

Protection of Water Resources in North Punjab

By Shafqat Munir¹

Water is crucial to development, nature, bio-diversity, environment, food security, agriculture and all life forms. Water has become a human rights issue with ever depleting surface and underground resources of freshwater that have been causing scarcity and reducing access to fresh/potable water. “Water should be treated as a social and cultural good, and not primarily as an economic commodity. Water is fundamental for life and health. The human right to water is indispensable for leading a healthy life in human dignity. It is a pre-requisite to the realization of all other human rights.”².

But this right seems be at risk owing to lack of access to freshwater and commercialization of water resources by newly emerging water industry supplying bottled water and eyeing on the privatization of water for agricultural purposes mostly in developing countries. “The fact that 1.1 billion people across the world, mostly in the developing countries, lack access to adequate clean water is reason enough for the growing water industry to rejoice. Estimated to be worth US \$ 7 trillion, the global water industry has assured itself of profits at least for the next 25 years, during which time the number of people without access to potable water will move closer to the incredible three billion mark.”³

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² The United Nations Committee on Economics, Cultural and Social Rights

³ Sharma, Sudhirendar Dr. Paper on “Water” circulated at a World Bank seminar at Chennai, India



Water scarcity has become a widespread issue in Pakistan as the growing population largely depends on ground water pumping for agricultural and living. Deep water table, low rainfall and rising needs in hot weather put the people in acute short supply of water. Particularly, in the North Punjab, comprising four districts in arid zone namely Rawalpindi, Chakwal, Jhelum and Attock, people depend on rainwater sources and groundwater pumping through tube-wells and water pumps.



North Punjab

North Punjab, the Potohar upland, commonly called the Potohar Plateau, lies to the south of northern mountains and is flanked in the west by River Indus and in the east by River Jhelum. This 1,000-2,000 ft. (305-610 m) upland is a typical arid landscape with denuded

and broken terrain characterised by undulations and irregularities. These are a few outlying spurs of Salt Range in the south, and those of Khair Murad and Kala Chitta Range in the north. Two seasonal streams-Rivers Haro and River Soan-flow from east to the west and after crossing the region in the north and in the middle respectively, fall in the Indus. River Kanshi traverses the eastern part of the plateau from north to south and drains into River Jhelum. These rivers and other hill torrents have cut deep valleys and are of little use for irrigation. Agriculture is thus almost entirely dependent on rainfall of 15-20 inches and on the small dams built in the catchment areas of the streams.⁴

In North Punjab availability and use of surface water is minimal, as the people do not have a surface water irrigation system as strong as it is in South and Central Punjab because the Indus basin and its tributaries largely cover southern, western and central parts of the province. However, due to arid climate and rain fed area, Northern Punjab does have natural Nullahs and some reservoirs and river Soan. River Indus passes Attock district and River Jhelum in parts of Jhelum district. In the adjoining areas, water from these rivers is also used.

Water potential development/management in North Punjab

Water potential development and management in North Punjab is somewhat different from rest of the Punjab province where more than 80% irrigation is done through a wide network of canals and tubewells. But in the North, there is no canal irrigations system. The rainfall, small and mini dams and tubewells are used for irrigation and potable needs.

Sources of freshwater (River/Nullahs/Lakes/rainfall)

Mountains, hills and spurs with potential of rainwater coming down to plains through various streams originating from Murree and Kahuta and Kotli Sattian hills surround Rawalpindi district. The important among them is Soan. The rainfall in both summer (July-September) and winter (January-March) normally remains sufficient for maturing of crops of both Rabi and Khareef harvests. Annual rainfall in Murree hills is about 1142 millimetres, while in the plains, it is 913 millimetres.⁵

