

## **The Future of South Asia Conference, The South Asia Initiative at Harvard University**

Panel Talk on Water Security

April 9th, 2011

Panelists: **Syed Babar Ali**, *Advisor, Packages Limited, Lahore, Pakistan, and Pro-Chancellor, Lahore University of Management Sciences*; **Diana Eck**, *Fredric Wertham Professor of Law and Psychiatry in Society and Department Chair of Sanskrit and Indian Studies; Member of the Faculty of Divinity*; **Rebecca Henderson**, *Senator John Heinz Professor of Environmental Management*; **Winston Yu**, *Senior Water Resources Specialist, The World Bank*

Chair: **John Briscoe**, *Gordon McKay Professor of the Practice of Environmental Engineering, School of Engineering and Applied Sciences, and Professor of the Practice of Environmental Health, Harvard School of Public Health*

**John Briscoe, Gordon McKay Professor of the Practice of Environmental Engineering and Environmental Health at Harvard University**, chaired the session and started off by highlighting the importance of water security in South Asia, especially in light of the challenges of high variability in water availability and the risk management associated with this variability. Current climate change models further predict greater variability in the future, further highlighting the need to devote greater attention to managing issues of uneven water distribution such as scarcity and floods. Furthermore, it is important to note that the impact of climate change on variability of flows of the major rivers arising from the Himalayas would differ in different parts of South Asia. For instance, snow melt contributes to around 10% of the total discharge of the River Ganges in India but to 45% of the total discharge of the River Indus in Pakistan, making the Indus far more vulnerable to the threat of climate change.

As water scarcity becomes an increasingly serious issue in South Asia, there is a fear that it might lead to water conflict amongst, as well as within, countries. The growing tension over the 1960 Indus Water Treaty between India and Pakistan and clashes within India over sharing of water for irrigation are recent instances of such water conflicts.

Keeping this in mind, how can Harvard engage with these issues and what role can it play in helping to find probable solutions to the challenges that South Asia faces? There are three key things that need to be addressed to find a solution to this issue. They are what can be called the three “i’s”: Infrastructure, Institutions and Innovation.

Firstly, infrastructure which is crucial to dealing with water variability is severely lacking in many regions of South Asia. Pakistan, for instance, has only 30 days of storage on the River Indus whereas the US has 1000 days of storage on the Colorado River. A lack of infrastructure also means that the vast potential for hydropower in many South Asian countries has largely not been utilized. Pakistan has only developed 10% of its hydropower potential and India around 25% whereas this number is around 70% for Europe and North America.

Secondly, institutions play an extremely important role in managing water resources efficiently. For instance, the severe drought in Australia during the last decade led to a 70% reduction in water availability in the Murray-Darling Basin; however robust institutions combined with vital infrastructure allowed Australia to weather such catastrophic drought conditions without any significant detrimental impact to its people and economy, highlighting

the important role institutions can play in dealing with issues of water variability.

Thirdly, innovation is extremely important to solving water issues and this is where Harvard can come in. Water and how people think about it has many dimensions and hence water security is not only an economic or environmental issue, but also a cultural and religious issue and one cannot understand water issues in South Asia without understanding South Asian culture and religion, and Professor Diana Eck will be discussing these cultural and religious dimensions in her presentation. The second presentation will be by Winston Yu, a water specialist with the World Bank who will discuss the risks associated with water security in South Asia. Professor Rebecca Henderson and Syed Babar Ali will then be discussing the potential partnerships between the public and the private sectors in dealing with water issues and the innovations one can find therein.

**Professor Diana Eck, Fredric Wertham Professor of Law and Psychiatry in Society, Chair of the Department of Sanskrit and Indian Studies, and Member of the Faculty of Divinity** emphasized how water is deeply rooted in the culture and religion of South Asia, particularly among Hindus. The River Ganges or Ganga, for instance, is more than just a flow of water: it is the archetype of sacred waters whose sanctity as a mother river goes back thousands of years. Millions of pilgrims from all over India come to the Ganga each year to bathe and perform rituals, drawn by the enormous spiritual pull of its water. With modernity and the subsequent increased access to transport, pilgrimage traffic to *sangams*, bathing sites on the Ganga, has increased. The 2010 *Kumbh Mela* in Haridwar, for instance, drew 100,000 people an hour and over 10 million people over the course of the festival.

India's rivers are sacred and used in ways that are far more ritualistically intensive than other places. Hindus universally use these waters for ritual purposes and hence the cleanliness of these rivers is not only important for strictly environmental purposes, but for religious purposes too.

However, with a rapidly growing population, these rivers have become increasingly polluted. Pollution threatens to choke the life of the rivers, and has created one of the worst environmental problems in India today. Nearly 89 million liters of mostly untreated sewage is disposed into the Ganga every day from the dozen municipal cities that fall along its route, with the amount of sewage disposed increasing during pilgrimage season. Yamuna River, one of the main tributaries of the Ganga is amongst the most heavily polluted, and according to locals, is now a dead river. Kelly Alley and David Haberman have written in detail about this abuse through industrial and human wastes pollution. Many see the abuse of the river as a sign of the moral degeneracy of the age, government corruption and a lack of wastewater treatment plants.

