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Where did the water go?

Page No.20 Col NO.03

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We as Pakistanis have of late become painfully aware of the water crisis facing our country. As per the findings of world's leading organisations such as the IMF, PCRWR and UNDP, by the year 2025, Pakistan is set to become a water-deprived nation.

Historically, I believe that there are few nations as resilient as Pakistan, as evidenced by various crises we have weathered over the past. This despite the fact that our leaders have done little to insulate us from the myriad issues we have faced over the course of our existence. Take for example the fact that our various leaders have been aware of the Water Stress Line effects since the early 1990s, and many experts have predicted that we would soon run out of water, as the Water Scarcity Line in the early 2000s would continue to present major problems for the availability of water in Pakistan. Even now, it is the Supreme Court's special initiative to address the water shortage that has brought this critical issue to the forefront.

We may very well be the only country in the world which has managed to waste water worth US$70 Billion annually, dumping it into the ocean due to the non-construction of water reserves. We have never created an effective strategy for the storage of water and have used water abundantly without worrying about the consequences. At the time of Independence, the average water available to Pakistanis was about 5000 cubic meters per person; this has now been reduced to 1000 cubic meters per person. We use 40 gallons of water on average to wash a car, not thinking of the repercussions. Our mega dams' (Tarbela's and Mangla's) capacities continue to erode due to sedimentation and silting. We can only store one month's water demand as compared to India, which can meet water demand for more than six months. We have managed to increase our population growth while decreasing the overall agriculture rate due to water shortages. Even though we receive over 140 million acre feet of water, we save only 13.7 million acre feet. In the kharif season alone, 5% overall decline in the total water supply has been witnessed between the 1962 and 2012, but no specific and detailed measures have ever taken place to understand the significance of this impact.

In the 1960s, the Indus Water Treaty provided Pakistan with the exclusive rights to three western rivers, mainly Chenab, Jhelum, and Indus. But we have done very little to take proactive measures since the inception of this contract. Meanwhile, our neighbours started violation of the contract and built dams on these rivers, which further augmented the problem. Furthermore, we have been unable to share our predicament at the international level, which could have garnered foreign support and perhaps improved the situation.

We must understand that the current water crisis is of our own making and a direct result of our actions and inactions for the past five decades. We have bankrupted ourselves by using this vital resource excessively and now we are ranked in the top 5 countries of the world with the highest water usage rate. A comprehensive campaign needs to be set in place which is all-encompassing and initiated by the government to address this issue at all provincial levels and cascading down to each citizen of Pakistan. It is only when each Pakistani is mindful of the usage of water that we can reap the rewards in the long-term.

The newly-formed federal government of PTI must propel the provincial authorities to come up with a comprehensive programme which could address this problem swiftly at the provincial level. This will include the creation of smart dams and reservoirs which could efficiently use the water supply and have a major impact on our agriculture production. Our agricultural sectors provide 47% of employment and over 60% of exports are related to agriculture products. This means that despite having one of the largest canal irrigation systems, we have failed to manage it effectively in the last two decades. Measures such as cementing of canals could have greatly reduced water seepage and ensured efficient use of water for irrigation. These projects have to be driven by the percentage of efficiency they will induce in the supply of water, irrigation, and drainage along with the creation of a comprehensive ecosystem which could include the use of sprinklers, management of the ground water depletion, soil fertility improvements, and building of environmental monitoring which could further add to the capability and capacity enhancements for building water and soil conversations to enhance agriculture and use water smartly.

In Pakistan, rapid urbanization will continue to trigger further risks for the consumption of clean water and its wastage. Karachi is a classic example of this dilemma. This city requires 1,100 million gallons of water per day whereas it can produce only 50% of the required rate. Similarly, Islamabad requires 176 million gallons per day and gets only 84 million gallons per day. This is because water management has never been a critical part of the urbanization strategy with regards to these cities. Today, we find that water mismanagement is the source of major diseases such as hepatitis, dengue, malaria, and the primary cause of high mortality rate of children under five.

Moving forward, we must build eco-friendly solutions within our major cities to conserve water. These could include rainwater traps which recycle grey water to be used for toilets and dishwashers, thus reducing the fresh water usage. Our city municipalities need to come up with policies using social media to enhance the “smart usage of water” campaigns and leverage key assets such as schools and mosques to propagate this message. This will include the effective use of sewage water and its planning, prudent use of weather variabilities, efficient management of the local treatment plants, a stringent risk-based asset management framework and working with local communities and councils to create awareness for water consumption.

Climate change is a real threat in today’s world. In our own hemisphere, we are seeing the effects with rapidly eroding glaciers, inconsistent heat waves, enhancements of salt

water intrusions in coastal areas, as well as changing rain fall patterns in the monsoons and during the winter. We as a nation have not understood the importance of climate change and failed to incorporate it into the nation's water strategy. Pakistan loses 42,000 hectares or 2.1 percent of its forests every year. We have the highest annual deforestation rate in Asia. Experts have warned that Pakistan will run out of forests within the next 50 years if deforestation continues at the current rate. When Pakistan gained its Independence in 1947, 33% of the country was covered in forests. But according to the Ministry of Climate Change, in 2015, only 5% of the country now has tree cover. International standards suggest that forestation must be 25% of the land of any country.

The real effect of climate change will be faced by the Pakistani agriculture community due to greater competition for water as the temperature increases and the population expands. This ultimately will have an impact on the production of cash crops which include wheat, rice, sugarcane, cotton etc.

Energy production will also be majorly affected, as thermal power production is highly dependent on water. The uptake of sustainable irrigation practices of small hold farmers, along with focus on post-secondary education to provide the required awareness, will be necessary. It will be important for the government to invest in technology which could provide data analytics to further enhance and assist researchers, scientists and academia to assist in this regard. Thus, the new government must take climate change seriously and has to make it a vital component of the nation's water strategy.

Energy and Water are two fundamental ingredients of modern civilization. Without energy, we will be unable to run computers, manufacture products or power households. Without clean water, life cannot be sustained. As Pakistan's staggering population multiplies in number and affluence, demand for both resources is augmenting faster than ever, with far-reaching implications for both water scarcity and higher levels of global warming pollution.

Dolefully underappreciated, however, is the fact that these two resources oftentimes compete with one another. We consume huge amounts of water to generate energy, and we consume vast amounts of energy to process and extract clean water. With increasing frequency, Pakistan is valuing energy production over water protection.

With the initiatives given in this article, water conservation can be transformed into a sustainable practice and expanded with the increasing population. But to fulfill the promise of this sustainability, change must take place on a massive scale and on a national stage. Whether it takes place in the field or in the laboratory, we need nothing less than a revolution in our current paradigm about water and its retention. With collaboration of the newly formed government and international organisations, we may just ensure the most vulnerable citizens have enough water to drink, while preserving the ecosystems that cradle us all.

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