

# The Geopolitics of Water in the Middle East: fantasies and realities

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**ABSTRACT** *Most expert and public discourse on Middle Eastern water politics holds that water scarcities are of great, if often under-recognised, geopolitical importance. Pessimists and optimists alike tend to assume that water has, or soon will have, profound geopolitical implications. In this paper I argue to the contrary. Specifically, I contend that water problems should neither be understood in naturalistic nor in liberal–technical terms, but instead as questions of political economy; that water is structurally insignificant within the political economy of the modern Middle East; that in consequence water is generally unimportant as a source of inter-state conflict and co-operation; and that, notwithstanding this, water supplies are a crucial site and cause of local conflicts in many parts of the region. I submit also that given the worsening state of economic development within the Middle East, these local conflict dynamics are likely to further deteriorate.*

In an article published in the *New York Times* just before the 2003 US-led invasion of Iraq, onetime CIA political analyst Stephen Pelletiere argued that the USA should take this as an opportunity to control not just Iraq's oil reserves, but also its water resources, in the process reconfiguring the geopolitics of the entire Middle East:

We are constantly reminded that Iraq has perhaps the world's largest reserves of oil. But in a regional and perhaps even geopolitical sense, it may be more important that Iraq has the most extensive river system in the Middle East. . . In the 1990s there was much discussion over the construction of a so-called Peace Pipeline that would bring the waters of the Tigris and Euphrates south to the parched Gulf States and, by extension, Israel. No progress has been made on this, largely because of Iraqi intransigence. With Iraq in American hands, of course, all that could change. Thus America could alter the destiny of the Middle East in a way that probably could not be changed for decades—not solely by controlling Iraq's oil, but by controlling its water.<sup>1</sup>

Putting aside the empirical confusions here (one might, after all, expect these from a CIA analyst, and from the *New York Times*),<sup>2</sup> these claims provide a fine example of how Middle Eastern water issues are often represented in

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North America and Europe. The basic assumption here, common to so much discourse on Middle Eastern water politics, is that, while water is not in the public spotlight as much as issues like ethnic strife, weapons of mass destruction, oil, terrorism, dictators and so on, it is nonetheless of immense though generally under-recognised geopolitical significance. In the water-rich North, water is taken for granted; in the Middle East, by contrast, water can be a matter of life or death, and of great economic and political consequence.

These assumptions tend to take one of two forms. In media, political and popular discourse, they most typically reveal themselves in the form of hyperbolic claims about past, present and coming 'water wars'. Thus it is regularly claimed that water was 'a principal cause' or 'a major factor' behind the 1967 Arab–Israeli war or, in extreme, that this war 'was caused *largely* by competition for the waters of the River Jordan'.<sup>3</sup> It is routinely argued that 'water has become a commodity as important as oil' and that, while 'many of the wars of this century were about oil. . . wars of the next century will be over water' (this latter coming from a World Bank Vice-President).<sup>4</sup> It is also often suggested that the 'Middle East stands at the precipice of another major natural resource crisis'.<sup>5</sup> As Joyce Starr and Daniel Stoll of the Center for Strategic and International Studies in Washington argued in one of the earliest prognoses on the subject, 'before the twenty-first century, the struggle over limited and threatened water resources could sunder already fragile ties among regional states and lead to unprecedented upheaval in the area'.<sup>6</sup> Or as the *Guardian* newspaper recently posed the question, alongside a picture of a dripping tap, 'is this the real threat to Middle East peace?'<sup>7</sup>

Others reject the water wars thesis, but still maintain that water has important geopolitical implications—not in fomenting conflict, but in nurturing co-operation. According to such 'liberal functionalist' arguments, functional co-operation between states over 'low-political' issues like water can foster greater understanding, trust and in turn co-operation over 'high-political' areas of policy making.<sup>8</sup> In line with such thinking, it is often argued that water co-operation between states like Bahrain and Saudi Arabia, or between Israel and Jordan, has laid the groundwork for fuller co-operation between these countries.<sup>9</sup> It is asserted that 'water scarcity has invariably been a platform for cooperation in the region'.<sup>10</sup> And it is consistently speculated—especially of relations between Israel and the Arab states—that 'water can catalyse and lubricate the peace process. . . and soften the transition to regional cooperation'; that water could 'induce ever-increasing co-operation. . . between otherwise hostile riparians, in essence "leading" peace talks'; and that 'moves towards settlement of water disputes could promote efforts at achieving wider peace objectives'.<sup>11</sup> As with the advocates of the water wars thesis, the guiding premise here is that water is, or can be, of significant geopolitical weight. As with our CIA analyst, the implicit assumption is that water shapes, or can be employed to help reshape, the geopolitics of the entire Middle East.

This paper provides an overview of the geopolitics of water in the Middle East that rebuts both of these predominant 'water wars' and 'liberal functionalist' representations, and presents an alternative account of the

region's water politics.<sup>12</sup> Specifically I contend, first, that water problems must be approached as issues of political economy, rather than in naturalistic or liberal – technical terms; second, that, approached in this light, it becomes evident that water is of only marginal significance within the political economy of the modern Middle East; third, that water is, in consequence, not especially significant either as a source of inter-state conflict, or as a source of inter-state co-operation; but fourth, that scarce water supplies are, nonetheless, an important site and cause of local conflicts in many parts of the Middle East. I suggest further that, given the worsening state of economic development within the contemporary Middle East, local scarcities and local conflict dynamics are more than likely to further deteriorate. Unfortunately discourse on Middle Eastern water politics is so obsessed with inter-state hydro-political relations that it fails to recognise the much more pressing issue. In a Middle East which is increasingly 'falling behind' the capitalist core of the world economy, where economies are dependent and stagnant, and the state seems increasingly incapable of resolving social ills, the most important water scarcities and conflicts are located within, rather than between, states and social formations.

### **Explaining water crisis**

Before getting on to the issue of inter- and intra-state conflicts, however, we need to clarify how we should understand water crises—since only when we are clear on these can we sensibly reflect on their economic salience or political consequences. Most discussions of Middle Eastern water problems tend to frame them in either naturalistic or liberal – technical terms. Yet such representations, while they may be rhetorically powerful, are nevertheless mistaken. Water problems can best be understood, I would argue, through the lens of (Marxist) political economy.<sup>13</sup>

In most popular political and also environmental discourse the Middle East's water problems are usually represented in thoroughly naturalistic terms. So conceived, water scarcities and associated ecological stresses are essentially a function of imbalances in the relationship between natural resource and population levels. Across the Middle East, so the standard narrative goes, water resources are finite and limited. Populations, meanwhile, are high and growing—in the Arab states, for instance, at an average annual rate of 2.7% between 1975 and 2000.<sup>14</sup> And it follows from this that many Middle Eastern states are facing situations of 'water stress',<sup>15</sup> overstepping the 'thresholds' and 'carrying capacities' of their delicate natural resource bases, to potentially disastrous ecological, economic and political effect. As Malin Falkenmark writes, typifying this way of thinking, 'unfortunately, water resources are finite; future increases in population therefore imply increased water competition'.<sup>16</sup> Only by reducing population growth are water crises and conflicts likely to be averted. But such a remedial step is, for understandable reasons, exceedingly remote; and thus the Malthusian spectre of over-population, disease, famine and conflict looms on

the horizon. This, even if not always quite so bluntly stated, is the underlying premise of those doom-laden prophecies on the coming 'water wars'.