In India, different groups have different takes on this issue, but there is a need to bring together scientific and religious discourse. Any campaign to clean the Ganga requires the involvement of people from different disciplines from religious scholars to scientists and engineers. There has been some work done in the past, although there hasn't been much success – the Ganga Action Plan was incredibly expensive but disastrously ineffective – and some foundations are now raising awareness of the issue.

In conclusion, no place should have clean rivers more than India where the rivers serve not only a utilitarian purpose but a religious and cultural one as well. But polluted or not, the Indian rivers are as busy as ever. The crisis of environmental degradation is not just that but also a cultural and theological one. Moving forward, greater dialogue and collaboration is required in order to have a better religious and scientific understanding of the issue. As Gandhi famously said, “Democracy must in essence, therefore, mean the art and science of mobilizing the entire physical, economic and spiritual resources of all the various sections of the people in the service of the common good of all.”

**Winston Yu, Senior Water Resources Specialist at The World Bank and Adjunct Professor of International Relations at Johns Hopkins University**, discussed a number of challenges that arise when dealing with water security. These challenges require a multitude of disciplines and talented people to come together to collaborate on the issue. There may not be one definition of water security, but what is important is determining the main aspects that make water secure.

Water security issues are a little like governance issues: we probably know more about bad governance than good governance, and similarly we know more about what makes water insecure than what makes it secure. There are two main aspects to water security in South Asia. Firstly, the constructive role of water in human society is well-known with water being a crucial input for agriculture and power along with its use for drinking and industry. The importance of agriculture to the GDP of South Asian countries as well as its impacts on employment, poverty alleviation and food security highlight the particular importance of water security in South Asia. Secondly, the destructive role of water in the forms of natural disasters such as cyclones and floods needs to be considered. This destructive role was highlighted by the devastating floods in Pakistan last year that left 20 million homeless and caused \$10 billion in damages. On an international and national level, such numbers may not seem large but for the poor and the marginalized who bear the brunt of such destruction, these numbers mean a lot. For these local communities, this is a matter of life and death.

South Asian countries must develop their ability to both maximize the constructive role of water and minimize the destructive role. This can be done by addressing the issues of the three “i’s”; Infrastructure, Institutions and Information, instead of Innovation as mentioned earlier.

Firstly, there is a pressing need to fill in the large gaps between existing and required infrastructure, which is an extremely capital-intensive requirement. Secondly, existing institutions may not be sustainable given that they are extremely fragmented and inefficient. For instance, the irrigation department in Uttar Pradesh has around a 100,000 employees, making it an enormous challenge to modernize the system. There is a tremendous amount to do to reform such institutions. Thirdly, critical information needed to alleviate water issues is lacking in South Asia, and it is not possible for a country to manage a resource without adequate measurement of and information about the resource. Without information and the transparency of information, institutions cannot be effective in their tasks. Furthermore, this also leads to disputes as countries and provinces dispute over water sharing issues arising out of inadequate and unreliable information.

Apart from these existing issues, South Asian countries are amongst the most vulnerable to climate change; even if we were to not consider this threat of climate change, the current population growth rates in this region pose a huge challenge to the water security of the region.

Ten years ago, these water discussions used to occur between the government and academia only but today the private sector is involved and they can assist governments in putting a together a well-regulated framework to deal with water issues. **Rebecca Henderson, Senator John Heinz Professor of Environmental Management at the Harvard Business School and research fellow at the National Bureau of Economic Research** discussed the need for private and public sectors to work together. Since water is a free resource, it is not surprising to see it being overused and wasted. If institutions that can set an appropriate pricing system are established, especially in places where the demand for water is high, it would help to alleviate the problems of water management and wastage. For instance, the privately-owned Manila Water Company, which was awarded the water supply and wastewater concession for the east service zone of Metro Manila, Philippines in 1997, was able to reduce non-revenue water from 63% to 11% and increase coverage from 70% to 100%. Furthermore, there is great opportunity for entrepreneurship in this field. In India, for instance, local entrepreneurs in villages are listed as franchisees by a filtration company to operate and distribute water in their villages from the company-operated filtration units, allowing rapid growth in coverage and promoting local job creation.

However, along with huge opportunities there are enormous risks too. Whenever a pricing system is introduced, there is a serious opportunity for abuse. It is therefore important to create the right institutions and regulatory authorities to prevent this abuse.

The private sector can also work together with not only the public sector but also with local communities to build partnerships that can benefit the whole network and create common goods solutions. Nestle, for instance, needs to buy milk from thousands of local farmers and has created partnerships with these people on solving local issues including water issues.

There is a need for people from different sectors to work together to find a solution to the challenges that South Asia faces. **Syed Babar Ali, Advisor at Packages Limited, Lahore, Pakistan, and Pro-Chancellor of Lahore University of Management Sciences**, has been working on bringing people from different disciplines and sectors together, and working on solving the issue of water security. In this joint effort, success stories from around the world should be sought to draw lessons from. For example, countries like Australia have alleviated their water problems through coordinated efforts between the government, private and public sector and academia. This is one way how Pakistan should also be addressing its problems. It is a challenge but not an insolvable problem.

On a last note, the panel ended with optimism due to the great opportunities for innovation in the field, such as cooperation between the private sector and the public sector. There must be increased efforts to try to produce a group of students, scholars and academics who are specialized integrators and who can work with people from all disciplines in trying to resolve this issue of water security.