

Energy, Water and Climate Change: Implications for Pakistan.

By Nicholas B Robson

Pakistan's great cities of antiquity Harrapa and Mohenjo-Daro, the capitols of the Indus Valley Civilization, were founded around 2600 BC on the banks of the mighty Indus River. They were founded in this location because of the close proximity to water and a highway for trade. After some 700 years the Harappan cities began to decline. According to Kenoyer one of the reasons was the drying up of major rivers.

Today water is no less important to Pakistan and we must be heedful of its fragility, its ferocity, its power, and in the absence of water, its ability to trigger conflict.

Water security is an imperative for the survival of any state. Water security impinges upon all aspects of a society. Water security is necessary for the production of energy, for agriculture, for industry, and for human survival.

In years to come climate change may well cause a shift in prevailing weather patterns in Pakistan. The normal monsoon patterns may well change dramatically. Pakistan, unlike India, is dependent on one river system for the majority of its water and is already one of the most water stressed countries in the world.

In the subcontinent riverine systems are being shared between a number of countries. Starting in the West we begin with Afghanistan, Pakistan, India, Nepal, Bhutan, Bangladesh, and finally China. And China, it could well be argued, is the elephant in the room.

The major riverine systems consist of 16 major rivers and those being being shared are; the Indus, the Ganges, and the Brahmaputra, which drain the Himalaya. In the Indus River system we have the Beas, the Chenab, the Jhelum, the Kabul, the Ravi, and the Sutlej. The Ganges basin is part of the composite Brahmaputra Meghna basin draining 1,000,080 6000 square kilometers in Tibet and Nepal. The main rivers being the Ramganga, the Yamuna, the Tamsa, the Gomti, the Ghaghara, the Son, the Gandaki and the Kosi that feed the Ganges. After flowing across the Gangetic plain the Ganges then finally begins branching away into a distributary riverine system leading into Bangladesh.

The Indus Water Treaty governs water use between Pakistan and India. This treaty was signed in Karachi on September 19, 1960 between the Indian Prime Minister Jawaharlal Nehru and President of Pakistan Mohammed Ayub Khan. This treaty was made necessary by the partition of British India, which created conflict over the waters of the Indus basin between the two newly independent states. By 1951 the situation had become untenable, and it was only through the good offices of David Lilienthal, former

chairman of the US Atomic Energy Commission who was in the region, purportedly writing a series of articles for Colliers Magazine, and who had been briefed by the US State and Executive Branches, who hoped that he could bring some resolution to the worsening situation. It quickly became clear the situation between the two countries were becoming acute. His journal for that period states *"India and Pakistan were on the verge of war over Kashmir. There seemed to be no possibility of negotiating this issue until tensions abated. One way to reduce hostility . . . would be to concentrate on other important issues where cooperation was possible. Progress in these areas would promote a sense of community between the two nations which might, in time, lead to a Kashmir settlement. Accordingly, I proposed that India and Pakistan work out a program jointly to develop and jointly to operate the Indus Basin river system, upon which both nations were dependent for irrigation water. With new dams and irrigation canals, the Indus and its tributaries could be made to yield the additional water each country needed for increased food production. In the article I had suggested that the World Bank might use its good offices to bring the parties to agreement, and help in the financing of an Indus Development program.*

David Lilienthal's ideas were well received both by the World Bank and eventually by the Indian and Pakistani governments. The World Bank proposed a Working Party made up of Indian, Pakistani, and World Bank engineers, with the bank delegation acting as a Consultative Party. After much difficult negotiation the two sides finally returned to the negotiating table in December 1954 for talks that continued very slowly the next six years. Finally, with financing supplied by the United Kingdom and United States the treaty was signed by the Prime Minister's of Pakistan and India in 1960.

The treaty has served both countries well for many years; this however, could change as the global climate begins to change. The waters of the Indus River originates on the Tibetan plateau, as do the Beas, the Chenab, the Jhelum, the Ravi, and the Sutlej, and all of these rivers are dependent on snowfall in the Himalayan region. These glaciers, or as they are referred to by Lester Brown, President of the Earth Policy Institute, "reservoirs in the sky", melting slowly during the warmer months of the year supplying a regular supply of water during the dry season. It is now clear that climate change is affecting the Western glaciers in a dramatic fashion (far more seriously, for example, than the damper Eastern Himalayas). This fact, along with observed rising air temperatures, and the possibility of changing rainfall patterns should be raising serious concern on the sub-continent.

