Policy Brief

ADDRESSING THE DRINKING WATER CHALLENGE IN PAKISTAN

November, 2018

CRCP
CONSUMER RIGHTS COMMISSION
OF PAKISTAN

Policy Brief
on
Addressing the Drinking Water Challenge in Pakistan

November, 2018

Published by:
Consumer Rights Commission of Pakistan (CRCP)
Islamabad, Pakistan
Tel: 0092-51-111739739; Fax: 0092-51-2825336
Email: info@crcp.org.pk; Website: www.crcp.org.pk

ISBN: 123-565-789

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Introduction

Pakistan is among 37 countries of the world that has extremely high levels of water stress[1], which causes deterioration of fresh water resources in terms of quantity and quality[2]. The World Resource Institute (WRI) projections categorize Pakistan in the category of 'extremely high level' of *water stress*, if it continues to do business as usual[3].

Over the years, the demand for water has significantly increased to meet the requirements of a rapidly growing population in the country. According to international standard, 1000 m^3 (Cubic Meter) per capita is considered as the value for water scarcity, and per capita availability of water in Pakistan has already dropped to merely 1038 m^3 per capita. Experts are of the opinion that it will further decline to only 751m^3 by the year 2030[4]. Further, the un-regulated exploitation of groundwater resources is leading to depletion of groundwater aquifers. Consequently, large areas are not receiving enough water supplies. Apart from inadequate water supply, the quality of water being supplied to the consumers is poor. Pakistan is among top ten countries of the world having lowest access to clean water[5]. According to World Health Organization (WHO), only 36 percent of the population in Pakistan has access to safe drinking water[6]. There is a vast discrepancy between rich and poor regarding access to water in Pakistan where richest have more access to clean water as compared to the poor.[7]

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[1] It is a condition when the demand for water exceeds the available of water during a certain period or when poor quality restricts its use

[2]World Resources Institute (WRI), *Water Stress by Country*, https://wriorg.s3.amazonaws.com/s3fs-public/water_stress_by_country_0.png?_ga=2.240251205.753526686.1542589510-975768878.1542589510

[3] WRI (2015). *Aqueduct Projected Water Stress Country Rankings*. Technical Note. [online] World Resources Institute (WRI). Available at: http://www.wri.org/sites/default/files/aqueduct-water-stress-country-rankings-technical-note.pdf.

[4] Allah Baksh Sufi, et al., Integrated Water Resource Management in Pakistan" *Symposium on Changing Environmental Pattern And Its Impact With Special Focus On Pakistan* 33, No. 286 (2011):35-49.

[5]WaterAid (2018).*The Water Gap - The State of the World's Water 2018*. [online] Available at: https://washmatters.wateraid.org/sites/g/files/jkxoof256/files/The%20Water%20Gap%20State%20of%20Water%20report%20lr%20pages.pdf.

[6]Pakistan Today (2017).*WHO report deems safe drinking water a luxury for numerous Pakistanis*. [online] Available at: https://www.pakistantoday.com.pk/2017/11/06/who-report-deems-safe-drinking-water-a-luxury-for-numerous-pakistanis/.

[7]WaterAid (2018).*Opcit*.

The poor quality of drinking water is leading to deteriorating health conditions of people in the country and resulting in high incidence of waterborne diseases which in turn increases morbidity and mortality rates. According to reports, water contamination is causing 30 percent of all diseases and 40 percent of all deaths in Pakistan[8]. The unavailability of water and water contamination also poses major threat to the survival and development of children. It significantly contributes to the high infant mortality rate, stunting, and child sickness. An estimate reveals that deaths due to water contamination result in income losses of Rs. 25-58 billion annually accounting for approximately 0.6-1.44% of Gross Domestic Production (GDP) of Pakistan[9].

Water and hygiene related diseases are costing Pakistan's economy annual national income losses of US$380 to US$883 million of the GDP while 250,000 children less than five years of age die every year in the country due to diarrheal diseases[10]. More than 50-60 million[11] people in Pakistan are at risk of arsenic poisoning from contaminated groundwater[12]. This number is alarmingly high and demonstrates the urgent need for verification and testing of all drinking water wells in the Indus Plain, followed by appropriate mitigation measures.