The problem with such naturalistic neo-Malthusianism is that it is simply wrong about the causes of water crisis. Naturalistic discourse presents us with a world comprising just humans and nature, where nature is static and unyielding, where the human relationship with nature is limited to its consumption, and where there are in consequence insurmountable limits to these consumptive—indeed exploitative—relations. But nature and natural resources do not just sit around waiting to be consumed. Resources, to the contrary, are material social constructs and products, brought into being through economic and technological development, through the fact that humans are producers and not just consumers of 'nature' (a 'nature', we might add, that no longer really exists).<sup>17</sup> Water resources such as deep-lying aquifers that would not even have been thought of as 'resources' a century ago are today commonly characterised as 'natural water resources'. New technologies and changing economies bring new resources into being, and even change our conceptions of what counts as 'nature'. As for population growth, here neo-Malthusianism is equally misguided. Populations are not just environmental burdens, they are also what Julian Simon called the 'ultimate resource'.<sup>18</sup> Population growth has been a key positive factor in the development and expansion of capitalism and in stimulating economic growth.<sup>19</sup> Thus to understand when and why population growth can become a problem, one needs to look elsewhere, at the failure of particular states and societies to make productive use of their expanding population, and the particular reasons for this. In both these regards the Middle East's water problems cannot be adequately explained in naturalistic terms. For, as David Harvey observes, to 'declare a state of ecoscarcity is in effect to say that we have not the will, wit or capacity to change our state of knowledge, our social goals, cultural modes, and technological mixes, or our form of economy, and that we are powerless to modify either our material practices or "nature" according to human requirements'.<sup>20</sup>

Most technical experts and development institutions recognise this (at least in part); and indeed for most such experts and institutions the roots of water crisis lie less in the realm of population and resource thresholds than in various forms of sub-optimal management and governance. These inefficiencies can take any number of forms: the failure to make best use of modern technologies in the production, storage, conveyance, conservation, treatment, use and reuse of water; the failure to treat water as an economic commodity, and to put realistic prices on it that reflects its economic value; the failure to allocate water appropriately between different users; and the failure of state institutions to manage water properly through appropriate regulatory and tariff structures, through systematic resource monitoring, and through rational, rather than politicised, decision making. Technological, economic and institutional inefficiencies: these, for most international finance and development organisations, and international water experts, are the essential causes of water problems. And the solutions, or at least the necessary responses, follow directly from them: to turn these inefficiencies

into efficiencies—usually, it must be said, by doing what is recommended by neoliberal experts and institutions. As the World Bank so nicely puts it, if such steps are undertaken, the ‘vicious circle’ of water crisis, in which ‘harsh water shortages adversely affect economic growth’, could be transformed into a ‘virtuous circle’ of ‘water for growth’, whereupon development would enable the region to climb out of water crisis.<sup>21</sup> Thus are water problems as understood in liberal–technical terms.

To the extent that it recognises the malleability of nature and the productivity of human populations, such liberal–technical discourse is less misleading than the neo-Malthusianism so prevalent within popular discourse. However, while the liberal–technical perspectives of international institutions like the World Bank are often good at listing individual inefficiencies (itemising how resources could be better exploited and produced, and how infrastructure networks, institutions, tariff levels, etc could be improved), they are generally blind to the fact that such discrete individual inefficiencies always emerge and need to be understood within the context of relatively durable social and political-economic structures. Water problems are not water problems alone, but are in large measure products of the relative ability or inability of different states and societies to address their economic and social problems, water problems included. And it is this differential capacity of different societies to control and produce water in accordance with social needs—Harvey’s ‘wit, will or capacity’ to modify either our social practices or nature—that one must above all concentrate on, if one wants to understand the roots of water crisis.

Consider, for example, the case of Israel, which provides the clearest illustration in the Middle East of a state and society that has managed to keep ahead of water crisis by creating new resources, and by managing its waters reasonably efficiently (in many if not all respects), in spite of a low ‘natural resource base’ and high levels of population growth. Israel has a highly integrated national water network, which allows water to be circulated around the country and conveyed from the Sea of Galilee right the way down to the Negev. It is a major user of sophisticated drip irrigation technologies. Seventy percent of its municipal water supplies are reprocessed and reused, with Tel Aviv’s effluent, for example, being injected into a nearby aquifer before being sent south for irrigation (interestingly, this water is of drinking water standards: it could in principle be used within a continuous cycle of domestic use and treatment).<sup>22</sup> Israel is also on the verge of importing 50 million cubic metres of water per year from Turkey, and is currently constructing a raft of major desalination plants that will soon be producing around 400 mcm of water per year (this compares with current total domestic water consumption of around 600 mcm/y).<sup>23</sup> Most importantly of all, but often ignored, Israel, along with most of the rest of the Middle East, is a major importer of what Tony Allan has labelled ‘virtual water’; that is, food staples imported from abroad which in effect make use of water supplies in distant lands, thereby allowing Middle Eastern economies to utilise their more precious supplies for higher value purposes. Allan calculates that two-thirds of the total water and food production needs of Israel and the

Palestinian territories are met by water imported in barely noticed virtual form.<sup>24</sup> Thus Israel and other Middle Eastern states are effectively making use of the international trade in foodstuffs as a core feature of their water budgets. These states are not subject to the fixed and nationally bounded natural resource limits imagined within neo-Malthusian discourse.

That said, Israel's relative success at coping with water scarcity has been less the product of the technical competence of its water managers than of certain enduring structural features of its society. Israel was established as a colonial-settler society under the sway of a hegemonic Labor Zionist ideology, with a strong commitment to agriculture (this serving both ideological and territorialising purposes), and with a statist and militarised political-economic regime (this arising initially out of the need to protect Jewish immigrants against cheap Arab labour, and secondarily out of the exigencies of the Arab-Israeli conflict).<sup>25</sup> Bolstered by high levels of immigration, as well as by capital gifts from Germany, world Jewry and latterly the USA, Israeli economic growth averaged 10% from 1948 to 1975. Although growth has since generally been lower (the exception being the early 1990s), by 2001 it had a GNP of \$19 630 per capita (and Israel's growth, incidentally, is powerfully correlated with the expansion of its population).<sup>26</sup> It is within these contexts that Israeli water policy, and the reach and capacity of the Israeli water sector, must above all be understood. The Labor Zionist commitment to agriculture resulted in water for irrigation being viewed as of inordinate importance to the nation-building project.<sup>27</sup> The country's statist political economy, and the internal legitimacy of Labor Zionism, made possible the establishment of strong water supply, regulatory and planning institutions, as well as a powerful Water Law that made all water subject to state control. Rapid economic growth enabled massive state investment in water infrastructures of between 3% and 5% of gross capital formation between 1950 and 1970.<sup>28</sup> The predominance of the military within Israeli society resulted in water being viewed above all as a national security issue, this leading in turn to characteristically activist assertions of control over regional water supplies. And the consequences, predictably enough, have been that Israeli water institutions have generally been able to maintain an excellent level and quality of water supply for the country's Jewish population, while ensuring that the same does not apply to the Palestinians (especially not to those in the hydro-politically important West Bank). The deplorable prevailing situation in which countless Palestinians go months each summer without piped domestic supplies,<sup>29</sup> while the Israeli state allocates the majority of its water supplies to an economically insignificant agricultural sector, is a direct function of this general pattern of Israeli state formation and development.