The overwhelming flooding in Pakistan in 2010 and 2011 speaks to warming air temperatures and higher evaporation from the oceans. More evaporation means heavier rainfall, and in a country that has lost most of its forest cover, this means massive flooding, social disruption and destruction of crops, homes and livelihoods. The Intergovernmental Panel on Climate Change (IPCC) projects that the precipitation will increase substantially during the summer monsoon. In fact one climate model predicts

an overall reduction in the number of rainy days and a large increase in extreme flooding events such as occurred over the last two years in Pakistan. To take just a moment to recap, less river water during the dry season, less days of rainfall during the monsoon, and more extreme weather events, this does not bode well for Pakistan or India.

The US National Intelligence Estimate (NIC) stated that water problems are expected in countries between the Nile and the Mekong within the next ten years. Maj. Gen. Richard Engel stated. "Failure to properly deal with this [will] result in agriculture degradation, productivity-wise, in certain countries that will affect them locally and effect global markets and also disable their ability to really succeed economically." Casimir Yost of the NIC said they had looked closely at strategically important states covering "the geography between the Nile and the Mekong, where there was a clear intersection of U.S. national security interests and risks to water availability,"

Looking at the subcontinent as a whole, one quickly realizes these climate change events are not confined solely to Pakistan, but will in fact affect India and all the countries on the sub-continent in the same manner. The glacial melt in the Eastern Himalayas may be somewhat slower than that in the Western Himalayas, but scientific studies do show that it is already happening. A recent study by the University of Colorado and published in February 2012 have found that glaciers and ice caps are pushing sea level up by 1.5 mm per year. Three reports published by the Kathmandu-based International Center for Integrated Mountain Development (ICIMOD) shows that Nepal's glaciers have shrunk by 21% and Bhutan's by 22% over 30 years.

Given that all rivers supplying the subcontinent with water originate on the Tibetan plateau it behooves us to examine China's plans in the Tibetan region. In 2010 China admitted that it is building a dam on the Yarlung Tsangpo (or Brahmaputra as it is known in India). China claims however, that it is a run-of-the-river project involving no storage or diversion of water. The Institute of Asian Research reports in October 2011 on China's Plans to divert water on the Tibetan Plateau. According to the article Bangladesh and India fear that China will divert the Brahmaputra River. The author goes on to say that Chinese planners have long fantasized about diverting the rivers waters to North China.

The elephant in the room

Given what is apparent to those who care to examine the facts, South Asia states collectively need to undertake a major reevaluation on the future of its water resources and demands. All regional states have water needs for agriculture, energy production, industry and human consumption, but looking at the future, from an already water stressed region, the outlook is grim. According to the 2006 Human Development Report the UNDP predicts that 2.5 billion people in South Asia will be affected by water

scarcity by the year 2050. The World Bank issued a report on the subject saying, “In 1997 only 47 countries borrowed for water [projects], but by 2007 there were 79 borrowers, and lending for water had increased by over 50 percent.” “There is no additional water to be injected into the [Pakistan] system. There is no feasible intervention which would enable Pakistan to mobilize appreciably more water than it now uses”.

Water issues are a potential conflict trigger. If China diverted the Brahmaputra or reduced its flow both downstream riparian states would have a major problem and the sabers would start rattling. If India reduced the flow on the Chenab Pakistan would have a serious issues with India, and it must be remembered that these are two nuclear-armed states.

The road ahead

The South Asian states that surround or are within the sub-continent, Afghanistan, Pakistan, India, Nepal, Bhutan and Bangladesh would be wise to start a series of meetings do discuss plans for the future. They need to examine, in light of climate change, what the regional water resources will be in ten, twenty-five, fifty and one hundred years. The projected population figures will have to be examined. The water needed for agriculture, energy requirements, industry and human use must be projected and plans must be drawn up to determine what each states fair share will be.

A good place to start would be examining ways of increasing their water efficiency with the idea of increasing this exponentially. It could be argued that a water treaty covering all the states mentioned above is becoming necessary.

South Asian Arms Race

Given the conflict potential of this situation the international community must be proactive and closely examine its policies on arms sales to regional states. Russia is the major supplier of arms to India. “Around 80 percent of India’s weapon imports come from Russia. Other countries are also keen to sell weapons to India because it’s such a huge market. Last year, France did extremely well with a contract for fighter jets. Britain, Germany and the United States have been marketing their weapons in India for several years now.” The US-India Civil Nuclear Agreement must also be remembered as this has the potential to exacerbate the nuclear rivalry between Pakistan and India. A Nuclear Weapons Free Zone in the sub-continent would be a vast step in the right direction.

In summation the next one hundred years may well be one of the most difficult that the human race has had to contend with. It will, in all possibly, be full of pitfalls. If climate change is not enough to deal with, we are going to have to cope with falling fossil fuel reserves and ever higher prices for what we can extract, sea level rise, which will affect port cities and maritime transportation, a growing population and the ever present fear

of food security. We must remember, “Failing to Plan is Planning to Fail”.

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