

Water: Reason for Conflict or Catalyst for Peace? The Case of the Middle East

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The global freshwater resources amount to approximately 1,4 billion cubic metres. Only about 2.5 per cent of this water is sweet and drinkable; moreover, the majority of these 2.5 per cent are difficult or impossible to reach. 69 per cent of the global sweet water resources are bound in glaciers and perpetual ice; about 30 per cent are subterranean resources. Only about 0.3 per cent can be accessed relatively easily in lakes and rivers. The remaining 0.7 per cent consists of soil humidity, basal ice, permafrost and everglades.

Water consumption is continually increasing worldwide. Population growth, industrialisation, growing overuse and pollution as well as the consequences of global warming result in a constantly increasing pressure on the global water resources: The list of regions which are suffering from insufficient water supply is growing steadily.¹ At the same time, water is essential for the maintenance and development of every national economy, and thus for the overall standard of living. If the access to water is limited, for instance through overuse, pollution, or for political reasons, the societal standard of living may decline sharply, leading

1. Water scarcity is defined in Malin Falkenmark's so-called water scarcity index. She defines it as follows: When states have more than 1,700m³ of drinking water per year and person, Falkenmark speaks of *relative sufficiency*. Problems are rare and regionally limited. Between 1,000 and 1,700 m³ she speaks of *water stress*, i.e. water shortages are common. Below 1,000m³ water shortages are chronic, which is defined as *water scarcity*. A water supply below 500m³ is considered as *absolute water scarcity*. See Wilhelm Sager, *Wasser*, Hamburg: Rotbuch 3000, 2001, 20.

to considerable inner-societal tensions. These tensions are articulated in allocation conflicts between, for instance, agriculture and industry, urban and rural populace, or between different ethnic groups. The degree of these tensions, the political constitution of a state and the particular climatic and hydrological conditions of a region influence the degree to which such water conflicts are prone to the use of violence.

Water and violent conflict

The question of conflict escalation has been thoroughly researched with regard to international river basins, which cover approximately half of the earth's surface and accommodate 40 per cent of the world's population. Forecasts predict that such international watersheds will give rise to increased controversies in the coming years, since the riparians often disagree on water allocations. The ensuing water conflicts generally involve numerous actors with differing, often vital, interests. Their causes differ structurally and can be categorised according to territorial, economic, military, demographic and comparable determining factors; their course depends on the sociocultural context and the capacities of the stakeholders involved.

The risk for conflict is commonly considered especially high in international watersheds that are located in areas in which the political atmosphere is dominated by confrontation rather than cooperation, like the Middle East. Since in such a political climate, economic independence and self-sufficiency are usually perceived to be key to national security and regarded as a means to reduce a state's dependence on hostile neighbours to an absolute minimum, the logical conclusion seems to be that opposing claims to shared water resources by different states result in a zero-sum game which potentially leads to violent international conflict. This is not, however, backed by scientific evidence.

The 'water war' myth

It is a common and often-expressed assumption that "*the next war in the Middle East will be about water*" (contended, for instance, by former UN general secretary Boutros Boutros-Ghali). The neo-malthusian² reasoning behind this supposition—growing population plus scarce and decreasing water resources equals violent conflict over water—has proven both exceptionally powerful and empirically untenable. It is one of the fundamental findings of the academic stud-

2. The name refers to Robert Malthus (1766-1834), who in his "Essay on Population" (1798) outlined that with a growing population, growing amounts of food are necessary to secure human existence, while at the same time the space in which to grow this food is limited. The logical consequence are, according to Malthus, food scarcity, hunger and undernourishment.

ies on the topic of ‘water—conflict or cooperation’ of the last thirty years that international water wars and ensuing global repercussions are not to be expected: “*International wars about renewable resources like water are not very likely, since the utilisation of renewable resources can neither easily nor quickly be converted into power.*”³ Wendy Barnaby recently contended in an essay in *Nature* that “*countries do not go to war over water, they solve their water shortages through trade and international agreements.*”⁴ Barnaby’s explanation is that global trade in “*virtual water*”—the water embedded in food products—allows arid countries like those in the Middle East to meet their water requirements without resorting to conflict. And Avraham Tamir wrote as early as 1988: “*Why go to war over water? For the price of a weeks fighting, you could build five desalination plants. No loss of life, no internal pressure, and a reliable supply you don’t have to defend in hostile territory.*”⁵

These statements are backed up with ample evidence. The “International Freshwater Treaties Database”⁶ of Oregon State University lists more than 400 water agreements, among them more than one hundred post-1945. Of 1,831 documented interactions between river adversaries, the large majority, namely 1,228, were cooperative.⁷ In addition, water agreements tend to be very durable: Even military conflicts often cannot harm them. One illustration of this is the agreement between India and Pakistan on the Indus, which has survived numerous, in part violent, disputes between the two parties.

No water wars, no problem?

Does this mean that water and conflict are unrelated? By no means. Water-related conflicts are causing suffering throughout the world. To name only a few examples: Southern Iraqi farmers are being forced into overcrowded urban centres, as multiple dams on the Tigris River within Iraq, Syria, and Turkey reduce the river flows to the ebb and tide of Gulf seawater.⁸ Syrian farmers both from the Dar’a and the Hama areas have lost their livelihoods due to an on-going drought which has reduced the amount of arable land through desertification and put

3. Kurt R. Spillmann, “Kriegsursache der kommenden Generation? Der Kampf um das Wasser,” *Internationale Politik* 12, 2000: 5.

4. Wendy Barnaby, “Do Nations go to War over Water,” *Nature* 458, 282-283.

5. Avraham Tamir, *A Soldier in Search of Peace: An Inside Look at Israel’s Strategy*, London 1988, 56. As cited by Steven C. Loneragan, “Water and Conflict: Rhetoric and Reality”, in *Environmental Conflict—An Anthology*, eds. Paul F. Diehl and Nils Petter Gleditsch, Boulder/Oxford: Westview Press, 2001, 109-124, here 120.

6. <http://www.transboundarywaters.orst.edu>.

7. *Ibid.*

8. “*Seven experts debate the past and present existence of water wars, consider the difficulty of owning a fluid resource, and examine the hot spots for future conflict,*” http://seedmagazine.com/content/article/the_truth_about_water_wars/, originally published 14 May 2009.

enormous pressure on the already scarce natural water resources.⁹ The drought contributed to a rural exodus, which, with large numbers of unemployed farmers flowing into urban centres, might even have been a factor in the current political unrest in Syria. In the Palestinian territories, Palestinian farmers barely survive based on highly variable rain-fed farming, while industrial farms run by Israeli settlers in their direct neighbourhood receive state-subsidized irrigation water.

Arguably, the wide-spread preoccupation with whether an outright war (i.e., military conflict) between nations will erupt over water has overshadowed the much more pressing issues which are connected to decreasing water resources and growing water scarcity. While the risk for water conflict has proven to be rather low between states—the mechanisms of diplomacy and negotiation are rather well developed and efficient in reducing the risk of conflict—, on the sub-state level, water-related disputes have become rather common. After all, water is still finite, and with increasing demands, competition for water is continuously intensifying between farms and cities, states and provinces, ethnic groups, and economic interests. The escalation of these tensions poses a much greater threat of civil unrest, humanitarian crises, and loss of life than do international wars over water. Consequently, the most urgent questions today are whether the risks of such conflicts are growing, and how we can both reduce the risks leading to such conflicts and resolve those that have already erupted.