To paraphrase Marx, the anatomy of Middle Eastern water problems should be sought in political economy.<sup>30</sup> From a Marxist perspective the keys to understanding water problems are neither natural limits nor technical inadequacies, but rather the major structural features of the region's political economy. These include its late and superficial colonial incorporation into the capitalist world; its hitherto feudal or tributary social relations; the

impact of oil in transforming Middle Eastern economies, states and societies; the consequently weak internal power and legitimacy especially of the Arab Middle Eastern states; and, notwithstanding all of this, the wide variety of different social and state forms across the Middle East, these reflecting country-specific patterns of production, property relations, sociopolitical conflict and external dependency.<sup>31</sup> It is patterns of economic development and state formation which above all structure the capacities of different states and societies to cope with, bypass or render unimportant the phenomenon of water crisis. Hence, if we want to understand the roots of water crises and conflicts, it is to the political economy of development and state formation that we must above all attend.

### **Water within contemporary political economy**

One retort to the above might be that water has itself been a key factor in processes of economic growth and state formation, and water shortages a major constraint on development.<sup>32</sup> This may, indeed, have been the case in the past, for, as Karl Wittfogel famously argued, river basins like the Nile and the Euphrates–Tigris tended historically to give rise to powerful economic centres and highly bureaucratised political systems (what he called ‘oriental despotisms’) wrought out of the need to control large irrigation systems.<sup>33</sup> But irrespective of whether this was once the case, it certainly is not now: other things are of much greater import in the modern capitalist world economy.

To start with, if water had been a key determinant of modern Middle Eastern development, then patterns of economic growth and state formation would have been quite different from what they in fact are. If Wittfogel’s river basin model were still applicable, Egypt and Iraq would be the pre-eminent economic powers in the region, instead of being lower middle income countries with per capita gdp’s lower than Jordan’s.<sup>34</sup> If total water availability per head was a key factor, then Sudan would be among the region’s most developed economies, instead of being a low income country.<sup>35</sup> And if total per capita availability of water resources not originating from outside a country was key, then not just Turkey but also Ethiopia would be among the region’s most developed economies, instead of the latter being one of the poorest countries on the planet.<sup>36</sup> At least at this aggregate level, water has not been an important determinant of Middle Eastern economic development. To the contrary, with Israel and the Gulf oil monarchies as by far the richest Middle Eastern states, it is quite clear what the major factors behind economic growth in the region have been: not water, but rather the establishment of a European immigrant–settler society with capitalist social relations, practices and expertise (in the case of Israel);<sup>37</sup> and the massive rents provided by oil revenues to hitherto tiny populations (in the case of the Gulf monarchies).

Water has, of course, been a vital input into Middle Eastern agricultural development, and indeed this has been water’s major contribution to regional economic growth. In most countries agriculture accounts for over two-thirds

of total water use, the only exceptions being Israel (54%) and Kuwait (60%), where overall scarcity dictates that a higher proportion of water be allocated for domestic and industrial uses. Across most of the region the water–agriculture nexus remains tight, with even water-stretched states such as Jordan allocating 75% of their water to agriculture.<sup>38</sup> Yet, notwithstanding this, the structural significance of agriculture to the region’s economies and societies is in steep decline, and with it the political-economic significance of water is also on the wane. Agriculture’s contribution to GDP is ever-decreasing, such that it now stands at only 16.8% in Egypt (down from 20.1% in 1981), 2.1% in Jordan (previously 6.1%), and only 2.8% in Israel.<sup>39</sup> Agriculture’s contribution to exports is declining, in Israel’s case down from 12.5% in 1981 to a mere 2.5% in 2000, in Jordan’s down from 23.9% in 1981 to 15.9% in 2001. The proportion of the labour force employed in agriculture is also waning, now down to 31.5% in Egypt (compared with 55% in 1965), below 6% in Jordan (37%), and only 2% in Israel.<sup>40</sup> Moreover, while the area of land under irrigation is gradually increasing, and bringing with it improvements in agricultural productivity and yield,<sup>41</sup> the Middle East as a whole is increasingly dependent on the global trade in agricultural commodities for its food security.<sup>42</sup> While there are of course wide regional variations—with agriculture being of minimal economic significance in Israel and the Gulf oil monarchies and of much greater significance within the region’s poorer countries, Yemen, Sudan and Ethiopia in particular—the economic contribution of agriculture is declining right across the region. And the reasons for this decline are less to do with water shortages—recall that Sudan and Ethiopia are home to plentiful such resources—than with the success or failure, for whatever reason, of economic development and diversification.

The corollary of this economic decline is that agriculture, and with it water, is of declining centrality to the political economy of the modern Middle East. As agriculture’s contribution to GDP, foreign earnings and employment all wane, so the state becomes less beholden to agricultural interests. As processes of globalisation deepen, and Middle Eastern states and ruling classes become more and more dependent on, and oriented to, external sources of capital, so the domestic agricultural sector becomes less and less politically significant. As cities continue to expand (58% of the Middle Eastern and North African population now lives in urban areas), so the mass social basis of regimes, parties and opposition movements tends to shift away from the peasantry towards urban slums. (Contrast, for instance, the peasant social bases that brought Nasser and the Syrian and Iraqi Ba’ath parties to power with the largely urban roots of contemporary Islamist movements.)<sup>43</sup> And as economies become less dependent on agriculture, so economic growth and sociopolitical stability become less dependent on a steady supply of water, and less affected by drought. Of course, not everything is determined by economics. Agriculture, and with it water, continue to be pivotal to certain nationalist political projects, where the development of water supplies has enabled the extension of agricultural production in peripheral and minority-populated areas of a country—this applying especially to Israel and,

since the launch of the Southeast Anatolia Project (GAP) in the late 1980s, to Turkey, the GAP project having consumed an astounding 7% share of Turkish public investment during the 1990s.<sup>44</sup> And the significance attached to water, at least in political rhetoric, often continues to outlive its dwindling economic value. Egypt, for instance, as John Waterbury observes, continues to define its interests in the Nile much as it did in the 1950s, irrespective of the enormous changes since then in the Egyptian economy.<sup>45</sup> But overall it can be said that, with the waning economic importance of agriculture, water has become (and will continue to become) less and less central to the political economy of the Middle East.

How relatively insignificant water is to the political economy of the modern Middle East can be clearly illustrated by comparing it with that other great regional resource, oil.<sup>46</sup> Oil has been a crucial (if contradictory and in many ways socially regressive) factor in modern Middle Eastern development, providing, especially since the oil price rises of the 1970s, vast rents for the state-led development of the Gulf economies; for the construction of impressive and tax-free health, education, welfare and infrastructure systems; for the consolidation of authoritarian and militarised regimes with weak social bases yet unrivalled legitimacy; for remittances, aid and investment to the region's non-oil states; and for investment in global markets and the petrodollar-led financialisation of contemporary capitalism. The impacts are most clearly seen in the sparsely populated Gulf monarchies, but have been felt in various ways throughout the region. Thus Iraq, for instance, was an economically peripheral and chronically weak state until the late 1960s and especially early 1970s, when the nationalisation of oil and four-fold rise in oil prices provided the material basis for the Ba'ath party to consolidate and remain in power for 35 years, and to create in the process the most militarised and brutal police state in the region.<sup>47</sup> Equally, by denying the Ba'athist regime oil rents, UN sanctions during the 1990s were the key factor behind the dissolution of the Iraqi state that has been witnessed to such startling effect since April 2003. Oil has contributed variously to the withering especially of traditional agriculture (since oil increases the structural power of the urban, financial and service sectors—the so-called 'Dutch Disease'),<sup>48</sup> and to heavy investment in agribusiness projects (most notably in Sudan, Saudi Arabia and the Jordan Valley).<sup>49</sup> In many non-oil states, Jordan most spectacularly, private remittances from oil workers have been of much greater economic significance than earnings derived from agriculture.<sup>50</sup> And the price of oil, more than anything else, has determined patterns of economic development, with the high oil prices of the 1970s paving the way for the region's oil boom, and the low prices of the 1990s being paralleled by growing public debt, unemployment and social instability. Next to oil, the political economic significance of water within the modern Middle East appears marginal indeed.

