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WATER CONSERVATION IN INDIA: A REVIEW

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Abstract: Water is an essential renewable natural resource that is necessary for both human and animal survival. India is home to 18% of the world's population, yet it also possesses only 4% of the world's rapidly diminishing water resources. The study's goal is to draw attention to India's water conservation tactics and solutions. It is anticipated that by 2025, the world's water demand will have increased from 42 billion cubic meters (bcm) to around 220 bcm. One of the most crucial inputs for crops is water. Its abundance or scarcity has an impact on plant growth and development, yields, and output quality. There are several ways to increase soil moisture and decrease these losses. These include cropping, mulching, planting trees, contour farming, using fog or dew by using net-surfacing traps or polythene sheets, moving water from surplus to deficit areas through the use of canals to connect water systems, desalination technologies like distillation, electro-dialysis, and reverse osmosis, and using efficient watering systems like sprinklers and drip irrigation to cut down on plant water consumption. The foundation of this research is the secondary data. Changing people's attitudes and practices, including our own, is the most crucial step in finding answers to the problems of water and environmental conservation.

Keywords: Water conservation, renewable, Rainwater-harvest, environmental conservation.

1. Introduction:

The significance of water is widely recognized; therefore, it needs no introduction. Nevertheless, even though water is a basic human requirement, it is being squandered, contaminated, and running out. Though we still waste water as if it were a free natural resource, each drop is valuable. It is unfit for human consumption that 98% of the water on Earth is salty. Situated in different parts of the world, 1% of the world's freshwater supplies are frozen. For our household and industrial consumption, therefore, only one percent of the world's water supplies are available.Due to factors like decreased rainfall, altered climate patterns brought about by humans, declining groundwater

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levels, population growth, industrialization, and alarmingly high-water waste from careless users and deteriorating water supply infrastructure, many cities in India and around the world are already experiencing severe water shortages. It is important to recognize the role that water plays in a nation's economic development.

Better water conservation and management has economic benefits and helps protect the environment. The more water you use, the more you pay for water and sewer service on a municipal water and sewer system. Excessive water use can overload both individual septic systems and municipal sewer systems, thereby resulting in untreated sewage contamination of fresh water supplies. Water conservation can extend the useful life of both community and individual household sewer systems. Excessive withdrawals of ground water can lead to salt water intrusion, a subtle environmental impact with long-lasting effects. These areas are usually associated with large population centers or agriculture, where water use is high. Agriculture is our most essential industry, but it is also our largest consumer of fresh water. Water conservation and management will become bigger issues for agriculture and metropolitan areas as they compete for limited fresh water resources in the future

2. Objectives:

- Innovative and novel technology solutions
- Sustainable water conservation practices
- Strategies for managing water resource supply and demand
- Sustainability of the water industry

3. Research Methodology:

The analytical, descriptive and comparative methodology has adopted for this paper and data has been collected from different sources such as books, journals, newspapers and online databases and on the views of writers in the discipline.

4. 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

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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.

- **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.
- **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 waters 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.
- **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.
- **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.
- **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.
- **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.
- **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

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utilized. Using Tippy Tap it is possible to have a good hand wash with only 60 to 80 ml of water

- **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.
- **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.
- **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.
- **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.
- **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.

What We Can do to Conserve Water?

- Use only as much water as you require. Close the taps well after use. While brushing or other use, do not leave the tap running, and open it only when you require it. See that there are no leaking taps.
- Use a washing machine that does not consume too much water. Do not leave the taps running while washing dishes and clothes.
- Install small showerheads to reduce the flow of the water. Water in which the vegetables & fruits have been washed - use to water the flowers & plants.
- At the end of the day if you have water left in your water bottle do not throw it away, pour it over some plants.
- Re-use water as much as possible
- Change in attitude & habits for water conservation
- Every drop counts!

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Improve Water Management:

- The close link between forests and water, and the traditional relationship between agriculture and water, need to be recognized and protected to ensure sustained productivity.
- National water management policies should take account of the impact of trade in water-intensive goods on water availability and ecosystems integrity. For example, in water scarce regions, people should grow crops with low water requirements, or of high value compared to the water used. Options for improving the water balance by importing water intensive goods from water-rich regions should be explored, where appropriate and cost-effective.
- The potential of rainwater harvesting for augmenting rural and urban water supply is increasingly becoming recognized. This alternative should be further explored and utilized.
- Proper water pricing must be an integral part of water policies. However, care must be taken to ensure that the poor and socially disadvantaged are not denied access. Moreover, there must be adequate monitoring and control of market mechanisms.
- It is necessary to study and analyze the impacts of subsidies (on water, energy, and other relevant inputs) on water use. Subsidies that inhibit water use efficiency or cause negative effects on the environment should be reduced.
- Our traditional water management approaches and systems were both sustainable and accountable. These need to revived and invigorated. Policies must recognize and build on these.
- Principles of reuse and recycling of water resources must be incorporated into water management plans and strategies. There must be incentives for water conservation.

Public Education and Awareness:

- Public awareness and education on the importance of protection of the coastal and ocean environment helps to meet social and economic needs and aspirations of the country in the long run.
- Awareness campaigns on existing regulations for management of coastal areas need to be conducted. Education and communication material on the need for conservation and protection of rare and endangered species need to be developed.
- Research findings on marine resources, their development and management have to be

demystified. The educational and communication material targeted at the public has to be developed in local languages.

- Opportunities for interactions between communities, policy makers, regulating agencies, NGOs, scientists, etc. need to be increased.
- Appropriate strategies and decision-making tools that would enhance the capabilities of professionals, Government, and non-government organizations to take up local and community level action programmedneed to be developed.

5. Conclusion:

Water problems will not go away by themselves. On the contrary, they will worsen unless we, as a global community, respond and use water responsibly. So, before it is too late, let us all, as individuals, families, communities, companies & institutions, pledge towards using water wisely. Intelligence is not in lavishness but in conservation, so that our future generations can continue to enjoy the blissful feeling and touch of water.Our water resources, irregularly distributed in space and time, are under pressure due to major population change and increased demand. Access to reliable data on the availability, quality and quantity of water, and its variability, form the necessary foundation for sound management of water resources. The different options for augmentation expand the boundaries of the water resource in a conventional sense, helping to match demand and supply. All components of the hydrological cycle, and the influence of human activities on it, need to be understood and quantified to efficiently and sustainably develop and protect our water resources.

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