The following article first outlines the different theoretical approaches to environmental (water) conflicts. It then illustrates the differences between and complexity of water conflicts by analysing the two most prominent examples for international water conflicts in the Middle East: the Jordan and the Euphrates-Tigris basins. It will show that while an international ‘water war’ between the riparians in the two basins is unlikely, the issue of water allocation conflicts still poses one of the fundamental challenges to the local actors and needs to be addressed effectively. Finally, necessary steps to be taken in order to prevent future water conflicts and protect the global water resources in the long term are outlined.

State of the art

The theoretical and methodological works of environmental conflict research can be divided into four consecutive generations.¹⁰ The first generation developed

9. Robert F. Worth, “Earth Is Parched Where Syrian Farms Thrived,” *The New York Times*, 13 October 2010, accessed 28 August 2012, <http://www.nytimes.com/2010/10/14/world/middleeast/14syria.html>.

10. On the first three generations see M.A. Levy: “Time for a Third Wave of Environment and Security Scholarship?” in *Environmental Change and Security Project Report 1*, ed. Woodrow Wilson Center, Washington, 1995, 44-46, accessed 27 August 2012, <http://www.wilsoncenter.org/publication/ecsp-report-1>; C.F. Rønnfeldt, “Three Generations of Environment and Security Research,” *Journal of Peace Research* 4, 1997: 473-482. Classification into four generations originally stems from this text’s author.

based on new findings about the consequences of environmental degradation. Its main representatives are Mathews (1989), Myers (1993), Kaplan (1994), Connelly and Kennedy (1994) as well as Westing, who stood for a selective, but nevertheless powerful relation between politics and the academic sphere. This first generation focused on the question whether and if yes, how environmental issues could be included in security studies. It coined the term 'ecological security' (as denoting the conflictive relationship between underdevelopment, environmental problems, growing poverty and security-threatening military tensions).

This outlook was challenged early on by critics who considered such a 'national' interpretation of the thus expanded term 'security' to be misleading: Environmental problems cannot be solved by single states, since they are not spatially or socially limited, but global phenomena. The second generation primarily criticised the first generation's lack of empirical proof for the relevance of the concept of 'ecological security'. This second generation's critique is part of the still continuing debate about disadvantages and benefits of the so-called 'broadening of security'.¹¹

The researchers of the second generation implemented large empirical studies; main representatives are the Toronto Group around Thomas Homer-Dixon as well as the Environment and Conflicts Project (ENCOP) at ETH Zürich around Günther Bächler, who were characterised by their focus on specific conflicts and renewable resources like water. In addition to this, the 1990s saw the creation of the Global Environmental Change and Human Security Project (GECHS) at the Woodrow Wilson Centre in Washington D.C. By means of process tracing¹² based on ex-post-analyses, its goal was to define the relevant independent (ecological scarcity), intervening (social effects) and dependent (conflict) variables in the hypothesised causal chain between environmental degradation and conflict. Based on this methodological framework, large case studies, mainly in developing countries, were implemented. From them, different research groups developed conflict typologies¹³ in a quest to define the circumstances that lead from resource scarcity to conflict. This causality in itself, however, was not questioned. In addi-

11. In addition to this, this generation wanted to explain conflicts which developed from environmental degradation or resource scarcity. One milestone on this quest was the Brundtland-report "Our Common Future" (1987), which for the first time defined environmental degradation as a cause for conflict. Brundtland-Report, "Our Common Future" (4. August 1987), Document of the UN general assembly A/42/427, *Report of the World Commission on Environment and Development*, chapter 11, 290ff.

12. The positivist method of process tracing aims to generate and analyse data about causal relations or processes, incidents, actions, expectations and other intervening variables, which combine the assumed causes for an object of investigation with the observed effects. Put differently: process tracing wants to uncover and evaluate causal mechanisms. Rønnfeldt writes: "Process tracing is an analytical approach that aims at mapping relevant independent, intervening and dependent variables on the causal pathway from environmental scarcity to conflict." Rønnfeldt, "Three generations", 475.

13. For instance the Toronto-Group with three conflict types (simple scarcity conflicts, group-identity conflicts, relative-deprivation conflicts), see Homer-Dixon as well as ENCOP with seven model conflict types.

tion, the second generation developed the concepts of environmental scarcity and environmental discrimination.

The researchers of this generation were accused of neo-malthusianism, since the global population growth played a key role in their analyses of resource scarcity and conflicts. They highlighted that ecological scarcity were inevitable due to the growing world population. This would lead to migration and poverty, which again would result in violent conflict.

The one-dimensional causality of this scarcity argument was criticised by the third generation of environmental conflict researchers. The ‘cornucopians’ broadened the analysis by introducing more independent variables as well as cases of peaceful resolution of resource conflicts and emphasised that environmental and resource conflicts usually have more than one cause. The agents of this approach, like Aaron T. Wolf from Oregon State University and Nils Petter Gleditsch of the Peace Research Institute Oslo (PRIO), assume that there is enough water on earth; the problem is mainly water utilisation and governance.¹⁴ Consequently, agriculture and related irrigation techniques are considered a key problem. According to this approach, water is only one issue of many; there is no automatism between water scarcity and conflict.

This third generation introduced new ecological and sociopolitical variables in their control studies, integrated the transnational dimension of ecological scarcity and analysed case studies with large data collections quantitatively. On this basis, this generation painted a different and clearer picture of the geographical and diachronic frequency and distribution of water conflicts. It greatly innovated the empirical analysis of environmental conflicts, since it produced significant theoretical and methodological input. In addition, it connected environmental conflict research with the overall framework of peace and conflict studies.¹⁵

The third generation did not, however, come up with a new model for the hypothesised causal relationship between resource scarcity and conflict or a well-founded explanation for the extreme endurance of water conflicts in areas where sufficient water resources or technical solutions are available—like the Jordan Basin.

The last decade has seen the unfolding of a fourth generation of environmental conflict researchers, of which this text forms a part. It postulates—starting from the inability of its predecessors to answer central questions—the necessity of new approaches. For instance, the fourth generation criticises the hitherto dominant concentration on international resource conflicts to the disadvantage of acute violent sub-state conflicts over water. In addition, it points out that the

14. Nils Petter Gleditsch, Talk at the International Expert Workshop *Water, Development and Cooperation. Comparative Perspective: Euphrates-Tigris and Southern Africa*, Bonn, 1.3.2004.

15. See C.F. Rønnfeldt, “Three generations,” 476 and 480.

concept of 'scarcity', which plays a role in most studies, remains ambiguous and at times even hinders the analysis of specific conflicts. Thomas Homer-Dixon alone identifies three types of scarcity: demand-induced, supply-induced and structural scarcity. The fourth generation therefore questions whether the term is useful at all, since scarcity is always relative: The concept would only be useful if and when the social *constructedness* of 'wealth' and 'scarcity' were finally taken into account, i.e. if the value given to a resource were understood to be a social rather than a natural process.

