ENSURING WATER SECURITY IN THE MIDDLE EAST: POLICY IMPLICATIONS

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Ensuring Water Security in the Middle East: Policy Implications

Foreword

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Over the last decades, the Middle East, and more specifically the Eastern Mediterranean region, has experienced a rapid process of desertification (Kepner et al., 2006; Zdruli, 2012). Due to connected factors such as climate change, rapid population growth and industrialisation, water has become increasingly scarce and is considered an expensive natural resource (Zdruli, 2011). Consequently, the area comprised of Israel, Jordan, Lebanon, the Occupied Palestinian Territories and Syria makes up one of the most water-scarce regions in the world (Maddocks, Young & Reig, 2015).

This increased scarcity has significant political and socioeconomic impacts for the entire region. When states are water-scarce, their food supply, public health and economic growth are increasingly jeopardised without effective counter measures (FAO, 2011; Maddocks, Young & Reig, 2015; Iceland & Otto, 2017). In water-scarce areas, access to water is thus of key importance for economic prosperity, political stability and the vitality of the civilian population. As a result, in those Eastern Mediterranean countries facing severe water scarcity water has been framed as an existential threat, leading governments to use and justify emergency measures highly concentrated at the governmental and military level. This framing gives the states a licence to use exceptional measures to address the threat posed by water scarcity and to push major state infrastructure projects such as desalination projects or dams at the expense of local communities, natural streams and the environment (Buzan et al., 1998; Fischhendler, 2015). In the case of transboundary waters, a highly militarised and securitised framing bears the risk of encouraging unilateral management schemes that increase the risk of violent conflict and discourage cooperation (Trombetta, 2008). Another significant consequence of securitisation, as in times of a growing pandemic, is that the urgency and emergency measures often lead to the exclusion of civil society, academia and research and non-governmental organizations (NGOs) from the decision-making process.

Being increasingly securitised, water is even more transformed into a political card in ongoing conflicts and hinders the inclusion of civil society in management and monitoring of this resource. However, recent political and technological developments in the field of water management have changed the way water is shared between countries, and call for renewed perspectives and agreements. As a part of a contrary process of desecuritisation, water is repositioned in the public and civil realm, ideally together with the communities that live adjacent to water sources, to reconfigure resource management and the wider decision-making. In this way, decisions are monitored, civil society is incorporated and water security can be ensured.

Furthermore, multilateral cooperation over water is recognised as crucial for effective transboundary water management. Accordingly, in November 2018, the European Union (EU) Council also adopted conclusions on Water Diplomacy (13991) that recognise the potential of water scarcity to affect peace and security and that are dedicated to promoting water security by strengthening local governments and promoting regional water agreements. The resolution states that multilateral cooperation is crucial for effective transboundary water management.

As there is an urgency to ensure water security for local communities across the region, water can become a key factor in the relations between states within the region and between them and the EU. Thus, the factors necessary for ensuring water security should be discussed while the potential role of water in shaping future dynamics between Europe and the Middle East should be re-examined. The shared concerns over water issues between states in the Middle East and the current problems associated with securitisation create a need for regional partnerships and a unique opportunity for new EU-Middle East relations. Thus, EuroMeSCo, the Israel Palestine Center for Regional Initiatives (IPCRI) and the Arava Institute for Environmental Studies have conceived this Joint Policy Study to address the need for policy-oriented research on water security by discussing both securitisation and de-securitisation trends and by examining the policies that can ensure water security throughout the region.

To discuss this approach, the Joint Policy Study presents different perspectives on the security of water. The first chapter, written by Dr Christiane Fröhlich, concentrates on clarifying the terms of water security, securitisation and de-securitisation. By focusing on the Jordan basin as a case study, and specifically the Israeli-Palestinian water conflict, the chapter hypothesises that a better understanding of de-securitisation patterns is key to effectively scope the available space, time and willingness to negotiate water issues in conflict situations, which in turn is crucial for effective future water diplomacy. The chapter presents the reasoning for water cooperation based on an expanded discourse and conceptualisation of human and ecological security and the move away from zero-sum-game credence.

The second chapter, written by Tobias von Lossow and Dr Mahmoud Shatat, draws a picture of the current trends of water and water security in the Middle East. The authors elaborate on the severe water scarcity in the region and highlight its impact on local communities and conflicts as well as the consequences of conflict on water. Looking into examples from Jordan, Syria, Iraq and with a particular focus on Gaza, the authors illustrate how water is securitised and overly politicised in the context of fragile political settings and conflicts in the region.

Following this analysis on the current state of water, the third chapter, by Dr Ali Oguz Dirioz, dwells on the existing and attempted cooperation initiatives in the Middle East and nearby regions. The chapter analyses the reasons for initiatives to be successful, and the conditions for them to be replicated or re-initiated. The chapter highlights the importance of sustained dialogue and presents possible actions for ameliorating water security in the region. A key conclusion is that civil society can play a crucial role in sustaining dialogue and reaching temporary agreements on the way to the adoption of a long-term strategy.

Lastly, the fourth chapter, written by Dr Giulia Giordano and Dr Desiree Quagliarotti, analyses the water-energy (WE) nexus and its associated risks in the Middle East. The chapter describes what it means to render water and energy in terms of security by exploring the water-energy-security (WES) nexus and the linkages between the nexus and securitisation and the creation of potentially positive interdependence through securitisation. The chapter raises the question of whether there are positive impacts of securitisation and highlights the opportunities in terms of water and energy security arising from turning the nexus into a virtuous circle.

The overall analysis of this Joint Policy Study asserts that though water management is highly securitised in the Middle East, and access to the resource is considered a national security issue, water security and multilateral cooperation is not ensured but jeopardised by ongoing securitising trends. As described above, securitisation promotes a national and centralised approach towards water management at the expense of the participation of civil society, neutral monitoring and data collection, and the creation of secure, sustainable and transparent access to water for local communities.

Furthermore, as the Middle East region is characterised by centralised national entities, weak governance and high involvement of security agencies on account of local communities, action should be taken to reverse the process. Issues relating to water must be de-securitised to ensure just and sustainable water security for all, from the local community to the regional level. It is suggested that the desecuritising actors should be part of the previously silenced "other" (Coskun, 2009). Transparency, a broader range of stakeholder engagement and active civil society, which improve water management, are key elements in reducing the harmful effects of water shortages and will build the foundations necessary for encouraging regional cooperation.

In short, there is great potential in water to promote accountability, good governance and cross-communal peace-building across the Middle East while impacting EU-Eastern

Mediterranean relations. These values can be promoted through ensuring the de-securitisation and decentralisation of the resource while empowering local communities in decision-making and water management. As such, it will promote the premise of locally-based water security, avoid the process in which water becomes a political card and ensure water security throughout the region.

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Desecuritisation of Water as a Key for Water Diplomacy

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Water as a Security Issue

Water is an existential resource. It is essential for socioeconomic development, healthy ecosystems and human survival in general. As the resource is closely related to all aspects of human life, humanity's overall health, welfare and productivity depend on an adequate water supply. However, industrialisation, growing demand, over-use and degradation, as well as the consequences of global warming, are putting increasing pressure on global freshwater resources. For instance, global water use has been growing by about 1% per year since the 1980s according to UN Water, with no end in sight. Therefore, the list of regions that suffer from insufficient water supply is continually growing; over two billion people worldwide are currently living in states that are experiencing severe water stress, and four billion suffer from severe water scarcity on at least thirty days per year (UN Water, 2019).

Considering these numbers, it may seem rather logical that access to adequate water resources should increasingly, maybe even exclusively, be seen as an issue of security, especially in regions where water scarcity combines with a political atmosphere characterised by confrontation, and where water (or scarcity thereof) can be instrumentalised to acquire or sustain political power. Such dynamics are assumed to be of particular importance in international water basins, which cover approximately half of the earth's surface and are home to 40% of the global population. Prognoses agree that these parts of the world will see increasing conflicts, since neighbouring states often have different interests with regard to water utilisation and allocation, and since in such a political climate economic independence and self-sufficiency are considered key for national security and a means to reduce the dependence on potentially hostile neighbours.

While international military disputes about water are unlikely, sub-state conflicts over scarce water resources have become quite common already. To name but a few examples: southern Iraqi farmers are being forced into over-populated urban centres because large-scale dams in Iraq, Syria and Turkey considerably reduce the flow rate of the Euphrates (Montenegro, 2009). Syrian farmers from the north of the country have suffered from an exceedingly long drought period between 2006 and 2009 without any assistance by the government led by Bashar al-Assad (Selby et al., 2017). The drought led to increased desertification and put growing pressure on the country's already scarce water resources; it also contributed to internal migration movements (Fröhlich, 2016). In the Occupied Palestinian Territories, farmers are dependent on increasingly volatile precipitation patterns for their rain-fed agriculture, while the industrialised Israeli agriculture receives subsidised water for irrigation.

Such examples in combination with the impacts of climate change becoming more and more visible have contributed to water security becoming a key term and central paradigm in recent years (Aggestam, 2015). Consequently, patterns of securitisation and, to a lesser extent, desecuritisation have received a lot of attention (Wæver, 1995; Cook & Bakker, 2012; Fischhendler & Nathan, 2015). This chapter aims at uncovering modes of representation and imagery which are routinely implicated and drawn upon in times of conflict to generate exclusionist modes of discourse, namely the construction of (collective) identities through discursive in- and exclusion, the realms of the "sayable" or "unsayable" that develop from this, and (de-)securitisations. Drawing on critical security studies, this chapter conceptualises different interpretations of the relationship between water and security as water security discourses, separating them into national, international, human and ecological security discourses (McDonald, 2013), each associated with different levels of (de-)securitisation.

The chapter focuses on the Jordan basin as a case study, in particular on the Israeli-Palestinian water conflict. This conflict is rooted in the region's geographical, climatic, hydro(geo)logical and demographic realities; however, these factual circumstances are complemented by different social, material and symbolic attributes attached to the resource water, by the resource's different functions and by the respective stakeholders' interests. Remarkably, the basin has experienced both conflict and cooperation over water despite the protracted political conflict, making it a promising case for better understanding the role of (de-)securitisation for successful water diplomacy (Ide & Fröhlich, 2015). The chapter hypothesises that a better understanding of (de-)securitisation patterns is key to effectively scoping the available space, time and willingness to negotiate water issues in conflict situations, which in turn is crucial for future water diplomacy. A better understanding of the structures and dynamics underlying conflict (or cooperation) in the water sector could help identify ways to achieve more sustainable and peaceful water management in the Jordan basin. Accordingly, the chapter analyses the Israeli and Palestinian water discourses to answer the nested research questions of 1) which patterns of (de-)securitisation of water exist within these two societies, and 2) how they relate to conflictive or cooperative behaviour. The chapter applies a methodology that combines discourse theory with critical security studies to map the different water discourses in Israel and Palestine; on this basis, it draws tentative lessons for future water diplomacy in the region.

The Jordan Basin: A Brief History of Conflict and Cooperation

The area between the Mediterranean Sea and the River Jordan is one of the water scarcest areas of the world. Climate and geography together with the political situation

in the region have rendered the Jordan basin one of the most heavily cited examples for water as a security issue. Usable water stems from the River Jordan with its headwater and tributaries (Hasbani and Banyas in the Golan Heights, Dan in Israel, Yarmuk in the Hashemite Kingdom of Jordan), the Sea of Galilee and several ground water reservoirs. The latter consist mainly of the mountain aquifer below the West Bank, the coastal aquifer below the Gaza Strip and along the Israeli coast, as well as a number of smaller and less developed aquifers. Ever since the war of 1967 and the ensuing Israeli occupation of the West Bank, the Gaza Strip and the Golan Heights, the majority of the natural water resources in the Jordan basin (ca. 80%) have been under Israeli control.

Today, the stakeholders in the Jordan basin include Israel, Jordan, Syria and the Palestinians, as well as – indirectly – Lebanon. The conflict between Jordan and Israel over the water in the River Jordan has been regulated in a detailed peace agreement in 1994. The conflict between Syria and Israel over the River Jordan's tributaries Banyas and Hasbani is mainly to be seen as part of the political dispute over the Golan Heights, and less about the actual water allocation – Syria depends much more on the water in the Euphrates-Tigris basin than on the water it lays claims to in the south, so that a "water war" remains unlikely here too.

There is, however, a long-standing water conflict between Israel and Palestine over the shared groundwater aquifers and the River Jordan and their distribution (Zeitoun, 2012), over water pollution originating in the West Bank and Israel (Fischhendler, Dinar, & Katz, 2011), and over water infrastructure in the Occupied Palestinian Territories, in particular the question of who receives a permit to construct and maintain such infrastructure (Selby, 2013). The current water access patterns clearly mirror the asymmetrical distribution of power between Israel and the Palestinians: while Palestinians have access to less than 100 litres per head and day for household use, Israeli citizens, including Israeli settlers, consume up to three times as much (B'Tselem, 2011). Many Palestinian families have to make do with intermittent water supply, and approximately 20% of the Palestinian population are not connected to the water supply system at all. The population therefore has to rely on water brought by tankers, which is very expensive; the Palestinians pay one of the highest water prices in the region. The aforementioned peace treaty between Israel and Jordan, which includes detailed regulations concerning the allocation of water from the rivers Jordan and Yarmuk, does not mention the Palestinians, even though they are direct neighbours to the basin. Water is also one of the issues that has been postponed to the final status talks (Lautze et al., 2005). While it is true that during the Oslo peace negotiations, bilateral bodies with regard to water were created which – different from many other institutions – remained in effect even during the second

Intifada and beyond, these so-called Joint Water Committees nevertheless illustrate the asymmetrical nature of the Israeli-Palestinian conflict (Selby, 2003). While, in theory, both Palestinian and Israeli committee members have equal rights and duties, including the right to veto water-related infrastructural and other projects of the respective other, de facto only Israel can effectively exercise that right. The water conflict between Israelis and Palestinians thus has to be understood as deeply embedded in the dynamics of the wider Israeli-Palestinian conflict (Moore & Guy, 2012).

Despite these long-standing conflict dynamics, there is also Israeli-Palestinian cooperation on water issues, both on the scientific and the civil society level. This is manifested in a counter-discourse that has been developing since the early 1990s (Isaac & Shuval, 1994), and that focuses on the cooperative potential of fair and mutually beneficial joint water management and its possible role for peace-making and peace-building (Coskun, 2009; Kramer, 2008; Fröhlich, 2012b).[1] A prominent example of such cooperation is the Israeli-Palestinian Good Water Neighbours (GWN) project (Ide & Fröhlich, 2015). The goal of this chapter is to deconstruct patterns of (de-)securitisation in Israeli and Palestinian water discourses in order to better understand how they relate to conflictive or cooperative behaviour, and to draw tentative conclusions for the potential of future water diplomacy in the Jordan basin.

Methodology

First of all, it is necessary to define the key terminology utilised in this analysis. *Water security* is here understood as "the capacity of a population to safeguard sustainable access to adequate quantities of acceptable quality water for sustaining livelihoods, human well-being, and socio-economic development, for ensuring protection against water-borne pollution and water-related disasters, and for preserving ecosystems in a climate of peace and political stability" (UN Water, 2013). *Securitisation* is here understood as an utterance by which an issue is constructed and framed as a matter of security, thereby moving it outside of the realm of "normal" political action (Buzan, Wæver, & de Wilde 1998). Securitisation is achieved through a successful securitising move, i.e. the construction of a particular reference object as an existential threat for a certain audience. Given a sufficient acceptance by that audience, a securitising move legitimates emergency measures that exceed the common rules of social interaction, including violence. The likelihood of securitisation is commonly expected to be higher in situations of conflict. *Desecuritisation* can be seen as the reverse process, i.e. moving an issue "away from exceptional and back to normal spheres of politics" (Aggestam, 2015, p.

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1 This is not to say that such water cooperation is entirely unproblematic. It has been accused of marginalising the Palestinian viewpoint (Alatout, 2006), of de-politicising water-related inequalities (Aggestam & Sundell-Eklund, 2014) and of privileging an artificial local over a more authentic "local-local" and "everyday" (Richmond, 2009, p. 325).

328). It is here understood as "a process in which a political community downgrades or ceases to treat something as an existential threat to a valued referent object and reduces or stops calling for exceptional measures to deal with the threat" (Buzan & Wæver, 2003, p. 489).

(De-)securitisation dynamics can be uncovered through discourse analysis, understanding "discourses as performative statement practices which constitute reality orders and also produce power effects in a conflict-ridden network of social actors" (Keller, 2011, p. 48). What is accepted as true by a given social group and what is claimed as wrong or not considered at all is structured by discourses. This also applies to the "subject positions" of social actors, which define the role and characteristics (that is, the identity) of individuals and social groups (Keller, 2011, p. 49). As Siegfried Jäger (2004, p. 158) put it, "discourse is the flow of social knowledge through time"; therefore, "everything we perceive, experience, sense is mediated through socially constructed and typified knowledge" (Keller, 2013, p. 61), in other words: discourse. Discourses thus execute significant power effects by structuring social actors' perceptions and interpretations of reality as well as the ensuing actions and practices without completely determining them. A discourse can be considered dominant when its core statements are accepted as true by a large majority of a specific social group (Keller, 2011).