The situation calls for urgent and concrete technical and political governance solutions to safeguard safe drinking water for people of Pakistan. This policy note is seeking to alert policy makers, address vital issues and suggest possible solutions. Consumer Rights Commission of Pakistan (CRCP) furthermore suggests participatory consultations with consumers, politicians, newly elected parliamentarians, bureaucrats at all levels and other stakeholders to open up smart, efficient and relevant solutions.

[8]United Nations. *Impact Assessment Report: Handpumps/ Waterwells.* Available at: https://humanappeal.org.pk/Reports/clean%20water%20report.pdf.
[9]Daniya, K. (2017). *Pakistan's National Water Policy*. The Express Tribune. [online] Available at: https://tribune.com.pk/story/1469030/pakistans-national-water-policy/.
[10] Economic Survey of Pakistan 2015-16
[11] Joel, 2017
[12] This study is based on samples from 1,200 wells across the country, with hot spots around Lahore and Hyderabad.

Legal Framework, Current Situation and Cause

A. Legal Responsibility and International Commitments

The constitution of Pakistan states that "*no person shall be deprived of life or liberty save in accordance with law*" (Article 9). Water is a basic need for living, which implies that it is the responsibility of the state to provide clean drinking water. Legal frameworks for protection of consumers are available but right to safe drinking water still needs to be recognized in clear terms in the constitution of Pakistan.

In Water Act of Federally Administered Tribal Areas (FATA) (DWP -FATA, 2014), water was mentioned as a fundamental human right; however, since FATA has been merged in to the province of Khyber Pakhtunkhwa the act has become secondary.

Pakistan's commitment to the global Sustainable Development Goals (SDGs) is a positive signal for consumer's protection. The country has also established SDG's Office at Ministry of Planning Commission and has internalized the SDG's as National Goals. Especially, goal 6 is about *ensuring availability and sustainable management of water and sanitation for all by 2030*. Under the goal, there are several targets such as 6.1, which states: *by 2030, achieve universal and equitable access to safe and affordable drinking water*.

In 1992, Pakistan signed The Dublin Statement on water and sustainable development, in which they agreed to four principles; 1) freshwater is a vulnerable resource; 2) water development and management should be based on a participatory approach to include all users; 3) in particular women; and 4) water should be recognized as an economic good, subject to the provision that basic rights of all human beings to have access to clean water and sanitation at an affordable price is recognized[13]. These principles leave room for fundamental debates in any nation state on how to govern. It opens up for further questions to be decided upon such as: *a) who is responsible for regulation of the vulnerable resource of portable water, and how can those institutions be strengthened?; b) how can participatory approaches improve the management of drinking water and how?; and c) How to price vulnerable scarce water in a country with 30 percent people living below the poverty line?*

[13] The Dublin Statement, 1992

B. Situation on Ground: Water Quality, Access and Price

There are public schemes which mainly include tap water, tube-wells, public filtration plants etc. Public schemes do not cover the entire country; even the quality of water supplied is not satisfactory. A national assessment survey of the water supply schemes indicates that out of 12,000 reported and 10,161 surveyed schemes, only 7,310 are functional. According to the Pakistan Council of Research in Water Resources (PCRWR) annual report, 2013-14, out of 2,859 collected samples, approximately 70 percent the samples of water in Sindh and Punjab are unsafe[14]. Also, the provinces are affected by groundwater contamination. A survey conducted by PCRWR tracked contamination in majority of groundwater in Quetta, where 81 percent of water samples got bacteria and 6 percent of water samples had turbidity, which makes it unfit for human consumption. Safe drinking water is not available to 84 percent[15] of the population. In rural areas there are private solutions such as tube-wells, dug-wells. The shortfall is met by market solutions including water tankers and bottled water.

Private sector has its own set of issues pertaining to quality and pricing. Some bottled companies are operating without registration with Pakistan Standard and Quality Control Authority (PSQCA), which was established to protect consumers against unsafe drinking water. The authority is primarily responsible for fostering and promoting standards and conformity assessment, ensuring the health and safety of the public, protecting the consumers, facilitating domestic and international trade[16]. However, PSQCA seems to lack enforcement remedies, when some manufacturers are "*placing the PSQCA logo on their labels without actually registering their products with the organization*"[17].

