

Tackling water infrastructure challenges in Asia, Davos-style

REPORT

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On 1 July 2012 some 13 500 participants from 99 countries/regions gathered at Singapore's Marina Bay Sands Convention Centre to take part in the Singapore International Water Week (SIWW). Simultaneously, in a much smaller room, 14 specially invited water experts from across Asia, and representing large world water players, convened to hold an independent, constructive, and honest discussion about "Water infrastructure in Asia: What is needed and what is likely to be the reality."

Emulating the original aim of the World Economic Forum for its meetings in Davos to unite influential political, business, civil and academic personalities in tackling the world's most pressing challenges, this first meeting sought to do the same, specifically focusing on water infrastructure. Part of SIWW, and co-organized by the National University of Singapore's Lee Kuan Yew School of Public Policy and the Third World Centre for Water Management, the session brought together a small group of movers and shakers in the Asian water scene from the academic, government, and private sectors, and international and non-governmental organizations who are committed to identifying and developing informed, pragmatic and implementable policy recommendations and potential solutions to critical issues in the water sector.

The group's approach and discussion focused around the development and management of the physical structures, frameworks, systems, policies, and facilities that can efficiently and effectively manage water resources on a long-term basis in Asia. But sharing a common goal does not always seek consensual thought or action. On this occasion, having a shared concern called for visionary, sensible and responsive thinking to tackle problems and opportunities. Participants urged politicians and stakeholders to prioritize building better engineering feats, to implement pro-active rather than reactive approaches, to manage risk more effectively and to develop and strengthen human and institutional capacities and frameworks for better water management.

In this type of problem-solving, pragmatic dialogue could not be any timelier. If the existing trends continue in Asia, some estimate that water demand is likely to double by 2050 as population growth continues, urbanisation increases, dietary patterns change, industrialization intensifies, agricultural productivity struggles to meet food and energy requirements, and climate changes add uncertainty to already complex and variable scenarios. Without doubt, the challenges ahead are formidable,



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but so are the prospects for improvement, growth, and development. Good examples in the region are showing how this can be done. Singapore has long been singled out as a case where water has been placed as one of the country's agenda drivers requiring good management practices. Strong political will and integrated ministerial activities have positioned water as a cross-cutting issue in the country's development practices and policies. This is a powerful lesson for other nations in the region.

Regarding development of water storage options as well as multipurpose infrastructural projects to provide water services and harness some of the continent's hydropower potential, some countries have overcome management challenges that have hindered the construction of new infrastructure in the past. It should not be overlooked that water

projects are often political, are opposed to, and supported by, minorities, different political parties and interest groups. Others become whimsical, signature structures for politicians; white elephants that are inefficiently planned, built and managed and fail to deliver all the promised benefits.

The extensive practice of build-neglect-rehabilitate (BNR) must be changed, as it imposes significant social and economic costs on society. Gradual increments can help recover capital investments and ultimately reflect environmental costs. Mindful of such rightfully fierce criticisms and opposition, policymakers have to find ways of engaging in responsible developments and rally public support behind badly needed projects. It is clear that regardless of size or scale, infrastructure developments should engage the public and lead to a more open communication and interaction across technical disciplines, social and observation sciences, politicians and society. There are more than 2 billion people who do not have access to safe and drinkable potable water and a further 3 billion people who do not have access to proper sanitation and wastewater management. How can the general public support the development, maintenance and management of the infrastructure that is needed to provide these basic services, unless they are engaged in the process?

Reaping the benefits of good governance

In places where overall good management practices are evident through public information, reservations about previous mistakes, which affect upcoming projects, have partially vanished. This has been the case in Bhutan, where the rugged Himalayan terrain and highly season-

able monsoon rains contribute to its considerable hydropower potential. The country could generate 30 000 MW, of which 23 750 MW is technically feasible. Even when it has developed only 5 per cent of its potential, domestically consuming a mere 21 per cent of the 1489 MW generated, Bhutan has the highest per capita power consumption in South Asia, as well as the highest per capita GDP. The remaining 79 per cent is sold to India, bringing substantial export revenues.

In 2010, power receipts contributed 19 per cent of Bhutan's gross domestic product, 45 per cent of direct internal revenues and greatly offset the balance of payments. This partnership exemplifies the many opportunities for further collaboration, going beyond conventional bilateral cooperation in the sector for the optimal use of water for irrigation and drinking. By 2020, the government has planned to harness 10 000 MW of hydropower resources, for which it requires US\$15 billion. These costs are being financed almost entirely by India through government-government and public-public joint ventures. Substantial Indian involvement has nevertheless raised national questions of ownership, equity, energy security and fuel alternatives. A public-private joint venture, a first of its kind in the hydropower sector, is now being implemented. Bhutan is considering whether to open more projects to the private sector in the coming years. As levels of socioeconomic development rise, domestic demand for petroleum products intensifies, raising concerns on how to cover the demands of a country that depends solely on imports of oil and coal over inhospitable terrain.

