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WATER FOR SOUTH ASIA

SECURITY OF SUPPLY REQUIRES REGIONAL COOPERATION

Tomislav Delinic / Marcel Schepp

“Unquenchable Thirst” was the headline of an article in *The Economist* in May 2012 describing the situation of water supply in South Asia.¹ This description might sound over the top at first glance, but it is in line with a number of predictions about the water supply situation in South Asia, some of which are even considerably more drastic. From “Fresh Water under Threat” and “Mega-arc of water insecurity” to “Asia’s New Battleground” and “Water Wars”² – the future of the water supply on the subcontinent does not appear to give cause for optimism at the present time.

In actual fact, the quantity of water available per person in South Asia has declined by over 80 per cent since the 1950s.³ Countries such as India and Pakistan currently have access to a mere eighth of the average amount of fresh water that is available per capita globally each year⁴ and are thus nearing the threshold to chronic water shortage. While demand among the population is rising continuously, storage and distribution structures are outdated and government policies are ineffective due to bureaucratic obstacles, corruption and mismanagement. Decades of surface irrigation have depleted groundwater

- 1 | “South Asia’s Water. Unquenchable Thirst”, *The Economist*, 19 Nov 2011, <http://economist.com/node/21538687> (accessed 25 Oct 2012).
- 2 | Cf. Brahma Chellaney, *Water: Asia’s New Battleground*, New Delhi, 2011; United Nations Environment Programme (UNEP), *Freshwater under Threat: South Asia – Vulnerability Assessment of Freshwater Resources to Environmental Change*, Nairobi, 2008; N. 1; Brahma Chellaney, “The next struggle. Averting water wars in Asia”, *The New York Times*, 26 Jun 2007, <http://nytimes.com/2007/06/26/opinion/26iht-edchellaney.1.6335163.html> (accessed 25 Oct 2012).
- 3 | Asian Development Bank, *Water for All: The Water policy of the Asian Development Bank*, Manila, 2001, 3.
- 4 | N. 1.

reserves, the water supply capabilities of the urban centres are becoming ever more overstretched, dilapidated electricity networks coupled with increasing usage create a need for new energy sources to be explored (experts believe that hydroelectric power from the mountains of the Himalayas should be at the top of this list). Added to this is the impact of climate change that is being felt already in the form of distinctly more erratic monsoon rains and melting glaciers as well as rising sea levels and incidents of flooding.⁵ While these developments – disregarding a few exceptions – have previously mainly been considered as problems to be tackled at a local level or through national policies, it now seems that a threshold has been reached where regional solutions are indispensable. However, in spite of the frequently invoked cultural similarities, there has been very little regional integration in policy, economic and social areas. Previous efforts, such as the South Asian Association for Regional Cooperation (SAARC), which was established in 1985, have hardly been able to make any impact so far as they are still being hampered only too frequently by national reservations and interstate animosities. The reason regional cooperation – including collaboration on a shared water supply – is faltering is not least due to the unique geography of the subcontinent.

From Afghanistan in the west to Bangladesh in the east, from Nepal in the north to the Maldives in the South – South Asia⁶ is a subcontinent of high territorial and geographic complexity. While India shares a land or sea border with all eight states of the SAARC region except Afghanistan, all other states (once again except Afghanistan) only share a border with India. Borders that were established in colonial times and some of which are still being fought over make the unambiguous assignment of territorial claims difficult. And this is also a significant factor with respect to the unique hydrogeography. With the Himalayas acting as a natural water storage system and the Indus,

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5 | Asian Development Bank, *Climate Change in South Asia. Strong Responses for Building a Sustainable Future*, Manila, 2010, 5-7.

6 | In this context, South Asia is understood to mean the eight member states of the South Asian Association for Regional Cooperation (SAARC), namely Afghanistan, Bangladesh, Bhutan, India, the Maldives, Nepal, Pakistan and Sri Lanka.

Ganges and Brahmaputra rivers acting as lifelines, South Asia might at first glance appear rich in water resources, but it is nevertheless suffering from an inadequate water supply, which is also beginning to have a growing impact at regional level. An area one might expect to have water in abundance – seeing that the glaciers of the Himalayas are supplying the fertile plains of the river basins – is actually reliant on a water cycle that depends on inconsistent monsoon rains and poses immense challenges for the region's infrastructure. Huge volumes of water need to be stored sustainably in a very short space of time for use during long dry periods. Particularly dams are a frequent cause of conflict as they crucially affect the interests of people living in downstream areas. The Himalayas are also increasingly becoming the object of conflicting interests as their peaks are thought to offer the potential for immense amounts of energy that can be utilised through hydroelectric plants. Besides India, China is also increasingly developing into a serious player in this scenario. Water supply therefore also involves security-related aspects, be it as a means to apply pressure in confrontations within and between states or as a target of terrorist activity.



The Himalayas are increasingly becoming the object of conflicting interests as their peaks are thought to offer the potential for immense amounts of energy. | Source: Dr Michel Royon / Wikimedia Commons (CC0).

This complex situation poses great challenges for policy makers. On the one hand there is a need to satisfy domestic interests and requirements. On the other hand this can only work in the long term if foreign policy considerations are taken into account through regional cooperation. This is bound to produce friction within and between the states of the SAARC region. While South Asia thus appears to be moving towards an era of water-related conflicts, the competition for water might actually prove to become a catalyst for deepening regional cooperation.

WATER SUPPLY – WATER SECURITY – WATER STRESS

Over the last few years, the problem of securing the water supply has been attracting attention in international politics as a regional and even global problem. While the water supply has always been a fixed component of international development and environment policies, the realisation that it also involves aspects of security policy and geostrategy has only been a phenomenon of the recent past.⁷

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“Water security” is the key phrase that tends to be used in this context. It refers to the sustainable use of water, protection against water-induced hazards as well as the safeguarding of access to water for both people and the environment.⁸ According to the definition by the United Nations, “water security supplies people with drinking water, sanitation, food, industrial resources, energy [and] transportation [...], all of which depend on maintaining ecosystem health and productivity.”⁹ According to this view, one would have total water security if the population of a specific area was being supplied adequately with water from the resources available in that area as well as being protected from the hazards it poses without long-term damage to the ecosystem. In cases where reality does not match this somewhat idealistic picture, water shortages,

7 | Chellaney, n. 2, 49.

8 | Bart Schultz and Stefan Uhlenbrook, “Water Security. What does it mean? What may it imply?”, UNESCO-IHE Institute for Water Education, 13 Jun 2007.