Moreover, the current generation emphasises that environmental conflict research has been defined by differing normative positions, which have played a major role for the different approaches while remaining mostly implicit. An environmentally pessimistic view is opposed by an environmentally optimistic view.¹⁶ The latter is based on a belief in practically unlimited technological progress and feasibility. This can, however, result in negative side effects in the practical dealing with developmental problems, especially with regard to water: hydro-politics which are based on an anthropocentric world view are prone to inconsistency and short-term decisions. Water is seen as a technical good that gains its value through its relation to food, agriculture and human settlements. When problems occur, the method of choice is usually to increase water availability (supply management). This approach, however, hinders an effective control of the long-term destruction of a resource, often resulting in growing scarcity and environmental degradation.¹⁷

Moreover, there has been a tendency to apply natural scientific methods to social phenomena like conflicts in the environmental sector.¹⁸ A large part of the relevant publications still wrongly assume that by defining a problem as environmental, one could achieve sustainable solutions through technical programmes. This is based on the assumption that contentious political issues could be de-

16. Also called ecocentric and anthropocentric. On the sociological debate about 'first' and 'second' culture/modernity, on the conflict between 'growth paradigm' and 'ecological paradigm', between 'naturalist' and 'sociological' or 'culturalist' approaches to the ecological issue, see Karl-Werner Brand, "Soziologie und Natur – eine schwierige Beziehung. Zur Einführung", in *Soziologie und Natur. Theoretische Perspektiven*, ed. Karl-Werner Brand, Opladen: Leske+Budrich, 1998, 9-29/15ff and 24ff, as well as Reiner Keller and Angelika Pöferl: "Vergesellschaftete Natur – Öffentliche Diskurse und soziale Strukturierung. Eine kritische Auseinandersetzung mit der Cultural Theory," in *Soziologie und Natur*, 117-142, here 124ff.

17. See Thomas Naff, "A Case for Demand-Side Water Management," in *Water and Peace in the Middle East, Proceedings of the First Israeli-Palestinian International Academic Conference on Water*, eds. Jad Isaac and Hillel Shuval, Amsterdam/London/New York et al.: Elsevier, 1994, 83-92, here 83.

18. See Vivienne Jabri: *Discourses on Violence. Conflict Analysis reconsidered*, Manchester: Manchester University Press, 1996, 12, and K.-W. Brand, "Soziologie und Natur," 11f.

graded to administrative issues and then managed by highly qualified experts¹⁹ without noticeable conflict.²⁰

Such a rationalisation of the approach to environmental conflict does not, however, lead to a rationalisation of the actual conflicts—on the contrary. While it is true that a more rational approach to resource conflicts generates growing (expert-) knowledge about the respective resource, the stakeholders involved etc., and thus seemingly aims at objectifying the situation, the broadening of cognitive knowledge always entails a broadening of narrative constructions.²¹ Put differently: Instead of a more rational approach to nature, in this case to a natural resource, increasing ‘objective’ data engenders a process of *emotionalisation*, politicisation and *securitisation*²² which entails new, competing constructions of nature. This leads to a competition between ‘right’ and ‘wrong’ knowledge, between different constructions of reality, between that which is ‘sayable’ and that which is ‘unsayable’. This has yet, however, to be taken into account in conflict resolution efforts in the environmental sector.

‘Objective knowledge’, compiled by experts, is the basis on which an agreement about future water needs, risks, potential conflicts etc. is built. In this context, Klaus Eder speaks of the social construction of nature, which refers to objective knowledge about nature.²³ He states that our perception of nature is always dependent on the limited knowledge we have at a specific point in time. Eder calls this ‘realistic knowledge’, which is also constructed: According to him, observations referring to the outer world are actively constructed as objective incidents. These observations, or ‘incidents’, are the material from which the social construction of nature is made up and embodied as knowledge.²⁴

This ‘constructivist turn’ in studies about environmental (water) conflicts has opened up new ways to look at the question why water remains an issue of conflict between long-standing adversaries even though there is no shortage

19. On the increasing ‘expertisation’ of the world see N. Stehr: *Knowledge Societies*, London: Sage, 1994.

20. See Steven F. Hayward: “Environmental Science and Public Policy,” *Social Research* 3, 2006: 891-914, as well as Michael Shellenberger und Ted Nordhaus: *The Death of Environmentalism*, 2004, http://www.thebreakthrough.org/images/Death_of_Environmentalism.pdf.

21. See Klaus Eder: “Gibt es Regenmacher? Vom Nutzen des Konstruktivismus in der soziologischen Analyse der Natur,” in *Soziologie und Natur*, 97-115, here 102.

22. A securitising move means constructing a particular reference object into an existential threat for a certain audience. Given a sufficient acceptance by that audience, a securitising move legitimates emergency measures which exceed the common rules of social interaction, like violence. A successful securitising move is called securitisation. The securitisation theory was first formulated by Ole Wæver (“Security: the speech act” and “Securitisation and Desecuritisation”) and has become an integral part of security studies. See Ole Wæver, “Aberystwyth, Paris, Copenhagen - New ‘schools’ in security theory and their origins between core and periphery,” paper presented at the Annual Convention of the International Studies Association, Montreal, 17–20 March 2004, and Ulrik Pram Gad and Karen Lund Petersen, “Concepts of politics in securitization studies,” *Security Dialogue* 42(4–5), 2011: 315–328, here 316ff.

23. K. Eder, “Gibt es Regenmacher,” 101.

24. Ibid.

of proposals to solve it. In Israel and Palestine, the final solution of the 'water question' has been postponed to the final status talks, and there is no sustainable solution of the water conflict in sight, regardless the benefits it may bring for all parties involved: The water resources in the Jordan basin would be sufficient for households and light industry of Israel, the Palestinian Territories and Jordan, if only they were managed differently. In the Euphrates-Tigris-basin, stakeholders are still a long way from a comprehensive agreement about water allocations, too. Uncovering the *constructedness* of seemingly objective data is one way of finding new ways out of such environmental conflicts.

The Jordan basin

Due to its climate and geography as well as the region's political situation, the Jordan basin is one of the most frequently cited examples for international water resources with the potential for conflict or even outright 'water war'. It is one of 261 international rivers and river basins that are divided between two or more neighbouring states. Usable freshwater comes from the Jordan and its tributaries (directly: Hasbani and Baniyas in Syria, Dan in Israel, Yarmuk in Jordan; indirectly: Litani in Lebanon), the Sea of Galilee and different aquifers (mainly the Mountain and Coastal aquifers, but also a number of less developed groundwater reservoirs). The regional climate is dry to semi-dry, with frequent droughts putting increasing pressure on the natural water resources. This relative natural scarcity is exacerbated by inefficient water use, relatively high population growth and growing industrialisation and urbanisation.

