

Two Eyes

From melting mountains to supplying water utilities to two thirds of the global population, Asia is home to challenges on the grandest scale. Perhaps none are greater or more pressing than providing safe water and sanitation while adapting to climate change. New knowledge, efficient implementation and considerable capital will be needed. Stockholm Water Front investigates burning issues in the colossal continent.

Photo: Ijsendoorn, SXC

Public-Private Partnerships: ADB Advises

Asian water utilities have their work cut out for them. They are expected to provide water supply and sanitation services to Asia's 4 billion people but are perpetually overwhelmed by challenges contributing to poor service – from artificially low tariffs to staff incapacity to insufficient budgets for infrastructure development. Delivery of sustained world class service will require considerable help from partners. Mr. Arjun Thapan of the the Asian Development Bank (ADB) shares the institution's experience in making successful public-private partnerships.

Some 600 million Asians remain excluded from access to safe water today, and almost double that suffer the crudest of sanitation facilities. Poor water quality ushers in waterborne diseases while water losses cripple utilities, with major cities in Indonesia, Malaysia, and the Philippines losing well over 40 percent. Even those who have access to the services have their water woes – Bangalore, Mumbai, and Dhaka get only 4-5 hours of service daily, while Kathmandu gets even less at only four days a week.

Studies say that every dollar invested in water supply and sanitation yields 6 dollars in return. Despite this promise, the sorry state

of many Asian water utilities clearly demonstrates a conspicuous lack of investments. More investment is needed but requires cash at levels that public funds cannot meet.

Involving private players can generate the financing, expertise, and innovation needed to improve services. When pursued properly, associated benefits can include more transparent and fair processes, regulation, and laws.

Keys for Success

By 2020, ADB envisions that half of its operations, in the water sector and elsewhere, will have private players as partners. Clearly, the success of these partnerships will have a tremendous impact of the health and development of Asia's nations and people. Lessons learned from former investments provide sage advice for crafting successful public-private operations in water utilities.

Effective institutional and regulatory frameworks are crucial for stable investment. The roles and responsibilities of the government, regulators, and private operators must be clearly defined at the outset. There also must be guarantees against political risks, including currency devaluation and social unrest. Operational targets set at the start of the contracts should be based on ground realities and flexible enough for adjustments should the situation call for it.

Finally, private sector partners seek cost recovery based tariffs that allow utilities to perform more effectively. For example, connecting to a piped system charging cost recovery based tariffs is much cheaper than getting water from private vendors.

Making it Work

Like other similar institutions, ADB continually works to expand the role of private players in the sector. It does so by doing things like introducing local currency and financing facilities to reduce commitment fees and create more flexible terms to public and private clients. And by providing India with a USD 500 million loan to promote public-private partnerships. It has also implemented a range of technical assistance programmes to build the capacities of regulators, formulate national water frameworks, develop corporate structures for public water and sanitation utilities to bid out management contracts and twin public and private utilities to improve their performance. Such steps and initiatives are needed to effectively integrate the expanding role of private players in water utilities.

Mr. Arjun Thapan, Chair, Water Committee, Asian Development Bank and Director General Southeast Asia, Asian Development Bank



Worshippers going round the sacred lake Gufa-Pokhari 2007. Photo by Prem Hang Banem, winner of ICIMOD Hindu Kush-Himalayan Prize, 'Mountains and People: Global Digital Photo Contest 2008.'

Climate Change Impact on the Himalayan Water Tower

Tibet and climate change are often in the news these days, but are rarely connected. Yet, the Tibetan Plateau and the entire Himalayan region in which it stands is perhaps the world's most vulnerable area to climate change. That is because warming increases at higher altitudes and the Himalayan mountain system is the tallest on earth. A scary prospect for both of the world's most populous nations who lie in and under them and the more than 1 billion people whose livelihoods depend on the water that flows down the mountains.

The Greater Himalayan region contains the largest ice mass outside the Polar regions. The snow and ice provides a substantial melt water to rivers, including to ten of the largest in Asia. As such they act as the direct water towers for more than 150 million people, while the entire river basins sustain livelihoods for 1.3 billion people.

During dry seasons, the melt water often provides a majority of river flow. The Tarim and Indus rivers, for instance, have an estimated average annual melt water contribution of 40-45 percent, though during the low flow season this is considerably higher. In the Ganges, for example, it has

been estimated that 70 percent of the flow in the low flow season comes from melting snow and ice.