While oil has been a principal cause of and input into regional economic growth, adequate water supply has been much more its product. It was the boom in oil rents that allowed Saudi Arabia to commit 5% of its national budget to irrigated wheat production during the 1980s, and to achieve a 26-

fold expansion in wheat output—this programme being supposedly for the purposes of food security, employment generation and economic diversification, but in many respects being of negative economic value.<sup>51</sup> It was Israel's early economic growth—driven by capitalist social relations and expertise, an interventionist state and a protected economy, a booming population and international gift aid—that provided the means for the Israeli state to invest to such an extent in its water sector. Equally, it is the stagnation of the Yemeni economy—resulting from the absence of oil, the eviction of oil workers from the Gulf in 1990–91 and the poverty and thin reach of the Yemeni state—which accounts for why both urban and rural water supplies are so poor right across the country.<sup>52</sup> Overall it can be said without much hesitation that water has been much more the dependent than the independent variable in modern Middle Eastern development.

### **Inter-state conflict and co-operation**

With these political economic contexts in mind, we can now turn to the question with which this paper is most centrally concerned, that of whether water crises have been or are likely to become an important factor in Middle Eastern geopolitics. Water war pessimists typically claim that water has already been an important contributory factor to the Middle East's late 20th century wars, and is likely to become an even weightier cause of inter-state conflict in the 21st century. Liberal functionalists tend, by contrast, to argue that water has often inspired inter-state co-operation, and can continue to do so in the future. In my view both positions are mistaken—partly because of their thin historical and evidential basis, but more fundamentally because they are premised on a misplaced understanding of the political-economic value of water in the modern capitalist world.

If we consider the water wars thesis first, this simply does not find support in the historical record: water has not been a (let alone the) major factor behind the modern Middle East's inter-state conflicts. Take, for instance, the 1967 Six Day War, which is most regularly cited as having been caused at least in part by competition for the waters of the Jordan River. During 1964–65 there were admittedly strong tensions, including military engagements between Israeli and Syrian forces, over Arab plans to divert the Jordan headwaters and thereby reduce the volume of water available to Israel.<sup>53</sup> Nonetheless, both the Jordan waters crisis and the Six Day War occurred much more importantly for well known political reasons. The existence of a colonial–settler state within a revolutionary, postcolonial Middle East, cold war bipolarity, political rivalries between the radical Arab states, Palestinian cross-border raids into Israel, Israeli raids into the (then Jordanian) West Bank, the political insecurities of Israel's Eshkol government, and poor intelligence information were among the key contextual factors behind the war. Israel's desires to shatter Nasser's Arab nationalist prestige, to enhance the country's strategic depth, and to fulfil longstanding territorial ambitions were the key motivations behind its 'pre-emptive attacks'. It is true that Israeli leaders such as Ariel Sharon like to claim that the Arab diversion

plans were the initial cause of the conflict,<sup>54</sup> but this should above all be interpreted as political rhetoric—as part of the Israeli state’s consistent discursive effort to portray itself as a vulnerable David surrounded by aggressive Arab states threatening its very existence. If the Jordan waters crisis had been such a proximate cause of the conflict, one would have expected it to have broken out in 1965 and not suddenly—taking the world by surprise—after a gap of two years. The 1967 conflict was not a water war.<sup>55</sup> And there have been no other inter-state water wars in the modern Middle East.

The water wars thesis is also weak in terms of its record of failed forecasts. *Pace* Nurit Kliot, water did not overtake oil as ‘the dominant subject of conflict for the Middle East by the year 2000’—as the recent US-led invasion of Iraq amply demonstrates.<sup>56</sup> Contrary to the claims of Starr and Stoll, the turn of the 20th century did not bring ‘unprecedented’ hydro-political ‘upheaval’ across the region. Boutros Boutros Ghali is often quoted for his assertion that ‘the next war in the Middle East will be over water, not politics’.<sup>57</sup> What is less commonly noted is that this strikingly ill-timed forecast was made in May 1990, just three months before the onset of the 1990–91 Gulf crisis, an oil conflict if there ever was one. (Iraq invaded Kuwait largely because the price of oil had sunk so low that it was unable to repay its war debts or demobilise its army following its war with Iran, Iraq accusing Kuwait of economic warfare against it, as well as of slant-drilling into the Rumaila oilfield on the border between them; the USA responded as it did to restore and extend its hegemony over a region rendered strategically crucial by oil.)<sup>58</sup> The most regularly cited ‘water war’, the Six Day War discussed above, occurred not recently, but almost 40 years ago. None of this exactly inspires faith that the Middle East *really is* about to fall over the precipice of water conflict.

What is more, none of this is particularly surprising given the peripheral significance of water to Middle Eastern political economies. For most Middle Eastern states and ruling classes, water is well down the list of crucial national or regime interests. Other foreign policy concerns are much more pressing: ideological, economic and strategic relations with neighbouring states, and with outside powers (the USA in particular); and access to ‘goods’ such as foreign aid and investment, oil revenues and remittances, capital from illegal economies, and military hardware and intelligence. Next to issues such as these, maximising or defending trans-boundary water resources is, in most of the Middle East, of marginal concern indeed. Moreover, the task of ensuring water security is as much a matter of importing ‘virtual water’ through international grain markets, and of creating new water supplies through desalination or wastewater recycling, as it is one of securing a share of these trans-boundary resources.

Take Israel. Commentators on water issues regularly claim that ‘Israel’s dependence on the transboundary waters of the rain-fed Mountain Aquifer is the main reason for Israel’s unwillingness to withdraw from the West Bank’; that ‘one issue in particular inhibits that solution—water’; and that ‘it is water, in the final analysis, that will determine the future of the occupied

territories. . .and by extension the issue of war and peace'.<sup>59</sup> Given the paucity of water among the Jordan basin states, and given also the extreme importance historically attributed to agriculture within Israeli society, this may sound quite plausible. But it is simply not true. Water was intentionally relegated within the framework of the Oslo peace process to one of the 'other issues of common interest' to be resolved during permanent status negotiations, secondary to the much more pressing subjects of 'Jerusalem, refugees, settlements, security arrangements, borders, relations and cooperation with other neighbours'.<sup>60</sup> Furthermore, within the final status talks conducted in 2000 and 2001 at Camp David and Taba in the Sinai, water was barely touched on at all.<sup>61</sup> The underlying reason for this is that water, for Israel, is an economic non-issue. The cost of producing enough water to meet Palestinian needs over the medium-term (say 100 mcm/y) would be \$100 million at the outside (this assuming a conservatively high desalination cost of \$1 per cubic metre), a derisory sum for a \$120 billion plus economy. No matter how irrational Israeli state policy may sometimes seem, it is hardly likely to continue its occupation of the West Bank and Gaza for the sake of \$100 million. What holds the Israeli state back from not granting the Palestinians more water is not the real cost of cutting demand or producing additional sources, but rather the ideological and political power of agriculture, the predominance within Israel of national security discourse and, more broadly, its unwillingness to make the political concessions that would meet minimal Palestinian demands. The waning of Israeli national security discourse *vis à vis* water, as happened to a degree during the 1990s, would no doubt open the way towards a resolution of its water conflict with the Palestinians.<sup>62</sup> But it is the other issues—borders, statehood, settlements, Jerusalem and refugees—and not the water problem itself that are the real impediments to resolution of the Israeli–Palestinian water conflict.