The water issue between Israel and the Palestinians as well as between Israel and its other Arab neighbours (with the exception of the Hashemite Kingdom of Jordan) remains unresolved on the one hand because water is deeply related to other contentious issues like land, refugees, and political sovereignty. As a result, a sufficient supply with fresh water has become a security interest for all riparians and is being managed according to political and ideological goals rather than pragmatic considerations. On the other hand, water is often considered subordinate to what is perceived as 'high' politics, which results in cooperation in the water sector on a low technical level, but also hinders the central and 'hard' questions of a joined water management of being addressed. As a result, water remains one of the issues in the Middle East conflict that have been postponed to the final status talks.

Conflict history

The Jordan River flows between five riparians: Israel, Palestine, Jordan, Lebanon, and Syria, two of which rely on the basin as the primary water supply.²⁵ The initial issue of conflict was the equitable allocation of the annual flow of the Jordan watershed between its riparians—Israel, Jordan, Lebanon, and Syria. For decades, the Palestinians were excluded from any negotiations due to their lack of state territory and representation. Due to its pre-eminence in the Arab world, Egypt was also included.

In the early 1950s, several states announced unilateral plans for the Jordan watershed, even though at the time, little room remained for unilateral development without impacting on other riparian states. While the Arab states planned to exploit two northern tributaries of the Jordan (the Hasbani and the Baniyas), Israel published its “All Israel Plan”, which envisaged draining the Huleh Lake and swamps, diverting the upper Jordan River and constructing what would later be called the “National Water Carrier” to the coastal plain and the Negev Desert. Jordan planned to tap the Yarmuk in order to irrigate the East Ghor of the Jordan Valley.

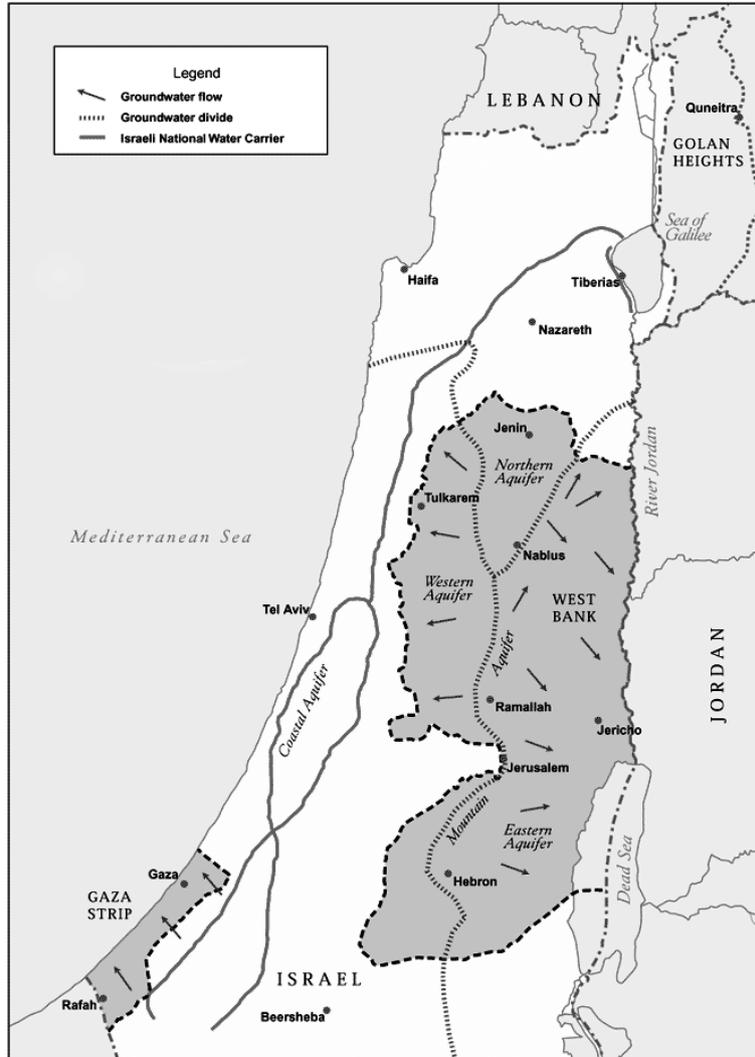
In reaction to this announcement, Israel closed an existing dam south of the Sea of Galilee and began draining the Huleh swamps, thereby infringing on the demilitarised zone with Syria. This resulted in border skirmishes between Israel and Syria which escalated over the summer of 1951.

The conflict flared up again in 1953. In March, Jordan and the UN Relief and Works Agency for Palestine Refugees (UNRWA) signed an agreement to begin implementing the “Bunger Plan”, which envisaged two dams on Jordanian territory in order to open land for irrigation, to provide power to Syria and Jordan and to offer resettlement for 100,000 refugees. Three months later, Jordan and Syria agreed to share the Yarmuk, while Israel protested that its riparian rights were being ignored. In July, Israel began to work on its National Water Carrier in the demilitarized zone north of the Sea of Galilee. Syrian armed forces were then deployed along the border and artillery units opened fire on the construction sites. The ensuing UN resolution, which allowed Israel to resume work, was vetoed by the USSR. In consequence, Israel moved the construction sites away from the demilitarized zone. The Johnston negotiations, named after U.S. special envoy Eric Johnston, unsuccessfully attempted to mediate these water disputes in the mid-1950s.

In the early 1960s, the competing water claims flared up again when Israel continued its work on the National Water Carrier, which diverts the Jordan river

25. The following is based on Aaron T. Wolf and Joshua T. Newton, “Case Study of Transboundary Dispute Resolution: the Jordan River,” accessed 29 August 2012, http://transboundarywater.geo.orst.edu/research/case_studies/Jordan_New.htm.

Map 1: Surface Water in Palestine



Source: adapted from www.passia.org/palestine_facts

from the north of the Sea of Galilee to the Negev, while Syria did the same with regard to the Hasbani and Baniyas rivers. Violent clashes ensued in the years preceding the Six-Day-War. Due to the territorial gains that Israel achieved in its overwhelming victory over its adversaries in June 1967, approximately 80 per cent of the region's water reservoirs have since been under Israeli control.

During the Oslo process of the 1990s, bilateral bodies (the so-called "Joint Water Committees") were set up between Israel and Jordan and Israel and the Palestinian Authority. The latter continues to convene and cooperate regardless of the deadlocked political conflict surrounding it. The committee cooperates on a

L'Europe en formation n° 365 Automne 2012 – Autumn 2012

technical basis, however; it does not touch upon the ‘hard’ issues like water rights. Still, a genuine ‘water war’ seems much less likely today than it had been in the 1960s, since desalination has become relatively affordable, thus rendering a war about water resources extremely uneconomical.