9 | United Nations Development Programme (UNDP), *Water security and ecosystem services: The critical connection*, Nairobi, 2009, 18, http://unepdhi.org/~media/Microsite_UNEPDHI/Publications/documents/unep/The_critical_connection.ashx (accessed 25 Oct 2012).

water stress, water scarcity or lack of reliable water supply occurs. Water shortage describes a situation where the basic water supply to sustain the economy and society is not guaranteed. A situation of water stress exists when

Water insecurity occurs when a country cannot ensure supply for its population from domestic water resources.

a country has less than 1,666 cubic metres of water available per capita each year. If this figure falls below 1,000 cubic metres, experts speak of chronic water stress or water scarcity. And finally, a lack of water security occurs when a country cannot ensure an adequate supply for its population from domestic water resources, which increases the likelihood of cross-border conflicts. However, these indicators are difficult to separate clearly in most cases. Depending on the geographic and ecological conditions, the demographic requirements and the sectoral consumption situation, the definitions can vary from country to country. Whereas water shortages tend to be found in predominantly agricultural countries with a low level of industrialisation, for instance, water stress and water scarcity are more likely to affect countries that have at least widespread surface irrigation and a more highly developed industrial production sector.¹⁰

To ascribe one of the above-mentioned conditions to the whole of South Asia would therefore not be accurate. Depending on the region, country, sub-region or locality, either one or several conditions might apply. It therefore makes most sense to use the term water security when discussing the overall situation in South Asia as it describes the water supply situation across the region most comprehensively.

CONFLICT OR COOPERATION?

"Many of the wars this century were about oil, but those of the next century will be over water,"¹¹ pronounced the former Vice-President of the World Bank, Ismail Serageldin, in an interview with *Newsweek* magazine in August 1995. Although somewhat exaggerated for effect, Serageldin's statement marked a significant turning point in the

10 | Chellaney, n. 2, 49.

11 | Frontline 9, "Of Water and Wars", Interview with Dr. Ismail Serageldin, Vice-President, World Bank, 7 May 2012, <http://www.frontlineonnet.com/fl1609/16090890.htm> (accessed 7 May 2012).

international debate on the future of global water supply. While Serageldin's intention was merely to issue a wake-up call and encourage a concerted global approach to the water supply issue, he unwittingly threw light on a discussion that has been concerning scientists for some time and continues to the present day: Is water the cause of war or rather of cooperation?

First making an appearance in the 1990s, the so-called Resource War Theory postulates that the likelihood of interstate conflicts increases when states compete for natural resources, including water. Two states competing for resources, be it due to sudden increases in demand, short-term shortages, a more extensive conflict situation or simply to rhetorical skirmishes, would inevitably lead to conflict. Critics of this view, on the other hand, assume that wars for water are rather unlikely as they will ultimately hardly be conducive to improving the water supply for either of the parties involved. Instead, international agreements on the shared use of water – such as the Indus Waters Treaty between India and Pakistan, which has been in place since 1960, or the treaty on shared use of the Ganges signed by Bangladesh and India in 1996 – indicate that several parties depending on the same water source can encourage cooperation rather than conflict. While wars for water can only ensure the supply in the short term, cooperation can, at its best, even mean a long-term and sustainable water supply – at least in an ideal case.¹²

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A look at the water-related conflicts of the last 65 years shows that competition for water is not at all rare in South Asia. According to the Pacific Institute, there were a total of 18 such conflicts between 1947 and 2010, only three of which can be classed as non-violent. No less than a third of these conflicts took place in the period from 2002 to 2010, possibly an indication of the increasing water stress affecting the region. According to the Pacific Institute typology, the causes of water-related conflicts can be divided into six categories: control over water resources, water as a political

12 | Joseph Steinberg, "Revisiting the Water Wars Theory: How Reasonable States Really Are", *e-International-Relations*, 14 Jan 2011, <http://e-ir.info/2011/01/14/revisiting-the-water-wars-theory-how-reasonable-states-really-are> (accessed 25 Oct 2012).

or military tool, water as a target of terrorism or military actions or water as a source of development disputes. A large number of water-related conflicts in South Asia can accordingly be interpreted as development disputes, i.e. conflicts that are inherently linked to the socioeconomic developments in the area. But they also often include a military or security-related component as well.¹³ Others are critical of this categorisation and speak of an increasing securitisation of the debate on water policy. This is a development, which ultimately diverts attention away from the fact that many of the water-related conflicts in South Asia are being or actually have been resolved or at least discussed at a political level. To reduce water to the aspects of security would mean ignoring the multifaceted nature of the problems and exclude a large number of the affected actors from the discussion.¹⁴ Whether water becomes the object of conflict or of cooperation consequently also depends on the scientific viewpoint. But one thing appears certain: A long-term deterioration in the relationships between the states of South Asia can only be prevented if they succeed in finding a joint approach to tackling the inequitable distribution of water.

HUMAN RIGHT OR ECONOMIC ASSET?

The Dublin Statement is considered one of the most important reference documents for cooperation in the water sector.

In January 1992, 500 experts, government envoys and representatives of international governmental and non-governmental organisations from over one hundred states convened in Dublin to discuss the future challenges of global water supply. The outcome document of the conference – the Dublin Statement – is considered one of the most important reference documents for cooperation in the water sector worldwide to the present day. Divided into four guiding principles, the core message of the conference can be summarised as follows: The use of water, understood both as a finite resource and an economic asset, inevitably has to be managed by means of a participatory and inclusive

13 | Pacific Institute (ed.), "The World's Water", <http://worldwater.org> (accessed 25 Oct 2012).

14 | D. Suba Chandran, "Indus Water Governance-IV: Don't Securitize the Water Debate", Institute of peace and conflict studies, 26 Aug 2010, <http://ipcs.org/article/pakistan/indus-waters-governance-iv-dont-securitize-the-water-debate-3224.html> (accessed 25 Oct 2012).

approach to ensure a sustainable supply for the entire world population.¹⁵ However, this rather business-like concept of water is not shared by everybody and is often contrasted with the view that water is more of a legal asset than an economic one.¹⁶

The idea of a right to water is already included indirectly in several agreements of international law, including the United Nations Charter, the Geneva Convention, the International Law on Human Rights as well as the conventions on women's and children's rights. However, the right to water was not explicitly defined until a general commentary published in 2002 regarding the International Pact on Economic, Social and Cultural Rights approved by the UN General Assembly on 16 December 1966, which states: "The human right to water is indispensable for leading a life in human dignity. It is prerequisite for the realization of other human rights."¹⁷ However, so far this interpretation of law has frequently proved to be not much more than an aspirational claim, as it is neither binding nor enforceable in international law.¹⁸

This does not mean, though, that the two concepts – water as a human right or as an economic asset – have not been reflected in international politics. In addition to numerous development efforts, some of which extend down to the micro level of individual communities and villages, the realisation of the two aspects in a concrete development agenda is reflected particularly strongly in Article 19 of the Millennium Declaration of the United Nations from 2000. This includes the statement: "We resolve [...] to halve, by the year 2015, [...] the proportion of people who are

15 | Cf. International Conference on Water and the Environment, *The Dublin Statement and Report of the Conference*, Dublin, 1992, 4.