In order to uncover patterns of (de-)securitisation within the Israeli and Palestinian water discourses, this chapter conceptualises discourse as consisting of various concrete speech acts, texts, images and symbols, but also non-verbal practices, which in turn reproduce the very discourse they are originating from. Discourses and practices are therefore mutually constitutive, implying that discourses are reproduced by and can be changed by human action and simultaneously structure human action. Accordingly, securitisation is here conceptualised as "a specific modern speech act, an utterance by which we construct an issue as a matter of security" (Gad & Petersen, 2011, p. 317). Desecuritisation, in contrast, denotes the weakening of such conflictive viewpoints, potentially leading to a change in societal discourse so that agreement and mutual understanding become possible again, thus potentially leading to discursive conflict transformation.

Furthermore, drawing on McDonald, (2013), this chapter conceptualises different interpretations of the relationship between water and security (i.e.: (de-)securitisations) as water security discourses, dividing them into national, international, human and ecological security discourses. The key questions to ask for each securitising move are: 1) How is the referent object of security conceptualised, i.e. who or what needs to be

protected?; 2) Who is perceived as the key agent of security, i.e. who can and should respond to the threat?; and 3) What is the nature of the threat, and what responses are suggested? (McDonald, 2013, p. 42). By answering these questions, the implicit conceptualisations of security are uncovered, which is a prerequisite for future water diplomacy in the region, as it illustrates how some responses to water scarcity as well as the actors involved are enabled or constrained by different discursive conceptualisations of water security. It makes a difference whether the answer to the question "who is to be secured" is a) a national territory and/or population (national security), b) the international system of states and organisations (international security), c) mankind (human security), or d) the planet with all its living beings (ecological security). Both the chosen agents of security and the dominant threat perceptions including acceptable responses are determined by those answers and differ widely.

In the following, the chapter outlines the hegemonic and counter water discourses in Palestine and Israel, drawing on both secondary literature on the issue and previous research by the author (Fröhlich, 2010; 2012a; 2012b; 2014; 2019; Ide & Fröhlich, 2015; Rodriguez Lopez et al., 2019). The author has conducted qualitative field research in Israel and Palestine in 2005/06 (Fröhlich, 2010; 2012b), in 2017/18 (Rodriguez Lopez et al., 2019) as well as in 2019, including half-open, semi-structured interviews with Israeli and Palestinian water experts, participant observation, and group discussions and informal conversations with Israeli and Palestinian stakeholders, including government officials, non-governmental organization (NGO) and international organization (IO) agents, and civil society representatives.

Deconstructing Water Discourses

In the following, the chapter outlines how discourses on both sides (de-)securitise water. As will be shown, there are different understandings of security underlying the different discourses: the referent objects of securitising moves change as much as potential agents of security and perceived threats, pointing at the changeability of discourse and the potential for discursive conflict transformation. In both societies, two interrelated but very different dominant discourses on water can be discerned. Both are characterised by the securitisation of water resources for the respective national populations.

a) Patterns of securitisation: Palestine
In the discourse that is dominant in Palestine, the existing natural water resources are believed to be sufficient at least for a major improvement of the Palestinian standard of

living. Israeli control over most of the natural water sources, the very unequal access to water as well as Israel's capacity to veto water infrastructure projects are seen as the major cause of water availability problems in the West Bank (Alatout, 2006; Waintraub, 2009), and thus as the main threat to the referent object, namely the Palestinian people and future state. In the Palestinian perception, the experienced water scarcity is thus seen as predominantly politically induced (Daoudi, 2009; Trottier, 1999). Israeli control over large parts of the regional water resources is considered an existential threat to Palestinian society and hence securitised in the dominant discourse (Fröhlich, 2012b).

This rather confrontative assessment is connected to similarly conflictive identity constructions in the dominant Palestinian discourse. Water is perceived as important primarily as an attribute of a territory that is considered rightfully Palestinian and thus crucial for a Palestinian state and identity, but has been under Israeli control since 1967. Consequentially, the Israeli out-group is at least implicitly portrayed in negative terms, since it is unwilling to grant the Palestinians the amount of water that they feel not only entitled to but also depend on to keep their standard of living and to enable at least moderate economic growth (Fröhlich, 2010; Twite, 2009). This discourse reflects a dominant mentality of siege that mirrors such Israeli mentality (see below). One manifestation thereof is the myth of the *fellah,* a Palestinian peasant who works and sustains his land even in the worst of circumstances – and needs water to do that, while access to water is denied by Israel (Fröhlich, 2012b). The central characteristic of the *fellah* is perseverance (Arabic *sumud*) in the face of recurring humiliation and assault; the myth is alive until today and relates not only to those who actually work with and on the land but also those who protect the land by simply maintaining their livelihoods in the Occupied Palestinian Territories and by witnessing the Israeli occupation.

There certainly are alternative positions which challenge the dominant Palestinian water discourse (Alatout, 2006). Examples include more pragmatic voices that criticise Palestinian water management and thus acknowledge the in-group's responsibility for the water scarcity and pollution that Palestine is experiencing (Fröhlich, 2010). Here, the referent object is no longer exclusively the Palestinian state and society but nature itself needs protection from pollution and over-utilisation, thus displaying an ecological understanding of security and thereby inviting a completely different set of responses to such a threat. But the dominant discursive pattern is to construct water availability as crucial for the Palestinian identity and future state, to securitise Israeli control over the majority of the natural water resources, and to blame the Israeli out-group for being solely responsible for water shortages in the Occupied Palestinian Territories (Alatout, 2006; Twite, 2009; Waintraub, 2009). The Palestinian dominant water discourse can thus be

considered quite confrontative and dominated by a national understanding of (water) security.

b) Patterns of securitisation: Israel

Just like its Palestinian counterpart, the Israeli water discourse is far from homogenous (Feitelson, 2002). Nevertheless, in the dominant Israeli discourse, water is deeply interwoven with agriculture, the creation of a Jewish state/homeland and Israeli identity, thus again displaying a national understanding of (water) security. The roots of water's ideological meaning for Israel lie in political Zionism (Lipchin, 2007). The link between Zionism's main goal of a viable Jewish state in the biblically Promised Land and water is agriculture. On the one hand, agriculture made it possible to settle and control the Jewish homeland (Feitelson, 2013). On the other, Jewish immigrants could, by working with the land and owning it, shed their European, Western, urban image and substitute it through a new identity: that of the chalutz, the pioneer, who helps to build a Jewish state and thereby contributes to the redemption of the "chosen people". Thus, both settlement and agriculture aided the discursive melting of water with the "Zionist [...] ethos of land, pioneer heroics, and national salvation" (Rouyer, 1996, p. 30). A sufficient water supply hence became a vital part of the Jewish-Israeli identity, even if water issues (no longer) dominate public debates and media coverage (de Châtel, 2007; Feitelson, 2013). Israeli access to and control over the region's natural water resources is thus the main referent object of securitisation in the Israeli water discourse, making the Israeli state the central agent of security (including Israeli military forces), and defining the lack of access to water for Israelis as the most important threat.

In addition, the Holocaust and the repeated existential threats by Arab neighbouring states and Iran have contributed to the development of a security discourse that conceives of the Jewish state and people as inherently threatened. The securitisation of diverse threats developed into one of the most powerful discursive structures in Israeli societal discourse (Fröhlich, 2010). Generally speaking, a mentality has emerged that cultivates a perpetual state of siege (Bar Tal, 1998). The water discourse has been taken over by this securitisation trend, especially in the face of intense water-related disputes between Israel and Syria in the 1950s and 1960s (Amery, 2002). The securitisation of water and its central role for the Israeli identity is complemented by a quite confrontative assessment of the water situation in the dominant Israeli discourse. The natural water resources in the Jordan basin are considered scarce and in desperate need of development and protection in order to maintain the current standard of living of the region's population (Fröhlich, 2012b; Messerschmid, 2012). Here, the aforementioned national understanding of water security is complemented by two other security conceptualisations, as both the region's population (not only Israeli!)

and the regional water resources are identified as referent objects of securitisation, displaying both elements of a human and an ecological understanding of security.

Since the 1990s, the discourse partially shifted from water quantity to water quality issues (Fischhendler, Dinar, & Katz, 2011) and thus from national to ecological security conceptions, while large quantities of additional water became available due to increasing wastewater recycling and desalination (Aviram, Katz, & Shmueli, 2014; Spiritos & Lipchin, 2013). Peace treaties and related water agreements were also reached with Jordan and the Palestine Liberation Organization (PLO) (Zeitoun, 2012). These developments facilitated a partial desecuritisation of water issues, although this trend was negatively influenced by heavy droughts in the late 2000s and predictions of climate change-induced rainfall reductions in the future (Mason, 2013; Messerschmid, 2012). Attempts to achieve more equitable access to the available water resources, for instance by re-distributing parts of the mountain aquifer to Palestinian control, or by allowing Palestinians to unilaterally implement water infrastructure projects in the West Bank, nevertheless remain unsayable (Feitelson & Rosenthal, 2012; Selby, 2009) and are routinely subjected to what can be understood as a re-securitisation: regardless of the aforementioned desecuritisation impulses, dominant discourse structures still tie back into the much older, persistent securitising discourse structures, which can be easily re-activated (Fröhlich, 2012b; Messerschmid, 2012).

c) Patterns of desecuritisation on both sides[2]

De-securitising dynamics in the two national discourses focus on five dimensions: the relevance of water, water problems, solutions for water problems, out- and in-group images, and governments and politics (Ide & Fröhlich 2015). The transnational Good Water Neighbours (GWN) discourse can be seen as an illustration of such desecuritisation attempts. Just like the dominant water discourses in Israel and Palestine, the GWN discourse emphasises the high importance of water but with a different referent object and, thus, different agents of security, different threat perceptions and different ideas about suitable responses. Within the dominant discourses, water is considered a national security issue, as illustrated by its connections either to Zionism or to a viable Palestinian state and the fellah myth. These viewpoints are mutually exclusive, contradictive and eventually confrontative. This stands in sharp contrast to the GWN discourse. Here, water is first and foremost framed as a means to sustain life in general and human life in particular, thus displaying a human and (partly) ecological understanding of security:

"Water is the ingredient that made possible the explosion of life on our planet, both in the sea and on land […] In the desert and semidesert regions such as the

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2 The following draws largely on Ide & Fröhlich, 2015.

Middle East, the development of water systems was crucial for the development and advancement of human culture" (Watercare, 2004, pp. 4-6).[3]

What is more, water is described as crucial for sustaining the concrete, often agricultural livelihoods of the people in the region within the Palestinian GWN discourse, again going beyond the national understanding of security by including other populations. It is also considered an important part of a healthy and liveable environment, displaying an ecological understanding of security. So, despite some differences, all three dimensions of the relevance of water as constructed in the GWN discourse (enabling life, securing livelihoods, raising the quality of life) are clearly non-exclusive, since they refer to benefits for all inhabitants of the region regardless of their political affiliation or nationality (human security). In this respect, the GWN discourse is considerably less confrontative than the dominant national discourses. The focus on human and/or ecological security also means that even in the case that GWN decides to strategically securitise water, it does so with nature or humanity as the referent object, not a national group, thus ultimately calling for more inclusive policies.

The inclusive understanding of the relevance of water is further strengthened by the GWN discourse's diagnosis of strong regional water interdependence, in particular with regard to the mountain aquifer. This water interdependence is portrayed as a general fact in the whole of the Middle East. The identification of water interdependence, self-interest and mutual gains in combination with the depiction of water resources as naturally scarce and vulnerable but equally important for all inhabitants of the region represents a significant de-securitising move. Such argumentative support for water cooperation based on a human and ecological conceptualisation of security is largely absent in the dominant discourses of both sides, which portray water interaction largely as a zero-sum game, thus denying the possibility of mutual gains.

The dominant Palestinian discourse focuses overwhelmingly on problems of water quantity, while in Israel an essential concern about sufficient water availability is combined with growing attention to water quality issues. In the GWN discourse, issues of water quantity and quality are highlighted as well (although Israeli GWN activists tend to emphasise water quality while Palestinian activists focus more often on water quantity issues, see Ide & Fröhlich, 2015). There is agreement that Israelis are facing no water availability problems at the moment but are threatened by the pollution of cross-border streams and the mountain aquifer. Palestinians are portrayed by the GWN discourse as struck by the same but more severe problems of water quality and in addition by alarmingly low water availability. The inclusion of water quality concerns in the set of

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3 Watercare is a textbook that is frequently used by the GWN. Several authors of the Watercare textbook are affiliated with Friends of EcoPeace Middle East (FoEME), the head organisation of GWN.

relevant issues broadens the range of topics available for cooperation, especially since it might be easier to frame interactions on water quality issues as a positive-sum game.

When it comes to the reasons for the existing water problems, the GWN discourse first refers to a bundle of geographical and demographic factors (e.g. arid climate, growing population), which is largely in line with the dominant discourses in both countries. The region's water resources are also portrayed as "highly vulnerable to pollution" (Tagar & Qumsieh 2006, p. 3), with both displaying an ecological understanding of security. The lack of coordination between the different parties, which would be necessary in a situation of strong water interdependence, is described as accelerating these problems. But, in addition, Israeli and Palestinian GWN activists agree that Israeli policies are responsible for water problems. The insufficient water availability in the West Bank is largely described as a function of Israeli control over water resources, the unwillingness of the Israeli government to share the water equally, and Israeli restrictions on water projects in the West Bank. The Israeli government is also held responsible for the water quality problems originating in the West Bank.

However, there is an important difference between the Israeli and Palestinian GWN discourses. Palestinian GWN activists describe the natural scarcity of water and especially Israeli policies as the main source of water problems in the West Bank. Consequentially, and in line with the dominant Palestinian discourse, it seems to be unsayable that a Palestinian group or institution might be responsible for the scarcity or pollution of water in the West Bank. Within the Israeli GWN discourse, by contrast, Israel is described as being better off in terms of water not only because it utilises water resources from the West Bank but also because of its high administrative, organisational and technological capabilities. It can be assumed that the shared understanding of Israeli government policies as a key determinant of water problems in the region, and especially in the West Bank, facilitates cooperation within the GWN project. However, disagreement regarding the importance of technological and administrative causes of water problems has the potential to obstruct cooperation between GWN activists.

When it comes to the question as to how the water problems in the region can be solved, the GWN discourse favours a solution based on two principles. Firstly, Palestinian water rights need to be acknowledged and regional water resources should be shared more equitably. Secondly, this more national understanding of water security is complemented by ideas of strong water interdependence, water as the object of a positive-sum game, and lack of coordination as a possible source of water problems, thereby introducing a different referent object to securitisation dynamics, i.e. international and/or human

security. Illustrating this, GWN promotes the transnational integration of water resource management that should be carried out by a bi- or trilateral water commission in which all parties would have the same rights and duties. In contrast to the current Israeli-Palestinian Joint Water Committee, the commission would be responsible for all, or at least for all transboundary water resources in the region. This desire to share water resources more fairly and to manage them as integratedly as possible represents another desecuritisation move and provides a positive vision supportive of cooperative behaviour. It also marks a clear contrast to the dominant water discourses on both sides, which clash over the recognition of Palestinian water rights and are more concerned with the allocation (and, in Israel, quality) rather than with the common management of water resources.

Within the Israeli GWN discourse, Palestinians are mostly described in positive and empathic terms. They are usually not referred to primarily as Palestinians but as neighbours and fellow humans, again diverting from the dominant national understanding of water security that sees the respective "other" as an out-group. Sometimes, the boundaries between both identities are even blurred symbolically. Following this logic, many of the Israeli government's measures that complicate the lives of Palestinians from the West Bank, such as the system of checkpoints, the construction of the separation barrier, or the lack of permits to work in Israel, are criticised. But Palestine is also portrayed as insecure, as a place of corruption, clientelism and lack of work ethos in the Israeli GWN discourses. This insecurity is attributed to political extremists who resist any kind of Israeli-Palestinian cooperation.

In parallel, the Palestinian GWN discourse describes the Israeli *people* positively as neighbours who deserve to live in freedom, security and peace, thus applying a human understanding of security. Especially for the period prior to the onset of the second Intifada, relations between Israelis and Palestinians are described as tight and mutually beneficial. However, the Israeli government and settlers are portrayed as ruthless and fanatical. The fact that Israel is a democracy and that the government (and its settlement policies) is elected by the majority of the Israeli people is not reflected in the Palestinian GWN discourse.

Politics in general is described as a predominantly negative realm in both the Israeli and the Palestinian GWN discourses. Political activities are seen as often inspired by a top-down approach, which tends to be ineffective, to ignore local realities, and to be very set in its interpretations of (water) security. Related to that, politicians are described as not knowing or not even caring about the lives and thoughts of "normal" people, thus as

incapable of moving away from national understandings of security. Rather, they are pursuing goals motivated by ideology or the interests of some particular groups. It is likely that the appreciation of bottom-up approaches as well as scepticism about the established political actors' willingness and capacity to solve water problems provides a motivation for the GWN activists to engage in bottom-up cooperative problem solving. It can be concluded that the Israeli and Palestinian GWN discourses contain a predominately (but not completely) positive image of the respective out-group, especially compared to the dominant discourses in both countries (e.g. Bar Tal, 1998; Kaufman, 2006). This largely empathic construction of the other as a neighbour, i.e. the application of an understanding of (water) security which focuses on mankind and/or nature as the referent object of securitising moves, supports the desecuritisation of water issues and facilitates water cooperation.