The current situation

Even though a war about water between Israelis and Palestinians (or between Israel and Syria, for that matter) is very unlikely, the problem is far from solved. The above-mentioned Israeli-Palestinian Joint Water Committee illustrates the asymmetrical nature of the Israeli-Palestinian conflict: While it grants Palestinians and Israelis equal rights on paper, Israel has a *de facto* veto power over any Palestinian development project. Until today, the Palestinians do not have access to the river Jordan, and only limited access to the aquifers beneath the West Bank, which the Palestinian Authority considers rightfully Palestinian.²⁶ The unequal power distribution between Israel and the Occupied Palestinian Territories is also reflected by the inequality in water allocations: While Palestinian water supply averages at 84 litres per person per day, Israeli citizens, including Israeli settlers in the West bank, consume about 250 litres per person and day.²⁷

The water supply in Israeli main land and the Israeli settlements conforms to Western standards; at the same time, 25 to 30 per cent of the Palestinian population are not connected to public water pipelines. They have to rely on water that is brought in by tankers at very high prices: between 2.35 and 4.91 US-dollar per cubic meter.²⁸ The Palestinians are paying the highest water prices in the region, while commanding one of the weakest economies, largely due to the effects of the occupation and weak political decision-making on the part of the Palestinian Authority.

This obvious and continuing inequality reinforces the conflict structures which have developed during the last sixty years. By avoiding any discussion about those aspects of water allocation which touch upon the hard political issues, like final borders, the accommodation of refugees and territorial sovereignty, and by reducing the water issue to a technical problem, both sides cater to those voices who are not interested in meaningful negotiations and hinder the much needed enhancement of the livelihoods of those who have hitherto been underprivileged with regard to water allocations—a group which is not at all narrowed

26. The Gaza water resources have been under Palestinian control since the Gaza disengagement of 2005, but the water quality in the coastal aquifer had been continually deteriorating long prior to the disengagement, which adds to the overall water scarcity and the catastrophic humanitarian situation in the Gaza strip.

27. Yousef Nasser, “Palestinian Water Needs and Rights in the Context of Past and Future Development,” in *Water in Palestine. Problems – Politics – Prospects*, ed. Fadia Daibes, Jerusalem: Passia, 2003, 85-123, here p. 113.

28. *Ibid.*, p. 107f.

to the Palestinians in the Occupied Territories, but also includes discriminated minorities in mainland Israel, like the Bedouin population.

Desalination, reallocation: A way forward?

A reallocation and integrated management of the regional renewable water resources according to the principles of equitability and sustainability could relieve the water-related tensions between Israel and the Palestinians, or possibly even function as a confidence-building mechanism. However, even given the political will for reallocation, such a decision would be highly problematic and potentially suicidal for any Israeli government, since the influential agricultural lobby, which has developed from the settler movement and has been dominating the Israeli water management and related institutions for decades, would not accept a massive increase in prices or comparable consequences. Its political influence played a decisive role in securing agricultural subsidies, even though the agricultural sector only contributes 2 to 3 per cent to the Israeli gross domestic product (GDP)—while using about 60 per cent of all of Israel's water resources. Downscaling the agricultural sector would also be met with strong opposition, because the agricultural sector has a strong symbolical significance. In addition, giving up water resources below the West bank equals giving up territorial control: Controlling the natural water resources is still considered a national security interest in an environment that is perceived as predominantly hostile. So far, the current power shifts in the Arab world do nothing to alleviate this perception. All these viewpoints are discernible in the dominant strand of the Israeli water discourse; giving up water rights is downright unsayable (or: taboo) in the Israeli water discourse.

In consequence, Israel has offered to supply the Palestinian territories with desalinated water from the Mediterranean in order to alleviate the water-related hardships of the Palestinian population. In this way, the natural water resources could remain unaffected, internal tensions could be avoided, and the Palestinian water supply could be enhanced and secured. The Palestinian Authority rejects this offer, however, because its main goal is to build an independent, autonomous (thus controlling its own water resources) Palestine. Any measure that increases dependency on Israel, whether it is border controls, customs regulations or water allocations, is rejected on these grounds. Accepting such a 'solution' would equal implicitly accepting the Israeli occupation of the West bank—which is again unsayable, this time in the Palestinian dominant water discourse strand.

Major stumbling blocks

As shown above, the deadlocked positions and asymmetrical power relations which define the overall Israeli-Palestinian conflict are mirrored in the water conflict and the related discourse strands. National interests and issues of political

identity are still considered more important than achieving equitable water utilisation by both adversaries, since the price for equitability would be to give up political goals which have served as identity-forming elements in the respective national discourses.

Two characteristics, which are illustrated by and result from these conflictive discourse structures, have proven particularly impedimental to the numerous attempts to solve the conflict. Firstly, (formally until the Oslo process, which began in 1991, but in fact up until today) political and resource problems have predominantly been handled as unrelated. Handling the water issue separately from overall political discussions, however, has arguably contributed to all past initiatives failing to one degree or another.

Secondly, the historically predominant bi- or, worse, unilateral approach to the water issue in the Middle East, which can be read as a result of the above-mentioned conflictive discourse structures, has perpetuated the conflict by both ignoring the border-crossing nature of the resource and by continually and repeatedly leaving out the other riparians. The Palestinians have suffered most from this, since their interests have been ignored more often than not due to their weak bargaining position; one case in point is the Israeli-Jordanian peace treaty of 1994, which includes extensive regulations on the allocation of Jordan and Yarmuk river waters, but does not recognise Palestinian claims to the Jordan watershed.

Thus, though a 'water war' between Israel and its neighbours is less than likely, addressing these stumbling blocks is one of the major challenges for anyone trying to solve the water issue in the Jordan basin—and the Israeli-Palestinian core conflict.

The Euphrates-Tigris-basin

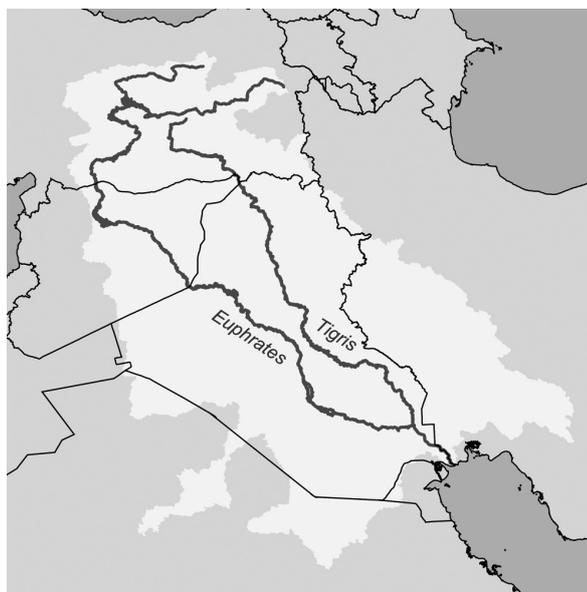
The Euphrates-Tigris-basin has been a reason for conflict between Turkey, Syria and Iraq for decades. The two rivers originate in Turkey; from there, the Euphrates flows towards Syria, where it is met by the two tributaries Balikh and Khabur. With 3,000 kilometres, the Euphrates is the longest river of Western Asia, and flows through Turkey (1,230km), Syria (710km) and Iraq (1,060km). The Tigris-basin lies in Turkey (12%), Syria (0,2%), Iraq (54%) and Iran (34%).²⁹

For 39 kilometres before it flows into Iraq, the Tigris forms the border between Syria and Turkey. Close to Qurna in Iraq, Euphrates and Tigris meet to form the Shatt-al-Arab, which flows into the Persian Gulf. Before the two rivers' confluence, the Euphrates flows for about 1,000km and the Tigris for about

29. Marwa Daoudy, "Syria and Turkey in Water Diplomacy (1962-2003)," in *Water in the Middle East and North Africa: Resources, Protection and Management*, eds. F. Zereini, F. and W. Jaeschke, Heidelberg: Springer, 2004, 319-332, here 319f.