Elsewhere, particularly along the Nile, matters are undoubtedly more complicated. Egypt is highly dependent on the Nile, while Sudan and Ethiopia, the most important upstream riparians, have poor, agriculturally based economies. Writing in the late 1970s John Waterbury envisaged a looming resources crunch on the Nile, whereby Ethiopian and especially Sudanese agricultural development—Sudan was at the time undergoing an oil-led investment boom—would inevitably lead to growing competition for Nile water resources.<sup>63</sup> Since the early 1980s, however, economic crisis and civil war in both Ethiopia and Sudan have put paid to this scenario, reducing their capacity to develop the Nile or to challenge Egyptian hegemony over it. Of course, economic recovery in Ethiopia and Sudan could change all this, but even under such a scenario the threat of a water war seems remote. Sudan has regularly in recent years not used all of the water available to it under its 1959 agreement with Egypt.<sup>64</sup> Ethiopia's most ambitious potential demand for the Nile would not exceed 4–5 bcm/y (compared with the Nile's average natural discharge at Aswan of 84 bcm/y). And Egypt, as already mentioned, no longer has such an agriculture-dependent economy that it would not be able to allow its upstream riparians to consume a slightly larger share of the Nile's waters. After all, Egypt is already dependent on virtual water imports,

and there is no necessary reason why it could not shift further in that direction.

So, along the Nile and in the Jordan basin alike water is not nearly as geopolitically paramount as is often supposed. Oil has been a repeated source and site of international conflict—the 1980–88 Iran-Iraq war, the 1990–91 Kuwait crisis, and the 2003 US-led invasion of Iraq to name but the most obvious cases—but the same does not apply to water. This could of course change to a degree; nothing is for ever. But capitalist economic development does not flow backwards, and water is not going to become the Middle East's most economically valuable commodity, as in the days of ancient Mesopotamia, no matter how much the region falls behind economically. Within sub-Saharan Africa economic peripheralisation and collapse has resulted in internationally traded high-value commodities such as diamonds assuming increasing economic and political importance (including as sources of civil and inter-state conflict); it has not led to a return to 'traditional' forms of political economy.<sup>65</sup> Within the Middle East, likewise, economic decline is not resulting, and will not result, in water suddenly assuming a renewed political-economic significance. Not everything is determined by economic factors, of course, and, under bi- or multipolar world conditions, it is just about possible to imagine that a water-poor yet agriculture-dependent Middle Eastern state could undergo a nationalist revolution, with the rise to power of a mass-based regime committed to asserting control over regional water resources. But within the current world order—with the USA hegemonic, international institutions intrusive, and the global political economy under the sway of a powerful anti-statist ideology—it is hard to imagine a water wars scenario ever coming to pass.

None of this is to deny that water is a regular bone of contention between Middle Eastern states, or that water can be part of the stew of issues that bring these states into conflict. Water has been used as a tool by Turkey against Syria's support for the Kurdish separatist PKK — indeed, during 1999 Turkish pressure against Syria, including use of the water weapon, almost led to military confrontation between the two states.<sup>66</sup> Israel regularly accuses the Palestinian Authority (PA) of waging a 'sewage intifada' against it, by purposefully sending untreated sewage into streams flowing down from the West Bank.<sup>67</sup> Water is an endless source of controversy. However, that is a world away from suggesting that water is, or could become, a key cause of military conflict. Water disputes, to the contrary, are generally characterised more by heat and noise than by military action.

Turning to the question of co-operation, it is far from self-evident that water has been a significant cause of this either. Against the claims of liberal functionalists, there is no evidence of water co-operation 'spilling over' into more high-political areas of policy making, and indeed the hopes that water negotiations might 'lead' Arab–Israeli peace talks appear in retrospect as little more than wishful thinking. This is not to deny, of course, that there is a pattern of inter-state co-ordination over water issues across the Middle

East—some of it irregular and piecemeal, some of it longstanding, even institutionalised. It is merely to insist that this co-operation has not itself had high-political consequences of any great significance, and has tended to follow rather than lead peace making.

Thus, in the Jordan basin, while there is extensive water co-operation between Israel and Jordan, and between Israel and the PA, the importance of this should not be overstated. Long before their 1994 Peace Treaty, Israel and Jordan were meeting regularly in the desert to conduct secret discussions over water at which they would agree quotas and other such technical matters. However, these ‘picnic table summits’ were but part of an extensive pattern of co-operation that addressed a plethora of agricultural, industrial, tourism, health and other issues, and even on occasion extended to US-mediated discussions about pigeons and mosquitoes (and no-one claims that mosquitoes have ever ‘led’ peace talks!).<sup>68</sup> This co-operation, moreover, has its roots in an Israeli–Jordanian history of accommodation that stretches right back to the ‘collusion across the Jordan’ before and during Israel’s war of independence, during which time the Hashemite monarchy and the Zionist leadership saw common interests in limiting Egyptian power and preventing the emergence of a Palestinian Arab state.<sup>69</sup> As for water co-operation between Israel and the PA, this has been even more extensive than that between Israel and Jordan (and continues to be so in spite of the collapse of the peace process). But in no sense did this water co-operation ever ‘lead’ peace talks. To the contrary, it was strongly shaped by the political-economic imperatives that led Israel and the PLO into their now-failed peace process—Israel’s desire to contract out the burdens of occupation while maintaining control over key territories and resources; the Tunis-based PLO’s financial and diplomatic crises, and its wish to reaffirm control of the Palestinian national movement. Thus it continued to enshrine Israeli control of joint water resources.<sup>70</sup> There is also, as already noted, water co-operation between Israel and Turkey. But in each of these cases water relations are the dependent variable, the product, not cause, of an institutionalised or a developing pattern of co-operation. Water co-operation, as the Jordan basin demonstrates, tends to follow rather than lead strategic alliances.

And the same applies elsewhere too. Water co-operation between Saudi Arabia and the Gulf emirates takes place within a geopolitical context established by the Gulf Cooperation Council.<sup>71</sup> The 1959 Egyptian–Sudanese accord on the division of the Nile was reached following the arrival of a new government in Khartoum that was eager for Egyptian support (this accord has at least proved more durable than the political circumstances that gave rise to it).<sup>72</sup> Beyond the Middle East India and Pakistan have been co-operating since 1960 over the waters of the Indus, in spite of the continuing low- and intermittently high-level military conflict between the two states.<sup>73</sup> But even in this latter case, water co-operation has never ‘spilled over’ into other fields. Water is simply not important enough within the political economy of contemporary capitalism for it to be of any great, or wide-ranging, geopolitical consequence.

### **The local politics of water**

If water is generally insignificant as a source of international conflict and co-operation, however, it does not follow that it is equally so within the domestic arena. Water may not be a priority for most Middle Eastern regimes or ruling classes, but it is undoubtedly a key concern for the many ordinary people and politically peripheral communities that are forced to make do with poor quality water, or with uncertain supplies. Across the Middle East overdrawn aquifers (most notably in Yemen) and groundwater salination (most urgently in Gaza) provide a depressing environmental context for rural communities in particular. Moreover, while poverty rates across the Middle East are generally low by developing world standards, water and food insecurity—and with them under-nourishment and, in extreme cases, famine—plague Ethiopia, Sudan, Yemen, Iraq and now also the Occupied Territories.<sup>74</sup> In Iraq and Palestine the premeditated destruction of water and sanitation infrastructures during war—combined in the former case with the legacy of sanctions—has left a trail of poor supplies and ill-health.<sup>75</sup> Within such contexts, it is hardly surprising that informal economies in water supplies flourish, or that water becomes the subject of complex patterns of co-operation and conflict. Unfortunately, such domestic political economies of water, and the violent conflicts that are their inevitable corollary, get almost completely ignored by international experts, institutions and the media. However, these local insecurities and conflicts are in my view a far greater challenge for the contemporary Middle East than is the fantasy of inter-state water wars.