Lessons for Future Water Diplomacy

Based on the above analysis, it can be concluded that confrontative, contradictive and mutually exclusive identities and perceptions can be considered major drivers of the Israeli-Palestinian water conflict. They are indicative of an interpretation of water scarcity as an existential threat to the respective national populations, thus displaying a conceptualisation of security as national. This also means that the main agents of security can be found on the state level, including military forces. Thus, both groups' dominant national discourses can be understood as major obstacles to cooperation and successful water diplomacy. This applies both to the inter-state level and to communities along the border between Israel and the Occupied Palestinian Territories, which reject cooperation over local water resources. The GWN project, in contrast, illustrates that alternative worldviews can develop even in extremely adverse circumstances. The GWN discourse is characterised by a much wider understanding of (water) security, which includes citizens of other nations, different population groups and nature itself as referent objects. This is illustrated by the largely inclusive identities and desecuritisation moves that highlight the need for water cooperation and more equitable water sharing.

Following from this, the existence of conflict or cooperation over water resources can be understood as linked to discursively constructed understandings of (water) security. If this is indeed the case, then future water diplomacy needs to focus on such dynamics in order to produce effective, sustainable and durable results. Concentrating exclusively on technical or functional water cooperation, for instance, can only be insufficient and might even turn out to be counterproductive, if the underlying understanding of what is

to be protected by whom and how remains unchanged (Aggestam & Sundell-Eklund, 2014; Bichsel, 2009).

The persistence of the Israeli-Palestinian water conflict despite cooperative measures like the Joint Water Committee and repeated efforts to solve the conflict top-down are cases in point: so far, all actors involved lack the necessary political will to implement the long-term solutions that have been on the table for decades, be it desalination, reallocation or other models, which can arguably be traced back to their implicit understanding of water security as a predominantly national issue. The overwhelmingly bi- or unilateral approach to the water issue in the Middle East also illustrates the dominantly national understanding of security underlying water policies in the region. To generate alternative and potentially peace-building ideas and practices in the water sector, and to transform confrontative attitudes and perspectives into cooperative identities and worldviews, water diplomacy needs to critically engage with predominantly national interpretations of (water) security and promote other conceptualisations of security as outlined above.

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Less and Less: Water in the Middle East

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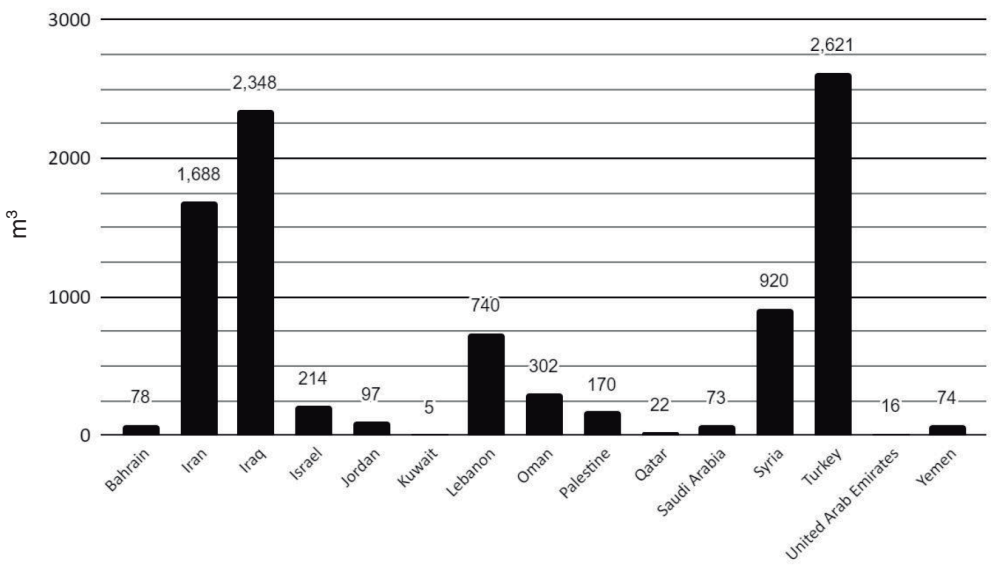
Water Resources and Scarcity

Water shortages and scarcity have always been a serious challenge in the Middle East, threatening human survival in a desert environment and arid climate for thousands of years. Still, in the past the Middle East was relatively water rich and able to meet an increasing water demand thanks to the advanced utilisation of the resources, such as smart investments and innovations in irrigation technology and smart water management. The "Fertile Crescent" was the bread basket of the whole region before the water situation became more and more problematic over the last centuries (von Lossow, 2020). Most of the region finally ran out of water in the 1970s, in a way that it became difficult for most countries to meet the rapidly increasing water demand for food production, industrial purposes and domestic needs (Allan, 1997). Since then, food imports of Middle Eastern countries have steadily increased. Over the last two decades the region has been importing more than half of its calory demand and about 60% of its wheat consumption (World Bank, 2008; FAO, 2019) – no other region is as dependent on food imports. Challenges for the water-energy-food nexus remarkably affect economic development with food production as the dominant consumptive use of water contributing to water scarcity. The uses of water in the agricultural sector exceed by ten times uses of water by industrial and municipal sectors combined (Al-Rimmawi, 2012). Besides quantity, water quality has also been decreasing over the last decades, primarily affecting drinking water and water for sanitation purposes.

Today, the Middle East – in a broader definition including the Maghreb and the Arabian Peninsula – is the most water scarce region in the world. The Middle East and North Africa (MENA) region has the highest variability of rainfall in the world, about 60% of the water stems from transboundary sources – surface waters or aquifers. The area covers 4.9% of the global landmass and is home to 4.4% of the world's population but provides only 1.1% of the globe's total renewable freshwater resources (Kibaroglu, 2016). More than 60% of the population in the Middle East are exposed to high or very high water stress, in comparison to 35% on the global average (Food and Agriculture Organization [FAO], 2018). The Falkenmark water stress indicator – the standard reference of water scarcity for most United Nations (UN) organisations – distinguishes between "water stress", "water scarcity" and "absolute water scarcity" with an average per capita share per year of total renewable freshwater resources below 1,700 m³, 1,000 m³ and 500 m³, respectively (Falkenmark, Lundqvist & Widstrand, 1989). Most of the countries in the region suffer from water stress, which "refers to the ability, or lack thereof, to meet human and ecological demand for fresh water (…). [It considers] several physical aspects related to water resources, including water availability, water quality, and the accessibility

of water" (UN Global Compact, 2014). In the Middle East more than 60% of the population live under the condition of high or very high surface water stress, particularly in remote and rural areas. Today's water availability per capita is even expected to decrease by 50% by 2050 (Kibaroglu, 2016). But there are differences between and within states.

Some states primarily suffer from physical water scarcity describing the physical absence of water. Israel and Palestine, for example, have annually about 300 m³ of fresh water per head available – clearly below the annual per capita threshold of 1,000 m³ recommended by the World Health Organization (WHO) at which various water needs for drinking, sanitation, industry, agriculture and economic growth can be met. Kuwait, Saudi Arabia or Qatar – like most countries in the Arabian Peninsula facing similar extreme hydrological conditions – have less than 250 m³ to almost no freshwater resources available at all (see Figure 1). But the latter are not experiencing water stress as they are financially able to address water scarcity by importing food and desalinating sea water. Saudi Arabia, for example, was set to double its desalination capacity between 2010 and 2015, based on a five-year infrastructure plan.

Figure 1. Total renewable Water resources per capita (m³/head/year)

Source: Food and Agriculture Organization – AQUASTAT, 2017.

Other places are facing mainly economic water scarcity: additional water resources exist, for instance, in deeper laying aquifers, but the authorities are not able to make this water available for the users due to a lack of financial resources, knowledge, institutional capacity or political will. Insufficiently maintained water infrastructures, mismanagement or poor water governance are usually connected with economic water scarcity. In Lebanon (740 m³) or Iran (1,688 m³), where more water resources are available in some areas, the population lacks adequate water access in many areas (FAO AQUASTAT, 2017).

Against this background, this chapter sheds light on the broader water situation in the Middle East highlighting various drivers of water security. The chapter illustrates, on the one hand, how water scarcity contributes to fuelling conflicts; and how, on the other, the conflictive and fragile political setting aggravates water scarcity. A case study of Gaza exemplarily demonstrates how water security is linked to socioeconomic, political and security challenges and culminates in a dire humanitarian situation.

The Gap: Increasing Demand and Decreasing Supplies

As depicted in the previous section, the Middle East is in the midst of a severe water crisis and the "water question" became a key issue for human and socioeconomic development affecting the provision of drinking water, agricultural production and hydroelectricity generation. Water insecurity, accelerated for example by droughts, impacts agricultural production, public health, mortality rates, loss of biodiversity, hydropower production or economic development. It also negatively affects social, cultural and religious aspects and habits, as for example baptisms in the Jordan River or Kurdish cultural heritage in the Euphrates and Tigris basin.

Water-related challenges per se are nothing new to the region. However, several drivers of water scarcity have intensified in recent years, posing an unprecedented threat for the regional water security defined as the "availability of an acceptable quantity and quality of water for health, livelihoods, ecosystems and production, coupled with an acceptable level of water related risks to people, environments, and economies" (Grey & Sadoff, 2007).

The increasing gap between rising water demands and declining supplies of water resources has led to the deterioration of water security. Bad water governance, mismanagement of the resources, insufficiently maintained or outdated infrastructures, unequal distribution and failure of policy planning with often postponed reforms further widened this gap and exacerbated water insecurity. Due to leakages, neglect and

inappropriate irrigation systems, up to 30-40% of the water is lost before it reaches the fields or the tap: in Lebanon about half of the water is lost in the pipes (Thibault & Slavin, 2019).

On the one hand, population growth, economic development and rising living standards remarkably increased water consumption in the region. With an annual increase of 1.7-2% as a result of immigration or high birth rates, the population of the Middle East will grow from 300 million people up to almost 500 million by 2025 in less than two decades (World Bank, 2009). Economic development and a related increase in living standards has resulted in more water-intensive lifestyles over the last decades. Qatar, for instance, has the highest per capita water consumption, despite having close to no conventional freshwater resources.

On the other hand, the consequences of climate change, environmental degradation, as well as pollution and over-exploitation of resources, have drastically reduced water availability – likely to decrease by half by 2050 (Kibaroglu, 2016). Only very few areas have abundant rainfall or snow, such as higher altitudes in Lebanon, Turkey, Iraqi Kurdistan or mountain areas in Iran. Large parts of the region depend on water in the large river basins – the Nile, the Jordan, the Orontes or the Euphrates and Tigris. Aquifers are the other important conventional water resource, such as the Mountain Aquifer shared by Israel and the West Bank. However, over-pumping of aquifers, discharging of industrial and household sewage into rivers as well as the use of herbicides and fertilisers reduced quantities and quality of water. Climate change makes rainfall and snow-melt less and less predictable, extreme weather events such as heatwaves, prolonged droughts and floods more likely to occur, and aquifers near the coast more saline due to sea level rise and subsequent seawater intrusion. Water scarcity driven by various socioeconomic and political conditions and the security situation are reciprocally affecting each other.

Water Scarcity Fuelling Conflict

Water scarcity and water stress negatively affect the socioeconomic and security situation. The increasing and intensifying competition over the scarce freshwater resources among water users – states, sectors, groups and individuals – has the potential to fuel tensions and conflicts related to water but also beyond water, and threaten stability and security by also accelerating other political, economic or social conflicts (Zawahri, 2017; von Lossow, 2020).

There is a lively debate about whether and to what extent climate change played a decisive role in triggering the war in Syria or whether failed agricultural policies were responsible for the desperate socioeconomic situation in north-eastern parts of the country (Kelley et al, 2015; Selby et al., 2017). In both cases, climatic conditions had an impact on water availability, which is at least a puzzle in the overall security and conflict setting of the last 15-20 years. In the early 2000s the Syrian government set up large agricultural programmes, massively expanding food production in the north – a very dry area that had repeatedly been hit by droughts in the previous 50 years. Irrigation for export-oriented production was based on groundwater abstraction through fuel-run pumps. With the drought hitting the country from 2006 onwards, water for irrigation diminished, and farmers had to pump deeper and deeper while undergoing increasing pressures related to a rise in irrigation costs. At a certain point – and also affected by the global financial crisis – the regime could not afford fuel subsidies any longer, which it reduced and ultimately abolished (de Châtel, 2014). Without water, farmers had to abandon their farms and businesses, left the areas from 2007 onwards and went increasingly to cities seeking alternative income opportunities and thus contributing to tensions and security challenges there. Climate change and water scarcity were, of course, not the direct or single causes leading to the uprisings in 2011 and the subsequent civil war, but they did contribute to the strained socioeconomic and political situation.

Another example of how water scarcity and acute shortages can contribute to destabilisation and conflict are the protests of Basra (in southern Iraq) that erupted in summer 2018. During a heatwave, the water and electricity supplies deteriorated and collapsed to a certain extent. More than 1,000 people were hospitalised with water-borne diseases within a few days. About 118,000 were treated in hospitals with similar symptoms over the whole summer (Human Rights Watch, 2019). While protests were driven by a broader discontent with the government related to inequality, unemployment and corruption, the electricity and water shortages were a decisive factor bringing the protestors to the street (Salim, 2018). Protests spread to other cities and regularly re-occurred for about half a year, illustrating their potential for threatening the country's stability.

Furthermore, water scarcity helped fuel the conflict in Iraq when Islamic State (IS) overran the country in 2014-2015. When the farmers in northern Iraq increasingly struggled due to prolonged droughts and decreasing rainfall in the last decades, Jihadist groups made use of the circumstances for recruitment purposes in northern and western Iraq from 2011 onwards. They provided farmers with alternative sources of income and in a few

cases with water supplies, thus gaining their support or at least neutrality during IS's territorial expansion. Water was turned into a recruitment tool that strengthened Jihadist groups in their fight against the state (von Lossow, 2015).

Whilst the often-cited inter-state water wars in the Middle East have never been fought (Haddadin, 2003), tensions and conflicts over shared water resources negatively affected inter-state relations in the region. At the Euphrates and Tigris, for example, water infrastructure development since the 1970s strained relations between Turkey, Syria and Iraq. One of the main factors is the South-Eastern Anatolia Development Project (GAP) in upstream Turkey: 22 major dams (13 completed), 19 hydro-power plants (15 completed) and supplying 1.7 million km³ of land for agricultural irrigation reduce the water inflow to Syria and Iraq. Dam-building in Iran additionally reduced the water discharge of the Tigris in Iraq, which led to tensions between Bagdad and Teheran (von Lossow, 2018).

Similarly, the Nile water conflict between Egypt and Ethiopia has heated up in the last 15 years when upstream Ethiopia began with building the Grand Ethiopian Renaissance Dam (GERD). About 95% of Egypt s water needs are covered by the Nile, which originates outside the country – about 86% from Lake Tana in Ethiopia (Blue Nile) and 14% from the Kagera River and Lake Victoria (White Nile). Egypt therefore fears that its water share could reduce remarkably, in particular during the filling of the reservoir behind the GERD. Moreover, the Jordan River basin has been a continuous source of conflict between Lebanon, Syria, Jordan, Palestine and Israel. In addition, water is considered a central issue in the Palestinian and Israeli conflict as well as in Syria's and Israel's dispute over the Golan Heights (Wessels, 2009).

Conflicts, Fragility and Politics Aggravating Water Scarcity

The prevalent water insecurity in the region has been aggravated by political and military tensions, violent conflicts and (civil) wars, such as in Yemen, Syria, Iraq or Palestine, where water infrastructures are heavily damaged due to fighting or deliberate attacks. Iraq is an example that illustrates the water challenges related to and partly resulting from war, violent conflict and fragility – in addition to already tremendous water challenges such as the decreasing water discharge of the Euphrates and Tigris (von Lossow, 2018). While several factors such as climate change and dam-building in Turkey and Iran do have an impact on water stress, wars, political conflicts and the overall fragile security situation during the recent decades have also prevented the country from addressing water-related challenges and improving water availability. With the Iran-Iraq war (1980-1988), the first US intervention

(1991), the second US intervention and occupation (2003-2011) and the occupation by the so-called IS (2014-2017), Iraq has been trapped in reoccurring cycles of conflict and post-conflict settings over the last four decades. During this period, the water infrastructure has constantly been deteriorating as a consequence of insufficient maintenance, lack of investments and war damages due to attacks. The sanctions against Iraq in the 1990s also had an impact as they prevented spare parts required to maintain and repair water infrastructures from reaching the country (von Lossow, 2018). While in the 1990s Iraq was suffering from an already outdated, run-down infrastructure, such as pipelines, pumping stations or distribution systems, the situation further deteriorated in the following two decades. According to UN Environment (2017), just the most immediate reparations of water infrastructures after the occupation by IS require investments of 600 million USD. Internal dynamics, including socioeconomic and political cleavages in society and the marginalisation of certain parts of the population, further contributed to water insecurity. One of the most prominent examples is the Iraqi Marshes in the southeast, which Saddam Hussein almost completely drained in the 1990s. This drastic measure was a punishment and act of revenge against the Marsh Arabs that had initiated an uprising against the regime and destroyed the livelihoods of up to 200,000 people.