1,300km within Iraq. The Karun River, originating in Iran, flows into the Shatt Al-Arab, adding to it a mean annual flow of 24.7km³ just before reaching the sea.

Map 2: Catchment areas of Euphrates and Tigris



Source: <http://de.wikipedia.org/wiki/Bild:Tigr-euph.png>

The average annual runoff of the Tigris is estimated at 21.33km³ as it enters Iraq, that of the Euphrates at 30km³, with a fluctuating annual value of between 10 and 40 km³. Unlike the Tigris, the Euphrates receives no tributaries during its passage through Iraq.

About 90 per cent of the total annual flow of the Euphrates stem from Turkey, while the remaining 10 per cent originate in Syria. Very little is added in Iraq. Turkey also contributes 38 per cent directly to the main Tigris River and another 11 per cent to its tributaries. Most of the remainder of the Tigris water comes from three tributaries originating in the Islamic Republic of Iran.

For Syria, the Euphrates is the most important water source (much more so than the Jordan headwaters in the Golan Heights), while Iraq mainly relies on Tigris water and possesses other, national water resources. Current estimates calculate 2,400m³ of water per person per year for Iraq, which means that with the exception of Turkey, Iraqis have more water available to them than their neighbours.

In 2003, 87.9 per cent of Syria's water allocations flowed into its agricultural sector, especially the large irrigation plants in the North. Compared to 1993, the total water withdrawal increased by almost 31 per cent. Agricultural water withdrawal followed the same trend but municipal and industrial withdrawal

increased by 39 and 89 per cent respectively.³⁰ In Iraq, 79 per cent are utilised for agricultural purposes, 6.5 per cent for domestic supplies and 14.5 per cent for industrial use.³¹

Conflict history

As early as 1946, Turkey and Iraq agreed that the control and management of the Euphrates and the Tigris depended on the flow regulation in the Turkish source areas. This was written down in a formal protocol. Turkey agreed to monitor both rivers and to share related data with Iraq.

In 1973, Syria began works on the Tabqa Dam, which was filled in 1975. Both the Tabqa and Turkish Keban dams caused the downstream flow and the quantity of water entering Iraq to decrease by 25 per cent.³² This resulted in mutually hostile accusations between Iraq and Syria, which came dangerously close to a military confrontation; Iraq even threatened to bomb the dam.³³ Both countries moved troops towards their common border. After mediation by Saudi Arabia and possibly the Soviet Union, Syria opened the dam to release more water to Iraq to alleviate the tensions.

In 1980, Turkey and Iraq established a “Joint Technical Committee on Regional Waters”; following a bilateral agreement in 1982, Syria joined the group. It was set up to deal with all water issues among the basin riparians; however, the committee disintegrated after 1993 without making any progress. As Ali Akanda and his colleagues put it, “[t]he uncertain political setting, pursuit of short-term national interests, lack of regularized institutions, and incomplete information” contributed considerably to the termination of these meetings.³⁴ Only very recently, Turkey attempted to reinstate the committee; however, the political upheavals of the Arab revolution have in all likelihood squandered those efforts.

In 1987, Turkey unilaterally guaranteed to allow 15,75km³/year (500m³/s) of the Euphrates waters to cross the border to Syria, more than half of the 950 cubic meters that are considered the average water flow per second. Due to yearly fluc-

30. See Food and Agriculture Organisation of the United Nations, *Aquastat*, http://www.fao.org/nr/water/aquastat/countries_regions/SYR/index.stm, accessed 1 September 2012.

31. See Food and Agriculture Organisation of the United Nations, *Aquastat*, http://www.fao.org/nr/water/aquastat/countries_regions/IRQ/index.stm, accessed 1 September 2012.

32. See El Fadel, Y. El Sayegh, A. Abou Ibrahim, D. Jamali, and K. El-Fadl, “The Euphrates-Tigris Basin: A Case Study in Surface Water Conflict Resolution,” *Journal of Natural Resources and Life Science Education* 31, 2002: 99-110, accessed 1 September 2012, <https://www.agronomy.org/files/jnrsl/issues/2002/e01-13.pdf>.

33. For this and the following see Ali Akanda, Sarah Freeman, and Maria Placht, “The Tigris-Euphrates River Basin: Mediating a Path Towards Regional Water Stability,” *Al Nakhlah – The Fletcher School Journal for issues related to Southwest Asia and Islamic Civilization*, Spring 2007, accessed 31 August 2012, http://www.google.de/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0CCAQFjAA&url=http%3A%2F%2Fui04e.moit.tufts.edu%2Fal_nakhlah%2Farchives%2Fspring2007%2Fplacht-2.pdf&ei=fuVBUL4Gp5XRBAg_Ag&usg=AFQjCNHd2AyzEewTQGGB-dwVd90wMHIPJA.

34. *Ibid.*, 2.

tuations in the annual discharge, the amount of water flowing across the border does not necessarily correspond with Syria's and Iraq's irrigation needs at that particular point in time, however. In consequence, the Syrian government, which has built a number of dams on the Euphrates itself, among others the massive Assad-dam, demands 700 cubic meters per second. No formal agreement has been reached so far. In 1990, Syria and Iraq agreed to share the Euphrates water on a 58% (Iraq) to 42% (Syria) basis.

The current situation

No multilateral agreement exists as yet between the three countries concerning the basin waters. The Turkish government, as upper riparian, claims the right to a large part of these waters for its own projects. Especially the GAP (*Güneydogu Anadolu Projesi*, Southeast-Anatolia-Project), which consists of 22 dams and 19 hydro-electric power plants on 75,000km² in Eastern Turkey, dams up immense amounts of water on Turkish territory. These are meant for electricity production and irrigation of agricultural areas. Through these dams, and also due to the resulting high evaporation losses, the amount of water that reaches the lower neighbouring countries was decreased massively.

The construction of the Ataturk Dam, which was completed in 1992 as part of the GAP, was perceived as a belligerent act by both Syria and Iraq, since Turkey began the process of filling the Ataturk Dam by shutting off the river flow for a month.³⁵ Both lower riparians accuse Turkey of not informing them about the cut-off, thereby causing considerable harm; Iraq even threatened to bomb the Euphrates dams. Turkey claims that both states had been informed early enough about the fact that the river flow would be interrupted out of technical necessity for one month. Turkey returned to previous flow-sharing agreements after the dam became operational, but the conflict was never formally resolved.

Both Syria and Iraq object to Turkey having the power to open and close the water tap for the lower riparians at its discretion—or at least that is the dominant perception in Syrian and Iraqi water discourse. Turkey, however, argues that out of 50 billion cubic meters annual water flow (approx. 30 billion from the Euphrates, 20 from the Tigris), it needs no more than 17 billion cubic meters for its own projects.

