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RESEARCH ARTICLE

WATER RESOURCES AND ITS UTILIZATION IN INDIA

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ABSTRACT

Water scarcity is possibly to pose the greatest challenge because of its increased demand coupled with shrinking supplies due to over utilization and pollution. Water is a cyclic resource with abundant supplies on the globe. Approximately, 71 per cent of the earth's surface is covered with it but fresh water constitutes only about 3 per cent of the total water. In fact, a very small proportion of fresh water is effectively available for human use. The availability of fresh water varies over space and time. The tensions and disputes on sharing and control of this scare resource are becoming contested issues among communities, regions, and states. The assessment, efficient use, and conservation of water, therefore, become necessary to ensure development. In this chapter, we shall discuss water resources in India, its geographical distribution, sectoral utilization, and methods of its conservation and management.

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INTRODUCTION

India accounts for about 2.45 per cent of world's surface area, 4 per cent of the world's water resources, and about 16 per cent of world's population. The total water available from precipitation in the country in a year is about 4,000 cubic km. The availability from surface water and replenishable groundwater is 1,869 cubic km. Out of this only 60 per cent can be put to beneficial uses. Thus, the total utilizable water resource in the country is only 1,122 cubic km. Surface Water Resources There are four major sources of surface water. These are rivers, lakes, ponds, and tanks. In the country, there are about 10,360 rivers and their tributaries longer than 1.6 km each. The mean annual flow in all the river basins in India is estimated to be 1,869 cubic km. However, due to topographical, hydrological, and other constraints, only about 690 cubic km (32 per cent) of the Available surface water can be utilized. Water flow in a river depends on size of its catchment area or river basin and rainfall within its catchment area. Given that precipitation is relatively high in the catchment areas of the Ganga, the Brahmaputra and the Barak rivers, these rivers, although account for only about one-third of the total area in the country, have 60 per cent of the total surface water resources. Much of the annual water flow in south Indian rivers like the Godavari, the Krishna, and the Kaveri has been harnessed, but it is yet to be done in the Brahmaputra and the Ganga basins. Groundwater Resources The total replenishable groundwater resources in the country are about 432 cubic km. The groundwater utilization is very high in the states of Punjab, Haryana, Rajasthan, and Tamil Nadu. However, there are States like Chhattisgarh, Odisha, Kerala, etc., which utilize only a small proportion of their groundwater potentials. States like Gujarat, Uttar Pradesh, Bihar, Tripura, and Maharashtra are utilizing their ground water resources at a moderate rate. If the present trend continues, the demands for water would need the supplies. In addition, such situation, will be detrimental to development, and can cause social upheaval and disruptions. India has traditionally been an agrarian economy, and about two-third of its population have been dependent on agriculture. Hence, development of irrigation to increase agricultural production has been assigned a very high priority in the Five Year Plans, and multipurpose river valleys projects like the Bhakra-Nangal, Hirakud, Damodar Valley, Nagarjuna Sagar, Indira Gandhi Canal Project, etc. have been taken up. In fact, India's water demand at present is dominated by irrigational needs.

The share of agricultural sector in total water utilization is much higher than other sectors. However, in future, with development, the shares of industrial and domestic sectors in the country are likely to increase.

Demand of water for irrigation

In agriculture, water is mainly used for irrigation. Irrigation is needed because of spatio-temporal variability in rainfall in the

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country. The large tracts of the country are deficient in rainfall and are drought prone. Northwestern India and Deccan plateau constitute such areas. Winter and summer seasons are more or less dry in most part of the country. Hence, it is difficult to practice agriculture without assured irrigation during dry seasons. Even in the areas of ample rainfall like West Bengal and Bihar, breaks in monsoon or its failure creates dry spells detrimental for agriculture. Water need of certain crops also makes irrigation necessary. For instance, water requirement of rice, sugarcane, jute, etc. is very high which can be met only through irrigation.