16 | Cf. Lena Partzsch, "Partnerschaften – Lösung der globalen Wasserkrise?", *Politik und Zeitgeschichte*, 25/2006, Bundeszentrale für Politische Bildung (bpb), Bonn, 2006, 22 et seq.

17 | Cf. John Scanlon, Angela Cassar and Noémi Nemes, "Water as Human Right?", *IUCN Environmental Policy and Law Paper*, 51, UNDP, Bonn, 2004, 3-6.

18 | Cf. Marianne Beisheim, "Einleitung: Wasser als Ressource und Konfliktgegenstand", in: Stormy-Annika Mildner (ed.), *Konfliktisiko Rohstoffe? Herausforderungen und Chancen im Umgang mit knappen Ressourcen*, Stiftung Wissenschaft und Politik (SWP), Berlin, Feb 2011, 22, http://swp-berlin.org/fileadmin/contents/products/studien/2011_S05_mdn_ks.pdf (accessed 26 Oct 2012).

unable to reach or to afford safe drinking water.”¹⁹ Article 23 of the Declaration further points out that the sustainable use of global water resources demands the development of water management strategies at the regional, national and local levels, which promote both equitable access and adequate supplies. This aspect was stressed once more in the outcome document of the World Summit on Sustainable Development held in Johannesburg in 2002²⁰ and had also been touched on in the second principle of the Dublin Statement: “Water development and management should be based on a participatory approach, involving users, planners and policy-makers at all levels.”²¹ The basic realisation behind these goals is that shared access to water can only be achieved in the long term and sustainably through equitable cooperation between governmental and non-governmental actors.²²

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One of the concepts closely linked to this aspiration is that of the so-called Integrated Water Resource Management (IWRM). IWRM is described as follows: “the quantitatively and qualitatively sustainable management of interlinked surface waters, aquifers and coastal waters has the aim of supporting social and economic development and strengthening the efficiency of ecosystem [as well as the aim] to maximize social and economic well-being while avoiding damage to vital ecosystems and creating fair conditions for the utilization of resources”.²³ In short, based on the IWRM, shared use of water should be managed according to the principles of ecological, social and economic sustainability. As a cross-sector and decentralised process, IWRM aims to link the water supply at the macroeconomic political level with development mechanisms at regional, national and local levels. The main criteria should be the requirements of nature and people as well as the inclusion

19 | Cf. “United Nations Millennium Declaration”, United Nations General Assembly, 8 Sep 2000, <http://un.org/millennium/declaration/ares552e.htm> (accessed 25 Oct 2012).

20 | Cf. *Report of the World Summit on Sustainable Development*, United Nations, Johannesburg, 26 Aug - 4 Sep 2002.

21 | N. 15.

22 | Cf. Partzsch, n. 16, 20.

23 | “Integriertes Wasserressourcen-Management”, Federal Ministry of Education and Research (Bundesministerium für Bildung und Forschung, BMBF), <http://wasserressourcen-management.de/en/99.php> (accessed 25 Oct 2012).

of affected stakeholders at all levels. The core idea of the IWRM concept is to see the water supply not as an isolated problem, but an issue embedded in a larger political, economic and social context.²⁴

This aspiration poses a paradox for national and international politics in general and development politics in particular. As much as cooperation between all involved actors is desirable in an ideal scenario, it is rarely the case in reality. Because in most situations, water – be it as a human right or as an economic asset – represents a resource that is claimed by a great variety of interest groups within and between different nation states and frequently hotly fought over. As will be illustrated below, the unique hydrogeography of South Asia means that aspirations for an inclusive water supply scenario are often eclipsed by the considerations of political reality.

WATER SUPPLY IN SOUTH ASIA: FACTS AND FIGURES

It is not an easy task to provide an overview of the facts and figures relating to water supply in South Asia. If available at all, the statistics, surveys and sets of collected data kept by governments and NGOs date back to a number of different years and cover greatly varying periods. The overview provided below does therefore not claim to be complete, but merely an attempt to provide a reasonably comprehensive picture of water and water supply in South Asia on the basis of the available data.

Geography: Scarcity in Abundance

South Asia is a region of great contrasts also where water is concerned. 70 per cent of annual precipitation occurs within the four months of intensive monsoon rain between mid-July and mid-September. The rest of the year is characterised by enduring dry weather, in many areas even by drought. In terms of geography, there are highly fertile areas rich in water, which are located predominantly along the large rivers in the northeast of South Asia and in the Himalayas, besides steppes and deserts in the northwest of the region.

24 | Cf. "Key IWRM Concepts", Global Water Partnership, <http://gwp.org/The-Challenge/What-is-IWRM/Key-IWRM-concepts> (accessed 25 Oct 2012).

Fig. 1
The Indus basin (top left) and the Ganges-Brahmaputra-Meghna basin (top right).



Source: United Nations Cartographic Section. Department of Field Report.²⁵

25 | United Nations Cartographic Section, Department of Field Report (ed.), "General Maps – South Asia", Dec 2011, <http://un.org/Depts/Cartographic/map/profile/Southeast-Asia.pdf> (accessed 25 Oct 2012).

All the large rivers of the subcontinent – the Brahmaputra, the Ganges and the Indus – originate in the Himalayas: the Brahmaputra and the Indus in the Kailash mountain range in China and the Ganges in the Gangotri Glacier in northern India. While the Indus flows into the Arabian Sea after passing through China, India and Pakistan, the Ganges converges with the Brahmaputra, which has previously flown through India, in Bangladesh, from where the two rivers then continue together to flow into the Bay of Bengal – first under the name of Padma and finally that of Meghna (see fig. 1.). With a water catchment area of 1.63 million square kilometres (corresponding roughly to five times the area of the Federal Republic of Germany), the so-called Ganges-Brahmaputra-Meghna (GBM) river basin is the second largest river system of the world after the Amazon basin. The GBM basin supplies over 700 million people in Bangladesh, Bhutan, China, India, Myanmar and Nepal with water. The Indus – Pakistan’s lifeline with a catchment area of 1.14 million square kilometres – is hardly any less significant, even if it crosses fewer countries, and of particularly great importance for the security-related aspect of the water supply in South Asia in view of the volatile relationship between India and Pakistan.²⁶

This unique hydrogeography has two consequences. For one, the resource of water is distributed very unequally both in terms of quantity and time. Secondly, it is concentrated geographically to a sub-region that is not only very restricted physically, but also divided by several state borders. The Indus basin and the river’s tributaries extend across five states, the GBM basin even across seven. In spite of this, over 50 per cent of both basins are located on Indian state territory. In consequence of this geographical configuration, the countries along the upper, middle and lower courses are caught in partly asymmetrical relationships of mutual dependence, which means that there is a permanent potential for political conflict.²⁷ The fact that most of South Asia’s rivers – including the Indus and the Brahmaputra – originate in China makes

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26 | Cf. *South Asia Environment Outlook 2009*, UNEP, SAARC and Development Alternatives (DA), Nairobi, 2009, 24-29, <http://unep.org/pdf/SAEO-2009.pdf> (accessed 25 Oct 2012).
27 | Cf. *ibid.*

the situation all the more complex. Tensions relating to disputed territorial claims and the management of rivers flowing across borders extend the resource pressure even beyond the region itself.