The West Bank provides a good example of the importance (and complexity) of these local patterns of conflict and co-ordination over water.<sup>76</sup> Within an overall context set by Israel's occupation and discriminatory water policy, piped supplies are both scarce and highly unevenly distributed. Supplies vary not only between Israeli settlements and Palestinian towns and villages, but also between and even within Palestinian communities. They vary according to any number of local factors, relating both to patterns of supply (eg proximity to a well or spring, or position along a distribution pipeline) and patterns of demand (eg whether water is being used largely for agricultural or municipal purposes, whether people are using automatic washing machines or not). And the corollary of this uneven distribution is that there is often fierce competition for water supplies. Within urban but especially rural areas water is regularly stolen through illegal connections onto distribution lines and local water networks. Water is stolen by private tanker operators, sometimes it seems with official and high-political connivance, before being resold through the wholly unregulated informal economy in water. Communities located at the end of a major pipeline, whose supplies are hostage to the water consumption levels and the illegal activities of up-pipeline users, regularly resort to force in a usually vain attempt to ensure their water supplies. On the other hand, municipalities in control of important local water sources, especially wells, routinely use these as means of political leverage against neighbouring towns and villages and,

by charging exorbitant prices, use them as important sources of capital. Significantly, water is not an important source of rents for the PA: its main sources of capital are tax revenues forwarded from Israel, international donor aid, monopolies over local commodities, and PLO investments in the global economy. Water supply, as for state authorities everywhere in the Middle East, is very much a financial burden.<sup>77</sup> But for municipal authorities and other local 'strongmen'<sup>78</sup> the reverse is true: in the absence of easy access to capital, and in the absence of meaningful state regulation of the water sector, water is a potentially important source of revenues, and of local political economic power. Given all this, it should be no surprise that, while there have been no water wars between Israel and the PA, there are regular small-scale and violent skirmishes between and within Palestinian towns and villages.

It cannot be said with any degree of certainty that this situation in the West Bank is typical of the Middle East as a whole: the local politics of water has not yet been the subject of any systematic comparative analysis. However, anecdotal evidence from urban centres like Damascus, Amman and Cairo suggests that inadequate domestic water supplies are a regular source of social friction. And evidence from Yemen suggests that the over-exploitation of groundwater resources, within the contexts of rural poverty, high population growth, state collapse and the extension of capitalist property relations (which poses questions of how common land and water resources should be distributed), is frequently leading to violent local conflicts.<sup>79</sup> In 1999 it took 700 Yemeni soldiers to quell fighting over a local spring between two villages near Ta'iz (an incident that claimed six lives and injured 60 others).<sup>80</sup> The local politics of water is an area in need of further research. But what seems clear—especially of states and regions which are economically peripheral and poorly regulated—is that it is at this local level where the politics of water is at its most important. And what seems equally clear is that, as the economic gap between Israel and the Gulf oil states and the rest of the Middle East grows, so too will this be reflected in their respective water economies. Israel and the Gulf states will have the political-economic capacity to produce, distribute and regulate water in accordance with most of their populations' social needs. Countries like Yemen, on the other hand, will—unless they manage to reverse their political and economic crises—increasingly be home not only to ecological destruction and water scarcities, but also to violent local social conflicts over water resources and supplies.

### Conclusion

The argument that water is, or will soon become, a crucial factor in Middle Eastern geopolitics might sound superficially plausible, but it is nonetheless misplaced. Such discourse, it seems to me, is less the product of reasoned analysis than of enduring myths and stereotypes. It resonates strongly with modern environmentalism's insistence on our human dependence upon the biosphere, and also meshes well with Orientalist images of deserts and camels, as well as with the prevailing 'myth of instability' that is so common

in commentaries on Middle East politics.<sup>81</sup> As an account and explanation of the Middle East's water problems, however, the water wars and liberal functionalist theses are deeply misleading.

It is of course true that there are substitutes for oil but not for water, and that 'water', as the saying goes, 'is life'. But in the modern capitalist world, economies are curiously more dependent on oil than they are on water. Oil can be used to make water, while water cannot be used to make oil. Short-term demand for oil in developed economies is much less elastic than is demand for water: a country like Israel, for instance, can respond to drought conditions by cutting water consumption by a third (as it had to do during the early 1990s),<sup>82</sup> with negligible economic or social repercussions—but the same could never be achieved of oil. Moreover, oil is much more important than water as a source of profits, revenues and power. Thus, contrary to the claims of our World Bank Vice-President, the wars of the next century will not be fought over water instead of oil; and *pace* our CIA analyst, the USA could not 'alter the destiny of the Middle East' by exploiting Iraq's water supplies. Water is simply not that important to the region's economies, states or ruling classes. This is not to deny, of course, that water is a locally crucial resource, or to doubt that water scarcities in the region's poorest areas are engendering local social conflicts and—much more importantly, in terms of overall human suffering—malnutrition, ill-health and, in Sudan and Ethiopia, famine. It is merely to assert that this does not translate into water being of growing geopolitical significance. Whatever the USA's real motives were for invading Iraq, we can rest assured that this was not in order to control the Tigris and Euphrates rivers.

## Notes

- 1 'A war crime or an act of war?', *New York Times*, 31 January 2003. Thanks to Julian Saurin for drawing this piece to my attention.
- 2 Saudi Arabia, not Iraq, has the world's largest known oil reserves. Moreover, while Iraq no doubt has an 'extensive river system', on the Tigris and Euphrates it is downstream of Turkey (and also Syria on the Euphrates), it being Turkey which would be key to any water diversion project. Furthermore, under Turgut Özal's Peace Pipeline plan, water would have been diverted not from the Tigris–Euphrates but from the Turkish Seyhan and Ceyhan rivers that flow into the Mediterranean. Water would have been conveyed through two pipelines, one of them to Syria, Jordan and western Saudi Arabia, the other to the Gulf states. And neither of these pipelines would have journeyed via the Gulf states on their way to Israel. The *New York Times* was a crucial linchpin in the Pentagon's and Iraqi National Congress' propaganda war in the run-up to the recent war on Iraq. See, for example, James Moore, 'How Chalabi and the White House held the front page', *Guardian*, 29 May 2004.
- 3 John Cooley, 'The war over water', *Foreign Policy*, 54, 1984, p 3; Thomas Naff & Ruth Matson (eds), *Water in the Middle East: Conflict or Cooperation?*, Boulder, CO: Westview, 1984, p 44; and John Bulloch & Adel Darwish, *Water Wars: Coming Conflicts in the Middle East*, London: Victor Gollancz, 1993, p 34 (emphasis added).
- 4 *Ibid.*, p 198; Ismail Serageldin, *Financial Times*, 7 August 1995; as quoted in Mustafa Dolatyar & Tim Gray, *Water Politics in the Middle East: A Context for Conflict or Cooperation?*, London: Macmillan, 2000, p 8.
- 5 Joyce Starr & Daniel Stoll (eds), *The Politics of Scarcity: Water in the Middle East*, Boulder, CO: Westview, 1988, p ix.
- 6 *Ibid.*
- 7 Chris McGreal, 'Deadly thirst', *Guardian*, 13 January 2004.
- 8 David Mitrany, *A Functional Theory of Politics*, New York: St Martin's Press, 1975; and James Sewell, *Functionalism and World Politics*, Princeton, NJ: Princeton University Press, 1966.