Emerging water problems

The per capita availability of water is dwindling day by day due to increase in population. The available water resources are also being polluted with industrial, agricultural, and domestic effluents, and this, in turn, is further limiting the availability of usable water resources. Deterioration of Water Quality Water quality refers to purity of water, or water without unwanted foreign substances. Foreign matters such as microorganisms, chemicals, industrial and other wastes, pollute water. Such matters deteriorate the quality of water and render it unfit for human use. When toxic substances enter lakes, streams, rivers, ocean and other water bodies, they are dissolved or lie suspended in water. This results in pollution of water whereby quality of water deteriorates affecting aquatic systems. Sometimes, these pollutants also seep down and pollute groundwater. The Ganga and the Yamuna are the two highly polluted rivers in the country.

Conclusion

Since there is a declining availability of fresh water and increasing demand, the need has arisen to conserve and effectively manage this precious life giving resource for sustainable development. Given that water availability from sea/ocean, due to high cost of desalinization, is considered negligible, India has to take quick steps and make effective policies and laws, and adopt effective measures for its conservation. Besides developing water saving technologies and methods, attempts are also to be made to prevent the pollution. There is need to encourage watershed development, rainwater harvesting, water recycling and reuse, and conjunctive use of water for sustaining water supply in long run. Available water resources are degrading rapidly. The major rivers of the country generally retain better water quality in less densely populated upper stretches in hilly areas. In plains, river water is used intensively for irrigation, drinking, domestic, and industrial purposes. The drains carrying agricultural (fertilizers and insecticides), domestic (solid and liquid wastes), and industrial effluents join the rivers. The concentration of pollutants in rivers especially remains very high during the summer season when flow of water is low. Watershed management refers to efficient management and conservation of surface and groundwater resources. It involves prevention of runoff and storage and recharge of groundwater through various methods like percolation tanks recharge wells, etc. However, in broad sense watershed management includes conservation, regeneration and judicious use of all resources – natural (like land, water, plants and animals) and human with in a watershed. Watershed management aims at bringing about balance between natural resources on the one hand and society on the other. The success of watershed development largely depends upon community participation. Rainwater harvesting is a method to capture and store rainwater for various uses. It is also used to recharge groundwater aquifers. It is a low cost and eco-friendly technique for preserving every drop of water by guiding the rainwater to bore well, pits and wells. Rainwater harvesting increases water availability, checks the declining ground water table, improves the quality of groundwater through dilution of contaminants like fluoride and nitrates, prevents soil erosion, and flooding and arrests salt-water intrusion in coastal areas if used to recharge aquifers. Different communities in the country have practiced Rainwater harvesting through various methods for a long time.

Suggestions

Another way through which we can improve fresh water availability is by recycle and reuse. Use of water of lesser quality such as reclaimed wastewater would be an attractive option for industries for cooling and firefighting to reduce their water cost. Similarly, in urban areas water after bathing and washing utensils can be used for gardening. Water used for washing vehicle can also be used for gardening. This would conserve better quality of water for drinking purposes. Currently, recycling of water is practiced on a limited scale. However, there is enormous scope for replenishing water through recycling.

REFERENCES

Central Ground Water Board 2011. Dynamic Ground Water Resources of India (As on March 2009). Ministry of Water Resources, Govt. of India.

Gore, P.G., Thakur Prasad, and H.R. Hatwar, 2010. Mapping of Drought Areas over India. National Climate CentreOffice of theAdditional Director General of Meteorology (Research), India

Government of India 2012. National Water Policy. Ministry of Water Resources, New Delhi.

Meteorological Department R&D Advisory Committee on Ground Water Estimation 2009. Status report on review of ground water resources estimation methodology.

NABARD 2006. Review of methodologies for estimation of ground water resources of India. Technical Services Department, NABARD, Mumbai

Todd, D.K. and Mays, L.W. 2005. Groundwater Hydrology. John Wiley & Son

World Bank, 2010. Deep Wells and Prudence: Towards Pragmatic Action for Addressing Groundwater Overexploitation in India.

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