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A CONFLUENCE OF CRISES: ON WATER, CLIMATE AND SECURITY IN THE MIDDLE EAST AND NORTH AFRICA

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SUMMARY

● **The Middle East and North Africa region (MENA) faces simultaneous crises of security, water scarcity and climate change. They are interlinked—the water crisis is exacerbated by climate change and may fuel conflict, while insecurity is an obstacle to dealing with other pressing issues. Together, the three constitute a confluence of crises that need to be addressed together.**

Authoritarian and militarized governments in MENA countries repress public discourse and action related to water and climate crises, viewing critics as threats to national security. But the elite's own economic interests and role in the political economy make them vulnerable to the new risks and threats.

The water and climate crises are mostly transboundary and require states to act together. But by prioritizing narrow security interests, states accord weak mandates to regional institutions, preventing agreements on shared challenges. A regional security framework is needed, encompassing water, climate and the current conflicts.

I. Introduction

The growing challenge of climate change progressively undermines human security and contributes to factors that increase the risk of violent conflict.[1] Realizing the wide-ranging impacts, the United Nations Security Council has held a number of debates on how and where climate change increases risk to global peace and security.[2] Climate change is caused by emissions of heat-trapping greenhouse gases such as carbon dioxide and methane into the atmosphere, directly or indirectly generated through human activity. However, the necessary transformational change towards a low-carbon economy is not yet in sight; despite growing investments in renewable energy, the use of fossil fuels continues to increase.[3] In fact, carbon dioxide emissions reached a historic high in 2018.[4]

The impacts of climate change are particularly complex in the Middle East and North Africa (MENA).[5] It is a region with a diverse range of rich and poor countries, where fossil fuels have created deep dependencies among exporters as well as importers. The region suffers from violent conflicts and severe water scarcity, while climate models show more serious scenarios here than in other regions.[6] The security of the MENA region is inscribed in a new climate reality.

This paper argues that complex conflicts stand in the way of addressing the water and climate crises in MENA. For many people, poor governance,

[1] Adger, W. N. et al., 'Human security', eds C. B. Field et al., *Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* (Cambridge University Press: Cambridge and New York, 2014), pp. 755–91.

[2] Eklöw, K. et al., *Climate Security—Making it #Doable*, SIPRI and Netherlands Institute of International Relations 'Clingendael' Report (Clingendael: The Hague, Feb. 2019).

[3] Johnsson, F., Kjärstad, J. and Rootzén, J., 'The threat to climate change mitigation posed by the abundance of fossil fuels', *Climate Policy*, vol. 19, no. 2 (2018).

[4] International Energy Agency (IEA), *Global Energy & CO2 Status Report: The Latest Trends in Energy and Emissions in 2018* (IEA: Paris, Mar. 2019).

[5] SIPRI defines MENA as: (ME) Bahrain, Egypt, Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Oman, Palestine, Qatar, Saudi Arabia, Syria, Turkey, United Arab Emirates (UAE), North Yemen (–1990), South Yemen (–1990) and Yemen; (NA) Algeria, Libya, Morocco and Tunisia. See 'Regional coverage', SIPRI databases, <https://www.sipri.org/databases/regional-coverage>. In this report, reference is also made to countries where rivers flowing into MENA originate from.

[6] World Bank, *World Bank Group Climate Change Action Plan 2016–2020* (World Bank: Washington, DC, 2016).

massive displacement, corruption and injustice are more urgent issues on the regional agenda than current and future impacts of climate change. While there are attempts at conflict resolution, these are compartmentalized at best. Authoritarian and security-driven political orders run resource-related affairs based on their own interests, with limited attention to the water and climate crises. At a regional level, progress is hampered by the weak mandates that states have accorded to regional institutions. The preconditions necessary for tackling this confluence of crises seem absent.

The notion of confluence

The MENA region is experiencing deepening water scarcity and potentially catastrophic climate change impacts. These then interact with conflicts that are interconnected within the region. Together, the three issues constitute a confluence of crises that need to be addressed through one systemic approach for the identification of policy and strategy options.