Supply and Consumption – Light and Shadow

South Asia has a great thirst for water. Some 1,027 billion cubic metres of fresh water are withdrawn from the region's water cycle each year. This corresponds to over 50 per cent of the volume of renewable fresh water of 1,990 billion cubic metres available overall. By comparison, the equivalent volume for the region of East Asia and Pacific is only 952 billion cubic metres or ten per cent of the total available volume of water; in Europe and Central Asia, the volume of withdrawn water is only 330 billion cubic metres, equating to six per cent of the total available renewable water volume.²⁸ This disproportionately high level of withdrawal of resources from the water cycle does not, however, translate into a correspondingly good supply situation. On the contrary. As a region that is home to nearly a quarter of the world population, South Asia currently has access to just 4.5 per cent of the global water supply.²⁹ This has serious consequences for actual availability. While people in Europe and Central Asia have access to 13,000 cubic metres of fresh water per person per year and those in the East Asia and Pacific Region at least to 5,600 cubic metres, the figure for South Asia is just 2,700 cubic metres, hardly significantly higher than the threshold for water shortage.³⁰

91 per cent of the entire volume of water withdrawn in South Asia is used for agricultural purposes, seven per cent by private households and two per cent by industry.

This discrepancy between resource, withdrawal and availability can be explained to a large extent by the consumption patterns of the subcontinent. 91 per cent of the entire volume of water withdrawn in South Asia is used for agricultural purposes, seven per cent by private households and two per cent by industry. Overall, water alone accounts for a third of the utilisation of all internal resource reserves

28 | Cf. The World Bank, "Data South Asia", 2012, <http://data.worldbank.org/region/SAS> (accessed 25 Oct 2012).

29 | Cf. UNEP (ed.), n. 2, 10.

30 | Cf. World Bank (ed.), "Making the Most of Scarcity. Accountability for Better Water Management Results in the Middle East and North Africa", Washington D.C., 2007, Appendix 1, 139.

on the subcontinent.³¹ Because of its crucial dependence on the resource, it is mainly agriculture that has been putting pressure on the water resource balance of the region through decades of surface irrigation using groundwater. Even though the region's available water reserves constitute only a small proportion of global reserves, almost half of the world's land that is surface-irrigated with groundwater is located in South Asia.³² One of the reasons is the proliferation of so-called tube wells or deep well pumps, which has been promoted since the 1960s. The number of these small and generally easily operated installations to tap groundwater has shot up twentyfold since then. 60 per cent of Indian farmland and 40 per cent of Pakistani farmland is irrigated in this manner today. In some areas the proportion is actually as high as 80 to 100 per cent.³³ The advantage of this method, namely that it provides low-cost and decentralised irrigation at the most basic level, is also its greatest drawback. The massive use of tube wells and deep well pumps causes groundwater levels to sink rapidly, in turn requiring ever deeper wells to be drilled and the groundwater reserves being depleted even more. Added to this is the fact that irrigating fields with groundwater allows far higher yields to be achieved than by conventional channel irrigation. Analyses in the Indus basin have thus shown that an increase in yield of up to 200 per cent has gone hand in hand with a decrease in the groundwater level of up to 1.5 metres per year.³⁴ There is therefore probably little incentive to use more efficient methods, such as drip irrigation.

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31 | Cf. World Bank (ed.), "Data South Asia", 2009, <http://data.worldbank.org/region/SAS> (accessed 25 Oct 2012).

32 | Cf. Stefan Siebert et al., "Groundwater use for irrigation – a global inventory", *Hydrology and Earth System Sciences*, 14, 2010, 1868.

33 | Cf. Tushaar Shah, "The Groundwater Economy of South Asia: An Assessment of Size, Significance and Socio-ecological Impacts", *The Agricultural Groundwater: Revolution Opportunities and Threats to Development*, Centre for Agricultural Bioscience International, Oxfordshire, 2007, 7 et seq.

34 | Cf. Global Water Partnership (ed.), "Climate Change, Food and Water Security in South Asia: Critical Issues and Cooperative Strategies in an Age of Increased Risk and Uncertainty", Global Water Partnership (GWP) and International Water Management Institute (IWMI) Workshop, 23-25 Feb 2011, Colombo, 24.

One further aspect of the water supply relates to the challenges affecting the infrastructure because of the extraordinary natural and geographical conditions. Making most effective use of the brief monsoon rains requires adequate storage facilities to be maintained. Great efforts have therefore been made towards the construction of dams, starting in the colonial era and accelerating at the latest with the beginning of the first wave of industrialisation in the 1960s. There are now over 4,500 large dams in South Asia, 96 per cent of them located in India.³⁵ While these are able to store vast volumes of water and can also be used to generate hydroelectric power, they need to be complemented by an adequately sized supply and distribution network. But large parts of the distribution infrastructure

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are inefficient, derelict or simply not working. A frequently overstretched bureaucracy, badly equipped due to low financial returns and partly corrupt, is not capable of properly delivering water services, let alone maintaining the existing supply infrastructure. The philosophy of "build-neglect-rebuild"³⁶ that this entails is resulting in tremendous losses. Experts estimate that up to 63 per cent of the water used in agriculture and around 60 per cent of that used in cities is lost through evaporation, seepage or runoff.³⁷ Although the World Bank states that 90 per cent of the population of South Asia has access to improved drinking water sources, this figure says little about whether and how much water is actually available from these sources. Other indicators, such as access to improved sanitation – which the World Bank only factors in at 38 per cent – actually provide a far more realistic picture of the supply situation.³⁸ While the urban middle class has up to 220 litres of water available per head each day, the figure for the poorest of the poor in the slums of the conurbations is a mere 20 litres. On average, inhabitants of South Asia have between 40 (rural areas) and 100 (urban areas) litres of

35 | Cf. United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP) (ed.), "Enhancing Regional Cooperation in Infrastructure Development Including that Related to Disaster Management", United Nations Pubn, Thailand, 2006, 102.

36 | Cf. World Bank (ed.), "India's Water Economy: Bracing for a Turbulent Future", Washington D.C., 2005, <http://openknowledge.worldbank.org/handle/10986/8413> (accessed 25 Oct 2012).

37 | Cf. n. 25, 74.

38 | Cf. n. 28.

water available a day each.³⁹ By comparison: In Germany, this figure is just under 200, in the United States as high as 575 litres per capita per day.⁴⁰

COUNTRY OVERVIEW: FROM WATER POVERTY TO ENERGY WEALTH

Although all countries within the SAARC region are generally affected by water stress, this overview will be restricted to the states of Bangladesh, Bhutan, India, Nepal and Pakistan. There are two reasons for this. For one, the water issue in South Asia manifests itself mainly in the above-mentioned river basins as well as the mountain ranges of the Himalayas. Secondly, the challenges facing Afghanistan and particularly the island states of the Maldives and Sri Lanka differ from those discussed here.