The country's governance system, formalized consultations, national and external monitoring, and public pressure to improve implementation, have all made it easier for people to publicly support projects. Further backing has emerged from the increased forest coverage that has followed the construction of dams and which reinforce national laws stipulating that 60 per cent of the country is to remain under forest coverage in perpetuity. Difficulties have emerged, as discontent amidst some of the small number of resettled populations has arisen a few years after the projects were completed, mostly because of the rise in land prices.

Bhutan represents a good reference point for other countries seeking to harness their hydro potential, and build a strong sector and excellent inter-country cooperation. Approval rates for infrastructural development are likely to remain high when natural resources are primarily used to meet domestic needs, and act as a lever to turn the energy export sector into an engine for regional collaboration and a revenue-enhancing activity. Institutions in the country have distributed wealth and benefits among the population, and so the people have been able to see clearly how receipts from electricity sales can contribute to the country's socio-economic development, help alleviate poverty and close domestic income gaps.

Other encouraging examples have also been drawn from other regions in the world with equal hydropower development. With some of the greatest hydropower potential in the world, most countries in Asia and South America have hardly exploited them. Brazil, however, shows how opportunities can be harnessed and challenges tackled to develop a sizeable, effective and reliable hydropower sector. In Brazil, hydropower represents 86 per cent of the energy mix, significantly more than the world average of 15 per cent, but still representing only 28.2 per cent of its potential. The country also

has the largest hydro system in the world and domestic conditions have been favourable for these positive sector developments to be furthered.

Brazil provides an interesting example for Asian countries seeking ways to fuel a fast growing economy and its accompanying high-energy demands. By 2017, energy needs will rise by 55 GW, demands that will be met through an energy expansion plan (2008-2017) that seeks to intensify the development of the 260 GW the country can potentially generate. Hydropower generation will contribute 29 GW, 53 per cent of that energy demand, and of that 86 per cent will come from the Amazon basin.

The Belo Monte development, which has been so controversial, was presented as a project for which preparatory meetings and public hearings were held with impacted indigenous groups and other stakeholders. The social programme Acreditar, designed as a strategy to enhance local project ownership, has increased community knowledge, mobilization and engagement. The scheme has focused on capacity building among the local population so that as much as 70 per cent of the required workforce for the project comprises local people.

Future challenges

Despite encouraging advancements in project management, there are still considerable challenges. Deforestation in the Amazon needs to be controlled, and environmental services maintained. There is also growing concern about the loss of genetic resources and intellectual property surrounding endemic flora and fauna and the rights of indigenous peoples and traditional communities. Of particular importance to the sector are energy expansion plans, which have tended to centre on supply management as opposed to addressing demand and making more efficient use of resources.

Around the world, similar debates also address concerns about mounting capital requirements, environmental and social costs, and the accelerating planning and executive complexities that accompany water storage projects. For instance, regional infrastructural development has triggered questions on responsible displacement in China, financial constraints in India and capital limitations in Nepal. Such conversations point at the need to place further emphasis on the development and enhancement of managerial capacities. A combination of innovative engineering schemes, expanded knowledge and operational know-how will be decisive in creating a favourable environment to formulate solutions for Asia's infrastructure problems. The good news is that this knowledge is already available, and can be drawn from a variety of sectors and with the involvement of multiple stakeholders.

The Asian continent is also urbanizing and industrializing at a surprising speed. With 11 out of 20 mega-cities in the world, it is no surprise that Asian metropolises are also the continent's economic and industrial powerhouses, accounting for more than 80 per cent of the region's GDP. By harnessing the region's macroeconomic growth, Asian countries can use capital and human resources to approach water and wastewater management challenges as an indispensable step in efforts made to alleviate poverty or improve the populations' standards of living in rural and urban areas.

It is imperative to draw a holistic and clear connection between water, food, energy, and environmental services and also between development, wellbeing and access to water and wastewater management via more and better managed infrastructure. With access to clean and safe

water and wastewater management, healthier people can engage in better remunerated, more productive income-generating and life-enhancing activities.