Moreover, water has been a target, tool and weapon in recent conflicts and wars, such as in Syria and Iraq (von Lossow, 2016). In the course of its territorial expansion, IS used water as a weapon to achieve strategic political as well as tactical military goals, which had an impact on water security in both countries (von Lossow, 2016). It was part of IS's expansion strategy to capture large dams in the Euphrates and Tigris to gain control over the region's most important water resources. IS weaponised water in a systematic, consistent and at the same time flexible manner. The militia retained water, for example to dry out areas further downstream or temporarily cut off water supplies to villages to blackmail them for their support or at least guarantee their neutrality. In a few cases they also flooded territories, for instance to stop government forces from approaching their positions (von Lossow, 2016). Poisoning resources and damaging infrastructures became more frequently applied when the IS militia was pushed back militarily (UN Environment, 2017). IS prominently changed the character of the weaponisation of water – from what used to be a rather exceptional, one-off matter applied as a game changer in the battlefield into a tool used in its day-to-day military operations, which constantly deteriorated Iraq's and Syria's water security. But the use of water as a weapon has not been limited to IS. In the further course of the civil war in Syria, all warring parties have systematically weaponised water and targeted water infrastructures (von Lossow, 2016). In Yemen and Libya, too, water has been repeatedly used as a weapon and infrastructures repeatedly targeted by airstrikes.

Conflict-related migration is another factor that can negatively impact water security. Jordan, with an average annual water supply of less than 150 m³ per head, has one of the lowest levels of water availability in the world and falls under absolute water scarcity, with renewable water supply only meeting about half of total water consumption. In the past, Jordan was relatively water rich. In 1946, each person enjoyed 3,600 m³ of renewable fresh water per year, before increasing water demand took its toll. In 2008, Jordan's annual per capita share had fallen down to 150 m³ and will continue to decrease to 90.5 m³ by 2025 (Mercy Corps, 2014). Jordan has one of the fastest growing populations in the Middle East. Between 2004 and 2015, the population grew by nearly 87%, adding an additional 4.4 million water users to reach 9.5 million people (DoS, 2016). A large share of this growth is due to immigration. For years, Jordan had been a destination for refugees, which put further pressures on the water resources and aggravated related challenges. Many refugees never returned home. The previous Palestinian refugee camp of Baqa'a outside Amman, for example, is today a city of nearly 120,000 people, crowded houses, minarets, and narrow streets (UNRWA, 2019). The first population influx was in 1948 during the Arab-Israeli War. After 2003, between 750,000 and one million Iraqis fled to Jordan during the second US-intervention, which is now known as the Iraqi refugee crisis (Mercy Corps, 2014). Since 2011, the Kingdom has been facing Syrian refugee crises, with about 1.4 million Syrians currently living in Jordan – between 10-25% of the Kingdom's pre-crisis population (Mercy Corps, 2014). These influxes of refugees, in particular from Syria, remarkably increased water demand and consumption and will also accelerate population growth in the next decades, which is expected to double by 2047 (Mercy Corps, 2019). This makes it even more difficult to meet the water demand in the future, particularly in Jordan's northern governorates, where the vast majority of Syrian refugees have settled. Even if the demise of irrigated agriculture in southern Syria resulted in more water flowing in the Yarmouk-Jordan river system, it is just a temporary dividend. Recovery of irrigated agriculture in Syria – per se a positive development –, in combination with a drying of the eastern Mediterranean climate, will hit Jordan in the future. By 2025 the Yarmouk flow into a key reservoir at the Jordanian-Syrian border could shrink by 51% to 75% when accounting for increased farm production and climate change (Ritter, 2018).

Case Study:
The Water Crisis and the Political Dimension in the Gaza Strip

The Gaza Strip is a very unique example and not entirely representative of the water crisis in the region due to the background of the Palestine-Israel context, including the occupation of the Palestinian territories and the siege of Gaza, as well as the

extraordinary politicisation and securitisation of water. On the other hand, however, the conditions of politicisation and securitisation of water are, to some extent, prevalent and symptomatic in the region.

This part of the chapter provides an overview of the water status in Gaza, analysing how politics and security developments may lead to or aggravate a water crisis and how deeply a water crisis can affect the general (human) security situation. Considering that the Gaza Strip is affected by the political situation in the West Bank as part of the State of Palestine and the peace process, some findings and conclusions will relate to the situation in both territories.

Overview of the Water Status in the Gaza Strip

The Gaza Strip is located in a transitional zone between the arid desert climate of the Sinai Peninsula and the temperate and semi-humid Mediterranean climate. It has desert characteristics with only a little annual rainfall varying from 450 mm in the north to 200 mm in the south (Palestinian Water Authority, 2013). The area is one of the most densely populated in the world with 2.1 million inhabitants in an area of 365 km^2. This number is expected to increase given a high population growth rate (UNRWA, 2016). Due to a rising birth rate, the humanitarian situation in the Gaza Strip has become increasingly alarming with water and sanitation facilities severely strained.

The situation is likely to worsen due to increasing regional droughts related to climate change. Because of the depletion of water and the declining economic situation, the Gaza Strip is facing environmental problems such as salinisation of fresh water, desertification, soil degradation and depletion, contamination of underground water resources, lack of adequate sewage treatment and water-borne diseases. According to a UN report from 2012, living conditions in the Gaza Strip over the last years have deteriorated to such an extent that the area would no longer be a habitable place by 2020 (UNRWA, 2012).

Primarily, the Gaza Strip suffers from serious water stress, in particular from a critical lack of safe drinking water. The coastal aquifer in the Gaza Strip receives an annual average recharge of 55-60 million m^3 (MCM)/year, mainly from rainfall in addition to 30 million m^3 MCM/year from lateral ground water flow and leakages, while the annual intensive abstraction rates from the coastal aquifer is about 200 MCM. More than 43% of the available groundwater, which is the only water resource, is being severely exploited for agricultural irrigation, while the remainder is used for domestic water supply and industry. Therefore, it is estimated that there is an annual cumulative deficit of water of

about 80 - 110 MCM/year (Shatat et al., 2018). The domestic and agricultural demand is outstripping the water supply, which will have long-term deleterious effects on the Gaza Strip aquifer. The over-pumping of water from the coastal aquifer for roughly 20 years resulted in the continuous deterioration of ground water and sea water intrusion. As a result, 96% of groundwater is unfit for human consumption according to the WHO standard for drinking water (PWA, 2018). Records of water quality monitoring programmes by Palestinian Water Authority (PWA)/Coastal Municipalities Water Utility (CMWU) indicate a dramatic increase of nitrate concentrations with high salinity levels of 2000-10000 mg/l in addition to high chloride concentrations of 500-3000mg/l and nitrate concentration of 100-800 mg/l (PWA, 2018). Contaminated drinking water poses a significant risk to public health. The PWA baseline (2016) and Shatat et al. (2018) highlighted the correlation between poor water quality from municipal wells and conditions such as cancer, renal diseases, diarrhoea, hepatitis A, meningitis, parasitic infection and typhoid.

Moreover, poor wastewater treatment, along with deteriorating infrastructures, facilities and services, have resulted in over 116 million litres of untreated or partially treated sewage being discharged into the sea every day, causing serious health and environmental hazards to the people of Gaza and its neighbours (PWA, 2018). Environmental organisations describe Gaza's sewage crisis as a "ticking time bomb" that will contaminate regional water resources if infrastructures are not repaired and if Gazans are not granted access to affordable electricity to run plants (Grossman, 2016). Drinking water in Gaza is supplied through 282 small to medium public, charitable and private water desalination plants distributed over the Gaza Strip: 48 public small-medium brackish water desalination plants (50 m3/day to 1000 m3/day), three main seawater desalination plants (35,000 m3/day) and the remaining are small chartable and private brackish water desalination plants in addition to three connections of Mekorot drinking water supply across the Green Line from Israel with average total annual supply capacity of 10 MCM (PWA, 2018) as convened in the Oslo Peace Accord between Palestinians and Israelis.

However, these desalination plants are not working to their full capacity because of a lack of power supply in the Gaza Strip. Furthermore, a poor governmental regulatory scheme contributes to contamination of desalinated water because legal frameworks and practices to regulate private water vendors and their water supply do not exist and monitoring continues to be inconsistent (unfortunately, there is no monitoring framework or implementing authority to oversee this) and ineffectively applied throughout the water chain supply. For instance, 45% of the private plants are not licensed and facilities are

poorly managed. An assessment conducted by the PWA in 2015 showed that 43% of desalination plants lack proper operational and maintenance schemes in addition to the absence of good practices to regulate water supply effectively (Shatat et al, 2018).

Therefore, the people of Gaza can only access safe water by purchasing from the majority of unlicensed or unregulated private vendors, which runs a risk of being poor quality and contaminated. Over 90% of households purchase water from private vendors, spending an average of USD 7-10/m3 a month, approximately one third of the average income of those surveyed (Shatat et al, 2018).

The Impact of Politics on Water Security

The current water crisis in the Gaza Strip – as well as in the West Bank – is the result of natural scarcity, exacerbated by rapid population growth, climate change or the absence of adequate water management. However, the political and security situation severely contributes and exacerbates water scarcity in the Palestinian territories.

Throughout the 52-year occupation, Israel practised blatant and formalised discrimination regarding Palestinian water consumption in both the Gaza Strip and the West Bank. In 1967, Israel declared all water resources in the Occupied Palestinian Territories (OPT) to be state owned and under the jurisdiction of the military. Multiple military interventions, the over 12-year old blockade in the Gaza Strip and three major consecutive violent escalations and wars in the conflict with Israel in 2008, 2012 and 2014 have further exacerbated the water situation. A combination of repeated Israeli attacks and the sealing of its borders by Israel have left the territory unable to process its water or waste. Israeli restrictions on material imports constitute another impediment since more than 3,000 water and sanitation material items are forbidden to enter Gaza as they are classified as dual use materials (Klawitter, et al., 2017). The restriction of importing water, sanitation and hygiene (WASH) materials has negatively impacted the developmental water projects, which would contribute to water aquifer improvements.

Several strategic projects to address the water crisis have been delayed, such as the construction of a central desalination plant, a major wastewater reuse and storm water projects (Klawitter, et al., 2017). The only exceptions are a few small-scale humanitarian projects, such as the establishment of small-scale desalination units coupled with solar energy and households grey water treatments, implemented between 2017 and 2020 as immediate response measures by international agencies such as Oxfam, Action Against Hunger, and UNICEF to prevent the crisis from further deteriorating.

Moreover, Israel's de facto control over the shared water resources (the Coastal and Mountain Aquifers and the Jordan River) contributes to and manifests the unequal water allocation between Israel and Palestine and prevents the water needs in the OPT from being covered. Israel uses more than 90% of the available fresh water in the OPT, particularly the underground Mountain Aquifer in the West Bank, while Palestinians have access to less than 10% (Pandey, 2011). Regarding groundwater, the total available amount in Israel and in Palestinian territories combined amounts to 1,305 million m³ per year, of which 1,046 is currently being used by Israel, versus 259 by Palestinians. As a result, Palestinians in Gaza and the West Bank consume approximately 60 litres per capita/ day, which is well below the daily 100 litres minimum recommended by the WHO (UNICEF, 2013). In contrast, average Israeli water consumption is estimated at 240-280 litres per capita and day.

The imbalance of water use is not in compliance with international water law, which calls for these resources to be shared "equitably and reasonably" and obliges states to cooperate, prevent or reduce pollution of watercourses (UN, 1997).

In addition to control of water resources, the Israeli government has been implementing a separation policy for a long time that resulted in the political, social and economic fragmentation of the OPT isolating Gaza from the West Bank, including East Jerusalem. This separation policy hampers reconstruction efforts in the water and sanitation sector.

The situation is further worsened by the internal divide and limited coordination between the Palestinian Authority (PA) in Ramallah and the authorities in the Gaza Strip. The political split, with parallel government functions and overlapping structures operating across the West Bank and the Gaza Strip, prevents the development of a comprehensive agenda for government operations, impairs the delivery of basic services and exacerbates the challenges facing the WASH sector. There are, for instance, two PWAs – the one in Ramallah is responsible for managing all international projects in the Gaza Strip and the coordination with donors, while the PWA in Gaza is responsible for licensing private water wells and private brackish water desalination plants. There is hardly any coordination and exchange of capacities between the two. For instance, PWA Gaza reports it does not have the capacity or resources to conduct the necessary monitoring of water supplied by private vendors, increasing the risks of contaminated water being delivered to households.

Political and Hydrological Solutions to the Gaza Strip Water Crisis

The interconnection between water scarcity and conflict in Gaza is very complex. It is clear, however, that over the years water scarcity has contributed to worsening socioeconomic

conditions. This, in turn, has created frustration for Gaza inhabitants and contributed to the ongoing violence and tensions between Israel and Palestinians in Gaza. Therefore, water scarcity in Gaza affects not only Palestinians who are living in the territory but concerns the state of Israel as well as the international community. Solving the problem of water security in the Gaza Strip should therefore be the main priority. A water-secure Gaza will impact Israel's long-term security and thereby the overall security of the Middle East.

The solutions should be both political and hydrological. Firstly, Israel should facilitate the implementation of the Central Gaza Desalination project as well as improving the energy supply to the Gaza Strip through doubling the current power supply, thus contributing to the solution of water and sanitation crises. Another challenge that needs to be tackled politically concerns the imports of construction materials and equipment – a pre-condition to build infrastructures crucial to implement innovative water technologies such as drip irrigation for agriculture or desalination for domestic and industrial purposes. Loosening the Israeli embargo on Gaza may provide a short-term solution to many problems related to water scarcity. Nonetheless, only a political settlement of the Israeli–Palestinian conflict can result in Gaza's long-term sustainable development.

Hydrological solutions include the need to develop new – and non-conventional – water resources in order to improve the water situation, address the imbalance of water consumption in Palestine and Israel and meet the water demand in terms of quality and quantity in the Gaza Strip. This implies improved wastewater management, such as reusing reclaimed wastewater for agriculture and potentially recharging the aquifer with the surplus of treated wastewater. Another alternative is provided by water desalination plants operated with solar energy, which have been identified as the most realistic option (Oxfam, 2019). The European Union (EU) has funded a number of innovative water technologies coupled with solar energy to overcome climate change and droughts. However, these initiatives are still small and need to be scaled up and replicated through funding from other donors. The drying of United States for International Development (USAID) funds has worsened the WASH situation in the Gaza Strip. Therefore and under current circumstances and the absence of a political solution, a lack of funding and the poor socioeconomic situation would continue to pose a challenge to the solution of water crises in the Gaza Strip.

Responses to the Water Crisis in the Middle East

Water security in the Middle East has steadily deteriorated over the last decades. Today, the region faces an unprecedented mix of various water and water-related challenges.

Water scarcity and water stress pose a significant threat to the whole region and its social, political, economic as well as environmental development. Similar to the water crisis in the Gaza Strip today, the region will see more of such cases in the future: politically highly fragile and conflict-prone areas, densely populated with available water resources undrinkable or controlled by neighbouring states leading to a disastrous humanitarian situation, which in turn further deteriorates water security. Another worrying trend is the increased targeting of water infrastructures and the use of water as a weapon in violent conflicts that can be observed over the last decade, particularly in Iraq, Syria, Yemen or Libya.

In order to address the water challenges in the Middle East and avoid social hardships that might occur, several issues need to be simultaneously addressed. The complex water crisis requires an integrated response coordinated across actors, countries and policy fields, particularly against the background of various contextual factors, such as urbanisation or population growth. The response should include a political action, a broad range of technical solutions, as well as socioeconomic and behavioural changes. Policy-making has to take climate change and hydrological and environmental degradation into consideration. These developments require policy changes and technological innovation to better address the challenges in the water sector. Some action needs to be taken in the water sector, such as water infrastructure rehabilitation; other action at the interlinkages with other policy fields, such as irrigation for agriculture.

There is a special need to improve water policies and governance by water ministries and other ministries in the countries in the Middle East, for instance with integrated planning, considering quantities and quality of water. This requires also better maintenance and rehabilitation of networks, better management on the demand side and better regulation, for example through tariff systems and reforms for water supplies and particularly for irrigation. In addition, approaches must better link awareness, incentives for saving water and sustainable use, nature conservation and more sustainable strategies for economic development. Regional approaches and trans-boundary cooperation have to be stepped up, since conflicts between states, such as over groundwater between Israel and Palestine or immigration in Jordan, have the potential to further destabilise the region. The case of the Gaza Strip drastically illustrates to what extent political and security issues contribute to water (in)security. This link applies – to a lesser extent – to most of the water challenges and water conflicts in the region, on the inter-state as well as the domestic level. Often, there are other issues at stake, particularly national security and political rationality.

