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<https://cscr.pk/explore/themes/energy-environment/lessons-pakistan-droughts-past/>

**1. Lessons for Pakistan from Droughts in the Past** July 20, 2018 by Zahra Khan Durrani

Droughts, Pakistan, Climate Change

In a media release in June 2018, a drought alert was issued by the Pakistan Meteorological Department (PMD), alerting all the stakeholders about the limited water available in reservoirs across the country. According to PMD, moderate to severe drought like conditions are prevailing in parts of lower Khyber Pakhtunkhwa (KP), Southwest Balochistan, South Punjab, and Southeast Sindh. Islamabad and Rawalpindi have also become dry due to diminishing groundwater, as a result of excessive boring and increasing demand for water.

Droughts in Pakistan have occurred mainly because of extreme variations in monsoon rainfalls. Because of their arid and hyper-arid climate, some regions of Pakistan remain dry throughout the year, making them vulnerable to drought. By observing rainfall patterns, it can be seen that the number of rainy monsoon days have shrunk. In the last two decades, monsoon rains that lasted throughout the months of July to September, now only last till August. The intensity of these rainfalls has however increased and is a leading cause for flooding in Pakistan.

In the first five months of this year, the country saw a 45 per cent average decrease in rainfall, as compared to the average precipitation that Pakistan normally receives from January to May. The resulting dry condition in southern parts of the country caused serious water stress, especially for the agriculture sector and affected Kharif crops.

The number of deaths of children under the age of five was recorded at 326, 398, and 476 in 2014, 2015, and 2016 respectively. In 2016 the district of Thar faced 100 per cent water scarcity as it faced drought for the fourth consecutive year. Jamshoro was also at 62 per cent scarcity level. There was also a drastic reduction in crop harvest of up to 53 per cent, while livestock had reduced to 48 per cent; contributing to further malnutrition and food insecurity. According to the Indus River System Authority (IRSA), the situation improved a little because of high flooding in the river Kabul but the PMD believes that the country may already have suffered losses. To avoid further loss of crops and water stress, all the stakeholders were asked to implement ‘immediate water management strategies’, by PMD.

If we go through pages from history, we see that on a global level, the worst disasters were mostly droughts and famines. Among all the natural disasters, the impact of drought is different from other disasters: unlike floods and earthquakes that occur in a short time frame and on a specific area, droughts occur for very long periods of several months or even years and affect larger areas. On a global basis, the frequency at which drought occurs, compared to other disasters is a lot less but according to a study the causalities reported are much higher. The continuous droughts in Pakistan have been affecting the Indus Basin since the 19th century. In a report by the Economic Survey of Pakistan, the stagnant economic growth of the country has been due to many factors, drought being a major one.

The drought of 1998-2002 was the worst drought to hit Pakistan since its 50 years of existence. The province of Balochistan and Sindh were most badly affected, where 26 districts of Balochistan suffered from severe famine. In Sindh, Tharparkar was the most affected district. Hundreds of thousands of houses were damaged, thousands of acres of crops destroyed and livestock killed. This drought was estimated to have affected about a total of 3.3 million people; hundreds of which died of thirst and starvation and thousands were left homeless. It was also reported that about 30 million livestock were affected, that included approximately 2 million deaths. The availability of milk products and meat either totally vanished or reduced significantly which resulted in malnutrition and poor physical health, especially among children. The prices of livestock and related products also rose sharply because of the limited availability of stock in the area. There was loss of jobs for many people related to farming. The diet patterns of people also changed to one meal a day instead of two.

A minor drought took place in parts of Sindh and Balochistan in 2004-2005. The dry spells of 2009-2010 severely affected the province of KP and Punjab, badly affecting the country’s crop production. Since 2013, Sindh has witnessed severe drought in the desert areas of Nara, Achhro Thar and Thar, Kohistan and the Kachho region. According to an assessment by the UN in the beginning of 2014, 67 adults and 99 children died in Thar because of chronic malnutrition and other drought related waterborne diseases. The number of deaths of children under the age of five was recorded at 326, 398, and 476 in 2014, 2015, and 2016 respectively. In 2016 the district of Thar faced 100 per cent water scarcity as it faced drought for the fourth consecutive year. Jamshoro was also at 62 per cent scarcity level. There was also a drastic reduction in crop harvest of up to 53 per cent, while livestock had reduced to 48 per cent; contributing to further malnutrition and food insecurity.