Four rivers pass through Rawalpindi district. River Jhelum skirts the district from its northern part near Dewal to its southern boundary covering distance of 88 kilometers. River Soan takes rise from within a few kilometers of the Murree hills and flows down deep in the valley for the 6 kilometers of its course till it reaches the plain near old ruined fortress of Pharwala. It flows close to Rawalpindi city and finally joins the Indus near Makhad. Haro River rises near Donga Gali in Abbottabad enters Rawalpindi near village Bhallar-top. It cuts across a small portion of Rawalpindi tehsil and then enters Attock tehsil. Korang river rises near Ghora Gali and trimmers along Murree-Rawalpindi road and its water have been dammed at Rawal dam. It joins Soan near Sihala. Five streams and Nullah including Leh, Kanshi, Ling, Sarin and Tamrah also pass through Rawalpindi. No river passes through Chakwal district except Soan that enters at Pindi Gheb area and passes through Hasli-Warwal into Talagang sub division. It falls into Indus on the border of Mianwali-Kohat district. In summer and rainy season, there is heavy flow of water

⁴ <http://www.pulsepakistan.com/masood/pakistan/punjab.html>

⁵ District census report, Rawalpindi, 1998

while in winter it turns into a rivulet. There is one Kallar Kahar Lake, which is fed by the surrounding mountain streams. Water table is much deeper than the plains of rest of Punjab because of the Potohar plateau. Chakwal falls within the moonson range and apart from occasional rainfall; there are two rainy seasons (July-September) and December-January to feed crops in the area.

As compared to other arid district in North Punjab, Attock generally has somewhat scanty and very uncertain rainfall varying from year to year. River Indus passes through Attock district but surprisingly it has nothing to do with irrigation in the district. Due to inadequate water, agriculture is hit largely resulting in very low income.

Two rivers the Jhelum and Kaushi pass through district Jhelum. Some streams and mountain torrents also run through the area. The river Jhelum skirts the district for about 192 kilometers in south and east and the Kaushi confines itself to the north-east. The Kaushi river comes into the district from Rawalpindi.

The streams of the district comprise sandy or rocky torrents, which descend from the hills or issue out from the ravines. They are called Trimkar or Dhan.

Dams/small dams/mini dams

Currently four dams are located near Rawalpindi. They are Simli dam, Khanpur dam and Tanaza dam. Rawal dam is located in the federal capital, located in North Punjab. Simli dam is about 30 kilometer from Islamabad and can be reached through Lehtrar road or Bhara Kahu. It is fed by the melting snow and natural springs of Murree hills. The water stored in the lake is supplied to Islamabad for drinking purposes. Khanpur dam is 48 kilometers from Islamabad on Taxila-Haripur Road. The water from this lake is supplied to Islamabad and Rawalpindi for drinking purposes. Tanaza dam is a small dam located at about 35 kilometers south-west of Rawalpindi on Dhamial Road.

The government has initiated scheme of mini dams and small dams in the district. So far 26 mini dams with the irrigation capacity of 1675 acres and 10 small dams with irrigation capacity of 16,268 acres have been completed. Shahpur dam has recently been completed. There are 4922 wells and lift pumps and 106 tube wells in the district to provide water to the people in the district.⁶

Irrigation

There are no proper sources of irrigation in Rawalpindi district. Most of the land is irrigated with rainy water. No canal system is available. The Rawal dam Islamabad provides water through two canals to irrigate 8,250 acres of land in Rawalpindi area. The rain is the main natural source of irrigation. Out of 25,000 acres, 16,000 acres are irrigated by wells. Small dams do irrigate on a small scale.

There is no proper irrigation and canal system like other parts of Punjab as Chakwal is arid (barani) zone. However, a number of small dams have been constructed in the district to irrigate small acres of cultivated land through water channels. These dams are: Khokharzer dam, Surrilah dam, Dhurnal dam, Ghurab dam, Wallana dam, Nikkar dam, Bughtal dam, Dhoke Qutbdin dam, Kot Raja dam, Pira Fatyial dam, Dhoke Tahilan dam.⁷

⁶ District Census Report of Attock, 1998 published March 2000

⁷ District Census Report of Chakwal, 1998 published March 2000

In Jhelum, tubewells are the main source of irrigation followed by wells, canal and other sources. Out of 24,000 acres of land irrigated through various sources, 20,000 acres were irrigated by tube-wells.

Water Management in North Punjab

Water is a federal as well as provincial subject in Pakistan. The water resources are the natural precipitation, surface water and groundwater. In the arid to sub tropical climate, natural precipitation is scanty. Over half the country receives than 200 mm of annual rainfall, and over 400 mm rainfall occurs in about 20% of northern areas including North Punjab. In North Punjab, rivers and canals have literally no significant role in irrigation and the availability of surface water is not as in abundance as it is in other parts of Punjab. As compared to other parts of Punjab, to cope with water development and demand, there needs to be a better water management in place.