On the technical side, there is a need to develop more non-conventional water resources while guaranteeing a sustainable use of remaining resources. Jordan, for example, has

begun to control the pumping and pollution of groundwater more strictly. Moreover, the desalination efforts need to be expanded to meet the increasing drinking water demand, such as in Jordan. Similarly, for wastewater treatment should provide water for irrigation. Desalination efforts in the region, such as in Saudi Arabia, Qatar Israel and planned for Gaza, will be part of the solution. But while this can help to meet drinking water demands, desalination is not appropriate to deal with the water needs of agriculture – the largest user in the region, where massive quantities of fresh water are required for irrigation. Therefore, only holistic and integrated approaches, both on the technical as well as the political side, are able to address the enormous water challenges. Credible cooperation and knowledge exchange among all countries in the Middle East are needed to stop the ongoing downward trend in the water sector.

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Watering Down Tensions:
The Role of Securitisation in Water Cooperation

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Water Security and Challenges to Cooperation

Given the vital role of water for life and well-being, control over water represents a form of political power; water scarcity is an underlying cause of resource nationalism around the world including in the Middle East, making cooperation between nations difficult. This chapter analyses past attempts at international negotiations around water security, with a view to identifying lessons to be learned as guidance for the future. The chapter opens with a brief discussion of the phenomena of water security and securitisation/desecuritisation, focusing on the Middle East context. It then goes on to consider the possibilities for harnessing water securitisation to foster cooperation regarding water resources. Limited successes aside,[1] it can be observed that attempts (and failures) to achieve consensus in the region have been characterised by the absence of a role for civil society[2] in negotiations. The chapter therefore focuses on civil society as a missing element in previous cooperation attempts, evaluating the part it can play in sustaining dialogue and reaching (at least temporary) agreements.

There are many definitions of water security. Some focus on the availability of clean, safe, potable and sanitary water (e.g. Sikri, 2010); some focus on societal needs from an anthropocentric perspective (e.g. Kibaroğlu et al., 2007), while others try to adopt a more interdisciplinary definition emphasising the sustainability of an entire water basin's environment (as discussed in Cook & Bakker, 2012).[3] An interdisciplinary approach assumes that water, as a societal and environmental necessity, is both a public utility and a strategic resource. Terminology used by UN Water provides a general working definition of water security: "The capacity of a population to safeguard sustainable access to adequate quantities of acceptable quality water for sustaining livelihoods, human well-being, and socio-economic development, for ensuring protection against water-borne pollution and water-related disasters, and for preserving ecosystems in a climate of peace and political stability."[4]

Drawing on this conceptualisation, this chapter will adopt the following as its definition of water security: securing adequate access to water for human survival; ensuring adequate quality and quantity of water; and ensuring uses that simultaneously protect and sustain the ecosystem (see also de Loe & Kreutzwiser, 2007; Cook & Bakker, 2012; van Beek & Arriens, 2014). Water security, therefore, is closely related to public health, the environment, agriculture, and energy security (Kibaroğlu et al., 2007).

1 One example is the agreement signed in 2004 between Turkey and Israel as a result of the Water for Peace initiative. Another example is the Israeli-Jordanian Peace Agreement of 1994, which outlines water allocations for the two countries from the Jordan River.

2 This chapter adopts the definition of civil society used by EUR-Lex: "Civil society refers to all forms of social action carried out by individuals or groups who are neither connected to, nor managed by, the State." See the EUR-Lex Glossary of Summaries: Civil Society Organisation (https://eur-lex.europa.eu/summary/glossary/civil_society_organisation.html). Civil society therefore includes, but is not restricted to, non-governmental organizations (NGOs).

3 While Sikri (2010) and Kibaroğlu et al. (2007) are interpreted by the author as examples of what we might call the access to resources and the anthropocentric perspectives (respectively), this is not to suggest that they argue exclusively from these perspectives. Cook & Bakker (2012) offer a broad discussion of the concept and definition of water security.

4 See: https://www.unwater.org/publications/water-security-infographic/

Around the world, as well as in the Middle East context, many resources, including water, are perceived as strategic. In regions where water shortages are endemic, issues of access and use can become major sources of dispute and insecurity; examples of this stretch back to antiquity (Crawley, 2009). Given these tensions, water – as a basic necessity – can all too easily become "securitised" as a national resource, enmeshed in the rhetoric of resource nationalism as a way to secure safe access to clean water, seen as a prerequisite for national survival. Securitisation can also be used as a pretext for mobilising governments and societies into re-assessing perceived threats to the environment. Securitisation, by its very nature, can act as a barrier to cooperation as political rhetoric is ramped up in the face of perceived security challenges. In order to have meaningful cooperation and dialogue, a de-escalation in rhetoric is needed. However, while dialogue is difficult under conditions of securitisation, desecuritisation cannot occur without a change to the existing discourse. Whether securitisation or desecuritisation is perceived as more useful in particular circumstances, a range of political, economic and societal pressures on government are necessary. One influential driver of change, with regard to both governmental and regional risk assessment, is civil society. Whilst some attempts have been made to promote regional cooperation underpinned by the participation of civil society, these have typically occurred only at a late stage, limiting the potential influence of this important actor. This chapter argues that civil society can play a greater role in future cooperation and back-channel diplomacy.

Of course, the necessity of having safe access to strategic natural resources also applies to other resources such as energy (Sikri, 2010). For example, tensions over offshore hydrocarbons in the Eastern Mediterranean demonstrate how competition over natural resources can escalate tensions among regional neighbours (Goren et al., 2018). Deudney (1990) warns of the dangers of securitising key environmental issues. In the Middle East, the fragile political atmosphere puts an additional strain on the chances of cooperation that could lead to the development of interdependent relationships (Keohane & Nye, 2001). Sustained dialogue is a starting point, and a minimum condition for eventual cooperation.

In the context of water, and beyond the anthropocentric focus on the security of supply of individual countries, transboundary waters require a societally equitable approach to serve all populations of riparian states (referring to rivers) and littoral states (referring to lakes). In the Middle East, there are many such transboundary water issues; these include (but are not limited to) the Jordan (Urdun) River Valley; the Tigris-Euphrates river system; the Orontes (Asi) River; and the Nile. Israel, Turkey and Jordan are among the countries involved in some of the main water-related issues in the region. There are also

environmental challenges such as droughts and the water contamination risk in the Gaza Strip (Hermesh et al., 2019). This chapter examines political problems concerning cooperation by focusing on two examples of water initiatives: the Red Sea-Dead Sea Conveyor (RSDSC) and the Turkey-Israel Water for Peace (WfP) initiative (involving water from the Manavgat River). Before looking in detail at these two examples, the following two sections will briefly discuss the role of securitisation, and the chances of cooperation despite securitisation.

Securitisation and Desecuritisation

Like other forms of resource-based securitisation, securitisation of water is mainly triggered by scarcity, power asymmetry (Fischhendler, 2015; Fischhendler & Nathan, 2016) and negative background events; it is further encouraged by lack of trust, an inability to cooperate, and resource nationalism. It has a direct effect on water governance and management. Crisis situations such as wars, and natural disasters like droughts or floods, can serve to legitimise the usage of securitisation discourse. In such "crisis situations", matters of "national security" are invoked to empower political-security circles and to exclude civil society from policy-making (Fischhendler, 2015). Under such circumstances, cooperation related to shared resources may be difficult, and the absence of cooperation may in turn worsen environmental risks. Increasing water shortages not only have environmental consequences: in 2007, UN Secretary General Ban Ki Moon drew attention to the negative impacts of water scarcity on food security as well (Allouche et al., 2011).

The Copenhagen School was one of the first schools of thought to address desecuritisation. According to the Copenhagen School, securitisation is the process whereby states use security rhetoric (such as the "water wars" metaphor) to take extraordinary actions on subjects they wish to transform into a security matter (Buzan et al., 1998). Desecuritisation is the reverse process, in which high-profile issues, for which exceptional measures have been legitimised, are de-escalated and brought back into the sphere of normal politics (Waever, 1995; Buzan & Waever, 2003). Buzan et al. (1998) explain desecuritisation as the promotion of cooperation. Securitisation complicates cooperation over many natural resources: although Buzan et al. do not deal with water management per se, the logic of their argument suggests that cooperation on water resources can be achieved through desecuritisation: as rhetoric on water security de-escalates, room for cooperation expands because countries no longer feel the need to eliminate existing threats. Such desecuritisation of water needs to occur at various levels

– official, structural and cultural – in order to promote peace-building and efficient water management.

In exploring how water can become a source of potential cooperation instead of conflict, there is a shortage of examples of real success in the Middle East. Some of the typical challenges of water security in the Middle East include issues such as water scarcity for a growing population (as in Jordan); environmental urgency and tragedy of the commons (as in the shrinking of the Dead Sea); the situation of populations displaced by political crises (as in Syria, Iraq and Palestine); and the lack of trust that undermines the chances for cooperation in many parts of the Middle East. Widespread water scarcity in the region affects the issue of water security, making access to and possession of water a form of power and a symbol of prosperity. We can identify a range of indicators related to the securitisation of water, including: structural indicators (e.g. buffer zones around water infrastructure); institutional indicators (e.g. including the issue in high-level treaties/agreements; excluding civil society from decision-making); and linguistic indicators (the use of alarmist language invoking existential threat; narratives justifying military involvement, e.g. "water wars"). Water securitisation thus has the potential to create new disputes or exacerbate already existing conflicts, reducing the possibility of cooperation. In the context of the Middle East, analysing both securitisation and the difficulties of desecuritisation is necessary to assess the prospects for regional water-related cooperation and diplomacy.

Ability to Cooperate Despite, or Because of, Securitisation?

Since the Middle East is one of the most water-scarce regions in the world, water is often seen as a matter of national security. National governments contest and disagree on issues of usage, volumes, flows, and other rights and responsibilities regarding water. Water-related disagreements can be intertwined with highly controversial matters ranging from the Jordan River Valley to the occupation of the Golan Heights (both of which would remain under Israeli control according to President Trump's Vision for Peace; see White House, 2020, Appendix 1- conceptual maps).

Yet, against the odds, a certain degree of cooperation has arguably been achieved, and elements of limited progress can be observed. The RSDSC, for example, was an attempt at cooperation between Israel and Jordan following the 1994 peace treaty. Although it succeeded in establishing the principle of cooperation on water, and included this in the treaty, Fischhendler (2008) argues that the language of the treaty was left intentionally

ambiguous so that it could be presented differently to different domestic audiences rather than establishing definite terms of cooperation. In the WfP initiative, concerning the Manavgat River, the cooperating parties were Turkey and Israel, both of which had water-related disagreements with their neighbours.

In considering the chances of reaching a temporary agreement (a modus vivendi) in such cases, there are two competing hypotheses, which can be summarised as:
1) The ability to cooperate *despite* securitisation.
2) The ability to cooperate *because of* securitisation.

The first hypothesis suggests that cooperation can occur in spite of securitisation if governments take action to address urgent environmental challenges that can affect the safety and security of their citizens. This implies a move away from securitisation, towards cooperation and desecuritisation. On the other hand, it can be argued that securitisation – by assessing environmental challenges to be part of an immediate threat to society – can also mobilise governments to take action. This is the second hypothesis, in which cooperation is able to occur because of securitisation. In this hypothesis, environmental threats actually lead governments to collaborate. Importantly, regardless of whether mobilisation of governmental action is achieved through securitisation or through desecuritisation, the role for civil society is similar, i.e. influencing governments. Hence, the common aspect in these two competing hypotheses (whether cooperation can occur in spite of securitisation or because of securitisation) is the potential positive influence of civil society.

We will now turn to the two case studies already mentioned, in order to examine more closely the potential for cooperation on water in the Middle East: the RSDSC and the Turkey-Israel WfP initiative. These two cases revolve around concerns for the environment, people, and riparian states. They represent examples of limited progress resulting from recurring but irregular dialogue over a number of years. As the following section will show, an argument can be made for both of the explanatory hypotheses vis-à-vis the two chosen cases.

Water Security in the Middle East: Water for Peace and the Red Sea-Dead Sea Conveyor

The aim of this chapter is to make an assessment of lessons learned and explore linkages between cooperation and geo-politics to identify the opportunities that can emerge from

cooperation over water. Resources in the region can easily become securitised, in part due to political mistrust and rivalries. Water-related cooperation and international water regimes take time to establish. Yet, scarcity of water in the Middle East has led to various historical and more recent attempts to initiate cooperation and cross-border agreements. Given the many challenges to water security, the Middle East case studies highlight the role of securitisation (or desecuritisation) in achieving cooperation. The two main cases examined here demonstrate the missing component of institutional indicators mentioned in the previous section: civil society has been systematically excluded from high-level talks and the decision-making process. This was particularly clear in the case of WfP (Manavgat River) involving Turkey and Israel, when civil society made an attempt to revive the project in 2009.

The cases of the RSDSC and the WfP dialogue between Turkey and Israel were chosen for three specific reasons. First, they both involve Israel, which is at the heart of many water-related issues. Second, although neither initiative was successful, there were attempts to revive them, leading to dialogues that showed signs of more positive progress; both can be said to have achieved limited success at various points in time. Third, these are two initiatives that can potentially be revived again in the future. In light of the latter two points, it can be argued that these two cases – both undertaken in a region where water issues are highly securitised – suggest that water securitisation does not necessarily indicate a regional inability to cooperate on water (Kibaroğlu et al., 2008).[5]

The Red Sea-Dead Sea Conveyor Project: Jordan, Israel and Palestine

The RSDSC is a water project involving Jordan, Israel and the Palestinian Authority (West Bank and Gaza). The apparently contradictory statement that "the Dead Sea is dying" actually points to a broader environmental emergency caused by overuse of the water resources streaming into the Dead Sea from the Jordan River Valley, Sea of Galilee/Lake Tiberias, and other bodies of fresh water which feed into the Dead Sea. Ongoing dialogue between Israel and Jordan over the course of a decade suggests that there is no easy solution to this problem. The domestic politics of Israel, as well as its regional politics, are important reasons why the initiative has not yet been successful. The Jordanian government has a history of international cooperation and funding on other water-related initiatives such as the Disi Conveyor and As Samra wastewater facilities. Its willingness to remain engaged suggests that Jordan has not excluded the possibility of reviving talks, under the right conditions.

In relation to the role of securitisation, there is a history of contestation between Israelis, Palestinians and Jordanians. Among the contested issues, land rights and consequently

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5 In the words of Kibaroğlu et al. (2008, p.1): "…even the highly politicized and securitized environmental issues such as the water issue in the Euphrates Tigris can be approached in a sensible manner where the different phases of the dispute can be analyzed by acknowledging the cooperation and collaboration efforts in the basin."

water rights remain sources of dispute, with land and water seen as assets that need to be securitised. For all parties, control of natural resources, including water, is related to the safety and security of their communities. As a result, water has been historically securitised. For Israel, this quest for security is summed up by Twite (2009, p. 865) as the need to "[hold] on to as large an area of the land between the Jordan and the Mediterranean as is possible."

Successful examples of water cooperation beyond the Middle East region include agreements covering the Rhine, Danube, and Mekong Rivers (Milich & Varady, 1998; Finger et al., 2006; Jacobs, 2002). In these successful initiatives, riparian countries adopt shared principles for water management and engage in joint water-management projects. This has proved challenging to replicate in the Middle East. However, existing regimes and international law may serve as a basis for dialogue. For example, there are similarities in the Dead Sea case to conditions envisaged by the 1992 Helsinki Water Convention on the Protection and Use of Transboundary Watercourses and International Lakes (which entered into force in 1996). The sticking point here is that Israel, Palestine, Jordan and Turkey were not signatories to the Helsinki Convention. Similarly, the Convention on the Law of the Non-Navigational Uses of International Watercourses (drafted in 1997 and entered into force in 2014) could prove helpful, but while Jordan and the State of Palestine ratified the 1997 Convention, Turkey and Israel are not party to it. This reluctance on the part of some Middle East governments to participate reflects the securitisation of the water issue in their countries' foreign and national security policies. Nevertheless, these existing agreements could still be used as a point of reference to reach a temporary agreement (a so-called modus vivendi). A temporary agreement could, for instance, address immediate human and environmental challenges associated with the Dead Sea and Jordan River Valley.

Given the precarious state of the Dead Sea, there is an urgent need for collaboration: however, Arab-Israeli political differences have cast a shadow over attempts at cooperation. In order to prevent a "tragedy of the commons" situation, an interim solution is vital to feed the Dead Sea and reduce shrinkage. The RSDSC offers such an interim solution. The project originated in 2002 when King Abdullah II of Jordan initiated a dialogue with Israel's then President Moshe Katsav on the urgent matter of water withdrawal rates and shrinkage of the Dead Sea. This joint dialogue between Jordan and Israel was later expanded, on the World Bank's initiative, to include the Palestinian Authority (Hurt, 2018). The three objectives of the RSDSC are: "to save the Dead Sea from environmental degradation"; to "desalinate water/generate energy", providing potable water and affordable hydropower to the three parties; and to "build a symbol of peace and cooperation in the Middle East" (Allan et al., 2012).

However, not everyone agrees that the RSDSC is the desired solution. Certain groups of activists and researchers, such as the Society for the Protection of Nature in Israel, oppose the project claiming that such mega-projects pose major environmental threats by significantly altering nature. They advocate instead for the efficient and responsible use of water by all stakeholders (Fischhendler et al., 2015). The case of the RSDSC suggests the need for more active involvement of civil society, not only for re-starting dialogue but also for conveying to governments the urgency of the situation. Non-governmental organizations (NGOs) and civil society more generally represent the organised voices of citizens, putting social pressure on the decision-making processes of governments.