Syria and Iraq have long accused Turkey of violating international water laws with regard to the Euphrates and the Tigris rivers.³⁶ They consider these rivers to be international and thus claim a share of their waters. Turkey, however, refuses

35. See Akanda et al., 2007, and Dieter Brauer, "Umstrittene Entwicklung. Die Staudammprojekte der Türkei an Euphrat und Tigris," *E+Z - Entwicklung und Zusammenarbeit* 6, 2001: 188 - 191), accessed 27 August 2012, <http://www3.giz.de/E+Z/1997-2002/ez601-5.htm>.

36. The following is based on Akanda et al., 2007:2ff.

to concede the international character of the two rivers and only speaks of a “*rational utilisation of transboundary waters*”. Turkey argues that only the confluence of the two rivers, the Shatt al-Arab, can rightfully be called an international river. Also, Turkey, unlike its neighbours in the basin, has voted against the “United Nations Convention on the Law of Non-navigational Uses of International Watercourses”. According to Turkey, the law would give the lower riparians the right to veto Turkey’s development plans in case it were ratified. Consequently, Turkey maintains that the Convention does not apply to it and is therefore not legally binding.

The political value of water in the Euphrates-Tigris-basin

Turkey also claims that its water dispute with Syria and Iraq has less to do with water or scarcity thereof than with political interests. Syria maintains that it has a right to the Turkish province Hatay on the Mediterranean coast. This province, which had been a part of Syria under the name Iskandaroun prior to 1939, was given to Turkey during the French Mandate. As a result, Turkey commands a much better strategic position with regard to the river Orontes (today: Asi), which is challenged by Syria, forming a central hindrance for better relations between the two neighbouring states.

In addition, Syria had been a safe haven for the fighters of the Kurdistan Workers’ Party (PKK), including their leader Abdullah Öcalan, and supported the PKK’s guerrilla war against Ankara for years. Turkey used water as a political tool to force the Syrian government to end its support for the PKK. While tensions certainly eased when Syria evicted Öcalan in 1999, lasting trust between the two nations is still a distant hope rather than a tangible reality.

In Iraq, deficient water management, or rather a shockingly extensive lack thereof, has caused increasing water stress in the numerically water-rich country. The surface water levels in Iraq’s reservoirs, lakes and rivers have sunken to critical levels, and groundwater levels and quality are deteriorating rapidly, too. In addition, more than half of the water which Iraq relies on stems from precipitation falling outside of its borders; this high dependency makes it not only vulnerable to storage projects in Turkey, Syria and Iran, but also to the effects of climate change. Due to global warming, discharge rates in the Tigris and Euphrates Rivers have already fallen to less than a third of the normal capacity and are expected to drop further in coming years.³⁷

As a result, Iraqi Prime Minister Nouri al-Maliki warned Turkey and Syria only in May of this year that the region faces conflict unless the issue of dwindling water resources are addressed by the regional governments. The Iraqi government

37. *Climate Change in Iraq Fact Sheet*, UN Inter-Agency Information and Analysis Unit, June 2012, accessed August 28, <http://www.iauiraq.org/analysis.asp>.

evoked the risk of an international crisis about water, thus utilising the above-mentioned 'water war' thesis in an attempt to mobilise immediate action to alleviate his people's hardship.³⁸ However, the much more likely effect of the water shortage, which has been worsening for over ten years, is an outbreak of violence within Iraq.

The potential implications of Iraq's current climate challenges are alarming. Iraq's population tripled to 30 million between 1970 and 2007; requirements for water and agricultural output have increased accordingly. The amount of water available per person per year decreased from 5,900 cubic metres to 2,400 cubic metres between 1977 and 2009.³⁹ At the same time, access to and quality of water for drinking and irrigation are already poor. One reason for this is the long-neglected water infrastructure in Iraq, which in many places is close to collapse: Major water pipe networks leak or rupture frequently; criss-crossing and damaged pipelines mix sewage with drinking water, putting large parts of the population at risk.⁴⁰ 20 per cent of Iraqi households rely on an unsafe source of drinking water and a further 16% report that they have daily problems with supply.⁴¹ The situation is much worse in rural areas, where only 43% have access to safe drinking water.⁴²

Drought and water scarcity have also caused internal displacement and unplanned urbanization: International Organisation for Migration (IOM) monitors have assessed that 4,263 families (25,578 individuals) were displaced due to the effects of the on-going drought in Iraq, most of them migrating from rural to urban centres, thereby placing extra strain on the already deficient public services in the cities. As a result of increasing water scarcity, family incomes have been reduced since water for fishing, raising livestock and irrigating agriculture is too scarce. Water scarcity is also contributing to the on-going rise in food prices. Both together worsen malnutrition, which is usually particularly severe among women and children.⁴³

Thus, the dispute between Iraq and the other riparians of the Euphrates-Tigris basin is but one of many reasons for the blatant lack of high-quality water the Iraqi population is suffering from. Evoking the 'water war' thesis is a political move to raise attention to the internal water issues Iraq is suffering from. However,

38. "Water pacts re-examined amid Arab Spring," accessed and published 14 June 2012, <http://m.upi.com/story/UPI-60651339699729/>.

39. UN Country Team in Iraq, *Facts and Figures*, accessed 1 September 2012, <http://iq.one.un.org/Facts-and-Figures>.

40. UN Country Team in Iraq, *Common Country Assessment 2009*, 2010: 57, accessed 1 September 2012, <http://www.iauiraq.org/search.asp?search=common+country+assessment>.

41. *Climate Change in Iraq Fact Sheet*.

42. *Ibid.*

43. International Organisation for Migration Iraq Displacement Reports, *Special Focus—Water Scarcity*, September 2010, accessed 1 September 2012, <http://www.iauiraq.org/search.asp?search=water+scarcity>.

given the internal issues and deficiencies in both Syria and Iraq, an international ‘water war’ with Turkey is extremely unlikely, while social unrest on a local level due to water scarcity and its consequences is not only likely, but seems to have already occurred. It is one of the many questions to be answered with regard to the current Arab revolution to what extent environmental degradation and water scarcity have contributed to the revolts.

Major stumbling blocks

As shown above, a number of crises have occurred in the Euphrates-Tigris Basin, partly due to lack of communication, conflicting approaches, unilateral development, and inefficient water management practices. No lasting agreement has been reached up to now, which is at least in part due to the asymmetrical character of the conflict. Turkey is militarily superior and privileged through its NATO membership, while neither Syria nor Iraq—the latter arguably a failing or failed state—find themselves in an advantageous position for negotiations. At the same time, Turkey maintained strong military and economic relations with Israel for a long time.⁴⁴ Moreover, Turkey’s growing ambitions to become a major regional player, combined with its arguably increasing estrangement from the European Union due to the deadlocked negotiations about Turkey’s possible accession to the Union, have led to changing power constellations in the region. With the Arab spring challenging the regional power arrangements, and especially with the most recent outbreak of violence in Syria, relations have cooled considerably.