- 9 Mustafa Dolatyar & Tim Gray, 'The politics of water scarcity in the Middle East', *Environmental Politics*, 9 (3), 2000, p 84.
- 10 *Ibid*, p 209.
- 11 Daniel Hillel, *Rivers of Eden: The Struggle for Water and the Quest for Peace in the Middle East*, New York: Oxford University Press, 1994, p 283; Aaron Wolf, *Hydropolitics Along the Jordan River: Scarce Water and its Impact on the Arab–Israeli Conflict*, Tokyo: United Nations University Press, 1995, p 3; and Dolatyar & Gray, 'The politics of water scarcity in the Middle East', p 84.
- 12 I focus here on the Arab Middle East states and also, given their centrality to the region's hydro-politics, the non-Arab Middle Eastern states of Israel and Turkey (but not Iran), and the chief Nile basin players, Egypt, Sudan and Ethiopia. These states aside, I do not venture into North Africa.
- 13 I discuss these issues at greater length in Jan Selby, *Water, Power and Politics in the Middle East: The Other Israeli–Palestinian Conflict*, London: IB Tauris, 2003, ch 1.
- 14 UNDP, *Human Development Report 2003*, Oxford: Oxford University Press, 2002.
- 15 Although the phrase is widely used it is above all associated with Malin Falkenmark, whose 'water stress index' analyses 'water stress' as a simple function of natural resource base and population load. See Falkenmark, 'Middle East hydropolitics: water scarcity and conflicts in the Middle East', *Ambio*, 18 (6), 1989, pp 350–352.
- 16 Malin Falkenmark, 'Fresh water: time for a modified approach', *Ambio*, 15 (4), 1986, p 192.
- 17 Bill McKibben, *The End of Nature*, New York: Viking, 1990. But this is not a recent development either: Karl Marx and Friedrich Engels made the same observation 150 years ago in *The German Ideology*, London: Lawrence and Wishart, 1965, p 59.
- 18 Julian Simon, *The Ultimate Resource*, Princeton, NJ: Princeton University Press, 1981.
- 19 Karl Marx, *Grundrisse: Foundations for the Critique of Political Economy*, London: Penguin, 1973; and Paul Sweezy *et al*, *The Transition from Feudalism to Capitalism*, London: New Left Books, 1976.
- 20 David Harvey, *Justice, Nature and the Geography of Difference*, Oxford: Blackwell, 1996, p 147.
- 21 World Bank, *From Scarcity to Security: Averting a Water Crisis in the Middle East and North Africa*, Washington, DC: World Bank, 1995, p 1.
- 22 A Kanarek & M Michail, 'Groundwater recharge with municipal effluent: Dan Region Reclamation Project, Israel', *Water Science and Technology*, 34 (11), 1996, pp 227–233.
- 23 Konuralp Pamukcu, 'Water trade between Israel and Turkey: a start in the Middle East?', *Middle East Policy*, 10 (4), 2003, pp 87–99; and Amiram Cohen, 'Work commences on desalination plant', *Ha'aretz*, 12 August 2003.
- 24 Tony Allan, 'Water in the Middle East and in Israel–Palestine: some local and global resource issues', in Marwan Haddad & Eran Feitelson (eds), *Joint Management of Shared Aquifers: The Second Workshop*, Jerusalem: Palestine Consultancy Group and Harry S Truman Institute for the Advancement of Peace, 1997, pp 31–44. For fuller discussion see Allan, *The Middle East Water Question: Hydropolitics and the Global Economy*, London: IB Tauris, 2000.
- 25 Gershon Shafir, *Land, Labour and the Origins of the Israeli–Palestinian Conflict, 1882–1914*, Cambridge: Cambridge University Press, 1989; and Gershon Shafir & Yoav Peled, *Being Israeli: The Dynamics of Multiple Citizenship*, Cambridge: Cambridge University Press, 2002.
- 26 Unless otherwise stated, economic and development indicators are from World Bank, *World Development Indicators 2003*, Washington, DC: World Bank, 2003. GNP figures used here are PPP-adjusted. On the correlation between economic growth and population growth in Israel, see Jonathan Nitzan & Shimshom Bichler, *The Global Political Economy of Israel*, London: Pluto, 2002, pp 78–79.
- 27 Alwyn Rouyer, 'Zionism and water; influences on Israel's future water policy during the pre-state period', *Arab Studies Quarterly*, 18 (4), 1996, pp 25–47; Rouyer, *Turning Water into Politics: The Water Issue in the Palestinian–Israeli Conflict*, London: Macmillan, 2000, ch 3; and Selby, *Water, Power and Politics in the Middle East*, ch 3.
- 28 Itzhak Galnoor, 'Water planning: who gets the last drop?', in Raphaella Bilski (ed), *Can Planning Replace Politics? The Israeli Experience*, The Hague: Martinus Nijhoff, 1980, p 172.
- 29 This was even the case before the collapse of the Oslo process. During summer 1998 most areas of Hebron received water for just one day every 20, parts of Bethlehem were without piped water for three months, and some Palestinian villages went without for more than five months (this not even considering the hundreds of villages not connected to supply networks). See Amira Hass, 'Cut and dried', *Ha'aretz*, 31 July 1998; Douglas Jehl, 'Water divides haves from have-nots in West Bank', *New York Times*, 15 August 1998; and Selby, *Water, Power and Politics*, pp 1–4.
- 30 Marx, *A Contribution to the Critique of Political Economy*, Moscow: Progress, 1970, p 20.
- 31 Giacomo Luciani, *The Arab State*, London: Routledge, 1990; Roger Owen, *State, Power and Politics in the Making of the Modern Middle East*, London: Routledge, 1992; Simon Bromley, *Rethinking Middle East Politics: State Formation and Development*, Cambridge: Polity, 1994; and Nazih Ayubi, *Over-Stating the Arab State: Politics and Society in the Middle East*, London: IB Tauris, 1995.