Jordan's past experiences of funding both the Disi Conveyor and the As Samra wastewater treatment project provide a relevant model for the involvement of NGOs and private companies in pro-peace initiatives.[6] The As Samra wastewater treatment plant in Jordan is one of the first examples in the Middle East of a major water treatment project incorporating financing from the host government, private lenders and investors led by the Arab Bank (Jordan), and international donors, such as the Millennium Corporation. The company's project share structure includes various international partners such as Suez Environment (Van den Berg et al., 2017). Such hybrid funding solutions can encourage civil society and business associations such as TOBB (the Turkish Union of Chambers and Commodities) in their efforts to support such initiatives.

The Disi Conveyor project brings water from a non-renewable aquifer in the Disi region to Amman (Van den Berg et al., 2017). While As Samra involved only one sovereign government, the Disi Conveyor project required agreement between Jordan and Saudi Arabia, since the Disi Aquifer lies on the border of the two countries. Jordan's experiences with the As Samra and Disi projects, including the use of international Build-Own-Operate (BOT) tenders, are encouraging. Such experiences enable an accumulation of know-how on sustaining dialogue with neighbouring countries and with project stakeholders such as multinational consortia partner companies and international donors. This know-how, in turn, gave the Jordanian government the necessary tools to initiate the RSDSC. However, the main reason behind the RSDSC project was the constant and growing pressure on Jordan's water resources. Jordan is one of the most water-stressed countries in the world. The average amount of fresh water available per capita is less than 150m^3 per year – one of the lowest levels of water availability per capita in the world (USAID, 2019). These limited water resources have been stretched still further by a massive influx of refugees into the already water-scarce region, as highlighted in Box B.1

6 Similar to the Industry for Peace initiative by TOBB-BIS, which also has a water-for-industry component.

HIGHLIGHT 1 (BOX B.1)
The impact of refugees on water-stressed regions (A background story)

Changing circumstances have added to the securitisation of water, with large numbers of refugees putting additional pressure on resources. The arrival of around 670,000 registered Syrian refugees has resulted in a 21% increase in water demand in Jordan, risking the rapid exhaustion of available water resources in the country (Van den Berg et al., 2017; UNESCO, 2019). As a result, availability of water dropped to approximately 100 litres per person per day (Alshoubaki & Harris, 2018). In this context, the realisation of the RSDSC project is seen by Jordan as vital for water security (Van den Berg et al., 2017); it also has an important economic role to play, as the costs of water and sanitation continue to rise (Alshoubaki & Harris, 2018).

Within the multi-stakeholder project environment of the RSDSC, the participation of civil society and NGOs (including water users' associations, environmental groups, refugee assistance and aid groups, etc.) could prove beneficial at various levels of project implementations. In fact, there are precedents for civil society and private groups playing a part in cooperation on the Dead Sea. According to Fischhendler et al. (2015), Jordan and Israel had agreed to cooperate on projects and activities in the Dead Sea (especially concerning the environment) as part of the 1994 Peace Agreement between the two countries. Notably, the Harza JRV Group was hired to conduct an extensive study on integrated development in the Jordan Rift Valley (JRV). The Jordan Rift Valley Integrated Development Study, published in 1996, reviewed five different canal and conveyor options. The studies concluded that the RSDSC was the most promising alternative. In 2005, an agreement was reached between Jordan, Israel and the Palestinian Authority to conduct further feasibility studies on the RSDSC option (Fischhendler et al., 2015).

The collaboration between the heads of state of Israel and Jordan on this project is an important element, and World Bank involvement indicates that progress was achieved at various levels over the years. The project was born out of a common concern. In terms of the two hypotheses mentioned earlier, securitisation played a role in the RSDSC project in that the Jordanian government was mobilised to act because of concerns about the environmental risk of water shortage. If NGOs and civil society become more involved, they may attempt to desecuritise water issues between Israel and Jordan, or they may try to make the governments cooperate *because of* securitisation by highlighting the immediate water shortage as a challenge for their security. Moreover, the shrinking of the Dead Sea means that more areas of land are exposed, which need

to be secured to stop illegal crossings, and also that more land becomes available, which will inevitably be contested. Hence it is not only water that represents a security challenge but also land: by securitising the matter and bringing it to governments' attention, civil society could potentially mobilise those governments to cooperate.

Water for Peace: Turkey and Israel

The governments of Israel, Jordan and Turkey all stress sovereignty and perceive the use of water resources as a matter of national security. This section examines an attempted cooperation on water between Turkey and Israel, which registered some achievements. As with the RSDSC, civil society can be seen as an important missing element in this project.

The Turkey-Israel WfP initiative, centred on the Manavgat River, began with exploratory talks between Israel and the Özal administration in Turkey in the 1980s ("Manavgat Barış Suyu'nu Kim İçecek", 2011) and involved an agreement by which Turkey would sell water to Israel. The water in question would have been treated at the treatment and filling facilities on the Manavgat River (MFA, 2006). It seems that Turkey's main interest was to have stable trading partners and markets for Turkish businesses. The initiative was therefore intended to promote peace and stability in the region, as a precondition for trade. Indeed, initiatives to sell water and to establish industrial zones were already among the initiatives undertaken by the Turkish government and civil society.[7]

With increasing droughts and water shortages in Israel at the end of the 1990s, Israel increased its consumption of transboundary waters to solve its problem, leading to heightened tensions between Israel and Syria, the Palestinian Authority, Jordan and Lebanon (Pamukçu, 2003). In 2003, Turkey and Israel reached a preliminary agreement on a 10-year contract to export 50 million m^3 of Turkish water to Israel per year. The parties agreed on a price of 23 dollar cents per m^3 – although Pamukçu (2003) argues that the Israeli side had an intention to reduce that price to around 5-10 cents without transportation and purification costs. Some Israeli officials, mainly from the Ministries of Agriculture and Infrastructure, believed that importing water from Turkey would be costlier than desalination and were concerned that Israel should not become dependent on an external country for such a vital resource. Other Israeli officials, mainly from the Ministry of Foreign Affairs, valued the initiative as a strategic partnership providing Israel with access to water that could be used as additional capacity (Pamukçu, 2003).

The WfP demonstrates that the success of water-related cooperation attempts between Turkey and Israel depended not only on economic conditions but also on the overall

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7 Besides the "water for peace" cooperation, Turkey has pursued similar "industry for peace" initiatives through the Union of Chambers and Commodity Exchanges of Turkey (TOBB). One example is TOBB's Industry for Peace plans to build a Turkish-style Industrial Zone in Jenin, a Palestinian city in the northern West Bank, in order to revitalise trade and industry between Turkey, Palestine and Israel (Sak, 2006; TOBB, 2016).

political atmosphere. Between 1997 and 2004, Turkish-Israeli collaboration was at its peak; technical work and infrastructure investments for the WfP were accelerated. By 2004, Turkey had completed a water treatment plant and filling facility on the Manavgat River at a cost of nearly USD 150 million, and an agreement was signed by high-level government officials of the two countries regarding the transportation of water from these facilities ("Manavgat Barış Suyu'nu Kim İçecek", 2011).

However, no water was actually transported between Turkey and Israel. The 2004 agreement was officially abrogated in 2006 by mutual consent (MFA, 2006). Although in subsequent years there were attempts to revive the agreement, especially by private companies and non-governmental entities from Israel, to date these attempts have not succeeded. In 2007, ministerial-level discussions aimed at rekindling cooperation took place between the Israeli Energy and Infrastructure Minister, Binyamin Ben-Eliezer, and the Turkish Minister of Energy and Natural Resources, Hilmi Güler. These discussions included water but also other items for potential cooperation such as oil and gas pipelines (Hürriyet, 2007). Such government-level initiatives are directly affected by bilateral political relations. Currently, the water treatment and filling facilities are in use, but not at optimal levels. They could be revived as an option on the table during a Middle East peace process, if ever this process is reinitiated.[8] The goal of promoting peace and security in the region was one of the motivations underpinning the WfP for both countries. It was this shared broader strategic driver, rather than profitability, that lay behind the initiative and the willingness to transport water between regional countries. However, a series of political incidents changed the course of Turkish-Israeli relations, turning them from cordial to frosty. Israel's operations in Lebanon in 2006 and in Gaza in 2008-2009 were milestones. Turkish-Israeli relations continued to worsen after 2009, and the WfP was shelved (Schleifer, 2011). Current difficulties concerning East Mediterranean gas exploration and pipelines are further complicating relations between the two countries.

Similar to the cooperation attempted by Israel, Jordan and the Palestinian Authority through the RSDSC project, the WfP collaboration between Turkey and Israel was also initiated at governmental level and enjoyed some successes at various stages. Another factor common to the two cases is the limited role played by civil society. Although civil society was involved in the attempt to revive the WfP initiative in 2009, its overall participation in the project was minimal. The project could largely be seen as a political message, indicating that both the Turkish and Israeli governments were ready to contribute to regional peace and security by sharing water resources in order to promote a peace agreement. As already suggested, some progress was achieved by the WfP over the years. The project was initiated between two governments that recognise each

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8 Similarly, Industry for Peace (mentioned above) remains an option, although it faces difficulties (TOBB, 2016).

other and that had in the past attempted to contribute to regional security through mutual cooperation. The WfP attempted to lessen tensions and desecuritise water as a contested regional resource. In that respect, although the WfP scheme is generally considered a failure, it is worth noting that facilities were built, and a successful agreement was reached in 2004, although never implemented. There are therefore grounds to believe that – like the RSDSC – it could be revived. The attempts of civil society to do exactly that in 2009 will be discussed in the next section.

The Role of Civil Society

Whether we are talking about securitisation or desecuritisation, civil society can play a pivotal role. Where desecuritisation is deemed to be desirable, civil society can actively remove the barriers erected by securitisation measures and put pressure on governments to increase levels of mutual trust and confidence, or to work through international organisations, businesses and civil society in order to achieve a common goal through various arrangements. Where securitisation is essential, civil society can still play a key role, not by dismantling securitisation but rather by using securitisation and the threat perception to mobilise governments to take immediate action to resolve environmental and water security challenges. Thus, both of the competing hypotheses outlined above foresee a pivotal role for civil society.

In the context of the two case studies, initial negotiations for both the RSDSC and WfP (Manavgat River) projects were conducted exclusively at the governmental level, with no participation by civil society. Although in the case of the WfP some part was played by civil society, and particularly the Jewish National Fund (JNF)[9] in attempts to revive the project in 2009 (Zion Waldoks, 2009), it can be observed that civil society had only a limited impact. Strengthening local communities and civil society and integrating them into decision-making processes could enhance water management and security. For example, some local communities have close relations with communities on the other side of state borders (Sümer, 2014), placing them in a potentially better position than their governments to find effective solutions to common problems. To achieve integrated water-resource management and prevent a "tragedy of the commons" scenario like that of the Aral Sea in Central Asia, the role of civil society needs to be promoted. Civil society can be a catalyst for the regional cooperation which is currently lacking. The activities and projects of civil society organisations (CSOs) such as EcoPeace, Israel/Palestine Center for Research and Information (IPCRI), and the Arava Institute for Environmental Studies, which promotes cooperation between Jordan, Israel and Palestine, are some

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9 The JNF is a non-profit organisation, but some may argue that it is not an NGO. This chapter adopts the broader term civil society (civil society); see footnote 2 for the definition of civil society.

examples of a bottom-up approach and the benefits of civil society dialogue. The capacity-building efforts of intergovernmental organisations (IGOs) such as the World Bank[10] and the Union for the Mediterranean (UfM)[11] are invaluable for societies in the Middle East. Given that water negotiations concern local people, the participation of citizens and civil society at all levels of these negotiations could contribute to the process and could further enhance cooperation (Hefny, 2011; Fischhendler, 2015).

Although both projects are currently in hiatus, the early experiences of RSDSC and WfP, based on dialogue and cooperation at official levels, suggest that at times of more clement political conditions, progress and collaboration can be achieved. While the current political climate does not seem conducive to cooperation, this does not mean that change is impossible. The literature on securitisation and desecuritisation does not preclude a greater role for civil society in the future. Track II diplomacy to promote cultural cooperation, in addition to official negotiations, can advance society-to-society dialogue, which would put pressure on official negotiations. Existing activities and reports of major developmental agencies suggest the potential for capacity-building among water users, as well as safeguarding the environment. Moreover, companies that have experience as major shareholders in the Disi project (such as the Turkish company GAMA), as well as contractors in various infrastructure projects, may have expertise and know-how that could be shared with civil society (Van den Berg et al., 2017). Leaders of private consortia have experience working with host governments, as well as international donors and financing, and could also offer guidance. Therefore, a new approach that includes increased involvement from civil society and from private companies could change the current dynamics, and have the potential to implement (at least temporary) agreements that provide political flexibility to governments that are not able to deal directly with all parties and stakeholders.

A Greater Role for Civil Society: Looking Ahead

Water-related cooperation in the Middle East has a poor success rate. On a more optimistic note, there are certain components within the projects attempted so far that might allow for a re-opening of dialogue, and non-governmental entities such as CSOs and private companies could become more actively involved in future dialogues and attempts to revive cooperative projects.

An important observation is that many of the unsuccessful attempts at cooperation to date took the form of bilateral government-to-government dialogue. This chapter argues

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10 For instance, in February 2020, the World Bank announced a USD 15 million grant to the Water Security Development Gaza Central Desalination Program Associated Works Phase I Project (World Bank, 2020).

11 The Union for the Mediterranean (UfM), together with other international partners like the EU and OECD, contributes to regional projects in various sectors including water. For example, the UfM held a Regional Conference on Governance and Financing for the Mediterranean Water Sector in Athens (28-30 October 2014). Water specialists and stakeholders from the Mediterranean region, including public authorities, civil society, and private sector representatives, attended this conference, which aimed to present the outcomes of the National Water Policy Dialogues conducted in Jordan and Tunisia (see UfM, 2015).

that involving non-governmental actors as well as IGOs may provide new dynamics and alternative mechanisms. IGO and NGO collaboration already plays an important role in international development, including in the field of water resources, helping many countries to develop their water sector and management capacities. IGO-NGO synergy can be key in allowing civil society to play a greater role in re-initiating dialogue but with a new dimension. Since IGOs involve other member states, there may be some resistance from national governments that are reluctant to involve external governments, particularly in the context of "securitised" issues that are considered crucial to national sovereignty. However, in fostering regional and bilateral cooperation, the IGO-NGO synergy may also play a role in trust-building by formalising and bringing transparency and accountability to civil society activities.

There are many ways that this new synergy can be employed. For instance, many IGOs have collaborated with NGOs on capacity-building, institutional support, and support to local development projects. The active involvement of NGOs in aid and relief efforts is a growing phenomenon, especially in providing relief in humanitarian crises. When governments are convinced of the transparency of such projects, recognising that they benefit and support their national development and domestic capacity-building, they may have stronger incentives to collaborate with IGOs and NGOs. In the cases reviewed in this chapter, the JNF attempted to revive the WfP initiative, while for the RSDSC, the World Bank (as an IGO) played an important part, and NGOs tried to promote collaboration. Beyond the two cases, we can observe TOBB-BIS as a business association's initiative to promote regional peace and cooperation. It is thus clear that civil society can contribute to regional capacity-building.

Domestic capacity-building in Middle East countries may include:
a. Governance and institutional capacity-building: regulators, ministries, municipalities etc.
b. Infrastructural and logistical support: water meters, water reserves and sanitation.
c. Private sector funding and investments: funding of water treatment and desalination projects jointly by national governments, IGOs and private funds, such as the hybrid funding (private sector, government, and international financing) of the As Samra project in Jordan.
d. Societal awareness: water conservation, drip agriculture, choice of crops.

Overall, the role of civil society in fostering efforts by regional players to meet amongst themselves and to initiate dialogue can be seen as an important missing component

in past attempts at cooperation. Although the current political conditions do not seem conducive to integrated water basin management among regional countries, it is vital that dialogue is maintained. Initially, sustained dialogue is important in coordinating efforts under emergency situations. In the longer term, it can contribute to building trust, and can potentially lead to interim but workable agreements, if not to permanent solutions.

The issue of water security in general cannot be dealt with exclusively through bilateral diplomacy, but also requires multilateral diplomacy and the involvement of IGOs such as the World Bank, the European Union (EU), and the UfM. This also applies to the Middle East, and particularly to the West Bank and Gaza. In these latter cases, water security is promoted by IGOs, while local NGOs have a history of collaborating with IGOs and helping in project implementation. Increased IGO-NGO collaboration in the Middle East region would strengthen civil society and support its input on water-related diplomacy and water security.

Significant interventions such as the RSDSC suggest that water-related projects can play a complementary role in peace initiatives and regional cooperation and diplomacy. NGOs cooperating with the EU and the UfM are active in this field, and are already collaborating with CSOs. The Middle East region is described as being poor in regional integration and other initiatives encompassing regional cooperation arrangements (Goren et al., 2018). Support to civil society by IGOs would not only promote capacity-building but also improve the status and reputation of CSOs vis-à-vis the public and regional governments. The efforts already made, as reviewed in this chapter, suggest that these interventions should be maintained and strengthened, as CSOs reflect the societal expectations of various different parties.