As the climate warms, snow and ice melt faster with profound impacts on rivers downstream. Initially, increased melting rates increases river discharge. With time, however, glaciers shrink and discharge finds a new equilibrium. Over time, this decreases water availability and limits water supplies for communities downstream, particularly during the dry season. In the Hindu Kush, for example, this is already happening (see box below). In the eastern Himalaya, river discharge still seems to be on the rise. Uncertainty looms around when the tipping point will be reached and river discharge will decline – leading some

Declining Returns

In the Hindu Kush range, changes in the river ecosystem resulting from decline in the glaciers and perennial snow can already be seen. Historically, high level discharge in rivers lasted throughout the cropping season, from April – September. Now it has shifted into shorter, more intense run off in April and May, leaving most of the cropping season relatively dry.

describe to the melting of glacier waters as “ticking time-bombs.”

Perilous Lakes

The retreat of glaciers also has severe impacts on glacial lakes. The lakes are formed behind loose moraine ridges, making them prone to Outburst Floods (GLOF) if the ridges break. GLOFs can wreak havoc on humans and infrastructure, including roads, bridges and hydropower stations. A mapping exercise undertaken by International Centre for Integrated Mountain Development (ICIMOD) has listed 200 of the 6500 lakes survey as at risk to cause a GLOF.

Increased energy in the hydrological cycle resulting from climate change may also alter the precipitation pattern in the greater Himalayas. A likely result: dry seasons become drier and wet seasons wetter. This could mean an increase in magnitude and frequency of high intense rainfall events, which in turn could lead to more flash floods, landslides and debris flows. All would hit hard on the large and vulnerable mountain population.

Combating Common Challenges

The potential impact on water resources for agriculture and hydropower is severe. There is a disturbing lack of data about

the water resources in Greater Himalayan region and the changes they currently undergo. Furthermore, existing data and information in the region is seldom shared, which further hampers the development of knowledge.

The countries of the Himalayan region face common challenges. They need to work together to adapt to the ongoing changes in river regimes and water availability. Both researchers and policy makers alike are stressing the need to improve monitoring schemes of snow, ice and water and their changes, in order to reduce scientific uncertainty of climate change impact in the Himalayan region. This is badly needed to improve the knowledge basis for decision makers to act upon.

By Dr. Mats Eriksson, International Centre for Integrated Mountain Development (ICI-MOD) and Prof. Xu Jianchu, World Agroforestry Centre, China Program (ICRAF-China)



Photo: Xu Jianchu

The warming of the Himalayan region, including the Tibetan plateau, has been much greater than the global average of 0.74°C during the last 100 years (IPCC 2007). The rate of warming at 3000 metres is three times higher than at sea level. In the region over 100 mountains exceed 7,200 metres in height.

Asian Challenges Discussed During World Water Week

These issues and more will be taken up during Asia Day, Tuesday August 19 and at other sessions during the week. A full slate of sessions will provide a platform for a discussion on the latest developments to address water challenges in the region.

Events will cover: Accelerating Sanitation Investments, Expanding Water Supply Cov-

erage, Adapting to Climate Change, Irrigation, Effective Basin Water Management, Rapid Economic Growth and Its Impact on Water Resources and Services, and strategies to not only avert water crisis but to ensure that available water resources can sustain economic growth. On Thursday August 21, an afternoon seminar “The Himalayan Water Towers – Resources Under Threat” will discuss necessary mitigation and adaptation

measures to secure future water availability to downstream populations living the Greater Himalyan region.

The Week will also feature a photo exhibition, ‘Himalaya: Changing Landscapes’ to visually demonstrate the impact of climate change on mountains and glaciers of the Mount Everest region in Nepal through panorama photographs taken in the 1950s and 2007. Learn more at www.worldwaterweek.org



Photo: Zheng Xue Ping, SXC

Asia Events During World Water Week

Sunday 17 August

- Approaches for Bridging the Sanitation Gap in Asian Cities

Tuesday 19 August

- Getting Water Supply and Sanitation to All
- Securing a Water Future for All
- How is Asia Adapting to Climate Change?
- Asia’s Rapid Economic Growth and its Impact on Water Resources and Services

Thursday 21 August

- The Himalayan Water Towers – Resources Under Threat