Bangladesh

Bangladesh, with a population of 160 million, making it the third largest country of the SAARC region and with 1,021 people per square kilometre one of the world's most densely populated states, occupies a special position where water supply is concerned. Enjoying adequate water resources in principle as the core region of the GBM delta, the country is nonetheless subject to high levels of water stress. One reason is that due to the country's unique geographic location – being almost entirely surrounded by India apart from a narrow border with Myanmar – the waters reaching Bangladesh through the major rivers pass through up to two or even three countries. While the Ganges only flows through India before reaching Bangladesh, the Brahmaputra passes through both China and India, and other tributaries to the GBM basin flow through Bhutan or Nepal as well. Every instance of water being removed from the upper courses of the rivers beyond the Bangladeshi border means a potential reduction in the volume

Enjoying adequate water resources in principle, the country is nonetheless subject to high levels of water stress.

39 | Cf. South Asia Consortium for Interdisciplinary Water Resources (ed.), "Compendium on Water and Equity", 2007, <http://saciwaters.org/CB/water%20and%20equity/About%20the%20Compendium.pdf> (accessed 25 Oct 2012).

40 | Cf. "Human Development Report 2006. Beyond scarcity: Power, poverty and the global water crisis", UNDP, New York, 2006, 34.

of water arriving in the lower river courses. For a country where virtually half the population relies on agriculture for their livelihood this can make for a very precarious situation, not just economically but also politically. Added to this is the fact that 80 per cent of Bangladesh lies in a flood plain, i.e. that a large proportion of the country is located between zero and 90 metres above sea level and therefore very prone to flooding and cyclone damage, particularly in the delta region.⁴¹ Bangladesh, which is also considered to be one of the countries most affected by the impacts of climate change worldwide, has hardly been able to mount an adequate response due to its deficient infrastructure.

Every year, 36 cubic kilometres of fresh water is withdrawn from the water cycle in Bangladesh, which represents a third of the entire volume of renewable fresh water of 105 cubic kilometres. As is the case in most countries of South Asia, the majority of this water is used in agriculture. Ten per cent is consumed by private households, two per cent by industry. Notwithstanding the presence of the three large rivers, the Ganges, Brahmaputra and Meghna, 79 per cent of the water is still taken from groundwater reserves. These are mainly rain water reserves, which are stored underground during the monsoon period and therefore fluctuate greatly. Utilisation of the potential of the GBM basin

The greatest point of contention for Bangladesh is located on Indian territory: the Farraka Barrage, which dams the waters of the Ganges approximately 16 kilometres upstream from the Bangladeshi border.

through dams has not been fully exploited to date. In theory, the annual volumes of water flowing down the Ganges, Brahmaputra and Meghna alone represent a potential extra volume of fresh water for Bangladesh amounting to 1,122 cubic kilometres. Currently, only one dam – the Kaptai dam in the west of the country with a storage capacity of 20 cubic kilometres – is actually in operation. Three further dams on the tributaries Teesta, Tangon and Manu are still under construction.⁴² The greatest point of contention for Bangladesh, however, is located on Indian territory: the Farraka Barrage, which started operating in 1975 and dams the waters of the Ganges approx. 16 kilometres upstream from the Bangladeshi border. A treaty concluded by India and Bangladesh in

41 | Cf. Food and Agriculture Organization of the United Nations (FAO), "Aquastat Country Profile Bangladesh", 2010, http://fao.org/nr/water/aquastat/countries_regions/BGD/index.stm (accessed 25 Oct 2012).

42 | Cf. *ibid.*

1996 on shared use of the Ganges was meant to ensure an equitable distribution of the water volume according to a set of guidelines determined on the basis of average flow, volume and the season.⁴³ But the treaty has come under criticism, especially from the Bangladeshi side. One of the accusations levelled against India is that it is allowing less water through the barrage than contractually agreed and that it is causing flooding by discharging excess water during the rainy season. A further point of contention is the utilisation of the river Teesta, which originates in the north of India and flows into the Brahmaputra in Bangladesh. An agreement drawn up on the occasion of a state visit by India's Prime Minister Manmohan Singh in September 2011 ultimately failed because it was vetoed by the Chief Minister of the Indian federal state of West Bengal, Mamata Banerjee.⁴⁴

One of the accusations levelled against India by Bangladesh is that it is allowing less water through the barrage than contractually agreed and that it is causing flooding by discharging excess water during the rainy season.

Both cases have caused emotions to run high. Commentators from Bangladesh frequently accuse India of selfishness and of ignoring Bangladeshi interests. In India, on the other hand, people don't understand the way the political rapprochement is condemned, particularly in the media, and view it as pure pressure-group politics without any consideration for the dynamics of domestic politics or concessions in other policy areas.

Bhutan

Bhutan, with around 700,000 inhabitants, making it the second smallest state of the SAARC region after the Maldives, is of increasing importance for the water management in the region despite its modest size. Bordering India in the south and China in the north, the kingdom in the Himalayas controls vast water reserves, which are highly significant particularly for India. The entire volume of fresh water, estimated at 78 cubic kilometres a year, flows to India in the form of surface waters, with Bhutan only

43 | Cf. "Treaty between the Government of the People's Republic of Bangladesh and the Government of the Republic of India on Sharing of the Ganga/Ganges Water at Farraka", Annexure I / Annexure II, 1996, 6 et seq.

44 | Cf. Tomislav Delinic, Marcel Schepp and Omar Mesbahuddin, "Das Ende der Eiszeit? Zum Gipfeltreffen Indien und Bangladeshs", KAS-Länderbericht, 13 Sep 2011, 3, http://kas.de/wf/doc/kas_28769-1522-1-30.pdf (accessed 25 Oct 2012).

withdrawing 0.34 cubic kilometres a year, used mainly to supply its agriculture. Theoretically, every inhabitant of Bhutan has 100,000 cubic kilometres of fresh water available, corresponding to 100 times the volume available in India.⁴⁵

Having said that, the issue in Bhutan is not so much access to the actual resource of fresh water but rather the energy that can be generated from it. It is estimated that the country's four largest rivers, the Torsa, Sankosh, Wang Chhu and Manas, have a joint theoretical hydroelectric capacity of 30,000 megawatts, approximately 20,000 megawatts of which is potentially exploitable. The country actually generates around 1,500 megawatts, approx. 50 per cent of which is exported to India. The cooperation

The cooperation between Bhutan and India in the water sector started in the 1960s and nowadays focuses mainly on three large hydroelectric plants.

between Bhutan and India in the water sector started in the 1960s and today focuses mainly on three large hydroelectric plants in Chukha (1986), Kurichhu (1994) and Tala (1996). One power station is currently under construction and scheduled for completion in 2015; negotiations are still ongoing about three further major projects with capacities between 1,200 and 4,000 megawatts. Bhutan's ultimate goal is to generate 10,000 megawatts of hydroelectric power by 2020. The pattern of the contractual collaboration between the two states has been the following: India is granted the concession for constructing the project, with 40 to 60 per cent of the funding provided by subsidies and the remaining 40 to 60 per cent by loans. This funding model reduces the cost of electricity generation and allows Bhutan to offer electricity at a reduced tariff on the domestic market, thus covering the country's own demand. The excess electricity generated is exported exclusively to India, also at a reduced tariff.⁴⁶

Although it has been of benefit to both countries in the past, the cooperation model is attracting increasing criticism from some sources – both within Bhutan and from other states within South Asia. In spite of the enormous

45 | Cf. FAO (ed.), "Aquastat Country Profile Bhutan", 2010, http://fao.org/nr/water/aquastat/countries_regions/BTN/index.stm (accessed 25 Oct 2012).