Recently, another UN mission was deployed to study the conditions prevailing in drought stricken districts of Sindh. It was reported that despite various recommendations offered in an assessment conducted in 2016, no strategy was implemented to mitigate the impact of droughts, and the districts remained just as vulnerable and critical in 2017 as they did previously. These statistics however, are only from those areas where the media could gain access. Those who died in villages and private health centers could not be reported. The Chairman of Pakistan Council of Research in Water Resources (PCRWR) Dr. Mohammad Ashraf recently told the press that the Balochistan province is facing severe droughts as well, with Quetta running on water shortages of approx. 20 million gallons daily.

History provides us with ample examples to justify the need for a proper disaster management setup that specifically deals with droughts. Although it is true that impacts of climate change can never fully be mitigated, no matter how many mitigation and adaptation strategies are applied. But it is also true that the government and international donors tend to focus, and deploy, their resources more towards dealing with sudden-onset disasters like floods, than they do towards slow-onset disasters like droughts. It is also more prevalent that finances are directed towards post-disaster relief activities than devoted towards pre-disaster preventive mechanisms that make those communities resilient to disasters.

It has also been observed that the strategies used by the government so far, have been unsustainable, either because of the project’s nature, or as a result of government inefficiency. Tharparkar, which is one of the most drought prone districts of Pakistan, has time and again suffered because of poorly implemented drought risk reduction strategies. According to a research by Lead, the investments previously made to the district towards adaptation to droughts have led to more losses and socio-economic damage to the local people, than it did good.

The installation of several Reverse Osmosis (RO) desalination and filtration plants by Pak Oasis, with the help of the Sindh Government, was a relief from the hardships faced by the local people, especially in times of droughts. Operating since 2005, these plants filtered extracted salty groundwater for consumption. This provided the local people with cheap, clean water for their livelihood and sustenance. However, as of recently, more than 650 filtration plants are at the brink of permanently closing due to various operational issues. Lack of financing by the authorities for operation and maintenance, and issues of quality control are some of the reasons for this.

The Sindh Government also constructed numerous small dams across the province for storing water to be used in times of droughts, nonetheless water has been scarce since 2011. Little amount of water that is stored in these dams is consumed for agricultural purposes, leaving the local people with no clean drinking water available to them.

The Thar Coal Project, which is a pit mining project by the Sindh Government and the Sindh Engro Coal Mining Company (SECMC), has led to concerns of a further shortage of water, as the mining operations have been extracting Thar ground water. The waste deposits from this project will put the lives of people, living in 12 villages in Gorano, at stake. It will not only lead to environmental degradation and damage the ecology of the desert but will hurt the livelihood of the local people by destroying arable land that they cultivate on. The mine effluents from the coal pits is putting the lives of people, living in these villages, at stake.

Even though SECMC claims that they are only pumping 0.02 per cent of ground water which will not impact drinking water, the important question to ask is, weather coal extraction should really be taking place, considering the area is already one the most vulnerable to climate change and is always drought stricken.

In recent times, droughts have led to a rise in subnational conflicts over water availability between and within the different provinces of the country. Tensions will continue if the expansion of irrigation canals does not take place. Especially since it is predicted that Pakistan’s average temperatures will increase by 2-3 degree Celsius by 2045, according to Global Circulation Models (GCMs), and similar regional level models project temperature increases of up to 1.5 degree Celsius by 2020s and up to 2.8 degree Celsius by 2050s. It is also predicted that the intensity and severity of droughts is going to increase, along with the variability in monsoon rains.

Even though SECMC claims that they are only pumping 0.02 per cent of ground water which will not impact drinking water, the important question to ask is, weather coal extraction should really be taking place, considering the area is already one the most vulnerable to climate change and is always drought stricken. There is a serious need to refocus our disaster management strategies, from post-disaster mitigation efforts to pre-disaster preparation mechanism, so as to make communities resilient to climatic disasters. Immediate efforts need to be directed towards providing short term relief to people in drought affected regions, in the form of direct fresh water, food supplies and medical assistance.

