PAKISTAN’S WATER CRISIS 2.0

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An appreciation of the nexus perspective will allow us to reap multiple social, environmental and economic benefits.
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Figure 1: A girl travels on the Quetta-Qila Saifullah highway to look for drinking water to bring to her family

Introduction

In recent years, the realization that water, food and energy systems are becoming increasingly interdependent has pushed analysts to take a more holistic view of the water security issue. The nexus is becoming an issue of great concern as Pakistan’s population continues to grow while water resources are limited in supply, even shrinking.

It is important to increase the awareness about the need for greater coordination vis-à-vis policymaking in the three areas. Solutions must be worked out to ensure water security as it has a direct bearing on food and energy security and as a result economic growth. In the case of Pakistan, the situation is much more challenging as the country depends largely on agriculture to drive economic growth.

On the international front, an appreciation of the strategic value of the commodity is providing the basis for figuring out new ways to manage its availability and to tweak stewardship procedures and laws accordingly. Research is being conducted to minimize wastage of water and improve its use in agriculture meanwhile keeping up with the goal of increasing food production over the same area of land. Artificial groundwater recharge and drip irrigation are among many technological advancements being undertaken to combat climate change and the resulting uncertainty in water supply.
The nexus perspective

An understanding of the way the three components interact with each other is the first step towards benefitting from the synergies that can result from increased collaboration. Water security is closely linked to food security—the relationship between the two becomes even more important in a world that is experiencing a shortage of water and a rise in the demand for energy. The link between the sectors is apparent from the fact that water is used to generate energy in hydropower plants and for cooling purposes in thermal and nuclear power plants, energy is used to desalinate saline water and to distribute water via urban piped networks and food production requires the use of energy to pump groundwater for irrigation purposes.

Through history, Pakistan's energy sector has been made the foremost priority, at times to merely conform to populist sentiment. Even today, the sector is being paid great attention which is a positive trend. However, it should still be maintained that viewing the energy crisis in isolation and aiming to resolve it with that orientation deprives the country of synergies that could otherwise be achieved if an interdisciplinary approach is taken where problems in areas of food and water security are assigned the same importance and immediacy.

In wake of a burgeoning population, the increase in demand vis-a-vis all three components of the nexus and changing trends such as greater reliance on groundwater pumps to fulfill irrigation needs, the importance of devoting greater amount of time and effort to exploring the linkages between the relevant sectors has increased as has the need to move towards converging goals and objectives.
Figure 2: The nexus explained.

Source: http://www.water-energy-food.org/fotos/charts/01/nexus_en_450_b.jpg
Energy security in Pakistan

Pakistan’s installed electricity generation capacity stands at 22,797MW whereas average demand is 17,000MW. The deficit between demand and supply falls within the 4,000-5,000 MW range and the energy portfolio is such that the country derives 29.9% of its energy from hydel sources. (Kazmi, 2014)

With the population continuing to grow at a high rate and the demand for energy growing side by side, the situation is becoming more challenging. A strong case has been made in the past to correct the bias in Pakistan’s energy mix and reduce the dependence on oil in order to lower the import bill, to safeguard the economy from shocks in the international oil market, to conserve the fast depleting indigenous fuel reserves and to get rid of the circular debt problem. Hydel power has always been suggested as an alternative for generation of electricity but the construction of dams is still a heavily politicized issue in the water-stressed country.

It is also important to realize that while the production of energy is water-intensive, energy is also required for the pumping, treatment and desalination of water.
Figure 3: The energy crisis is expected to grow further in the coming months which will have severe repercussions for business activity in the country.

Source:
http://i.dawn.com/2010/10/powercrisisre-543.jpg
Food Security

Global food demand is expected to rise by 70% by 2050 with agriculture accounting for nearly 70% of the world's freshwater withdrawals for food, feed and fiber, as well as for production of bio-fuels. Pakistan’s water resources are depleting as demand from all sectors continues to grow. With Pakistan's population increasing from 175 million people in 2010 to nearly 236 million by 2030 and 280 million by 2050, the demand for food is also expected to rise. (Ringler and Anwar, 2013)

The effect of climate change cannot be ignored—in the recent past, due to a greater incidence of drought and flooding, food availability has been severely impacted. The floods in 2010 for instance, left nearly one-fifth of Pakistan's land area underwater and directly affected the lives of 20 million people. (Shah, 2013)