Nevertheless, there is no reason to call the above-mentioned disputes a ‘water war’. Turkey has been fulfilling its duties with regard to water flow, and water experts from all riparian countries have been exchanging data on water flow and water levels on a fairly regular basis. In April 2008, all three riparians decided to cooperate on water issues by establishing a water institute consisting of 18 water experts from each country to work towards the solution of water-related problems among the three countries. The institute was planning to conduct its studies at the facilities of the Atatürk Dam, the biggest dam in Turkey, and to develop projects for the fair and effective use of transboundary water resources.⁴⁵

44. Arguably, the recently deteriorating relations between Turkey and Israel have opened a window of opportunity for improved relations between Turkey and Syria. An Israeli military raid on the so-called Gaza flotilla led to a major rift in Turkish-Israeli diplomatic relations, with Turkey expelling the Israeli ambassador and suspending all military agreements in 2011.

45. Ercan Yavuz, “Turkey, Iraq, Syria to initiate water talks,” *Today’s Zaman*, accessed 1 September 2012, http://www.todayszaman.com/newsDetail_getNewsById.action?load=detay&mlink=136183.

Summary: What needs to be done

The case studies outlined above have illustrated two things: Even in a very difficult political climate, international 'water wars' are very unlikely. Internal water conflicts, however, are acute issues which need to be resolved in order to avoid social unrest. These findings need to be taken into account when asking the question "Water: Reason for conflict or cooperation?" It is high time for the international community to focus on internal, local water conflicts instead of concentrating all efforts on international water conflicts on the basis of the deceiving thesis of international 'water wars'. As stated above, the most pressing questions today are not whether the next war in the Middle East will be about water, but whether the risks of water conflicts on the sub-state level are growing, and if yes, how we can both reduce the risks leading to such conflicts and resolve those that have already erupted.

With global warming well under way, a blatant lack of comprehensive and efficient water management in places which are already suffering from water stress, as well as with a global water use which has been growing at more than twice the rate of the population increase in the last century, it is to be expected that although there is no global water scarcity as such, an increasing number of regions will be chronically short of water rather sooner than later. The Food and Agriculture Organisation of the United Nations (FAO) envisages that by 2025, 800 million people will be living in countries or regions with absolute water scarcity, and two-thirds of the world population could be living under water stress conditions. The rapidly increasing urbanisation will exacerbate this situation, which means that the risks of water conflicts on the sub-state level are indeed growing.

How can these risks be reduced and acute conflicts be resolved? First of all, it is necessary to employ pre-emptive strategies for water allocation conflicts especially in those states which experience a high population growth and whose water supply is already scarce. Among them are both measures to increase the empowerment of women, as well as measures which increase the efficiency of water utilisation. As the Rio Declaration of 14 June 1992 already stated in its Principle 20: "*Women have a vital role in environmental management and development. Their full participation is therefore essential to achieve sustainable development.*" In many regions of the world, women carry the main responsibility for water supply and crop production. Based on tradition and experience, they choose crops and irrigation techniques; they also suffer most when wells dry up, resulting in a lengthening of the way to the next water source. Having to spend hours carrying water to supply their families often keeps girls and young women from attending school. Educating them about strategies to increase water efficiency and productivity as well as using their knowledge about traditional methods of cultivation, which

often are much more sustainable than industrial agriculture, could help reduce the effects of water stress.

Moreover, the lack of adequate legal instruments exacerbates the already difficult conditions and needs to be amended urgently. An international, joined effort will be necessary to put a legal framework in place which secures the basic human needs for water. The ratification of the 1997 UN Watercourses Convention is one step in the right direction; the increasing pressures from population growth and the anticipated consequences of climate change make its ratification not only urgent, but obligatory for anyone respecting the basic human rights. An international legislative framework for global water allocations (including ground water) could achieve at least some semblance of equity; in addition, fair and binding water-sharing principles could counteract the power asymmetries which are currently hindering equitable water allocations in the Middle East and elsewhere.

In order to solve current, long-standing water conflicts as well as to avoid future conflicts about water, we also need to develop a better understanding of the way in which water is instrumentalised politically. It is necessary to uncover conflictive discourse structures which perpetuate a water conflict by reinforcing conflictive viewpoints which cater to primarily nationalist interests; continuing to base hydro-political decisions on static political boundaries will not do in the middle or long term.

Negotiations about water allocations also need to focus not only on supply management, but also on demand management; it is particularly important, if extremely contentious, to take into account internal economic structures, especially the size and structure of the agricultural sector. The water-food nexus needs to be met head on, most importantly by helping agricultural sectors to adapt to a warming, increasingly water-stressed world, and by expanding affordable, small-farm irrigation to alleviate food insecurity. After all, with less and less water available for food production in the years ahead, one of the potentially most destabilising global water-related threats are rising food prices and increasing hunger.

In any case, there should be a greater focus on the peaceful sharing and management of water at both the international and the local level. Internal, sub-state conflicts about water are endangering the livelihoods of millions of people, and therefore deserve the international community's full diplomatic, scientific, and financial attention.

Abstract

Water is essential for the maintenance and development of any national economy, and thus for the overall standard of living. Water scarcity may lead to considerable inner-societal tensions between, for instance, agriculture and industry, urban and rural populace, or between different ethnic groups.

The risk for conflict is especially high in international watersheds that are located in areas in which the political atmosphere is dominated by confrontation rather than cooperation, like the Middle East. In such a political climate, water and its allocation are usually understood to be a zero-sum game, i.e. all



stakeholders assume that giving up water rights equals losing them irrevocably. This view is not, however, backed by scientific evidence.

The article first outlines the state of the art in environmental conflict research. It then analyses two of the most prominent examples for international water conflicts in the Middle East (Jordan and Euphrates-Tigris) as to whether the 'water war'-thesis holds. Finally, it presents options for future political decision-making with regard to water on the local and the global level.

Résumé

L'eau est essentielle pour la gestion et le développement de toute économie nationale, de même que pour le niveau de vie dans son ensemble. Le manque d'eau peut conduire à de considérables tensions au sein d'une société, par exemple entre l'agriculture et l'industrie, les populations urbaines et rurales, ou entre différents groupes ethniques.

Le risque de conflit est particulièrement élevé dans les lignes d'eau internationales qui sont situées dans des régions où le climat politique est dominé par la confrontation plutôt que par la coopération, comme au Moyen-Orient. Dans une telle atmosphère politique, l'eau et son allocation sont en général comprises comme un "jeu à somme nulle", où les participants considèrent qu'abandonner des droits sur l'eau revient à les perdre irrévocablement. Cependant, cette vision ne s'appuie sur aucun fondement scientifique.

Cet article s'intéresse tout d'abord à l'état des lieux de la recherche sur les conflits environnementaux. Il analyse ensuite deux des plus importants exemples de ceux-ci au Moyen-Orient (Jourdain et Tigre-Euphrate), afin de voir si la théorie de la « guerre de l'eau » est applicable. Enfin, cet article présente plusieurs options d'avenir pour la prise de décision politique en ce qui concerne l'eau, au plan local comme au plan global.

