WATER CRISIS IN METRO CITIES OF INDIA: NEED A MANAGEMENT SYSTEM

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INTRODUCTION:

Among the different component of natural environment, water is the most important component. Adequate supply of the safe water is essential for maintaining the health and sanitary conditions. Not only this, water as the natural resource has influence on almost every aspect of the development. Many people in the developing world are unable to get enough water to meet their basic requirement for drinking or other essential purpose. India is considered rich in terms of annual rainfall and total water available at the national level; however, the uneven distribution of the resource cause regional and temporal shortage of water. The rapid increase in the country's population, from about 343 million at the time of independence to over 1000 million in 2000, accompanied by the growth of agriculture, industrialisation, rapid urbanisation, economic growth and improved access to the basic services has resulted in an increase in the demand of water. The widening gap between the demand and supply has led to a substantial increase in the share of ground water consumption by the industrial, agricultural and domestic sectors. Sporadic urbanisation is mainly responsible for the inadequate supply of the portable water. Most of the cities in India is depend on the monsoon. Therefore uncertainty or delay in the monsoon create adequate water crisis in Indian metro every year. Proper and efficient water supply is necessary to solve the problem. The purpose of the sustainable water management is simply to manage our water resources while taking into account the needs of present and future user.

OBJECTIVES:

The several precise and rational objectives have been followed for the maintenance of the quality of water.

To supply the fresh and portable drinking water to everyone.

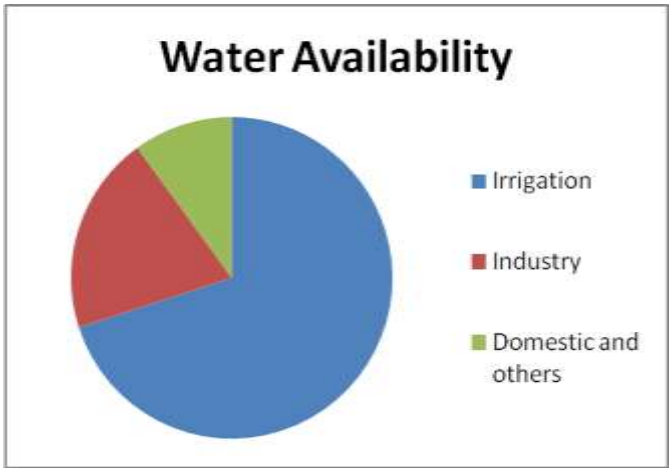
- To stop the misuse of water mainly in the metro cities.
- To supply adequate amount of water in the industrial sector.
- To take proper management of the waste water in the metro region.
- To make the proper balance between the demand and supply of the water.
- To create awareness among the people regarding the maintenance of the quality of environment.

METHODOLOGY:

The methodology is based on the literature study and own assumptions.

FINDINGS:

Today, we are living in a world of shortage water. Every year 100 million additional people on the planet earth put a demand on water resources. Many people in the developing world are unable to get enough water to meet their requirement for drinking or other essential purposes. Most of the rivers of the world remain dry during a part of year or have a little water or no water when they reach the sea. Approximately 70% of water used worldwide is for purpose of irrigation, 20% is used by the industry and the rest for domestic and other purposes.



Water management requires special efforts especially for water short basins. Besides providing water to households both in villages and cities, adequate water supply is essential for the nation's industries. In developing countries, in early phases of development , water demand always increases. Development of the water resources will continue to rise if we have to attain higher industrial and economic growth. Since the last few years, there has been a shift in water management from the perception that the fresh water is a free and abundant resource to that of water being a economic good in a scarce supply, threaten by pollution. The challenge of sustainable water use is serious, particularly in developing countries grappling to enhance standard of living and economic growth. As per the Indian constitution, water and sanitation are state subjects, empowering the state to enact laws. Planning and implementation of water development projects is currently handled both at centre and state level. India is considered rich in terms of annual rainfall and total water resource available at the national level, uneven distribution and uncertain in monsoon cause shortage of water.