46 | Cf. Institute for Defence Studies and Analyses (ed.), "Water Security for India: The External Dynamics", Institute for Defence Studies and Analyses, New Delhi, 2010, 63-68.

gains made by the Bhutan economy from export revenues, some observers believe that as living standards rise Bhutan will lose out in the long run. There are critical voices being heard particularly in Nepal, expressing fears that adopting similar models will make their country excessively dependent on India.

India

India, by far the largest country of the SAARC region both in terms of surface area and population, is the central actor in the South Asian competition for water due to its geographic location, population and economic power. As both the largest supplier and consumer, India is subject to massive criticism on the part of its neighbouring states on the one hand, but on the other hand often the only feasible and logical partner for long-term and sustainable cooperation. There are treaties in place with Pakistan (since 1960) and with Bangladesh (since 1996) on the shared use of the Indus and, respectively, the Ganges, and India has been collaborating closely with Bhutan in the area of hydroelectricity since the 1960s. The relationship with Nepal is another matter. It has been suffering for some time from tensions over planned cooperation in the areas of water supply and hydroelectric power generation. There is some ongoing cooperation on a small scale involving the rivers Kosi (1966) and Gandak (1959).

As both the largest supplier and consumer, India is subject to massive criticism on the part of its neighbouring states.

With a volume of 1,446 billion cubic metres of fresh water available per year, India tops the list in the region, as one would expect. Over 70 per cent of the renewable water reserves in South Asia are located in India. At 761 billion cubic metres a year, India's water consumption is greater than that of all the other seven SAARC countries combined. Although hardly surprising considering the size of its population, this still does not say much about the actual supply situation.⁴⁷ Simply due to its geographical vastness, India is affected particularly strongly by the inconsistent weather in the subcontinent. Strong monsoon rains, which generally last just two months a year, must suffice to fill

47 | Cf. FAO, "Aquastat Country Profile India", 2010, http://fao.org/nr/water/aquastat/countries_regions/IND/index.stm (accessed 25 Oct 2012).

the water reservoirs. 50 per cent of annual precipitation falls in just 15 days; 90 per cent of the country's rivers only carry water for four months of the year.⁴⁸ At other times, the rivers often run dry. Although it is the country with the highest level of industrialisation in the region, 90 per cent of the water is still used in agriculture. Lengthy droughts can therefore be devastating when over 50 per cent of the working population is engaged in agriculture.

Ground water irrigation is coming up against its limits. Experts estimate that by 2050 the groundwater will be reduced to little more than a sixth of the current volume.

The strategy of overcoming these conditions through extensive ground water irrigation, which has been pursued for decades, is reaching its limits. Reserves are dwindling rapidly.

Experts estimate that by 2050 the groundwater will be reduced to little more than a sixth of the current volume.⁴⁹ Furthermore, demand for water by industry and private households is rising with urbanisation and living standards increasing. There is a gap emerging, huge in some places, between consumption and supply along virtually all classic lines of conflict (city vs. country, poor vs. rich, centre vs. periphery). Inadequate infrastructure, mismanagement and the illegal withdrawal of water, which is widespread from individual to interstate level, are all adding to the problem. In New Delhi, for instance, some slum inhabitants have to manage with just 15 litres of water a day, while people in wealthier areas can easily consume up to 400 litres per day.⁵⁰ Water is not just sought after as a resource for consumption but also as a source of energy. India holds around three quarters of the hydroelectric potential of the region, placing the country fifth in the global ranking. However, even the entire hydroelectric potential of the region would hardly be sufficient to satisfy the country's current demand. India itself has only developed approximately 10 per cent of its own potential theoretically and is therefore looking out for opportunities to cooperate with its neighbours Bangladesh, Bhutan, Nepal and Pakistan.⁵¹

48 | Cf. World Bank, n. 36, 8.

49 | Cf. ebd., 18.

50 | Cf. Jay Mazoomdar, "Water Security begins at home", *Tehelka*, Vol. 9, No. 26, 30 Jun 2012, 22 et seq.

51 | Cf. Nitya Nanda, "Energy Cooperation and Connectivity in South Asia"; Dipankar Banerjee, "SAARC: Towards Greater Connectivity", *KAS Publication Series*, No. 22, New Delhi, 2008, 164 et seq.



The Baglihar Dam in the state Jammu and Kaschmir, in operation since 2008, Pakistan believes to violate the provisions of the Indus Waters Treaty. | Source: Vinayak Razdan (CC-BY).

But virtually all potential or actual interfaces and approaches seem to be subject to some political reservations. This applies, for instance, to the Baglihar Dam in the federal state of Jammu and Kashmir that has been under construction since 1999, which Pakistan believes to violate the provisions of the Indus Waters Treaty, or the Tipaimukh Dam planned in the federal state of Manipur, which is viewed in Bangladesh with some misgivings relating to refugee and environmental problems. Whether one can actually speak of a “dam race” in this context is an unresolved question.⁵² In this context, one significantly threatening scenario for India, as well as for the entire region, is the large-scale management of the rivers in the border regions that some experts believe China is planning.⁵³ But there is no question that India is increasingly looking towards the Himalayas – particularly to the countries of Bhutan and Nepal – and therefore necessarily towards the border regions and beyond with respect to its long-term water and energy supply needs. Although, contrary to the assumption of inevitable water conflicts, the approach is generally a proactive one, there are some domestic obstacles present on the side of both India and the respective neighbouring states that have been impeding the deepening of the cooperation in the past.

52 | Brahma Chellaney, “From Arms Racing to Dam Racing in Asia”, *Transatlantic Academy Paper Series*, 3 May 2012, Washington D.C., 2012, 15.

53 | Cf. Chellaney, n. 2, 152-169.

Nepal

The Himalayas are of essential importance to Nepal's water supply. The country too is suffering from an inadequate supply of fresh water and from a severe energy shortage.