None of the elements can be understood in isolation. The links among water scarcity, climate change impacts and insecurity are complex, diverse and multi-directional. The burden of climate change weighs heavily on communities already affected by water stress. Increasing competition over natural resources, particularly water, may add to existing tensions and cause new conflicts. Internal strife focuses attention on immediate military security threats and the need for protection from violence, away from the water and climate crises, while draining states and societies of their capacity to deal with the new risks.

None of the elements can be understood in isolation

The MENA region's growing dependency on a safe and regular imported food supply adds complexity. Its internal stability is therefore linked to the secure management of natural resources and political stability elsewhere, as well as to the expectation that growing import costs can be met. However, in many MENA states the space for public debate on all these issues is constrained by authoritarian regimes that control the use of national resources and revenue. Questioning the political order entails risks for citizens, researchers and the media.

Section II of this paper continues with analyses of the current water, climate and security crises in the MENA region and their interlinkages; section III explains the role of militarized and authoritarian governance in running state affairs and managing their own economic interests; section IV outlines national climate policies and how repressive means are used to stifle the water and climate discourse; and section V considers the deficient regional institutions in MENA. Section VI then concludes with a summary of the paper's findings and future challenges to inform policymakers and further contribute to addressing the MENA region's interlinked crises through a coherent approach. This work is based on a review of secondary sources and the author's experience in the region.

II. The water, climate and security predicament

Water

Over 60 per cent of the MENA population lives in areas with high or very high surface water stress, defined as more water being used than that being replenished, compared with a global average of about 35 per cent.[7] Except for Egypt, the region's countries are among the world's most water stressed.[8] Expected economic losses from water scarcity are estimated at 6–14 per cent of the gross domestic product (GDP) by 2050.[9] In the United Arab Emirates (UAE) and Saudi Arabia, 21 to 30 times more water is drawn from aquifers than is being replenished.[10]

Water from rivers and aquifers is used for agricultural, industrial and domestic purposes at unsustainable volumes. However, most water policy measures are aimed at increasing access through further exploitation of aquifers or desalination of seawater, rather than at saving water and ensuring efficient management. Few MENA states use pricing policies and incentives to encourage judicious water use. More than 80 per cent of the region's wastewater, which could be used for irrigation or industrial processes, is lost.[11]

No country is sovereign as far as its water resources are concerned. All MENA states share at least one aquifer, and some 60 per cent of the region's rivers and lakes cross borders.[12] But the resulting interdependence, where several countries use the same water resource, is not matched by corresponding agreements for joint management of transboundary water.[13] There are a few exceptions such as those between Lebanon and Syria, Jordan and Syria (both of which are hampered in their implementation by the Syrian crisis) and Jordan and Israel.[14]

Food

Diminishing water availability exacerbates regional food deficits.[15] Due to limited investments, growth in agricultural productivity has been sluggish over the past decades, except in Egypt. Although it contributes a limited share to GDP in the region, farming is still the lead employer in some of the most

[7] World Bank, *Beyond Scarcity: Water Security in the Middle East and North Africa*, MENA Development Series (World Bank: Washington, DC, 2017).

[8] Maddocks, A., Young, R. S. and Reig, P., 'Ranking the world's most water-stressed countries in 2040', World Resources Institute, Blog post, 26 Aug. 2015.

[9] World Bank (note 7).

[10] Aquifers refer to groundwater, which is recharged, and deep fossil water, which is not recharged. El-Keblawy, A., 'Greening Gulf landscapes: Economic opportunities, social trade-offs, and sustainability challenges', ed. H. Verhoeven, *Environmental Politics in the Middle East* (Oxford University Press: Oxford, 2018).

[11] World Bank (note 7).

[12] World Bank (note 7).

[13] Abdelraouf, M., *West Asia Regional Cooperation on Water and Sustainable Development Goal 6*, Emirates Diplomatic Academy (EDA) Insight (EDA: Abu Dhabi, Oct. 2018).

[14] Jägerskog, A., 'Are there limits to environmental peacebuilding? A critical reflection on water cooperation in the Jordan basin', eds A. Swain and J. Öjendal, *Routledge Handbook of Environmental Conflict and Peacebuilding* (Routledge, Taylor & Francis Group: London, 2018).

[15] United Nations Economic and Social Commission for West Asia (ESCWA) and Food Agriculture Organization of the United Nations (FAO), *Arab Horizon 2030: Prospects for Enhancing Food Security in the Arab Region* (United Nations: Beirut, 2017).

populous countries, such as in Egypt (28 per cent), Morocco (39 per cent), Syria (13 per cent in 2011) and Iraq (23 per cent).[16] With an annual population growth of 2 per cent, the second-highest rate in the world after sub-Saharan Africa, the MENA population is expected to nearly double between 2000 and 2050, meaning continued rising imports of food and virtual water.[17] Between 1990 and 2016 the gap between production and consumption of cereals grew from 30 to 100 million metric tonnes. In 2014–16, the region imported 65 per cent of its consumption in cereals and 25–35 per cent of the world's traded sheep meat, milk and wheat.[18]

Leasing or buying agricultural land in other regions is one of the strategies employed by countries of the Gulf to secure their food supply. These countries made one third of the 139 large-scale land acquisitions in Africa between 2009 and 2013.[19] This makes them dependent on imported food supplies, and also on the sustainable management, increased agricultural productivity and political stability in other countries and regions that are exposed to the impacts of climate change.

Climate change

The water and food security crises are exacerbated by the effects of climate change. Recent comprehensive assessments by the Regional Initiative for the Assessment of Climate Change Impacts on Water Resources and Socio-Economic Vulnerability in the Arab Region (RICCAR), led by the UN Economic and Social Commission for West Asia (ESCWA), provide climate models for the Maghreb, Mashreq and Gulf.[20] They estimate effects on the vulnerability of biodiversity, ecosystems, agriculture, infrastructure, health and employment, and the probability of extreme weather events.[21]

When compared to other regions, climate impact scenarios are generally more serious in MENA: temperatures will rise more and droughts will be longer, more severe and more frequent than the global average, with

[16] ESCWA and FAO, *Arab Horizon 2030: Prospects for Enhancing Food Security in the Arab Region. Technical Summary* (United Nations: Beirut, 2017).

[17] Population Reference Bureau, *Population Trends and Challenges in the Middle East and North Africa* (Population Reference Bureau: Washington, DC, Oct. 2001). Virtual water is the volume needed to produce a certain quantity of foodstuffs. A kilogram of wheat grown in the USA requires 850 litres of water; food imports thus mean simultaneous, large imports of virtual water. See Allen, T., *Virtual Water: Tackling the Threat to our Planet's Most Precious Resource* (I.B. Tauris: London, 2011).

[18] ESCWA and FAO (note 15).

[19] Messerli, P. et al., 'The geography of large-scale land acquisitions: Analysing socio-ecological patterns of target contexts in the global South', *Applied Geography*, vol. 53 (Sep. 2014), pp. 449–59.

[20] Regional Initiative for the Assessment of Climate Change Impacts on Water Resources and Socio-Economic Vulnerability in the Arab Region (RICCAR), *Arab Climate Change Assessment Report–Main Report*, E/ESCWA/SDPD/2017/RICCAR/Report (ESCWA: 2017, Beirut). RICCAR is a partnership between: ESCWA; the League of Arab States; the United Nations Office for Disaster Risk Reduction; the World Meteorological Organization; the FAO; the UN Environment Programme; the UN Educational, Scientific and Cultural Organization; the UN University Institute for Water, Environment and Health; the Arab Center for the Studies of Arid Zones and Dry Lands; the Swedish Meteorological and Hydrological Institute; and the German Corporation for International Cooperation GmbH. It is supported financially by Sweden and Germany.

[21] RICCAR, *Disaster Loss Data and Linkage to Climate Change Impacts for the Arab Region*, RICCAR Technical Report, E/ESCWA/SDPD/2017/RICCAR/TechnicalReport.3 (United Nations Office for Disaster Risk Reduction: Beirut, 2017).

knock-on effects on biological and social systems. [22] Projections show rapidly warming trends in an already hot and dry region. There will be a sharp increase in the number of warm days and nights and more days of extreme heat. If greenhouse gas emissions continue unabated, the warm spell duration index could reach 200 days, with average peak temperatures at nearly 50°C, by the end of the century.[23] The resulting heat stress will lead to severe impacts on human morbidity and mortality. Parts of the region could become uninhabitable for humans.[24]

Adaptive capacity and the quality of governance

One of the most important factors in assessing vulnerability is the adaptive capacity of affected societies, which is their ability to adjust to change, reduce risks and protect the population.[25] The adaptive capacity of a society results from having the right institutions, knowledge, technology, infrastructure, economic resources and level of equity. Institutional capacity includes the quality of governance, meaning voice and accountability, political stability, absence of violence, government effectiveness, regulatory quality, rule of law and control of corruption.[26] The existence of institutions able to resolve conflicts linked to resource scarcity and competition is a large part of adaptive capacity. In a region where many countries suffer insecurity, authoritarian governments and violations of human rights, the quality of governance is a highly problematic concept.

Institutions able to resolve conflicts related to resource scarcity are a large part of adaptive capacity

Vulnerability hotspots are found where adaptive capacity is low, particularly in the Horn of Africa, the Sahel and the south-western Arabian peninsula (Yemen). But even if adaptive capacity is high, it does not automatically mobilize in the face of new and unexpected climate-related stress. Without the right policies and governance, ready to take protective action, adaptive capacity becomes a necessary but insufficient factor. Climate response is ultimately subordinate to politics.[27]

Adaptive capacity is not static. In the MENA region, conflicts displace populations, destroy infrastructure and damage economies, thus reducing societies' adaptive capacity. The depth of these changes may determine if climate-induced stress escalates into a severe crisis. Conversely, adaptive capacity can be strengthened through institution-building, providing access to resources and increasing political stability.

[22] World Bank, International Finance Corporation and Multilateral Investment Guarantee Agency, *World Bank Group Climate Change Action Plan 2016–2020* (World Bank: Washington, DC, 2016).

[23] RICCAR (note 20).

[24] Pal, J. S. and Eltahir, E. A. B., 2016, 'Future temperature in southwest Asia projected to exceed a threshold for human adaptability', *Nature Climate Change* vol. 6, (2016), pp. 197–200.

[25] Adger, W. N. et al., 'Assessment of adaptation practices, options, constraints and capacity', eds M. L. Parry et al., *Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change* (Cambridge University Press, Cambridge, 2007), pp. 717–43.

[26] Based on an index developed by the World Bank, see <http://info.worldbank.org/governance/wgi/#home>.

[27] Sellwood, E., *A Tougher Climate in the Eastern Mediterranean: Policy Directions in the Context of Climate Change and Regional Crisis*, Re-imagining the Eastern Mediterranean Series: PCC Report 1/2018 (Friedrich Ebert Stiftung and Peace Research Institute: Nicosia and Oslo, 2018).

A history of conflict and insecurity

The above-mentioned water stress and climate change impacts are imposed on a region already struggling with entrenched conflict. For decades, and notwithstanding for example the Iran–Iraq War (1980–88) and the Lebanon (1975–90) and Algeria (1991–2002) internal wars, conflict in the MENA region was mainly associated with the Israel–Palestine conflict. But the United States invasion of Iraq in 2003 and the Arab upheaval unfolding in 2011 revealed new fault lines emerging from historic depths. States and non-state actors pursued their interests across borders, creating a web of complex and intersecting conflicts. Hundreds of thousands of people have been killed and millions displaced in the MENA region since 2003.[28]

In an attempt to understand the complexity of conflicts in the Middle East, Hiltermann identified five clusters: (*a*) Arab order/disorder, originating in the dysfunctional post-World War I state system; (*b*) the Israeli–Arab conflict; (*c*) Sunni–Shiite tensions, triggered by the 1979 Islamic Revolution in Iran; (*d*) Sunni radicalization; and (*e*) the 2011 uprisings and their aftermath.[29] Dynamics within these clusters are influenced by regional rivalries among Turkey, Iran, Saudi Arabia and Israel, and by the involvement of external powers: the USA, Russia and the European Union. In Syria all five clusters converge and all regional and external powers active in the region are present, physically or through proxies.

Yet, in 2019 the Israeli–Palestinian conflict is regularly debated by the Security Council in sessions still entitled the Middle East Peace Process (MEPP) as if this was the only conflict in the Middle East. The reality of conflicts in the region, and the various crises (in Syria, