

HALAL ALTERNATIVE SOLUTIONS

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WATER

SITUATION IN

PAKISTAN



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BACKGROUND

Pakistan is one of those countries that are endowed with natural resources and one of the world's most arid countries, with an average rainfall of under 240 mm a year. But the resources don't have proper management to reap realistic benefits of those resources. Pakistan still has the world's largest interconnected & Continuous irrigation system. In 1999-2000, the total irrigated area in Pakistan was 181,000 km². Pakistan has one of the world's largest gravity-flow irrigation systems, with:

1. 3 reservoirs
2. 19 barrages
3. 12 river interlinking canals and
4. 59,200 kilometers of distribution canals.

More than 160,000 watercourses comprise the distribution network that takes water directly to the farms. More than half of these watercourses are in Punjab, the largest of the country's four provinces and the biggest agricultural producer. The system commands a land area of 14.3 million hectares, making it the backbone of Pakistan's agriculture and contributes one-fourth of country's total gross domestic product (GDP). About 29% of water is generated through hydropower.

According to the United Nations' "UN World Water Development Report", the total actual renewable water resources decreased from 2,961 m³ per capita in 2000 to 1,420 m³ per capita in 2005. According to WAPDA, water availability declined to 1011 cubic meter per capita in 2011 puts Pakistan in the category of a high stress country. The overall storage capacity of existing water reservoirs also declined considerably because of sedimentation. In view of growing population (now 180 million), urbanization and increased industrialization, the situation is likely to get worse. In addition, increasing pollution and saltwater intrusion threaten the country's water resources. About 36% of the groundwater is classified as highly saline.

In urban areas, most water is supplied from groundwater except for the cities of Karachi, Hyderabad and a part of Islamabad, where mainly surface water is used. In most rural areas, groundwater is used. In rural areas with saline groundwater, irrigation canals serve as the main source of domestic water.

Islamabad-based Centre for Research and Security Studies and other experts paint an increasingly bleak scenario of Pakistan's rivers drying up, the ground water polluted and over-exploited and the whole water infrastructure in shambles. Pakistan has gone from a "water scarce" country to a "water-stressed" country, worse than Ethiopia, the Centre says quoting a 2006 World Bank study. In 10 years time, it will become a water-famine country.

Among the 25 most populous countries, South Africa, Egypt and Pakistan are the most water-limited nations, study said.

According to the World Bank data, Pakistan only stores 30 days of river water, India stores 120 days, while the Colorado river system in the U.S. has storage capacity of up to 900 days of water usage.



As per UN World Water Development Report 2009, the depletion of water resources is unchecked. It further says that the total actual renewable water resources in Pakistan decreased from 2,961 cubic metres per capita in 2000 to 1,420 cubic metres in 2005. A more recent study indicates an available supply of water of little more than 1,000 cubic metres per person.

The population and the economy are heavily dependent on an annual influx into the Indus river system (including the Indus, Jhelum, Chenab, Ravi, Beas and Sutlej rivers) of about 180 billion cubic meters of water, that emanates from India and is mostly derived from snow-melt in the Himalayas. But this single river system on which Pakistan almost entirely relies has been heavily harvested and there is no additional water to be injected into system.

Pakistan needs to conserve its water, use it more wisely and set up new reservoirs on an urgent basis, the South Asia Investor says. Or else the threat posed to the nation's stability by the battle for water may yet turn out to be just as serious as the militants trying to take control.

According to WAPDA, total available water resources in the form of reservoirs, rivers, canals and lakes is estimated at 206 million acre feet yet 100 million acre feet water is being wasted due to poor water management. Out of the total available water resources only 2% is available for drinking for 180 million people in Pakistan. Present drinking water management is heavily skewed in favour of urban cities while rural are ignored. With 3% p.a. population growth rate and decreasing water availability, the water crisis is bound to increase.

MINISTRY OF WATER AND POWER

This ministry comes under the federal government and is responsible for overall management, etc. for water and power. All proposals are therefore routed through this ministry.

Two main arms of the ministry are:

- **Water & Power Development Authority (WAPDA)**
- **Private Power Infrastructure Board (PPIB)**

WAPDA was created in 1958 as a semi-autonomous body for the purpose of coordinating and giving a unified direction to the development of various schemes for water and power sectors. At present, Wapda is fully responsible for development of water and hydel power sectors.

PPIB was created in 1994 to promote private participation in the power sector of Pakistan as "One window facilitator". PPIB facilitates investors in establishing private power and related infrastructure, executes implementation Agreements with project sponsors and issues sovereign guarantees on behalf of Government of Pakistan.

WATER TARIFFS

Import of water is not on priority list of imports in Pakistan and at the same time it is not prohibited. The following are the tariff rates:

PAKISTAN CUSTOM TARIFF CODE	DESCRIPTION	CUSTOM DUTY (%)
2201.01	Waters, mineral or artificial mineral water and aerated waters not containing added sugar or other sweetening matter or flavoured; snow or ice	
2201.1010	mineral water	35
2201.1020	aerated water	35
2201.9000	Others	35
2202.01	Waters, mineral or artificial mineral water and aerated waters not containing added sugar or other sweetening matter or flavoured or other non-alcoholic beverages, not including fruit or vegetable juices	
2202.1010	aerated water	35
2202.1090	Others	35

For any waiver for the above water tariffs, Ministry of Commerce is to be contacted through the Ministry of Water & Power.

FEDERAL BUDGET FOR WATER

The federal government has allocated an amount of Rs.192.337 billion for the Public Sector Development Program (PSDP) for the development of water and power sector in the upcoming budget 2012-13, which is 27 percent more as compared with Rs.151.384 billion allocated for the PSDP in 2011-12. However, the federal government's Planning Commission released only Rs.36.499 billion out of the total amount of Rs.151.384 billion in 2011-12, showing 75.88 percent lesser releases.

Development schemes:

67 ongoing water schemes Rs 45.990bn

11 new water schemes Rs 1.202bn

24 WAPDA (Hydel projects) Rs 63.977bn

64 NTDC, PEPCO projects Rs 72.881bn

18 New projects Rs 8.289bn

Total Rs 192.337bn



WATER REGULATORY ENVIRONMENT

The constitution of Pakistan protects the life of its people and obliges the State to secure the well-being of the people and to provide for all citizens, within the available resources of the country, facilities for adequate livelihood and basic necessities of life. In 1994, the Supreme Court of Pakistan interpreted the constitutionally protected right to life and dignity to include the right to a healthy environment. Furthermore, the State is urged to promote, with special care, the economic interests of poorer classes or areas. With regard to rights and interests in water, any individual has the right to complain about actual or proposed executive or legislative acts and failures of any authorities with respect to the use, distribution or control of water. With regard to the access to safe drinking water the Supreme Court of Pakistan specified in another case in 1994, that mining companies have violated the rights of citizens by polluting local drinking water supplies. The Court expanded Art. 9 of the right to life and said: "*the right to have unpolluted water is a right of every person, wherever he lives.*"

Drinking water safety standards, rules and guidelines are present and two organizations i.e. The Pakistan Council of Research in Water Resources (PCRWR) and Pakistan Standard and Quality Control Authority (PSQCA) are responsible for ensuring application of water safety standards.

DRINKING WATER

On 28 July 2010, through Resolution 64/292, the United Nations General Assembly explicitly recognized the human right to water and sanitation and acknowledged that clean drinking water and sanitation are essential to the realisation of all human rights. The Resolution calls upon States and international organisations to provide financial resources, help capacity-building and technology transfer to help countries, in particular developing countries, to provide safe, clean, accessible and affordable drinking water and sanitation for all.

In 1998, Nestle introduced the concept of bottled water sale in Pakistan. At present, there are as many as 77 registered brands/companies led by Nestle, Coke and Pepsi involved in meeting drinking water requirements of the population. Due to high import duty on imported drinking water and no regulation for extraction of ground water, all the drinking requirements are mostly met through drainage of ground water from different parts of the country and distilled water.

The global water shortage of affordable and safe drinking water is manifested in Pakistan with a sizeable population lacking access to safe drinking water. As one indication of the magnitude of the problem, it is estimated that 200,000 children in Pakistan die every year due to diarrheal diseases alone. Groundwater extraction is one of the few possibilities to satisfy peoples need for drinking water. But groundwater extraction in Pakistan is unregulated and different users, such as public water providers, agriculture and industrial exploitation compete about the use of this scare source. It is estimated that water related diseases cause annual national income losses of USD 380-883 million or approximately 0.6-1.44 percent of GDP



Pipe water in Pakistan is contaminated either because of leakages with all sorts of bacteria or due to geological conditions and insufficient purification, with abnormally high levels of arsenic and elevated fluoride. Water, extracted by hand pumps – the major water source in rural areas – is mainly brackish water and not sufficient for drinking and cooking.

The exploitation of ground water is causing another problem of decreasing the level of ground water across the country and causing widespread damage to environment and agriculture. Where the groundwater extraction exceeds renewable resources a two-fold problem occurs. First, the groundwater level is lowered. Second, saline effluents and overflowing leads to declining ground water quality.

The Pakistan Council of Research in Water Resources (PCRWR) Oct-Dec, 2012, has declared that 17 of these 77 brands of bottled water are unsafe. According to sources in Pakistan Standard and Quality Control Authority (PSQCA), bottled water is usually packed in Polyethylene Terephthalate (PET), which requires a significant amount of energy and precautions to produce. Another study showed that a high percentage of bottled water contained in plastic containers was polluted with estrogenic chemicals.

Pakistani government, during last five years under safe water project, successfully installed thousands of water cleaning units in urban residential areas but majority of them became unusable after some time due to lack of care and maintenance.

CURRENT WATER DEMAND & PRICES

According to industry estimates the total sale of bottled drinking water is 1.0 billion litres per annum and keeping population growth rate of 3%, this figure is expected to increase.

The following are the prices of bottled water:

1US\$ =PKR 100

500 ml bottles	PKR 15 - 22
1500 ml bottles	PKR 30 - 42
5 litres bottles	PKR 65 -130
19 litres bottles	PKR 80 -180

However, certain conflicting reports on drinking water also exist as follows:

1. The situation of access to drinking water is quite impressive in Pakistan. According to Pakistan Bureau of Statistics report (PBS) Pakistan Social and Living Standards Measurement (PSLM) Survey 2010-11, access to drinking water to urban and rural population of Pakistan is 94 and 84 percent, with an average of 87 percent in 2011.



2. According to a report released by the WHO/UNICEF Joint Monitoring Program (JMP) 2012, 92 percent people had gained access to drinking water in Pakistan by 2010 while this ratio was 85 percent and 89 percent in 1990 and 2000 respectively.

The MDG target is to achieve the ratio of 93 percent by 2015. Moreover, 48 percent people have been using improved sanitation by 2010 while this ratio was 27 percent and 37 percent in 1990 and 2000 respectively. The MDG target for access to sanitation is 90 percent by 2015.

3. According to US department of State report on investment climate in Pakistan 2012 states that *“After devolution of the Ministry of the Environment, the Pakistan Environmental Protection Agency became a department of the Ministry of National Disaster Management. Each province also has its own environmental protection agency. Provincial Directorates of Industry may refer a project to the provincial agency when there are concerns about environmental impact. The GOP’s technical capacity to review, assess and monitor industry compliance with environmental standards remains limited. In 2009, the GOP approved the National Drinking Water Policy but a nationwide water quality monitoring system has yet to be instituted and municipal water is not to WHO standards across the country.*

Despite the 1997 PEPA and the 2009 National Drinking Water Policy, the state of Pakistan’s water sector is notably poor. Coverage is low, service quality is poor, and vast amounts of toxic waste are poured into neighborhoods and natural areas. As the urban population grows, many cities are facing growing challenges of obtaining adequate, good quality sources of water. Limited accessibility to reliable, high quality water negatively impacts the investment climate in Pakistan”.

CONCLUSION

Pakistan has three main sources of water i.e. groundwater, surface water and rain water. Due to mis-management and lack of effective regulation, water situation has become worrisome. Traditional delivery and distribution methods and storage facilities would soon become insufficient to meet water demand. It is estimated that by 2015, over half of the population of Pakistan will live in urban areas, putting extreme strain on water provisions.

Even if Pakistan meets the MDG target in both rural and urban areas, 10% of the rural population and 3% of the urban population would still be using unimproved sources of drinking water. Equity in achieving the MDG targets is important, not only because the poorest households are least able to invest in their own facilities, but also because they have the most to gain due to their heightened vulnerability to adverse health outcomes. Therefore, additional efforts and resources are needed to ensure the poorest and most vulnerable are reached. Investment needs in Pakistan are sizable, and considerably greater than current government spending. Spending in Pakistan will need to be increased in order to meet the water supply. The per capita costs (over the entire population of Pakistan) are estimated at US\$ 1 for water supply (program costs, hardware costs, operations & management costs and costs of system failures is not included).

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Compared to these required investments, the current sector spending falls significantly short. Hence, government policy should be not only to increase its own funding, but to look for additional sources of investments. Hence, strategy need to be devised on the basis of urgent, short term to medium and long term demand and supply scenarios to avert looming catastrophe.