Conclusion

This chapter has demonstrated that past efforts at cooperation on water-related projects within the Middle East do not provide any clear success stories that can serve as a model for the region. Like many resources, water can be the subject of resource nationalism. However, sustained dialogue – both previous and ongoing – indicates that achieving cooperation is not inconceivable. Experiences between Turkey and Israel show that formal agreements can be reached and facilities built. Recent dialogue between Turkey and Iraq also shows positive signs, while relations between Jordan and Israel suggest that some temporary arrangements or modus vivendi to deal with urgent situations are possible.

Sustaining dialogue requires a stronger role for civil society, which can contribute to Track-II diplomacy and indirect arrangements between governments and societies that share water resources. There is a debate as to whether securitisation or desecuritisation approaches are more appropriate but, whether through securitisation or desecuritisation, the role for civil society is the same – to influence and pressure governments to take domestic or regional actions. Civil society can play an important role in mobilising public opinion by raising awareness, thus influencing governments on the urgency of the situation concerning shared water resources.

For domestic political or nationalistic reasons, many Middle East governments have not traditionally engaged in significant burden sharing; rather, there has been a tendency to see civil society activities as a threat to national security, especially when civil society groups and NGOs receive foreign funding. In that sense, cooperation amongst CSOs and with IGOs can play a role in capacity-building, as well as promoting transparency and accountability, which help to increase their credibility. IGO support can strengthen the reputation of CSOs in the eyes of the public and regional governments. Civil society can play a crucial role in Track-II and back-channel diplomacy; those with significant capacity can also contribute to the implementation of temporary arrangements and channel short-term collaborative actions rather than waiting for permanent international or regional agreements at government level. The activities of EcoPeace Middle East on such projects as Good Water Neighbours in the Kidron/Nar Valley show promise for an enhanced role for civil society (EcoPeace Middle East, 2016).

The analysis suggests that achieving full regional integrated water resources management of river basins is challenging, but past experience shows that, under the right conditions, governments can reach at least temporary agreements. Civil society is a resource that has been under-utilised in cooperative efforts to date, but the analysis suggests that, with support from international institutions, NGOs and other CSOs can play a key role in informing the public, raising awareness on the urgency of situations in terms of human and environmental risks, and protecting water resources. Civil society can also play an influential role in encouraging respective governments to reach short-term agreements for matters needing immediate action – a category that certainly applies to water management in the Middle East. It is important to recognise that CSOs cannot resolve all securitisation and desecuritisation challenges: civil society can only play a role indirectly in raising public awareness and influencing governments. It would take more significant long-term confidence-building between governments, and major changes in the political climate of the Middle East, for a more lasting modus vivendi to be established in the form of an international regime that could provide for long-term cooperation.

Nevertheless, the conclusion of this chapter is that civil society can play a pivotal role in advancing cooperation, and needs to be granted a place at the table. Given the opportunity, civil society activities can "water down" tensions, complement official diplomacy and become a source of cooperation rather than dispute.

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The Water-Energy-Security Nexus in the Middle East

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Water, energy and food are vital resources needed to face critical global issues of hunger, improving health and developing a sustainable economy. Each of these resources represents a complex aggregate composed of and influenced by a set of elements. Consequently, their management requires the consideration of several factors, such as technology options, fuel choices, resource availability and market considerations, which can all be affected by national resource policies. In addition to their own individual complexity, these resources are also interlinked: water is needed to produce energy; energy is required to extract, distribute and treat water; and food production demands both water and energy. The interdependence of these resources is commonly referred as the water-energy-food (WEF) nexus.

Recognising this, the policies that govern these resources are also interrelated. In many policy dialogues, the management of these interlinked resources is usually handled by separate institutions to facilitate decision-making in addressing sector-specific challenges and demands, an approach that overlooks the interdependences and interconnectivity of the resources.

The interlinkages between water, energy and food are especially evident in the Middle East, perhaps more than in other regions in the world. Generally, the region is notable for being energy intensive, water scarce, food deficient, and one of the most vulnerable to the impact of climate change (Lange, 2019). Despite those common characteristics, each country shows specific climatic, ecological and socioeconomic features, which influence the complex interactions of the WEF nexus and affect states' ability to meet their water, food and energy needs. As several nexus studies conducted in the Middle East point out, the need to meet the rapidly growing demand for water, energy and food in an increasingly resource-constrained scenario (FAO, 2018; Borgomeo et al., 2018), associated with WEF conventional policy and decision making in "silos", has fuelled a vicious circle that has ended up favouring trade-offs rather than amplifying synergies between sectors (Shannak, Mabrey & Vittorio, 2018). Furthermore, environment and security are strictly interlinked in the region implying the need to add the security dimension to the nexus.

This chapter has three main objectives. First, to analyse the water-energy (WE) nexus challenges and associated risks in the Middle East. Second, to describe what it actually means to render water and energy in terms of security exploring the water-energy-security (WES) nexus and the linkages between nexus and securitisation. Third, to highlight the opportunities in terms of water and energy security arising from turning the nexus into a virtuous circle. Results from case studies are also discussed.

The Water-Energy Nexus in the Middle East

In recent years, several academic studies have performed analyses on the WEF nexus in the Middle East. Mohtar and Daher (2014) created a WEF nexus modelling tool to quantify resource demand under different scenarios; Dubreuil et al. (2013), taking into account non-conventional water resources, developed an optimised model to assess the WE nexus; Saif et al. (2014), analysing the current state of water resources in the Gulf Cooperation Council (GCC), tried to detect the region's challenges in water-food security systems; Magazzino and Cerulli (2019) investigated the nexus among CO_2 emissions, economic growth and energy in ten Middle Eastern countries (GCC countries, Iran, Jordan, Syria and Yemen) for the period of 1971-2006.

The results suggest that water, energy and food are inextricably linked in the Middle East and the nexus is of paramount importance, given its influence on the region's stability and economic growth. Focusing the analysis on the WE nexus, what emerges is that water and energy are coupled in several ways and the nexus affects the extent to which the two resources can be simultaneously achieved.

While there are many ways to categorise the different types of the nexus linkages, the following three distinctions are identified: direct dependencies, direct competitions, externalities.

Direct dependencies are the most visible kind of relationship in the WE nexus, as energy is a key input in water production and water is a key input in energy production. Particularly, energy is used in the whole supply chain of water: water abstraction (pumping of groundwater), purification (desalination or wastewater treatment), distribution (transport via pipelines or in urban distribution) and disposal (onsite urban or industrial wastewater) require a huge amount of energy. The impacts of energy on water withdrawal, consumption and quality depend on the technology applied, the water source chosen and the type of energy used. It is estimated that in most of the Arab countries, the water cycle demands at least 15% of the national electricity consumption and it is continuously on the rise (Amer et al., 2017): as easily accessible freshwater resources are depleted, the use of energy-intensive technologies, such as desalination or more powerful groundwater pumping, is expected to expand rapidly. The Arab world is home to most of the world's desalination capacity, and the region's capacity is projected to increase more than five times by 2030, increasing total electricity demand for desalination in the region by three times. At the same time, water is required in most energy production processes: fossil fuel production requires water for extraction,

transport and processing; thermoelectric generation needs water for cooling; hydropower uses blue water available in rivers and artificial reservoirs; and renewable energy resources, such as solar, require water for cooling and cleaning panels or collectors for improving efficiency.

Direct competition between nexus components leads to trade-offs that must be considered when resources are scarce. Despite the extreme resource scarcity in the region, which would require important improvements in resource use efficiency, cross-resource use efficiency is generally low. Conventional sectoral approaches and the lack of integration and coordination between WE policies constitute the main drivers for inefficient resource management and cross-inefficiencies between sectors, fostering conflicts among users and the unsustainable use of natural resources. Traditionally, water and energy have been considered separately in planning investments: for each sector, regulatory frameworks, organisations and infrastructures address specific sectoral goals and challenges, neglecting the interdependence between demands and policy choices made in each sector.

The third type of relationship has not yet been well researched because externalities are both difficult to physically quantify and monetize. Despite these difficulties, externalities within the nexus are quite common and should not be ignored.[1] In the Middle Eastern countries, the prices of energy and water are strongly affected by subsidies, which do not reflect the relative scarcity of the resource, the cost of the service and the true economic relationship between resources. These market distortions, in addition to preventing cost recovery from infrastructure investments and operation, encourage higher consumption, inefficiencies, loss and waste, and high negative externalities. When subsidies within each sector are connected across the nexus, negative externalities and distortions can be multiplied (Kennou et al., 2018).

The WE nexus is further complicated by the fact that these resources are subject to exogenous variables that are highly dynamic over time and space and are especially important in influencing demand, distribution, availability and accessibility of resources within and between natural and social systems, i.e., population growth, migration, socioeconomic development and climate change. As the demand for resources increases with population growth and changing consumption patterns, not only do the nexus interlinkages intensify but also the risks to each other increase. Meanwhile, major global changes restrict the ability of existing systems to meet the growing demand in a reliable and affordable manner. Climate change is both affected by and affects the WE nexus

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1 In economics, an externality is the cost or benefit that affects a party who did not choose to incur that cost or benefit. Externalities often occur when a product or service's price equilibrium cannot reflect the true social costs and benefits of that product or service.

through multiple bidirectional interactions that intertwine within the web of WE interconnections. Middle Eastern countries contribute to anthropogenic global warming primarily by burning of fossil fuels: despite progress in the renewables sector, the share of fossil fuels in the energy mix is still significant, with oil accounting for 47% of the total energy, natural gas for 51%, and coal for 1% in 2017 (BP-British Petroleum, 2019). At the same time, climate change drives a series of phenomena that have negative impacts on water and energy security, exacerbating nexus conflicts within the region: rising temperatures, changes in precipitation patterns, extreme weather events and sea-level rise are all factors that have huge impacts on water and energy production and on the extent each sector interferes with the other. In addition, current sectoral approaches to climate change mitigation and adaptation may amplify rather than reduce negative externalities and trade-offs within the nexus. Low carbon transition and the shift to non-conventional water resources, both implemented to mitigate and adapt to climate change, are not always nexus-smart. For instance, the adoption of so-called "low carbon technologies", such as hydropower, first generation biofuels and thermal power coupled to carbon capture and storage (CCS) systems, has important water and energy trade-offs, while the production of unconventional water is usually energy-intensive.

A useful indicator to measure the availability and accessibility of the nexus resources in the Middle Eastern countries is the Pardee RAND FEW Security Index. It gives a holistic view of the current status of resource availability at the national level, helping to identify how different trends – for example, climate change or population growth – could affect the state of availability and accessibility of resources in the future. In the Middle East, the Pardee RAND FEW Security Index ranges between 0.27 of Yemen and 0.75 of Turkey.[2]

When considering the WE nexus within the Middle East region, it is important to be aware of another strong interrelation: that between security and environment. It is necessary, therefore, to re-conceptualise the nexus framework in terms of security exploring the water-energy-security nexus and the linkages between nexus and securitisation.

The Missing Link in the Nexus: The Security Dimension

The water, energy and security (WES) nexus refers to the connection between water and energy under the paradigm of security.

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2 The integrated FEW Index is comprised of three sub-indices (one each for food, energy and water) using an unweighted, geometric mean. The FEW Index ranges from 0.0 (lowest security) to 1.0 (highest security) (Willis et al., 2016).

In the last few decades a global debate has emerged on the connection between environment and national and international security and, most recently, due to the increased public awareness of climate change and its impact on human lives as a crosscutting concern, numerous studies have explored how competition over natural resources and ecological disasters may lead to human conflict, and how sustainable environmental agendas may promote peace (Ullman, 1983; Myers, 1989; Homer-Dixon, 1999). It is argued that the increasing pressures on the eco-systems in the long run might pose an equal risk to the security as military threats (Jägerskog, 2011). Experts have called for national security agendas to integrate environmental concerns (Floyd, 2008) such as water, food and energy scarcities, arguing that a failure to do so may lead to the eruption of conflicts that disturb the economic and political stability of states. In this sense, security is mostly defined as human security, encompassing a great variety of aspects, ranging from traditional military definitions to social, economic and welfare dimensions, including human health, political repression, crime, and environmental security. Buzan, Waever and de Wilde (1998) have argued that there has been a "widening" of the field of security studies in the last two decades, reflecting a rapidly changing international context, to include different sectors, such as military, political, economic, societal and environmental, which identify specific types of interaction. Other authors have also observed a deepening – from the "state" to other "referents" or levels of analyses – and a sectorialisation – energy, food, health, water, etc. (Brauch, 2003).

Defence and security institutions have traditionally not been involved in discussions about water and energy challenges to security, despite being a pressing security problem for state development or for regional integration processes. At the same time, water and energy professionals have not explored the security dimension connected to water and energy. The WES approach takes into account these explicit considerations which comprise this third dimension of the water, energy and security paradigm.

The WES nexus works in two directions: if, on the one hand, water and energy insecurity affects national and regional stability and security, on the other, peace and security concerns have a direct impact on water and energy management.

When looking at the Middle East, this bi-directional feedback of the WES nexus emerges clearly. The region is home to a number of fragile states and has been the showplace of a seismic wave of social uprisings, political repression and violent conflict. In recent years, Syria, Yemen and Iraq have all experienced violent armed conflict, while Jordan, Lebanon, Turkey and Egypt have been grappling with massive migrant waves, and Palestine and Israel have not yet reached a final peace agreement (EcoPeace, 2019). While none of

these conflicts arose solely or primarily out of issues of water and energy insecurity, many of them were amplified by lacking effective resource management. There is increasing evidence that an important catalyst behind the social discontent that led to the uprisings known as the "Arab Spring" was with differing degrees related to water, energy and food shortages, and the failure of governments to respond to the resulting crises (EcoPeace, 2018). The failure of the Syrian government to adequately respond to the prolonged drought that hit the region, as well as years of miscalculated national policies, led to a dramatic water crisis in the eastern area of Syria, with repercussions on the productivity of agricultural lands and a price increase of electricity, fuel and essential goods. The implications of the civil war in Syria were not confined to its national borders but have travelled across the region and even reached Europe in the form of a massive migratory influx, the largest since WWII.

While the interdependencies between water and energy security and regional and national stability can be traced and identified, another set of questions arise when national security concerns take over leading to resource securitisation. As shown in the next section, while in some cases security objectives ensure a synergistic effect on economic, equity and environmental goals, in other cases trade-offs between these two different policy objectives emerge (Fischhendler, Katz & Feitelson, 2016). The prevalence of synergies or trade-offs varies in time and in space as it depends on a number of contextual factors.

Securitising the Wen

Securitisation is about the political construction of a security matter. The focus is not on the threat or the referent anymore but on the process of making an issue a threat. The recognition of a threat to national security warrants emergency action and exceptional measures including the use of force. The securitisation process consists of changing the perception of an issue to reframe it as a security problem through discursive means. The direct consequence of securitisation is the change of the decision-making level, from traditional political spheres to the high political arena. Firstly, the issue goes to the top of the political agenda, which grants more resources; secondly, the importance of the issue limits the number of actors in the decision-making process; and, finally, the emergency aspect allows for exceptional measures.

In the Middle East, the most common example of securitisation of a natural resource is transboundary water. Water negotiations and allocations as a national security priority

have already been identified in various international river basins such as the Tigris and Euphrates (Schulz, 1995) and the Nile (Mason, 2004) and in the Mountain Aquifer shared between Israel and the Palestinians (Katz & Fischhendler, 2011). The recognition of interdependencies between access to water and conflicts can lead to water being perceived as a "national security" issue. The same process can apply to the securitisation of energy.

While the concept of water security has been generously explored in this volume, it would be expedient now to suggest a working definition of energy security. According to the International Energy Agency (IEA), "energy security is defined in terms of the physical availability of supplies to satisfy demand at a given price." Winzer (2011) suggests a definition that takes into consideration the notion of risks; in this sense, energy security can be described as "the absence of, protection from or adaptability to threats that are caused by or have an impact on the energy supply chain." Energy insecurity, therefore, is the prospect of interruption of supply or sudden price fluctuations that could result from political instability in oil and gas producing regions, oil nationalism or terrorism (Mabro, 2008). This focus on the threat/risk element allows a better understanding of the interlinkage with security, and thus on factors, such as water security, that are connected in a nexus with energy security. In addition, it also highlights how energy security can act as an important variable that may be subject to securitisation, while simultaneously influencing the securitisation of non-energy referent objects in other sectors, such as water. Energy security, therefore, should be seen in a more comprehensive "widened" cross-sector manner, as applied to water security.