Like global and national water scarcity trend, water crisis is real in the North Punjab. Some experts say there is water crisis today, but the crisis is not about having not enough water, it is a crisis of managing water so badly that people and environment suffer.⁸ Analyzing situation on ground, one finds that it is the lack of water management and not the water itself. When we visualize that amid growing population, demand for more water increases, to our surprise it is a fact that the 'percentage of freshwater today is actually the same as it was three billion years ago. The reason for this is the earth's hydrological cycle that is the continuous movement of water between the earth and the atmosphere. Freshwater makes up about 3% of the earth's total water resources of which 2% is locked in glaciers and permanent snow and 1% is available in lakes, rivers and groundwater.⁹

Amid these reports, water management becomes necessary for ensuring the long-term availability of clean water for the people living across North Punjab, particularly when these areas are excluded from the purview of any water treaties between center and the provinces, as North Punjab does not fall into River Indus and its tributaries and canal system. The departments of water and sanitation and irrigation and agriculture of the government of Punjab are managing the water in North Punjab under rules and procedures set in this regard.

Security of Water Resources

Amid reports of the ever-increasing water scarcity, though due to management and governance related reasons, security of water gains importance in terms of the people's access to freshwater for dining and agriculture, livestock and other needs. In this regard, North Punjab faces two-fold crisis that is scarcity of water and poor quality of available water. Bacteriological contamination and upward trend in Nitrate contents were observed in drinking water of Rawalpindi and Islamabad while a survey was conducted by The Network for consumer protection in July 2001 in North Punjab.

Objective of the survey conducted was to have an overview of the drinking water quality and try to correlate this information with the disease burden in the area. National Institute

⁸ Executive Summary World Water Vision Report 2000

⁹ 'Sustaining Water', Population Action International, Washington D.C

of Health (NIH) provided analytical support by analyzing 47 water samples. The samples were found unsuitable for drinking due to Bacteriological contamination (94 % samples). According to Draft Safe Drinking Water Act, in Pakistan the most common water borne diseases are Typhoid, Cholera, Hepatitis, Giardiasis, Dysentery and other intestinal disturbances Globally 80 % of the children deaths are attributed to water borne diseases. Nitrate is the upcoming pollutant in drinking water. Main contributors of this ion are use of fertilizer, domestic effluents decayed vegetable and animal matter, industrial discharges and atmospheric wash out.¹⁰

On the quantity security option of water, the government under WAPDA's vision 2025 has planned to construct three dams namely Sanjwal (3.60 MAF), Akhori (3.06 MAF) and Buhtar (0.8 MAF) on the off channels from Ghazi Barotha dam near Attock. Although Simli dam has already constructed on Soan River in 1972, WAPDA plans to construct yet another dam Dhok Pathan dam (8.50 MAF), bigger than Kalabagh dam over Soan River. In district Jhelum, Rohtas dam (5.75 MAF) almost equal to Kalabagh dam has been planned over Kahan Nadi (srteam). The addition of these dams would be good enough to store sufficient water, provided it is available through rainfalls and glaciers melting. Security of water resources with both quantity and quality perspectives is directly linked to security of food, land, environment and the people.

Hydel power generation

Due to its geographic location, North Punjab has a vast potential for protection of water resources thus having ample scope for hydel power generation. So far, the only existing facility is Ghazi Barotha project. The site of Hydro Power Station of Ghazi-Barotha is situated at the confluence of Indus and Haro rivers near Attock. Its estimated power production capacity is 1450 mega watts. This project would soon be commissioned. In addition to this, five more big dams to be built over next 20 years under WAPDA's vision 2025 would have more opportunities of hydel power generation. The power generation potential of North Punjab could also be explored by exploiting mini turbine options on lakes, streams and big Nullahs. These small hydel projects could meet the electricity requirement of North Punjab and add some power to the national grid as well. ENDS...

¹⁰ Pakistan Council of Research in Water Resources (PCRWR)