

Water Crisis in Pakistan: Management and Remedial Measures

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Abstract

Water insecurity is defined as the lack of a reliable source of water, of appropriate quality and quantity to meet the needs of the local human population and environment. As economic development continues, water consumption increases - and thus this is becoming a long-term cause of water insecurity. Pakistan is already the third most water-stressed country in the world. Its per capita annual water availability is 1,017 cubic meters - perilously close to the scarcity threshold of 1,000 cubic meters. Back in 2009, Pakistan's water availability was about 1,500 cubic meter. Pakistan ranks nine in the list of top 10 countries with lowest access to clean water where 21 million of the total population of 207 million does not have access to clean water. We need efficient and integrated management of water in view of its increasing demands vis-a-vis depleting reserves. God has created this commodity according to the requirements of mankind. However without management, it is not sustainable

Key Words: Water Crisis, Pakistan, water Scarcity, International Monetary Fund (IMF)

Introduction

Water insecurity is defined as the lack of a reliable source of water, of appropriate quality and quantity to meet the needs of the local human population and environment.

It is often caused by water scarcity, which can be both physical and economic - and thus caused by either physical processes or humans.

It is important to note that water insecurity is not a global issue, but hugely impacts specific countries and regions, due to their physical location, and level of economic development.

These are the terms that needs to be further taken into account to make sure that water is stored in a good way and to overcome needs of water .

Economic water scarcity can be attributed to a lack of investment in necessary water infrastructure, for both transportation and supply. This can negatively impact the water quantity, resulting in insufficient water supply to meet the needs of the human population.

As economic development continues, water consumption increases - and thus this is becoming a long-term cause of water insecurity.

Physical water scarcity can be attributed to several key causes, beginning with the lack of global freshwater. Freshwater makes up approximately 1% of the water on Earth, meaning freshwater is already limited.

Population centers which are not located close to water sources are at a higher risk of experiencing water insecurity, due to not being able to easily access the water supply

The following are the physical causes of water crisis:

Rising temperatures, due to climate change, causing more and more water sources to dry up - and thus hugely limit water quantity.

These are some of the main physical causes of water scarcity, which are increasingly leading to increased water insecurity across the world.

Effects of water Scarcity

Several principal manifestations of the water crisis.

1. Inadequate access to safe drinking water for about 884 million people

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2. Inadequate access to sanitation for 2.5 billion people, which often leads to water pollution
3. Groundwater over drafting (excessive use) leading to diminished agricultural yields
4. Overuse and pollution of water resources harming biodiversity
5. Regional conflicts over scarce water resources sometimes resulting in warfare.

Causes of Water Scarcity

- Overuse of Water
- Pollution of Water
- Conflict
- Distance
- Drought
- Governmental Access

According to International Monetary Fund (IMF)

Pakistan is already the third most water-stressed country in the world. Its per capita annual water availability is 1,017 cubic meters - perilously close to the scarcity threshold of 1,000 cubic meters. Back in 2009, Pakistan's water availability was about 1,500 cubic meter. Pakistan ranks nine in the list of top 10 countries with lowest access to clean water where 21 million of the total population of 207 million does not have access to clean water.

Sources of water available in Pakistan are rainfall, surface water available in rivers and underground water. After the Indus Basin Treaty with India, water of only two rivers i.e. Jhelum and Chenab is available to Pakistan while the availability of water in the remaining three rivers i.e. Ravi, Sutlej and Bias depends on the will of India.

Why We Need Water Management?

"And among His signs is that He shows you the lightening, for fear and for hope, and He sends down water (rain) from the sky, and therewith revives the earth after its death. Verily, in that are indeed signs for a people who understand." Al Qur'an (Surah Ar-Rum, Verse 24)

Water Management Problems of Our Urban Areas

Our urban areas have grown out of proportion to the availability of services, especially the supply of fresh water. Even within the cosmopolitan cities like Karachi, Lahore, Islamabad etcetera there are certain pockets which are over populated than adjacent

colonies. To manage water supply to such a large population, all put together at one place, is a gigantic task which needs enormous resources and superior management and administration. Their maintenance is even difficult through heavy traffic and population, especially in narrow streets and apartments. Secondly, we do not have distinction between drinking water and the water required for gardening / vegetation. Water supply system is the same from where consumers take water for drinking, bathing / washing as well as for gardening etcetera. Whereas water requirements of both the categories are different, but our supply system is the same. In this way, we waste precious drinkable water for washing and vegetation etcetera. Furthermore to the wastage of fresh drinkable water, we do not have the accountability mechanism of water consumption. With negligible water tax, our consumer has unlimited supply of water at his disposal according to his status / approach to the concerned departments. In the same colony / street, one may find people without water even for drinking purpose and certain privileged ones having overflowing water in excess to their lawns and gardens.