The current drought in Thar due to erratic rainfall has rendered rural Tharparkar as the district with the highest caloric poverty level in Sindh with nearly two-thirds of the population suffering from food insecurity. Approximately 92% of the people in Thar depend on livestock and rain-fed agriculture and are affected directly by the change in the monsoon pattern which has resulted in crop failure and livestock losses. Out of 166 dehs, 157 dehs are in the desert and directly dependent on rain. (Panhwar, 2014)

Over the last three months, the death toll from malnutrition has been climbing and raising concerns of a possible “humanitarian crisis”.

www.SpearheadResearch.org
Figure 4: Pakistan’s progress is threatened by increasing food insecurity due to a high rate of population growth.

High rate of population growth

Pakistan’s population is expected to double in the next 36 years given its high growth rate (2%). This will pose multiple problems vis-à-vis equitable allocation of resources. (“Pakistan’s population to double in next 36 years”, 2014)

From 2008 to 2030, the demand for wheat is expected to rise from 19 million to 30 million tons. The country may have to import to fill the deficit between demand and supply as wheat output will stand at 28 million tons and rice output at 11 million tons by 2030. (Haider, Nazli and Sheikh, 2012)

It is estimated that by 2030, the global demand for energy, water and food will increase by 35 percent to 50 percent due to population growth. (Bapna, 2013). With an addition of more than 200,000 people a day, world population is expected to increase from 7 billion in 2011 to at 9 billion by 2050 which will make things worse for the third world in particular given that global warming is already having an impact on water, food and energy security. (Akhtar and Khan, 2014)

In Pakistan, where controlling population growth is a contentious issue and the realization that it is an environmental imperative is missing, the estimate stands as 180 million. Survival amidst rising insecurities will become more difficult as will maintenance of law and order and internal security. As it is, due to growth in commercial agriculture, land is being taken away from small and tenant farmers who are now moving to the urban centers where they are recruited by terrorist outfits. Maintaining national solidarity could become increasingly challenging as the energy and water issue could be used to play up discontent over sharing of resources at the provincial level in the future as well. (Akhter, Mustafa and Nasrallah, 2013)
Inculcating Water Sense

There is a dire need to promote the value of water efficiency and environmental responsibility through vigorous advocacy campaigns aimed at reducing wastage of water at both the commercial and the household levels to raise awareness and guide actions. Encouraging commercial concerns to invest in developing innovative and efficient technologies and infrastructure to reduce wastage of water and lessen the burden on the existing resources will be rewarding.

As households and businesses employ increasingly water efficient methods as a part of routine, the focus will be shifted towards using the resource responsibly instead of restricting use altogether. It is with the awareness that water resource conditions are changing and the realization that the expanding demand and supply deficit makes the global community susceptible to multifaceted problems that progress can be made towards securing a better future. Given the already below par conditions of developing countries, the need to realize this stark reality is far greater.
Conclusion

Pakistan’s political and security situation makes it challenging to prioritize issues such as the water crisis. However, in overlooking such problems that have a direct bearing on the economic growth and prosperity of the country, the chance of reversing an impending disaster is lost.

The advantages of investing in the development of technologies and methods with an understanding of the nexus framework must be realized as this will build the foundation of future water, energy and food security and help bring about economic growth, and environmental sustainability.

It is time that the concern for the future of Pakistan's water resources became a part of mainstream discussion and policymakers and investors in the water, energy and food sectors collaborate to figure out ways to mitigate the crisis. Aiming to frame solutions specific to one resource may in the short-run bring about improvements in that particular sector, but in the long run it may even add to problems in other sectors. On the other hand, coming up with solutions that are more holistic can help safeguard against potential trade-offs and help bring about cohesion in goals.

A show of political will by the country’s leadership coupled with continuous effort to help achieve long-term energy, water and food security and collection of relevant data to guide action will aid the development of synergetic policies. (Siddiqi, 2014)

Increased water, food and energy security will help pave way for a brighter future for the country and its people. An appreciation of the nexus perspective will allow us to reap multiple social, environmental and economic benefits. The onus is on governments to spread awareness and make it commercially attractive for the corporate sector to get involved in furthering goals related to water, food and energy security.
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