- 32 Leif Ohlsson (ed), *Hydropolitics: Conflicts Over Water as a Development Constraint*, London: Zed, 1995.
- 33 Karl Wittfogel, *Oriental Despotism: A Comparative Study of Total Power*, New Haven, CT: Yale University Press, 1957.
- 34 In 2001 per capita GNP in Jordan was \$3880, in Egypt \$3560. The Economist Intelligence Unit's *Iraq Country Profile*, December 2003 estimates Iraqi GDP in 2003 at \$19.8 billion, implying a per capita GDP of only \$789.
- 35 With total renewable resources of 149 billion cubic metres per year (bcm) and a population of 32 million, Sudan has the most renewable water per capita in the region. Population figures (and in the rest of the article) from World Bank, *World Development Report 2004*; and Food and Agriculture Organisation (FAO), AQUASTAT at: <http://www.fao.org/waicent/foainfo/agricult/agl/aglw/aquastat/main/index.stm>.
- 36 Turkey has total renewable resources of 231 bcm and a population of 70 million; Ethiopia renewable resources of 110 bcm and a population of 67 million. Both are at the head of several important watersheds, most importantly the Tigris–Euphrates and the Blue Nile, and thus are minimally dependent on water flowing into their territories.
- 37 This description of Israel as 'capitalist' might surprise some, given Labor Zionism's reputation as an experiment in socialism. But Israel always had a flourishing private sector, and, as several recent studies conclude, was always structured more by nationalist than socialist imperatives. See Zeev Sternhell, *The Founding Myths of Israel: Nationalism, Socialism, and the Making of the Jewish State*, Princeton, NJ: Princeton University Press, 1998; Shafir & Peled, *Being Israeli*; and Nitzan & Bichler, *The Global Political Economy of Israel*.
- 38 World Resources Institute, *World Resources 2002–2004*, Washington, DC: World Resources Institute.
- 39 Figure for Israel from Economist Intelligence Unit, *Israel Country Profile*, December 2003.
- 40 World Bank, *World Development Indicators 2003*; and Abdul-Karim Saidik & Shawki Barghouti, 'The water problems of the Arab world: management of scarce resources', in Rogers & Lydon, *Water in the Arab World*, pp 1–37.
- 41 FAO, *Production Yearbook 2002*, Rome: FAO, 2003; and FAO, *Bulletin of Statistics*, 4 (1), 2003.
- 42 Allan, *The Middle East Water Question*.
- 43 On the latter, see, for example, Gilles Kepel, *Jihad: The Trail of Political Islam*, London: IB Tauris, 2002, ch 3.
- 44 Paul Williams, 'Turkey's H<sub>2</sub>O diplomacy in the Middle East', *Security Dialogue*, 32 (1), 2001, p 31.
- 45 John Waterbury, *The Nile Basin: National Determinants of Collective Action*, New Haven, CT: Yale University Press, 2002, p 171.
- 46 I develop this case more fully in 'Oil and water: the contrasting anatomies of resource conflicts', *Government and Opposition*, 40 (3), forthcoming 2005.
- 47 Charles Tripp, *A History of Iraq*, Cambridge: Cambridge University Press, 2002.
- 48 Alan Gelb *et al*, *Oil Windfalls: Blessing or Curse?* London: Oxford University Press, 1988.
- 49 On the latter, see especially Sharif Elmusa, *A Harvest of Technology: The Super-Green Revolution in the Jordan Valley*, Washington, DC: Center for Contemporary Arab Studies, Georgetown University, 1994.
- 50 Ishac Diwan & Lyn Squire, 'Private assets and public debts: external finance in a peaceful Middle East', *Middle East Journal*, 49 (1), 1995, pp 69–89.
- 51 Hamad Al-Sheikh, 'Water resources and development in Saudi Arabia', in Kamil Mahdi (ed), *Water in the Arabian Peninsula: Problems and Policies*, Reading, UK: Ithaca, 2001, pp 295–328; and Jamil Al Alawi & Mohammed Abdulrazzak, 'Water in the Arabian peninsula; problems and perspectives', in Peter Rogers & Peter Lydon (eds), *Water in the Arab World: Perspectives and Prognoses*, Cambridge, MA: Harvard University Press, 1994, pp 171–202. On the Saudi economy, see especially Rodney Wilson *et al*, *Economic Development in Saudi Arabia*, London: RoutledgeCurzon, 2004.
- 52 Chris Handley, *Water Stress: Some Symptoms and Causes: A Case Study of Ta'iz, Yemen*, Aldershot: Ashgate, 2001; and Gerhard Lichtenthaler, *Political Ecology and the Role of Water: Environment, Society and Economy in Northern Yemen*, Aldershot: Ashgate, 2003.
- 53 Miriam Lowi, *Water and Power: The Politics of a Scarce Resource in the Jordan River Basin*, Cambridge: Cambridge University Press, 1993, ch 5.
- 54 Ariel Sharon with David Chanoff, *Warrior: The Autobiography of Ariel Sharon*, New York: Simon and Schuster, 1989, p 167.
- 55 This position is supported by the bulk of work on the 1967 conflict, which unlike the literature on water and conflict generally gives only passing mention to the water issue. There are counter-views, of course. Thus Michael Oren in his *Six Days of War: June 1967 and the Making of the Modern Middle East*, Oxford: Oxford University Press, 2002 claims that 'more than any other individual factor, the war would revolve around water'. However, he also adds, rather more judiciously in my view, that 'one could just as easily begin with early Zionist settlement in Palestine, or with British policy there after

- World War I. Or with the rise of Arab nationalism, or with the Holocaust' (p 2). But Walter Laqueur's position is the more typical: the 'Jordan water dispute', he writes, 'was not among the major causes of the [1967] Arab–Israeli conflict, certainly not one of the immediate reasons for hostilities'. Laqueur, *The Road to War: The Origin and Aftermath of the Arab–Israeli Conflict 1967–8*, London: Penguin, 1968, p 63. Thanks to James Vaughan for discussions on this issue.
- 56 Nurit Kliot, *Water Resources and Conflict in the Middle East*, London: Routledge, 1994, p 12.
- 57 *Independent on Sunday*, 6 May 1990.
- 58 See for instance Dilip Hiro, *Desert Shield to Desert Storm: The Second Gulf War*, London: HarperCollins, 1992.
- 59 Pamucku, 'Water trade between Israel and Turkey', p 96; D Knighton, 'Middle East water: water fights', *World Today*, 59 (7), 2003, pp 26–27; and Thomas Naff, in testimony to Congress, 26 June 1990, cited in Isam Shawwa, 'The water situation in the Gaza Strip', in Gershon Baskin (ed), *Water: Conflict or Co-operation?*, Jerusalem: Israel/Palestine Center for Research and Information, 1992, p 36.
- 60 Israel and the PLO, *Declaration of Principles on Interim Self-Government Arrangements*, 13 September 1993, article 5.
- 61 While there were final status negotiations on final status water issues during this period (interview with Shaddad Atili, PA Negotiation Affairs Department, 2 June 2002), these were not significant enough to merit inclusion in the 'Moratinos document' (reproduced in *Ha'aretz*, 14 February 2002), which is generally taken as an accurate account of these negotiations.
- 62 Eran Feitelson, 'Implications of shifts in the Israeli water discourse for Israeli–Palestinian water negotiations', *Political Geography*, 21, 2002, pp 293–318; and Selby, *Water, Power and Politics in the Middle East*, pp 188–190.
- 63 John Waterbury, *Hydropolitics of the Nile Valley*, Syracuse, NY: Syracuse University Press, 1979.
- 64 Waterbury, *The Nile Basin*, pp 131–132.
- 65 See, for example, Patrick Chabal & Jean-Pascal Daloz, *Africa Works: Disorder as a Political Instrument*, Oxford: James Currey, 1999; and Michael Pugh & Neil Cooper, *War Economies in a Regional Context: Challenges of Transformation*, Boulder, CO: Lynne Rienner, 2004.
- 66 Williams, 'Turkey's H<sub>2</sub>O diplomacy'.
- 67 Formal accusation are presented in Government of Israel, 'Palestinian Obligations as Per Note for the Record of the Hebron Protocol of January 15, 1997', 13 January 1998, Annex V. For a rather different take on the use of sewage as a political tool, see Gideon Levy, 'The sewage of Ma'aleh Adumin', *Ha'aretz*, 22 February 1998.
- 68 Moshe Zak, 'Israeli–Jordanian negotiations', *Washington Quarterly*, 8 (1), 1985, pp 167–176; Adam Garfinkle, *Israel and Jordan in the Shadow of War: Functional Ties and Futile Diplomacy in a Small Place*, London: Macmillan, 1992; and personal communication with Dureid Mahasneh, former head, Jordan Valley Authority.
- 69 Avi Shlaim, *Collusion Across the Jordan: King Abdullah, The Zionist Movement and the Partition of Palestine*, Oxford: Clarendon, 1988. See also Simha Flapan, *The Birth of Israel: Myths and Realities*, London: Croom Helm, 1987, ch 4.
- 70 Selby, 'Dressing up domination as "cooperation": the case of Israeli–Palestinian water relations', *Review of International Studies*, 29 (1), 2003, pp 21–38; and Selby, *Water, Power and Politics in the Middle East*, chs 4, 6.
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