PCRWR issues a quarterly report on water quality of bottled water. As per the latest report of July-September 2018, 8 percent of the bottled water is unsafe. This urges the need for further focus on quality control and further enforcement remedies for PCRWR to protect the consumers' trust on bottle water products.

[14] 69 % of a total of 1495 samples from Punjab are unsafe, while a total of 68% of 1364 samples collected in Sindh are unsafe.
[15] PCRWR (2017). *Provision of Safe Drinking Water*. Islamabad: Pakistan Council for Research in Water Resources (PCRWR).
[16] PSQCA, 2018
[17] Maker, 2017

C. Causes for the Challenges Pertaining to Quality and Access

Over-Consumption by Agriculture Sector

The agricultural sector uses 90 percent of the total freshwater resources, while contributing to 21 percent in the GDP[18]. This enormous consumption will continue if efficient water management is not incentivized and priced according to the crop return or actual consumption. The agricultural sector must be priced on the basis of scale and purpose. The State Bank of Pakistan (SBP) also believes that it is unproductive for Pakistan if 90 percent of its water is consumed by the agricultural sector and it critiqued this consumption pattern as "*inefficient redistribution*"[19].

Increase in Population

Pakistan has the 6th highest annual population growth rate of 2.4 percent counting 207 million people[20]. It is equal to an increase of 57 percent since the last Population Census conducted in 1998 and is further expected to increase by same growth rate. This growth also caused the demand for water to rise.

No Metering or Regulation of Industrial Use

The problem is significant due to factors such as inequitable uses within sectors and free riding. Water management is left with no incentives for efficient use as there are no charges on actual consumption such as metering. The usage of water by the industry is not metered, and the regulation on the discharge of industrial waste is not being properly monitored due to which the water quality is deteriorating.

Industrial Growth

Drinking water is subjected to careless disposal of industrial wastewater and outdated sewage piping, which is detrimental for people's health. The non-existent regulation of agricultural fertilizers, chemicals and pesticides allow such chemicals to seep into the ground. Export of

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18 Rehman, A., et al. Fertilizer consumption, water availability and credit distribution: Major factors affecting agricultural productivity in Pakistan. Journal of the Saudi Society of Agricultural Sciences (2017), http://dx.doi.org/10.1016/j.jssas.2017.08.002

19 SBP, 2017:97

20 Raba, 2017

water heavy industrial products such as jeans, which are using up to 8,200 liters of water per pair, is a heavy burden on the water tables[21].

Federal Intention – Provincial and Tehsil Responsibility

Drinking water policy formulation is the constitutional responsibility of provincial and district governments. In the past, all major interventions and programs aiming at improvement in accessibility and quality of drinking water have been undertaken on national level, such as Clean Drinking Water for All Program, National Program for Prevention & Control of Hepatitis, and donor-funded Safe Drinking Water and Hygiene Promotion Project, etc. The Clean Drinking Water for All Program was initiated in 2005 that focused on the construction of 445 water purification plants of 2,000 gallons per hour in all Pakistani tehsils. However, the Program was halted due to its inadequate planning. In 2007, Quality Drinking Water Standards were published for Pakistan by the Health Services Academy under the Ministry of Health. Later, in 2009, a National Drinking Water Policy was approved, which aimed at providing safe drinking water to population by 2025. However, the policy could not be implemented in its true spirit and the challenge of making safe drinking water available to everyone remains unaddressed. Recently, the government has approved the first ever National Water Policy (NWP) 2018.

Federal and provincial policies need to be reviewed to avoid gaps of overlap in competencies. If any change is to be made in our water governance, the provinces must likewise regulate almost all areas, such as: irrigation, agriculture, rural and urban water supply, environment and other water related sub-sectors[22]. National Water Policy 2018 states "*and roles of the federal and provincial water related agencies need to be reviewed in view of the 18th Amendment to the Constitution*" (NWP, 2018:4). It is mainly not the federal but the provincial governments, which are considered responsible and thereby accountable for almost all aspects of the policy implementation.