In view of the unusual hydrogeography of South Asia, Nepal plays a special role. The Himalayas, where the Indus, the Ganges and the Brahmaputra and its tributaries originate, cover nearly three quarters of Nepal's territory and are of essential importance to the country's water supply. Nepal too is suffering from an inadequate supply of fresh water and – more crucially – from a severe energy shortage. Power outages lasting 18 hours a day are not uncommon. In the capital Kathmandu, the power is allocated to individual districts in time slots; at other times, those that can afford it use generators and inverters. Hydroelectric power is seen as the solution to this problem in Nepal. It currently contributes over 90 per cent of the power supplied by the Nepalese grid. It is estimated that Nepal's hydroelectric potential is around 85,000 megawatts, approximately 45,000 megawatts of which could be realised cost-effectively. Only 632 megawatts are currently actually realised.⁵⁴ Expanding these capacities is therefore not just in India's interest, but also above all in Nepal's own interest.

Nepal has the second largest renewable water reserves of the region after India. Of the 200 billion cubic metres of fresh water available per year, the country consumes approximately 10 cubic kilometres per year. These are used almost exclusively for agricultural purposes; private and industry consumption together do not even make up two per cent of overall use. Similar to India, Nepal is also affected greatly by the region's weather conditions. A summer monsoon from June to September and a winter monsoon from December to February bring 75 and respectively 25 per cent of annual precipitation, with dry periods in between. One comment you therefore often hear is that Nepal has either too much or too little water. The flow rate of the water courses in the five river basins discharging into the Ganges can fluctuate greatly; volumes can be seven to ten times greater during a rainy season than in a dry period. Nepal too therefore faces a double challenge.

54 | Ravi Sharma Aryal and Gautam Rajkarnikar, *Water Resources of Nepal in the Context of Climate Change*, Government of Nepal, Water and Energy Commission Secretariat, 2011, 8, http://wec.gov.np/downloadfile/water_recourse_climate_change_1320235677.pdf (accessed 25 Oct 2012).

Its agriculture, 80 per cent of which actually depends on surface waters, requires reliable storage capacities to withstand the vagaries of the weather. The country needs a reliable and, most importantly, steady supply of power to be able to end the never-ending cycle of supply shortage, compensation, overload and renewed supply shortage.⁵⁵

A sizeable number of people consider cooperation with India – similar to the above-described model for Bhutan – a feasible option. To date, no further agreements have materialised in addition to those covering the Kosi and Gandak rivers, and where initial negotiations have taken place they have stalled. Various concerns have been voiced on the Nepalese side, ultimately boiling down to two aspects: reservations on the domestic front regarding the cost-effectiveness, environmental compatibility and sustainability of the projects and reservations at a foreign affairs level regarding a putative expansion of India's sphere of influence to the detriment of Nepal's sovereignty. India, for its part, has concerns about the political stability in the country, which has begun to look shaky once again since the Constituent Assembly was dissolved in May 2012.⁵⁶ Nepal is now searching elsewhere. Only recently, in April 2012, it concluded a 1.8 billion U.S. dollar contract with the China Three Gorges Corporation for the construction of a dam with a capacity of 750 megawatts in the west of the country.⁵⁷

Since India has concerns about the political stability in the country, Nepal has now concluded a 1.8 billion U.S. dollars contract with the China Three Gorges Corporation for the construction of a dam with a capacity of 750 megawatt.

Pakistan

Of all the countries covered here, it is most difficult to gain a clear picture of Pakistan. Home to the fertile Indus basin, Pakistan is highly dependent on the irregular precipitation cycles of the monsoon, as are Nepal and India. Despite having signed the Indus Waters Treaty, one of the region's

55 | Cf. FAO, "Nepal", 2010, http://fao.org/nr/water/aquastat/countries_regions/NPL/index.stm (accessed 25 Oct 2012).

56 | Cf. Tomislav Delinic, Nishchal Nath Pandey and Marcel Schopp, "Nepal nach Auflösung der verfassungsgebenden Versammlung", KAS-Länderbericht, 10 Jul 2012, http://kas.de/wf/doc/kas_31619-1522-1-30.pdf (accessed 25 Oct 2012).

57 | Cf. Dhruva Adhikary, "Nepal dam deal opens door to China", *Asia Times Online*, 18 Apr 2012, http://atimes.com/atimes/South_Asia/ND18Df03.html (accessed 26 Oct 2012).

earliest bilateral agreements on the shared use of water, Pakistan is embroiled in a permanently simmering conflict with India, particularly with respect to the Indus tributaries located in Kashmir. In short, Pakistan is one of the countries to which the theory of the “securitisation” of the water supply could be most appropriately applied. To the detriment of individual’s access to supply, out of self interest actors involved in domestic and foreign policies are obstructing attempts at a rapprochement at the bilateral level.⁵⁸

With its current consumption of 183 billion cubic metres per year, the country would consume four times the amount of water theoretically available if it had to rely on its own resources.

With just 55 billion cubic metres of renewable water resources per year, Pakistan ranks last among the countries surveyed here. With its current consumption of 183 billion cubic metres per year, the country would consume four times the amount of water theoretically available if it had to rely on its own resources. Pakistan therefore relies crucially on the Indus for its water needs. A volume of 265 cubic kilometres of water a year flows onto Pakistani soil from the Indus and its tributaries alone. However, this volume is by no means absolutely secure as Pakistan is located downstream of not just one but two countries (the Indus originates in China before flowing through India to Pakistan). The Indus Waters Treaty between India and Pakistan, which has been in place since 1960, specifies a fixed volume of 170 cubic kilometres per year for use by Pakistan, helping the country to establish an extensive irrigation infrastructure in the Indus Valley especially in the early years; but it is now reaching its limits, particularly in the area of hydroelectricity.⁵⁹ Three hydroelectric plants on the Indian side, planned or partly completed – the Baglihar Dam, which went into full operation in 2008, the Tulbul Project on Lake Wular, which has been under discussion since the 1980s, and the Kishanganga Hydroelectric Plant, which was stopped by the Court of International Justice in The Hague in 2011 – have been contested by Pakistan at international level as violations of the Indus Waters Treaty. The main objection and concern of India’s western neighbour has been that the facilities would jeopardise

58 | D. Suba Chandran and J. Jeganaathan, “Regional Approach: Water as Cooperation”, *Energy and Environmental Security: A Cooperative approach in South Asia*, New Delhi, 2011, 125.

59 | Cf. FAO, “Pakistan”, 2010, http://fao.org/nr/water/aquastat/countries_regions/PAK/index.stm (accessed 27 Sept 2012).

harvests due to water shortages in dry periods.⁶⁰ Opinion on the Indian side is divided. While some see the treaty as a model of cooperation, which will even prevail in times of crisis, others believe it comprises more elements dividing the countries than bringing them together.⁶¹

As is the case for the other countries, it is also true for Pakistan, and maybe especially so, that cooperation with India in the area of water supply will be indispensable in the long term. The course of the Indus and its significance for agriculture are obvious reasons. In addition, the situation regarding the supply of power is becoming increasingly critical, with parts of Pakistan now being without power for up to 20 hours a day.⁶² Cooperation in the area of hydroelectric power generation might provide relief. The relationship between the two countries is characterised by equal amounts of light and shadow: shadow where security-related concerns and reflexes interfere with opportunities for a rapprochement; light in view of a bilateral treaty, which has survived for over 50 years in spite of these reservations, and could serve as an example to the entire region.

