

Water Crisis in Pakistan



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Pakistan, which inherited the Indus Valley Civilisation, is home to world's fifth largest nation of 241.49 million people. Pakistan's Over the last few decades, its water resources have come under considerable strain because of population growth, urbanisation, and climate change and poor management of water resources causing a crisis as the availability of per capita water has decreased to slightly less than 1000 cubic metres from above 5600 cubic metres at the time of its inception. This crisis is adversely affecting the life of people and calls for immediate measures to avert the worst consequences. The experts have marked the year 2025 when Pakistan will turn from a "water-stressed" country to a "water-scarce" country with just 860 cubic meters of water per capita. Over 80 percent of the total population in the country faces 'severe water scarcity' for some time of the year. The situation is strategically more complicated, as Pakistan is the lower riparian country to India and 78 percent of its water inflows from there. Moreover, only two-thirds of available water is being utilised while one-third of the water is either lost or discharged into the sea. This dire situation calls for revolutionary measures to avert an impending humanitarian crisis owing to shortage of water. This essay will look into the causes of water crisis, assess its harmful effects on the biodiversity and finally enumerate some pragmatic solutions to evade the harmful effects of water shortage.

Why is Pakistan getting water scarce? There are several causes behind this phenomenon. Some of these causes are natural and some are anthropogenic. Among natural causes are climate changes and global warming. Pakistan is among 10 countries affected most by climate change, according to the 2018 Global Climate Risk Index released by the public policy group Germanwatch. This climate change is causing erratic monsoon rains, which in turn cause frequent and intense floods and droughts. Global warming is causing recession of the Hindu Kush-Karakoram-Himalayan glaciers threatening water inflows into the Indus River System causing increased siltation of major dams leading to decrease in their capacity to store water. According to a 2015 IMF report, the demand for water is on the rise and is projected to reach 274 million acre feet (MAF) by 2025, while supply is expected to remain stagnant at 191 MAF, resulting in a demand-supply gap of approximately 83 MAF. The water consumed by metropolitan

households is majorly coming from underground aquifers. The researchers studied 37 of the largest aquifers of the world between 2003 and 2013, and found the Indus Basin aquifer the second-most overstressed, and being depleted without getting replenished. Pakistan is currently extracting 50 MAF from underground aquifers. This has already crossed the sustainable limit of safe yield.^[1]

The greatest anthropogenic cause is wastage of water. Poor agricultural techniques and inefficient water management are among the major reasons of wastage of water in agriculture. About 80 percent of the crop area in Pakistan is irrigated by canals and wells and only 15pc of the water used for crops is from rains.^[2] Pakistani farmers produce rice and sugarcane which are water intensive crops. Our National Water Policy (NWP) acknowledges that irrigated agriculture is the backbone of the economy and consumes around 93 percent of the water resources. Moreover, 45 percent of the water withdrawn for use in the agricultural sector is lost through leakage and seepage in the unlined canals.^[3]

Rampant urbanisation in Pakistan is also one of the major causes of water scarcity in the big cities and metropolitans as provision of potable water to urban households is a daunting challenge. The water consumed by metropolitan households in a country of above 241 million people is majorly coming from underground aquifers. Over 60 percent of irrigation, 70 percent of drinking water and 100 percent of the industry in the country depend on it. City dwellers squander huge amounts of freshwater to wash millions of motor vehicles and thousands of acres of paved surfaces and floors. 92 percent of urban water is wasted without recycling.^[4]

In addition, Pakistan has lack of water storage facilities. Pakistan is already behind time as regards construction of dams to store water. Kalabagh Dam is a special case in point. Pakistan did not prove to be prudent enough to construct smaller dams when such a mega dam became unfeasible. To compound the problem, silting of the already constructed dams is also causing a substantial decrease in their storage capacity. The gravity of this situation can easily be understood by considering decrease in water storage capacity of Tarbela Dam, which has been reduced by 40.58 percent owing to silting in the reservoir.^[5] Currently, both Mangla and

Tarbela dams can store up to 14 MAF of the 145 MAF that annually flows through the country^[6]. Consequently, there is water storage for only 30 days. This is alarming for every Pakistani.

The water crisis is a cause of great concern for the people of Pakistan as it is badly affecting not only the people's health and life but also the economy of their country on the whole. The short supply of water is causing failure of crops, death of domestic and farm animals, and migration of the people from drought-hit areas to other places which still contain some promise of sustainability.