Water Crisis In Indian Scenario: availability

India average annual rainfall is 4000 billion cubic metres (BCM) is unevenly distributed. With 75%of the rainfall occurring over four monsoon seasons and the other 1000 BCM spread over the remaining eight months, our river carry 90% of the water between June to November. Thus only 10 % river flow is available during the other six months. The country's total water requirement is projected to grow to1180 BCM by the year 2050 as against 629 BCM in 1997-98. It is not that drying up of the rivers leads to the shortage of water for human needs only, but it also leads to the destruction of the ecosystem. Water shortage which used to be a local phenomenon, has now become a matter of concern and

conflict across the border area. If the demand of water keep on increasing due to the urbanisation, industrialisation and consumerism, the future wars might well be fought over water.

Water problems in metro city in India:

Many rivers in India have sacred names. Yet they have been subjected to misuse and converted into polluted water bodies. Most of the metro cities of the India have a intense water crisis manly due to the sporadic urbanisation.

- **KOLKATA:**

Hoogly river is the main source of water for Kolkata metropolitan region. Siltation and reduction in flow pose problem for Kolkata port and civic life in the metropolitan area. Ground water is also not a dependable source due to detoriation in quality and quantity. A well planned organised and efficient management of water resource and water disposal is needed for environmental and ecological stability. The problem of drinking water mainly due to the siltation in the Bhagirathi and Hooghly river channel and another reason is sporadic urbanisation. Several million people are migrated from Bangladesh in 1947. Urban centre grow sporadically, not confirming to any scientific and master plan. This cause severe strain in existing infrastructure and development of new urban centre also cause a great problem. Absence of sewage disposal in the unplanned settlement caused pollution of the river.

- **MUMBAI :**

Mumbaikars battle for water every year. The city receives water supply from six lakes. Monsoon water is the main source of water in Mumbai, because ground water is not available. The civic administration has already imposed 10% water cut in the city. Normal supply around 3400 million litres/day and able to supply 3250 to 3300 million litres/day. If moon is late or not sufficient, city has suffered a lot due shortage of water. People of the city have to buy their daily quota of drinking water. Some of them beg that administration should not cut the supply as buying water is beyond them.

- **DELHI:**

Delhi jal board is the main source of water of the capital of our country. It represent 75% of population. High risk of pollution of the water from hand pumps tapping the shallow aquifers, this can be interpreted as a complete lack of access to safe water from the network for this part of population.

- **CHENNAI:**

The present supply 103 million litre /day. Chennai depends on monsoon water. The monsoon failed in 2002 and 2003. In 2003 Chennai received only 280mm of rain from the northeast monsoon against normal of 580mm, a deficit of 55%.

Every Drops Counts:

It is known that population growth and economic development are affecting the environment. Water crisis is become the main problem of every city. Due to urbanisation quantity and quality of the water has been degraded. We need a proper management to balance between the high demand and limited supply. The purpose of sustainable water management is simply to manage our water resource while taking into account the needs of present and future user. For an ideal management of the water resource, we need to follow some steps like identify management setting, asses water resource, monitor and review performance etc. Management of shortage of water and management of water pollution are complex tasks. These issues are drawn the attention of both developed and developing countries as well as various national and international organisations including Johannesburg Summit,2002. The year 2003 was declared as the year of fresh water.

In India a 'Water Quality Assessment Authority' has also been established under the environmental protection act, 1986. The Central Ground Water Board , constituted by the Central Ground Water Authority for regulating the development and management of ground water resources, has notified and banned the fresh bores in areas affected by ground water depletion. The authority is also promoting rainwater harvesting and artificial recharge projects and has circulated guidelines for implementing artificial recharge project.

Application of Remote Sensing and GIS:

We need a proper management to reduce the crisis of water all over the world. There is always a scope for developing or adopting appropriate water management strategies involving the GIS and remote sensing. GIS with its upcoming advanced technology has been a great asset for the advanced management system. Remote sensing and GIS has the potential to improve the water management quality.

CONCLUSION:

Water is a very scare commodity and unless it is properly managed, one can not avoid adverse and paradoxical situations, but we can reduce the problem with the help of the advanced technology and proper management system. Every country should take management programme for the maintenance of this natural resource. Water is the lifeline for all living being, every drop is the boon for our life. We should maintain the quality of water for the survival of our next generation. Public participation and application of advanced technology is necessary for better future.

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Bi -monthly Journal