As Asia's population grows and an increasing number of people move to urban centres, the demand for basic necessities and social services surges and shifts to incorporate changing consumption patterns. Assuring food security has become a rising concern, and one that puts more pressure on agriculture and food management systems. In the 1960s, productivity gains and vertical increases in yields were driven by irrigation and enhanced seed varieties. The current challenge is to set a second Green Revolution in motion, to ensure that enough (affordable) food is produced to feed growing populations and to satisfy changing dietary patterns. How can this intensification of agricultural activities be made sustainable in an Asian context, where more poor people are likely to live compared with any other continent in the world?

More importantly, where will the resources and know-how come from to undertake these ample investments? Better cost-recovery from users is crucial, and whichever pricing mechanisms are employed, they will have to be sufficient to cover operation and maintenance costs. In India, breaking the subsidy culture for water and electricity has proven to be a tough issue to tackle. Business models are not designed for survival, and it remains to be decided where the responsibility for managing the water cycle, collecting fees and making decisions rests. Institutional changes are undoubtedly difficult, but not impossible to carry out. Malaysia has made considerable progress in making the water service industry a sustainable sector and delivering continuous and affordable access to safe water. Reforms have led to the establishment of an independent national regulator and the use of innovative financing mechanisms to raise inexpensive, long-term and competitive capital. In five of the country's states, a 'cost plus' approach has been followed, to put in place a more transparent and fair pricing mechanism, while consulting with stakeholders. Losses have been reduced, water quality improved, billing efficiency and accuracy improved, and customer service enhanced. Other advancements include licensing, which now protects customers against irregularities in water quality and effluence compliance. Users can resort to legal procedures to prosecute owners and/or operators who violate the provisions, and investigations and convictions act as deterrents and increase public awareness of existing laws and customer protection measures. The ultimate long-term goal is to deliver increasingly effective and efficient water services, and to adopt transparent tariff-setting mechanisms.

Water is a natural monopoly, and unlike other goods that invite similar economic behaviour, there are no alternative goods which can be created in its place. Creating management and infrastructural alternatives, and better practices can be a costly endeavour for any government or private company to undertake. Prejudices and clichés aside, the private sector should be encouraged and accepted as an important stakeholder in narrowing investment gaps in the water sector, checks and balances included. If forged properly, intra- and inter-sectorial partnerships can create mutually beneficial, socially acceptable solutions for all stakeholders. For that to happen, governments need to guarantee law and tariff enforcement. It is not uncommon for private firms to see their capacity to collect tariffs curtailed by government actions, legislation and political signals, thus casting doubt on whether governments will honour signed contracts or side with consumers.

Moving beyond conventional engineering and economics, individual assessments from 11 Asian countries, ranging from the continent's giants, India and China, to mid-size countries like Korea, Thailand and Malaysia and small nations like Bhutan, showed the extent to which each approach addressing water requirements is context-specific and politics-conditioned. Any action requires the strong will and commitment of all stakeholders, sizeable investments from conventional and new partners, comprehensive strategies, effective implementation and management and continuing technological adaptation and innovation.

Changing mindsets

More importantly, any future ways of building infrastructure will entail a profound change in our collective political, economic, environmental and social mindsets. Raising awareness, maintaining a relationship with the public and engaging civilians are increasingly important in rallying support. Processes need to be made sustainable and more socially responsible and responsive. For this, we need to think about the different ways in which public opinion and support can be included in developing physical, social and political infrastructure. While certain sector areas face more barriers in transmitting their success stories (sewerage, for example) illustrative examples of the sizeable gains from safe water and sanitation are easier to communicate. Other initiatives, such as restoration projects, offer an opportunity to engage with supportive social groups, especially among those segments of society placing heightened value on environmental protection.

Professionals in the water sector need to learn from social movements and the way traditional and new media channels have been used to shape public perception of civil groups. They often see themselves, and are seen, as closer to the people than those making decisions on infrastructure and tariffs. Following this example, information should be made more attractive and accessible to garner interest from the general public and obtain its support. The power of the media and communication should not be understated. The water sector can learn lessons from critics, civil society associations and non-governmental organizations and start turning public opinion in its favour.

Frank, in-depth discussion among water experts on these issues seldom takes place. The meeting in Singapore was an initial step, and one that could pave the way towards more useful policy recommendations and constructive criticism around key water issues.

Sometimes the heart of decision-makers is in the right place, sometimes their mind, and sometimes their will power. They can and should always use a targeted, pragmatic and honest assessment of the state of affairs. Tackling water challenges, Davos-style, promises to help direct water stakeholders' minds, hearts and wilful determination onto the right path. ◇

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