In Pakistan, only 20-30 percent people are lucky enough to have access to safe drinking water^[7]. Not only the quantity of groundwater is decreasing but it is also being contaminated with heavy metals like copper and nickel, which are causing spread of diseases. According to a recent report of UNICEF, thousands of Pakistani children die of many lethal diseases such as diarrhoea and dysentery after drinking contaminated water each year. Water borne diseases cause about 40% of all deaths and about 30% of all diseases in Pakistan.

Nearly 65 percent population of Pakistan lives in rural areas and around 41 percent labour force is associated with agriculture. According to Pakistan Council for Research in Water Resources, Pakistan lost water worth \$ 90 billion due to floods from 2010 to 2020^[8]. In the early months of 2018, the shortages of surface water for agriculture in different provinces reached an alarming level of 60 percent, which was a serious threat to sowing of Kharif crops jeopardising rice, sugarcane, cotton and maize crops. Resultantly, the Indus River System Authority (IRSA) decided to cut the water share of Punjab to 26,000 cusecs from 29,000 cusecs and the share of Sindh was also reduced to 17,000 cusecs from 20,000 cusecs^[9].

Scarcity of water in the Indus Basin System often increases tensions among different provinces of Pakistan. The Water Apportionment Accord apportions water of the Indus Basin among provinces as this: Punjab 47%, Sindh 42% Khyber Pakhtunkhwa, 8% and Baluchistan 3%. Of all the provinces of Pakistan, Sindh probably feels the most aggrieved because the Accord does not guarantee a minimum "environmental flow" of river water through

the province and into the Arabian Sea. Sindh worries that extraction of water for dam building and irrigation in upstream provinces will deprive Sindh of the water it needs.

Pakistan can generate above 60,000 MW electricity through hydropower generation. However, today, the total installed hydropower capacity of Pakistan is around 10252 MW, almost one-fourth of total national electricity generating capacity^[10]. The main potential sources of hydropower are the rivers Indus and Jhelum, plus sites at Swat and Chitral. However, the shortage of water in these rivers causes substantial shortfall in power generation lowering it from 33 percent to 10 percent in winter. Shortage of water in dams also causes acute shortage of electricity even in summers.

However, consolidated efforts by the people and the government can solve this problem. Thanks God, after seventy years since the inception of the country, the government finally brought forth the National Water Policy to deal with the impending danger of water scarcity. This policy must be implemented in letter and spirit for efficient water resource management. Metering all water, whether supplied to households by municipal committees or drawn through water pumps, and levying tax on water for use in households will help decrease its rampant wastage.

Building new reservoirs at all scales to store the monsoon surplus and glacial melt is the need of the hour. The drive in Pakistan to construct Bhasha Dam and Mohmand Dam through donations highlights the importance of dams to overcome water scarcity. Pakistan should also utilise all available fora and seek international arbitration to stop India from manipulating waters in Jehlum, Chenab and Neelum rivers.

We should adopt drip irrigation instead of flood irrigation methods. Bed-furrow irrigation saves 50% water losses, increases crop yield up to 20% and suits to all major crops^[11]. In addition, water intensive crops like sugarcane and rice should be grown with constraint only to meet minimum requirements of the masses. The government should also take steps to ensure reduction in water losses through seepage, leaching and percolation by lining of canals, distributaries and water channels.

Recycling of urban wastewater is also essentially needed. As mentioned earlier, around 92 percent of urban wastewater goes into sewers without recycling. If even one-third of it is recycled, it will meet the requirements for washing of vehicles and pavements and use in construction works and horticulture. People should be taught to conserve water at all levels.

Pakistan's population is expected to exceed 380 million by 2050, according to a U.N. report. Moreover, by 2025 the demand for water in Pakistan is expected to reach 274 million acre feet (MAF) as compared to 191 MAF supply of water. Availability of sufficient water resource is sine qua non for social and economic development of a country. While there is great wastage of water in the rural sector as well as metropolitans, providing potable water to the cities has become a formidable challenge. The aim of preserving water for our future can be easily achieved if the people and the government work hand in hand. The people should ensure preservation of water and the government should establish recycling plants, construct new dams and ensure reduction in system losses, treatment of industrial effluents and provision of sustainable supply of water for everyone.

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