[21]UNESCO & University of Twente, 2013

[22]Sub-sectors are not specified in the National Water Policy 18, but have occasionally been referred to as: 1. Economic sectors: Agriculture, forestry, livestock, fisheries; Mining, energy, industries, transport; Human settlements and recreation: 2. Environmental impact sectors: Soil degradation, loss of biodiversity, and over harvesting of renewable resources; Municipal and industrial discharges, environmental health effects, and misuse of water resources; Destruction of cultural heritage.

The recent statistics about quality and access have revealed that none of the provinces have delivered the performance level needed to be able to secure a sustainable development and management of water resource. The PCRWR test results support this assertion.

Generally, for all provinces of Pakistan, the delivery is spread across a range of institutions with varying capacities, differing reporting lines and limited coordination. This includes Public Health Engineering Department (PHED), Local Government and Community Development Department (LG&CD) and Water and Sanitation Agencies (WASAs). The LG&CD holds a broad responsibility for service delivery, however, in reality, the service delivery remains within the purview of the PHED (with community engagement) and urban services in large cities are delivered by the Water and Sanitation Authorities (WASAs).

A World Bank study assesses a financing gap for the sector in the range of US$1 billion annually and further states, that "*there are significant gaps in investments, which have led to decay in the sector: new monies are generally dedicated to ill-planned asset formation and salaries, with little dedicated to operation and maintenance.*"[23]. Especially the Tehsil Municipal Administrations (TMAs) that is responsible for supply of safe drinking water struggle to finance services. The study further assess that little has been done to enable and incentivize private sector participation, or experiment with public private models of delivery in the sector.

[23]Sami, 2016: 6

Recommendations

Pakistan is in the middle of a water emergency impacting the lives of millions of Pakistanis, who at times are subjected to consume water unfit for human consumption. This necessitates revisiting the policy and regulatory framework, introducing institutional reforms, forming new partnerships, and introducing efficient technologies.

- Legal framework for protection of the rights of consumers is available, but right to safe and clean drinking water still needs to be recognized. The right has been affirmed by international instruments and covenants including; *UN General Assembly Resolution 64/292* (2010); *UN Human Rights Council Resolution 18/1* (2011); and Rio+20 Outcome Document (2012). The right to safe and clean water has also been recognized in the constitutions or national laws of *South Africa, Uganda, Costa Rica, Colombia, the Netherlands, and Belgium etc.* It is recommended that federal and provincial governments should provide a legal framework recognizing the right to safe, clean, accessible and affordable drinking water.

- Formulation of National Water Policy (NWP) 2018 is a step in the right direction. It is recommended that the federal government should expedite the next steps, including but not limited to development of implementation strategy, notification of required rules of business, dedicated financial resources for achieving the goals of NWP 2018 etc.

- There is a link between NWP and National Drinking Water Policy2009 due to the common resources of water (i.e. glaciers, rivers, canals, lakes, dams, etc.) for drinking, irrigation and industrial use. It is recommended that the National Drinking Water Policy 2009 needs to be revisited on the basis of empirical evidence and updated data.
- Federal and provincial governments should provide financial resources, engage with national and international development partners for building capacities and introducing technologies to ensure universal access to safe and clean drinking water.

- Water metering system is an inclusive tool in the field of potable water management in developed countries. In some cities of the country, pilot projects of water metering system should also be introduced that will ultimately be helpful to avoid the leakage and theft issues also.
- As, per capita water availability in Pakistan has dropped down from the per capita water requirement (1000 m^3) set globally. So, billing criteria (tariff) for household and commercial usage should be revised.
- Compliance of industrial wastewater treatment should be ensured by the relevant authorities.
- Awareness campaigns aimed at increasing behavioral change should be based on the NWP 2018. Women are identified to be important change makers in the areas of conservation efforts and therefore, they should be engaged at every level. Campaign programs at school level by involving the soap, surf and detergent companies could be an effective tool for raising awareness about efficient use of water.

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