Opportunities for a rapprochement lie in the bilateral treaty between India and Pakistan, which has survived for over 50 years in spite of all hostilities and reservations.

CONCLUSION: THE GLASS IS HALF FULL

One might doubt whether Asia's thirst is actually unquenchable – as *The Economist* believes. While it is true that the glass that all eight countries of the SAARC region are drinking from, which is rather small anyway, is emptying, it is by no means certain that this will inevitably lead to conflict or war.

At first glance, the water supply situation in South Asia does not give cause for optimism. Too little water is falling too irregularly and an ever-decreasing volume is being consumed more quickly by an ever-increasing number of

60 | Pakistan Institute of Legislative Development and Transparency, *Pakistan-India relations. Implementation of Indus Water Treaty. A Pakistani Narrative*, Islamabad, 2010, 12.

61 | "Water Security for India: The External Dynamics", Institute for Defence Studies and Analyses, New Delhi, 2010, 40.

62 | "Pakistan's Energy Crisis. Power Politics", *The Economist*, 21 May 2012, <http://economist.com/node/21555740> (accessed 27 Sep 2012).

people. This is taking place in a part of the world where most states do not cooperate with each other either politically or economically across the region, much less aim for common regional integration. At the mercy of highly inconsistent geographical and meteorological conditions and probably standing at a crossroads in terms of demographic development and economic activity, the countries of South Asia are facing a virtually insurmountable challenge as regards the long-term and sustainable supply of their populations with fresh water and energy. If one entertains the theory of the water wars referred to at the beginning, all the indicators appear to point towards inevitable conflict. In spite of a treaty on the shared utilisation of the Indus, India and Pakistan are hardly able to agree on the most fundamental principles of cooperation. A rapprochement with Bangladesh is hampered by domestic obstacles on the Indian side, which appear to have become even more insurmountable due to a recent shift within the

India itself appears to be succumbing gradually to deficiencies in its infrastructure that have been ignored for decades. Mismanagement and squabbles in domestic politics are exacerbating the situation.

coalition government.⁶³ There seems to have been a hardening of the front between India and Nepal with respect to the joint development of hydroelectric power generation, and a solution also seems to have moved far out of reach for the time being due to the unstable political situation of that country. Even the previously functioning cooperation between India and Bhutan is increasingly attracting comments, many of which are not only positive. And India itself appears to be succumbing gradually to deficiencies in its infrastructure that have been ignored for decades. Mismanagement and squabbles in domestic politics are exacerbating the situation. And the picture is hardly more positive at regional level. The bilateral relationships between the countries of the SAARC region are frequently marred by mistrust, and the fact that water is increasingly viewed as a security-related issue makes any negotiations even more difficult. Apart from joint committees, there are no regional forums in place as yet. Due to institutional restrictions, SAARC does not have much scope for action. The possibility of countries carrying out projects of their own independently, which was approved at the 17th

63 | Cf. Tomislav Delinic and Mareen Haring, "Premierminister Singh trotz Koalitionsbruch und forciert Liberalisierung der Wirtschaft", Konrad-Adenauer-Stiftung, India Office, 24 Sep 2012, <http://kas.de/indien/de/publications/32153> (accessed 27 Sep 2012).

SAARC Summit, has so far not been translated from paper to reality. Apart from some declarations and studies on the water issue, SAARC has hardly delivered any concrete achievements.

As grim as this picture might appear, it will probably not be helpful to join in with the swansong of South Asian regionalism, which one hears all too often. Contrary to the frequently supported theory predicting wars fought over water, dams and energy, what we see is this: Although the raw statistics show a significant increase in conflicts involving water as a resource, these rarely seem to grow into major confrontations, let alone military action. On the contrary. Although some fronts have hardened, such as the one between India and Nepal, the general trend is clearly in the direction of dialogue rather than confrontation. Particularly as South Asia as a whole does not – as is generally assumed – suffer from a lack of water per se. Although the resource is inconsistent and also unequally distributed, this does not constitute a general and insurmountable shortage. It is merely the case that the demands for resource development are rising inexorably. This circumstance should be seen as an opportunity for cooperation rather than an obstacle, given that no country is after all likely to manage the task on its own considering the geographic conditions if nothing else. There is also a perceptible shift happening in the political and social debate. While major projects were being pushed through without consideration for the country's own population let alone the neighbour's a few decades ago, there is a far more enlightened atmosphere prevailing now as regards the long-term aspects of resource development, as well as the sustainability of resource utilisation. There are, after all, examples of how regional cooperation can work – which is at the core of the discussion on the question of "conflict or cooperation". In spite of its weak points, the cooperation between India and Bhutan in the area of hydroelectric power is a cooperation model that to date has paid off for both sides. There have also been bilateral rapprochement efforts at the next lower but no less important level, such as those pursuing the treaty between India and Bangladesh on shared use of the Teesta, which for the time being has fallen through due to a veto by a Chief Minister. Mistakenly written off

The cooperation between India and Bhutan in the area of hydroelectric power is a cooperation model that has paid off for both sides to date.

as a failure in the press, the negotiations did show that dialogue over the sensitive issue of water is also possible at interstate level. The failure itself has actually underlined once more that obstacles to regional cooperation are not necessarily found at regional level but often actually in the area of domestic politics.

The basic willingness to engage in bi-, tri- or multilateral negotiations is present. Finally, one must not forget that there have been treaties in place in two constellations of South Asian states involving countries that have been anything but friendly towards one another for decades: India and Pakistan, and India and Bangladesh. The effectiveness of these treaties might be debatable, but the fact that there are two examples of successful cooperation to be found in the region itself should be an incentive rather than cause for resignation.

Ultimately, a multi-faceted challenge like the one posed by the water supply issue in South Asia needs a multi-faceted approach. It is not enough to build hydroelectric plants if the power is then lost because of a dilapidated power line infrastructure. Nor is it helpful to cut off the water supply to a neighbour through a dam to satisfy one's own needs if this causes migration and socioeconomic upheavals. It is hardly beneficial to South Asia either if people point towards China urging caution while it is the domestic water supply situation that is in most urgent need of attention. Instead, the objective should be to gradually involve all the relevant actors in the decision-making process at all levels in line with the concept of Integrated Water Management. This begins with more efficient utilisation of water and electricity at village level, progresses through local and communal structures for effective infrastructure maintenance, and culminates in dialogues within and between states on long-term strategies for sustainable resource utilisation at government level. The long-term goal must be regional coordination of resource and energy policies in South Asia.

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