

## **Water Crisis-Causes and Solution**

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### **ABSTRACT**

In the coming years, water crisis in India is going to become a serious human because there will be less availability of water than demand. The continuous increase in population at geometrical rate and over use of water for agricultural as well as industrial purposes are considered to be the major reasons for decreasing the water resources in the country. In recent years many studies shows that the limited resources of drinking water are polluting as well as depleting by the bad weather conditions in our country. The impact of water crisis is very dangerous because the unlimited use and pollution of water resources creates an adverse effect on our bio-diversity. Therefore, strong environmental law is necessary to save the water pollution as well as water scarcity in the country. Water exploitation has to be detained by the strict and strong policy and water regulations.

**Key Words :** Water crisis, Water resources, Bio-diversity, Pollution zones and Water depletion

### **INTRODUCTION**

The drinking water crisis in many cities is reaching in alarming condition. Urban population is suffering from irregular water supply, sometimes leading to clashes among them. A study conducted by UNICEF and World Wide Fund (WWF) for Nature revealed the alarming situation of water depletion in the country. The study had indicated that the fall in the quality and quantity of available water resources is due to the following reasons:

1. Pollution of water sources
2. Improper water resources management
3. Problems in the design and implementation of legislation and regulations, which address these problems.

### **Water Resources Availability and Consumptions :**

The total amount of water available on earth has been estimated at 1.4 billion cubic kilometers enough to cover the planet with a layer of about 3-km deep. About 95% of the Earth's water is in the oceans, which is unfit for human consumption and other use because of its high salt content; about 4% is locked in polar ice caps; and the remaining 1% constitutes all the fresh water in hydrological cycle including groundwater reserves. Only 0.1 % is available in as fresh water in rivers, lakes and streams, which is suitable for human consumption. This highlights of the need to

preserve the water resources.

The annual precipitation of rainfall over India is 400 million –hectare meters. The surface water resources carry 17, 68,800 million cubic meters out of which only 50% can be put to beneficial uses. In addition, the ground water potential of 4, 22,900 million cubic meters is available for utilization and about 1, 00,000 million cubic meters is being exploited at present.

Indian rivers have been classified into fourteen major, forty four medium, and fifty five minor and desert river basins. The major river basins cover 83 % of the total drainage basin and contribute to 85 % of the total surface water flow. But, the major problems is the quality of surface water in majority of the locations, which is affected by pollutants from various sources such as domestic waste discharge, industrial waste disposal, and other human activities like bathing, washing and swimming etc. The projecting demand for the annual requirement of drinking water (both surface and ground water) in the country indicate an estimated 40% increase by the year 2025 to that in the year 2000 (Table 1) for various purposes of uses.

The Central Pollution Control Board with regard to the projected status of water consumption in 453 cities and towns in the country stated that the water supply is being provided at a rate of 135 liters per person per day.

<b>Table 1 : Annual requirement of Fresh Drinking Water (Cubic km)</b>			
Usage	Year		% Increase
	2000	2025	
Irrigation	630	770	22.22
Other uses (Domestic and Livestock, Industries, miscellaneous)	120	280	133.33
Total	750	1050	40.0

### **Pollution problems :**

It is estimated that, approximately 13,443 Million Liters per Day (MLD) of waste water being generated from the 453 cities for consuming 16,814 MLD of water. The disposal of this domestic wastewater needs to be considered seriously. However, the consumption and waste generation rates of the industrial groups vary with each group or with each industry depending on the measures they adopt for the same. Many instances have been reported pertaining to the adverse impacts received by the common public due to indiscriminate disposal of both domestic and industrial waste effluents.

### **Approaches to solve the problems :**

The following approaches may be followed to address the above problems:

1. Identification and isolation of contamination sources
2. Adoption of latest technologies in order to reduce the waste generation and/or to treat them effectively
3. Improved and innovative planning of water resource
4. Increased peoples participation, either directly or indirectly in solving the crisis
5. Enhanced co-ordination among the agencies involved (both Government and Non government) for the cause of the country.

### **Identification and isolation of Contaminant Sources :**

There is a need for zonal demarcation of “Pollution zones” from non-pollution zones and

working on them to reduce the ambient levels of environmental pollution. A well-planned development of industrial zones can help the country in its march towards progress. The isolation and identification of zonal demarcation is expected to put only a halt, in preventing total damage to our resources.

#### **Adoption of latest technologies :**

The adoption of waste minimization techniques will help in minimizing the waste generation both from the domestic and industrial sources. It comprises of mainly two main streams-source reduction and recycling. Source reduction comprises of the changes in product/material composition, changes in technology and good operating practices etc. Recycling constitutes the adoption of use and reuse, reclamation etc. Any promising technology to be adopted for the treatment of the waste effluent should give a close look at the following aspects:

- Cost
- Availability
- Reliability
- Development Nature
- Limitations of treatment capacity

#### **Water resources related improved and innovative planning :**

In the water resources planning, the important questions that should be involved are:

- How much water is needed?
- How much water is available?
- How the supplies satisfy the requirements?
- How the used up water is disposed off?

The water development resources involve the conception, planning, construction, and operation of facilities to control and utilize water to improve the quality of life of the people. Some strategies for improved planning of water resources as summarized:

#### **River water basin management :**

Water resource development is to be planned in an integrated manner at the river basin level and effective basin wise programs have to be evolved considering the interrelationships of soil conservation, a forestation, land development, controlled grazing etc., careful selection of crops to be planned in water short basins. Environmental monitoring of the catchment area on continuous basis and soil conservation measures such as contour bunding, check dams, a forestation etc. to be practiced. The percolated water will also improve the ground water resources.

Various water conservation measures suggested are:

1. Creation of low reservoirs for storing the water
2. Prevention of losses through seepage and leaks
3. Recycling and reuse of waste water
4. Improving usages efficiency through better usages
5. Educating the users

#### **Increased the public participation :**

The public can approach the state pollution control boards or Local Administration for taking necessary action against the polluters in their locale. State Governments must encourage people to

take part in developmental programs. In some states, areas people have taken initiative on their own and successfully solved their drinking water problems after not getting much encouragement from the local governments or administration. Successful cases induce inspiration among the public others parts of the country. This will help in spreading mass awareness about significance on usage of water resources.

**Effective various co-ordination among agencies :**

The last but not the least effective co-ordination among various Agencies such as State pollution control board, industrial development corporation, state finance corporation, irrigation department, Panchayti Raj department, Ground Water department, and some other non-governmental agencies etc. should enhanced. In fact, this is also one of the major aspects pointed out by the UNICEF-WWF study. Even though the regulations are very strong, the lack of co-ordination among the concerned agencies will not produce the result (at a faster rate) with the same effect. In fact, there are a few instances reported, where the absence of the co-ordination of among above mentioned agencies led to alarming.

Various agencies led to alarming. Therefore, the various agencies should co-ordinate among themselves to see that the developmental projects/programs reach the public in time.

In the last it can be concluded that

The water depletion and the drinking water crisis in many Indian towns and cities are becoming serious and alarming day by day.

- There is a need of the hour that we must concern about the situation and to find out the appropriate solutions for the same.
- Main aspects related to its cause must address at the earlier.
- The important suggestions should be made to handle the crisis at the local level.

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