For the long run, the government needs to invest in research and development, to come up with sustainable solutions to tackle the problem of droughts. To ensure food security, there is a need to produce drought resilient seeds for crop production, adoption of modern methods of irrigation, and specialized veterinary services to ensure health of cattle. There is an urgent need to prioritize, and devise proper water storage infrastructure, and an advanced water management system that can store and transfer water from regions where there is enough water in areas that are affected by drought. The government can use examples of various countries that are already implementing an effective water management system, and apply an indigenized model in Pakistan (one such example can be found here). With a proper plan, investmen, and a little will power by the government, it can play a significant role in dealing with droughts and in building climate resilient communities.

Dr. Pervaiz Amir, economist and environment specialist said that it took the government seven decades to formulate the National Water Policy, but no further delays should take place in its implementation as it has been predicted by PMD that the country could face extreme droughts by 2025.

**2. Severe water crisis**

Editorial Published May 14, 2022 -

<https://www.dawn.com/news/1689608/severe-water-crisis>

FOR almost two months, warnings were being sounded by experts about the impending water shortages in the country. The prognosis was expected after the country received 26pc less snowfall last winter compared to previous years, followed by a completely dry spell in March and April. That the slower melting of glaciers would intensify the shortages had not been taken into account.

Together, these factors meant that Pakistan’s rivers would run dry. In fact, the two largest reservoirs, Tarbela and Mangla, hit dead level much earlier than expected. Thus, it is not surprising that the lower riparians in southern Punjab and Sindh are facing their worst shortages in decades, with water from the mighty Indus reduced to 40pc of its normal flow.

Pictures of swathes of parched agricultural land and livestock carcasses dotting the bone-dry bed of the Indus in parts of Sindh and south Punjab underscore the severity of the crisis that farmers are struggling to handle. The situation is precarious as a very large number of people in the affected districts are on the verge of losing their crops and animals.

Worried about their crops, livestock and looming hunger, smallholders are staging protests in Sindh. There have also been isolated reports of attacks on Sindh irrigation staffers by angry farmers. The worst part of the story is that even when the glaciers start melting in the next few days, filling rivers and dams, and the monsoon season sets in, most affected farmers will not be able to recover their livelihood losses. It is almost certain that the current water shortages will persist beyond summer into winter and we may not have enough water for the Rabi crops, especially wheat, in the reservoirs, putting food security at risk.

The current situation is just another reminder that Pakistan may become the most water-stressed nation in the region by 2040 because of multiple factors, including climate change, population explosion, mismanagement of the water economy, primitive irrigation practices, an obsolete water transmission infrastructure, lack of reservoirs, etc. The country already ranks 14th among the 17 ‘extremely high water-risk’ regions in the world, a list that includes hot and dry countries like Saudi Arabia.

Pakistan’s water troubles are not confined to surface water. Groundwater resources are also severely overdrawn for irrigation. Yet no government has shown any urgency to deal with the formidable challenge to food and the long-term economic security of the country’s 220m residents. The present crisis should be a wake-up call for federal and provincial authorities. It is time they took stock of Pakistan’s biggest existential challenge and crafted holistic policies to improve governance in the water sector, built reservoirs for times of shortages, and improved the water transmission infrastructure. The authorities must realize that we are running short of time and options, just like we are running out of water.

**3. Drought in Cholistan**

**14 May, 2022** [**https://www.brecorder.com/news/40172952/drought-in-cholistan**](https://www.brecorder.com/news/40172952/drought-in-cholistan)

EDITORIAL: While the nation’s eyes are riveted on the ongoing polarized political theatrics there is hardly a mention of the severely drought-hit Cholistan. That arid stretch of land is starved of water as almost all of its 3,000 plus Tobas and Dahars have dried up and there islittle hope of rainfall in near future, or the concerned authority’s attempt at sending in water tankers to fill the dried ponds.

The inhabitants of Cholistan now no more look at the sky for clouds for rain as temperature exceeds 51-plus C. Their livestock are dying, their children getting malnourished and families moving to less-affected areas where they are not welcomed. A tragedy of biblical dimensions has befallen the people of Cholistan. Not that drought has hit Cholistan for the first time; it is a periodic calamity and it takes its due toll. But that should no more be the case.