At this point the question to be asked is whether the recognition of the existence of a nexus between water, energy and security can lead to a process of securitisation of the nexus itself. It is therefore necessary to understand whether water securitisation in relation to energy securitisation in the Middle East has occurred and whether it has resulted in some significant degree of policy action. As abundantly recognised in academic literature and policy-making, water resources in the Middle East have been highly securitised due to their extreme scarcity and their vital role in sustaining all sectors of life. In particular, in the context of the Arab-Israeli conflict, water issues have occupied a prominent place in the security agenda (Fischhendler, 2015; Sayed & Mansour, 2017). In the securitisation literature, however, there is little analysis of energy security, despite its clear interconnections with national and regional security, especially in the Middle East. Conventionally, energy insecurity is perceived as a high-stakes existential threat because of the immediate and severe impact it can have on the functioning of a state. In addition, it can affect processes of cross-sector securitisation by reinforcing existing

securitisation processes in the political, military and economic dimensions. In cases where the political and military sectors are highly securitised – as in the case of the Arab-Israeli context – energy can either become an additional contestation issue or can reinforce desecuritisation processes. Energy agreements, for instance, can contribute to cross-sectoral spillover, especially with respect to desecuritisation, as energy agreements tend to be long-term and usually lead to significant interdependence among the actors involved. High levels of interdependence tend to favour desecuritisation and normalised relationships in all sectors. For this reason, bilateral energy agreements – for instance between Israel and Jordan, Israel and the Palestinian Authority (PA) – can be seen as contributing to processes of desecuritisation under certain conditions.

When looking at water and energy security as linked in a nexus of interdependence, other considerations must be addressed. The two dimensions, although interlinked in a relation of interdependence, are not symmetrical, due to their inherent physical characteristics, production processes and costs, storage and conveyance modalities, different governance mechanisms, geopolitical value in the global arena, and other relevant factors. This implies that the two resources are considered as separate, and they intersect on an individual basis with the economic, political and military dimensions. However, as the two dimensions are interdependent, it follows that anything that threatens each element of the nexus can be perceived to be a threat to a state's security, meaning that threats to energy and water security can become threats to economic, political and national security.

Finally, while encouraging the integration of these sectors in policy-making can bring about better governance mechanisms, it can also trigger the transfer of water and energy matters into the security arena (Leese & Meisch, 2015). This process can have several repercussions. On the one hand, it facilitates the sense of urgency and the consideration of the WEN as a national priority, promoting measures to guarantee water and energy security. On the other, according to traditional notions of securitisation, it can also lead to the exclusion of other relevant stakeholders or fewer levels of cooperation amongst them both at the local/domestic level and the regional/international level. In addition, a highly securitised environment may be seen as riskier and not conducive to needed investment from the private sector. According to several authors, the impact of the securitisation process on cooperation and conflict has not been fully analysed and therefore the debate about whether it might have positive or negative implications is irrelevant (Fischhendler, 2015; Cook & Bakker, 2012).

To better comprehend the dynamics that this process could produce, it is necessary to frame it within specific contexts. Focusing the analysis on the region comprising Israel,

the Occupied Palestinian Territories and Jordan, what emerges is that environmental security is a complex issue. While many of the most pressing security concerns are environmental, it is clear that environmental degradation cannot be handled exclusively as a securitisation issue, but it must be constantly assessed to determine whether or not it should be placed on the security agenda. Even if the objective of moving water and energy into the domain of security is to foster effective mechanisms to swiftly counteract the increasing level of resource scarcity and mitigate the associated potential threats, the securitisation process is generally considered as a negative phenomenon that may cause fair resource governance, inefficient management, lack of cooperation between countries, exclusion of stakeholders from the decision-making process, weak science-policy dialogue, lack of transparency, and trade-offs with sustainability issues. All these concerns call for a desecuritisation process, which, conversely, may trigger a win-win situation enhancing sustainable economic growth, benefit sharing, and positive spillover effects on other securitised issues (Fischhendler, 2015).

The case of the Gaza Strip exemplifies the successful completion of a process of securitisation of the water-energy nexus, with implications at the national and regional level. In the last decade, Gaza has been experiencing a dire humanitarian crisis due to lack of clean water for domestic use and unsafe sanitary conditions. The Gaza water crisis is further aggravated by the lack of reliable energy supply, necessary to power desalination and wastewater treatment plants. On several occasions in the last few years, disputes between Hamas and the PA over the payment of the electricity costs led to drastic reductions of the power supply to Gaza. This fluctuation with regards to PA coverage of electricity cost in Gaza is bound to either the advancement or deterioration on the reconciliation efforts between the PA and Hamas. Energy and water security has therefore been highly securitised at the hands of the two Palestinian actors, with direct implications on public health and human security but also in relation to Israel's national security. Large amounts of untreated wastewater have already crossed Gaza's borders and created repercussions for several neighbouring communities in Egypt and Israel. The Israeli discourse on Gaza has traditionally revolved around conventional security threats emanating from the Strip, such as the construction of tunnels connecting Gaza to Israel or the periodic rocket launches and incursions by Hamas and other militant groups. However, a consensus has grown that the collapse of Gaza's civilian infrastructure and the impending humanitarian and environmental crisis could equally jeopardise Israel and the region's security. The water and energy crisis of Gaza has impacted Israel's understanding of broader security issues and directly led to changes in policy. Israeli Prime Minister Benjamin Netanyahu echoed this in a press statement in 2016: "When there is not enough water in Gaza, and Gaza is in the process of gradually

drying up, the aquifers become polluted and when the aquifers become polluted, this is not limited to the Gaza side of the aquifer. Therefore, it is in Israel's clear interest to deal with the water problem in the Gaza Strip. When there is not enough electricity, various problems arise, including those having to do with sanitation, and when there are outbreaks [of pandemic disease], the outbreaks do not stop at the fences. This is both a humanitarian interest and an outstanding Israeli interest" (Israel Ministry of Foreign Affairs, 2016). Netanyahu's statement can be seen as a securitising act of speech, aimed at moving water and energy issues from the realm of low politics and technical cooperation into the national security discourse. While the control of water resources in Israeli security discourse has always been seen as part and parcel of national security, technological advancement in the manufacturing of non-conventional water sources, both in the treatment and reuse of wastewater and in the development of seawater desalination, has led to the reinforcement of the nexus between water and energy. This has ground-breaking implications: on the one hand, it encourages the securitisation of the WEN by treating water and energy security as matters of national security; on the other, the production of new water means that advancing the resolution of Israeli-Palestinian water issues is not a zero-sum game anymore.

According to Nye and Keohane (1971), as a result of growing ties the transnational actors become mutually dependent, vulnerable to each other's actions and sensitive to each other's needs.

Sensitivity refers to the degree to which actors are sensitive to changes in a given issue area, while vulnerability refers to the extent to which actors are able to control their responses to the sensitivity. Vulnerability can be defined as an actor's liability to suffer costs imposed by external events even after policies have been altered. In an asymmetrical interdependence the weaker states are more vulnerable to the external changes because of the costliness of adjusting to the new changes. At this point another set of questions arises: what is the impact of the securitisation of the relationship of interdependence in the nexus between water and energy? Does this process lead to the creation of synergies and cooperation or trade-off and competition? Addressing these challenges implies a profound transformation in the interrelationships between water and energy in the Middle East, capable of turning the WE nexus from a vicious into a virtuous circle.

Turning the WE Nexus Into a Virtuous Circle

As has emerged in the previous sections, in the Middle East rapidly growing demand and the limited availability of water and energy are leading to increasing competition for

these resources. The effects of climate change pose an additional challenge, as temperature increases, sea level rises, and extreme weather events could further exacerbate this competition and seriously impede sustainable economic growth. So far, energy and water challenges have mainly been addressed within the sectors concerned. This has resulted in policies and strategies that focus primarily on individual sectors, rather than considering the broader cross-sectoral impact. This lack of coordination, dialogue and collaboration among sectors can significantly affect the efficiency and effectiveness of policies and may also prevent appropriate measures from being taken. In the Middle Eastern countries there is an urgent need to address several challenges simultaneously: achieve the Sustainable Development Goals, meet the mandate of a low carbon economy as stipulated in the 2015 Paris Climate Summit, and ensure water and energy security. The adoption of an integrated and holistic WE nexus approach, enhancing resource efficiency and equity, would provide an opportunity to minimise trade-offs and amplify synergies between sectors and prevent security threats.

A critical role in contributing to turn the WE nexus from a vicious into a virtuous circle can be played by technology and innovation. Particularly, the development of non-conventional water and energy sources, i.e., desalinated water and renewable energy, could address water and security challenges by combining economic efficiency and social equity under the constraint of environmental protection.

Since energy represents a critical factor in implementing climate change mitigation strategies and a key input along different stages of the water supply chain, the development of renewable energy technologies could provide integrated solutions able to enhance security and sustainability across sectors, while supporting global climate ambitions. The Middle Eastern countries have a high development potential in renewable energy, especially in the solar sector, due to the presence of vast desert areas with a solar radiation density between 1,300 and 2,500 kWh m^2 per year. The development of renewable energy not only may satisfy the growing demand for energy in those countries with a lack of oil reserves, but also improve the resilience and adaptive capacity of countries that, due to the scarcity of two strategic resources for human well-being – water and food – are more vulnerable to the impact of climate change. Generally, renewable energy technologies are less water intensive than conventional options. Water needs for solar photovoltaics (PV) and wind are negligible compared to conventional thermoelectric generation, withdrawing up to 200 times less water to produce the same amount of electricity. In addition to contributing to significant water savings, renewable energy can be used to increase non-conventional water supply, such as desalinated water, whose production is still affected by high economic and environmental costs, due

to the considerable amount of fossil energy necessary to feed the reverse osmosis. Improving efficiency, productivity and sustainability within the WE nexus where the components of the nexus are integrated as inputs to each other may mitigate trade-offs and amplify synergies between sectors contributing to their collective security and sustainability. These important outcomes can be further improved if conventional policy- and decision-making in "silos" give way to coordinated policies and development strategies. Furthermore, promoting science-policy-society linkages, including public and private sectors and civil society, in the nexus governance may create opportunities in sharing knowledge, generating better dialogue and bringing legitimacy and accountability to governing institutions.

Further arguments emerge when exploring the WE nexus within the "security triad" of water, energy and human security, as well as within the framework of securitisation of non-traditional threats. The nexus approach represents nothing more than an economic paradigm of resource scarcity management: starting from the assumptions of a global crisis with regards to water and energy and the strong interdependency among sectors, it suggests solutions of green and circular economy able to increase system efficiency, reduce trade-offs, and build synergies across sectors (Hoff, 2011). In addition, the nexus approach, increasing performances within sectors, creating cross-sectoral horizontal synergies and vertical synergies between different levels (international, national, regional and local) and across administrative boundaries (basin-wide, transboundary) can improve the availability of resources, contributing to water and energy security, as well as reducing their strategic value, facilitating the process of resource desecuritisation. The underlying assumption of the nexus is, in fact, to consider water and energy security not in terms of an exceptional state that must be countered through exceptional measures but as a national priority that has to be managed and mitigated by ordinary measures based on integrated and holistic approaches within the framework of green and circular economy (Leese & Meisch, 2015).

Projects based on a nexus approach are still at their early stages of development in the Middle East region. This is understandably due to the need for large capital investment, lack of know-how and of an enabling environment for innovation, and many other relevant factors. However, there are several good examples on the adoption of innovative solutions within the nexus in many countries. These include integrated seawater energy and agricultural system in the United Arab Emirates (UAE), Qatar and Oman; renewable energy for wastewater treatment and reclaimed water uses in agriculture in Jordan; solar desalination in Saudi Arabia; a landfill-gas-to-energy project and aquaponics-energy production in Lebanon (Halalsheh, Ouarda & Al-Jayousi, 2018).

The Pre-Feasibility Study for Mid-East Water-Renewable Energy Exchanges, carried out jointly by EcoPeace Middle East and the Konrad-Adenauer-Stiftung (2017), demonstrates the potential benefits when the nexus approach crosses national borders, prompting countries to cooperate to achieve greater economic efficiency in resource management. Particularly, the study involves three countries – Israel, Jordan and Palestine – in a cooperation model for the concrete application of the international trade theory of comparative advantages.[3] Given the constraints and threats in terms energy and water security and the disparities between countries in terms of factor endowments, the project takes as a reference states' relative abundance of resources to build a non-conventional water-renewable energy exchange model between Israel, Jordan and Palestine.[4] All countries will gain from this model of regionally integrated water and energy sectors, increasing interdependencies among countries, efficiency, equity and environmental quality.

Conclusions

In the Middle East, water and energy are strongly interlinked, perhaps more than in any other region in the world. Despite the extreme resource scarcity in the region, which would require important improvements in resource use efficiency, cross-resource use efficiency is generally low due to conventional sectoral approaches and the lack of integration and coordination between WE policies. The WE nexus is further complicated by several exogenous variables that affect demand, distribution, availability and accessibility of resources, such as population growth, socioeconomic development, and climate change. When considering the WE nexus within the Middle East region, it is important to be aware of another strong interrelation: that between water, energy and security. It is necessary, therefore, to re-conceptualise the nexus framework in terms of security exploring the water-energy-security nexus and the linkages between nexus and securitisation.

All these challenges call for a nexus thinking that tries to build an understanding of the synergies and trade-offs between competing demands for water and energy by moving away from a sectoral framing of resource management towards a more integrated

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3 The classical theory of comparative advantage was developed by David Ricardo in his *Principles of Political Economy and Taxation* (1817). This theory was meant to explain why countries trade and, based on the concept of opportunity cost, how the pattern of commerce and production is shaped by countries exporting goods in which they have comparative advantage and importing goods in which they have a comparative disadvantage. Ricardo's theory of comparative advantage, however, did not explain why the comparative advantage was the way it was. At the beginning of the 20th century, two Swedish economists, Eli Heckscher and Bertil Ohlin, presented a theory/model/theorem according to which the comparative advantages arose from differences in factor endowments between countries. Countries have a comparative advantage in producing goods that use up production factors that are relatively abundant locally. Consequently, countries would mostly export goods that used the abundant factors of production and import goods that mostly used factors of productions that are scarce.

4 As it emerges by the interplay of several geographic and socioeconomic factors, Israel and Palestine, having easy access to the Mediterranean Sea, show a comparative advantage in producing desalinated water, while Jordan, having a relatively large amount of unpopulated spaces suitable for generating renewable energy, shows a comparative advantage in producing solar. The underlying idea is that Israel and/or Palestine could produce desalinated water and supply it to Jordan, and conversely, Jordan could produce solar energy and supply it to Israel and Palestine.

perspective. Since energy represents a critical input along different stages of the water supply chain, renewable energy technologies, associated to non-conventional water sources, could provide integrated solutions able to enhance security and sustainability across sectors, while supporting global climate ambitions. In addition, the nexus approach, increasing performances within and between sectors, can improve resource availability, contributing to water and energy security, as well as reduce their strategic value, facilitating the process of resource desecuritisation without diminishing their relevance on the political agenda.

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EuroMeSCo

Founded in 1996 and comprising 102 institutes from 29 European and South Mediterranean countries, EuroMeSCo is the main network of research centres in the Mediterranean, striving at building a community of institutes and think tanks committed to strengthening Euro-Mediterranean relations.

The objectives of the network are to contribute to inclusive policy making and generate influential quality analysis and reflection on Euro-Mediterranean politics and policies, in particular in relation with economic development, security and migration issues; to serve as a platform for dialogue between the members of the network and key stakeholders to discuss the key trends and challenges on the region´s agenda.

The EuroMeSCo work plan includes a wide range of publications involving experts from both sides of the Mediterranean and including reactive and policy-oriented formats, as well as a number of activities including multi-stakeholders events and a specific scheme targeting young researchers.

IEMed.

The European Institute of the Mediterranean (IEMed), founded in 1989, is a consortium comprising the Catalan Government, the Spanish Ministry of Foreign Affairs and Cooperation and Barcelona City Council. It incorporates civil society through its Board of Trustees and its Advisory Council formed by Mediterranean universities, companies, organisations and personalities of renowned prestige.

In accordance with the principles of the Euro-Mediterra nean Partnership's Barcelona Process, and today with the objectives of the Union for the Mediterranean the aim of the IEMed is to foster actions and projects which contribute to mutual understanding, Exchange and cooperation between the different Mediterranean countries, societies and cultures as well as to promote the progressive construction of a space of peace and stability, shared prosperity and dialogue between cultures and civilisations in the Mediterranean.

Adopting a clear role as a think tank specialised in Mediterranean relations based on a multidisciplinary and networking approach, the IEMed encourages analysis, understanding and cooperation through the organisation of seminars, research projects, debates, conferences and publications, in addition to a broad cultural programme.

IPCRI
Center for Regional Initiatives

IPCRI is a joint Israeli-Palestinian public policy think tank and do-tank dedicated to the resolution of the Israeli-Palestinian conflict. Founded in Jerusalem in 1988, the center´s main aim is to promote cross boundary cooperation among and between Israeli and Palestinian civil society, government, business and academia.

IPCRI engages in applied and practical programs of cooperation across borders in a wide range of fields including security and strategic affairs, economic and trade policies, environment and water, education, and creating and supporting initiatives for innovative initiatives.

Arava Institute
مכון הערבה معهد وادي عربة

The Arava Institute for Environmental Studies (AIES) founded in 1996 is an environmental academic and research center in the Middle East, working to advance cross-border environmental cooperation in the face of political conflict. AIES houses accredited academic programs, research centers, and international cooperation initiatives focusing on environmental concerns.

AIES provides Israeli, Palestinian and Jordanian students and civil society actors with the opportunity to meet and learn about each other and the most pressing environmental challenges. AIES undertakes multidisciplinary environmental research around transboundary issues.