Water Management Problems of Our Rural Areas

Our Rural Areas have also expanded over larger areas with new settlements, particularly of those who migrate from village to village in search of livelihood. Wherever they find a suitable place, get settled, may it be the river bed or under a bridge. Thereafter these settlements start growing in size and turn into villages and towns. Most of the settlements and villages washed away in the recent floods have been those constructed in the river beds and low lying areas. There are basically two issues with the availability of water in rural areas. One is the increase in population exerting more demands of water supplies and shrinking water sources closer to populated areas. Secondly, over pumping has lowered the water table in certain areas and now it is getting deeper and deeper, making it almost impossible to get more water even with better technologies. The water available on the surface of the earth is either the rain water accumulated in natural and manmade ponds or river water which flows in various canals. None is drinkable till the time it is cleaned and made usable.

Remedial Measures to Overcome Water Crisis in Pakistan

We need to undertake certain concrete measures,

some of which are as listed below: □ Regular maintenance of canals and other water channels to maintain unobstructed water flow is the first step to reduce seepage. What happens is that with the passage of time, sedimentation results into silt pockets which accumulate more and more silt and create such mounds. These mounds of silt grow in size with the growing of grass and bushes upon them and become major sources of obstruction in the flow of water. The accumulated water around the silt mounds exerts pressure sideways and results into seepage. Their regular maintenance would ensure uninterrupted water flow, hence less seepage and consequently the wastage. □ Construction of roads and tracks on both sides of the water channels and their permanent use is another way of reducing seepage. With strong and level embankments on either side of the water channels, the construction of roads / tracks is easy apart from its scenic beauty. Their permanent use would ensure continuous pressing of the earth surface thereby reducing seepage of water to a great extent. □ Providing an alternate source of water to the grazing animals is another very important step towards protecting the banks of water channels. The grazing animals cause enormous damage to the water channels in terms of their obliteration and consequently outflows of water. Animals like buffalos, particularly when those are in large numbers damage the banks of irrigation network and at the same time obstruct water flow when they sit inside the water channels. This results into erosion of banks, silting of the beds and ultimately wastage of water in the form of outflows and seepage. Construction of ponds for the grazing animals at appropriate places adjacent to the water channels would reduce the water wastage as well as damage to the banks of canals etcetera. These ponds would have controlled links to the canals to allow fresh water to flow inside when required. □ Selective brick linings, particularly in areas which have been

affected by rising water levels leading to water logging and salinity is a cure to revive the sick land. The selective brick linings will stop the further seepage. The already effected land can be cured through pumping out of the seepage water and removal of salinity by various means like suitable plantation, use of curing fertilizers and covering the surface with fresh earth. Brick lining reduces the seepage by blocking the porous surface and facilitating free flow of water which reduces pressure on the side banks.

Conclusion

Today our country is facing acute water shortage. Therefore, building of more reservoirs and an effective management strategy are the needs of the time. But present water shortage has been threatening the federal structure of the country. More land under cultivation will result in more demand of water for crops. Our reluctance to treat water as economic good and inadequate recognition of the environmental concerns associated with current practices has led us to catastrophic situation. Further more its remedy is an urgent one, otherwise it could trigger water riots and finally lead to social catastrophe. Since no additional water is available, it is the time to recognize our responsibilities and start taking steps in the right direction. We need efficient and integrated management of water in view of its increasing demands vis-a-vis depleting reserves. God has created this commodity according to the requirements of mankind. However without management, it is not sustainable. Our religion, Islam also teaches preserving this essential natural commodity. The Holy Prophet Muhammad (Peace be upon him) prohibited misuse of water even while making ablution for prayers, saying that the one who exceeds repetition of washing hands and feet more than three times is the one who exceeds the limits which is bad and not liked.

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