Given the resources now available with government, the much-needed relief can reach the people. Hopefully, the emergency steps promised by the relevant authority to ensure provision of water to fill Tobas materialize at the earliest. But somebody should also go to the place and see for himself the grim realities on the ground. Perhaps, Prime Minister Shehbaz Sharif goes there as he did as the chief minister of Punjab in 2014 and helped the water-famine-stricken people of Cholistan turn to their homes, restart their lives, feed their malnourished children and quench the thirst of their livestock.

Cholistan was once a green, prosperous land fed by now extinct Harka River. It flourished as Harka Valley civilization. Its residents, also known as Odd, lived a colourful life, nurtured a distinct culture and the womenfolk wore white bangles. But they could not fight back the climate change as was the case with many other ancient cultures and civilizations.

However, the case of Cholistan is not entirely hopeless; it is a living culture and can be saved by a timely action. Of course they want to be treated as equal citizens of Pakistan, enjoy state patronage and receive fair share of its amenities. But one single move that can help them restart their lives on their own is water-filled ponds.

In a recent expose, a section of media testified the fact that scarcity of water has caused destruction of Cholistanis’ main economic asset — their livestock. Since Cholistan stretches long but is not very wide its dried ponds can be easily reached and filled with water drawn from canals in the settled districts. At the same time the government should help its people exploit its rich solar energy potential, particularly by energizing tubewells to draw out the underground water.

**4. UN lists Pakistan among drought-hit countries**

Pakistan have experienced drought emergencies in the last two years, UNCCD report

By News Report May 16, 2022 <https://www.thenews.com.pk/print/958172-un-lists-pakistan-among-drought-hit-countries>

NEW YORK: The United Nations has listed Pakistan among 23 countries on Sunday which are facing drought emergencies. According to the report released by the United Nations Convention to Combat Desertification (UNCCD) stated that 23 countries including Pakistan have experienced drought emergencies in the last two years.

The 23 countries listed by the report include Afghanistan, Angola, Brazil, Burkina Faso, Chile, Ethiopia, Iran, Iraq, Kazakhstan, Kenya, Lesotho, Mali, Mauritania, Madagascar, Malawi, Mozambique, Niger, Somalia, South Sudan, Syria, Pakistan, the United States and Zambia.

The report also stated that an additional 4 million square kilometres will need to be rehabilitated by 2050 while emphasising the need to provide immediate funding to developing countries. United Nations Global Land Outlook says about Pakistan that desertification Control through Sustainable Land Management Productive land is scarce in Pakistan – 80 percent of the country is arid or semi-arid. Land degradation and desertification are caused by unsustainable land management practices, coupled with increased demand for natural resources, and driven by a rapidly growing and largely rural population dependent on dry lands for their livelihoods.

To address these problems, in 2007, the Pakistani government began implementing a Sustainable Land Management program across nine dry land districts. Over eight years, 120 square kilometers of degraded rangeland were rehabilitated through reseeding and community-based grazing management, and a further 80 square kilometers under sustainable rainfed agriculture and water conservation measures.

In 2015, the project was extended and rolled out more widely, utilising water control and storage structures, creating shelterbelts and rangeland management plans, restoring degraded dry land forest (e.g., community tree nurseries and plantations for domestic fuel), and implementing sand dune stabilisation measures. As a result, some 13,000 households directly or indirectly benefited from nearly 200 square kilometers of improved land health, better access to water for livestock, and reduced wind erosion. This success of the program inspired the Billion Trees Afforestation Project in Pakistan’s mountainous Khyber Pakhtunkhwa, which saw 3,500 square kilometers of forests and degraded land restored in just two years.

In 2018, the popularity of this initiative gave impetus to the world’s largest reforestation initiative — the Ten Billion Tree Tsunami Programme – as part of a suite of nature-based solutions to fight desertification and climate change in Pakistan. In the province of Balochistan, Pakistan, indigenous management techniques, known as the karez system, utilize tunnels that follow a natural gradient to deliver groundwater without employing mechanical energy