarce, the local people have used simple techniques that are suited to their region and reduce the demand for water.

For crop irrigation, optimal water efficiency means minimizing losses due to evaporation, runoff or subsurface drainage. An evaporation pan can be used to determine how much water is required to irrigate the land. Flood irrigation, the oldest and most common type, is often very uneven in distribution, as parts of a field may receive excess water in order to deliver sufficient quantities to other parts. Overhead irrigation, using center-pivot or lateral-moving sprinklers, gives a much more equal and controlled distribution pattern. Drip irrigation is the most expensive and least-used type, but offers the best results in delivering water to plant roots with minimal losses.

3) Use of Saline Water for Irrigation- Saline water is widely available but rarely used for agriculture because it restricts plant growth and yield. Salt resistant varieties of crops have also been developed in recent times.

4) Mulching, i.e., the application of organic or inorganic material such as plant debris, compost, etc., slows down the surface run-off, improves the soil moisture, reduces evaporation losses and improves soil fertility.

5) Fog and dew: Contain substantial amounts of water that can be used directly by adapted plant species. Artificial surfaces such as netting-surfaced traps or polyethylene sheets can be exposed to fog and dew. The resulting water can be used for crops.

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6) Contour farming is adopted in hilly areas and in lowland areas for paddy fields. Farmers recognize the efficiency of contour-based systems for conserving soil and water.

7) Tippy Tap for water conservation: - Tippy Tap is a simple device which dispenses a limited amount of water slowly and facilitates a thorough hand wash. In case of piped water supply, every time the tap is opened for a hand wash, an average of 300 - 500 ml of water is utilized. Using Tippy Tap it is possible to have a good hand wash with only 60 to 80 ml of water

8) Propagation of Dry Garden / Eco Lawns- As a step towards water conservation and propagation of native plant species, drought resistant plantation (plants requiring less water) should be carried out.

9) Soak pit construction- Water run offs and water logging are combated by constructing soak pits near water points like hand pumps. This is a sanitation measure and also helps in recharge of ground water.

10) Tree plantation -In water catchments area/riverbanks and clean-up drives near water bodies are some of the other initiatives taken up to preserve our water resources.

11) Desalination- To augment the depletion of fresh water resources in coastal areas due to excessive abstraction, desalination like distillation, electro-dialysis and reverse osmosis are available. Selection and use of these processes is site specific.

12) Long Distance Transfer of Water- Transfer of water from surplus basins by creating storage at appropriate locations and inter-linking various systems is yet another strategy for increasing the benefits considerably

Advantages of water conservation:

1. It helps in controlling flood and soil erosion.
2. It helps in utilization of rainwater for the purpose of irrigation.
3. It reduces the cost of water in water bills.
4. The conserved water can be used for the purpose of sanitation.

Disadvantage of water conservation:

1. The disadvantage of water conservation is the high cost of development of water conservation devices and instruments over the roofs.
2. The rainfall is unpredictable so another source of water must be identified for daily water use.

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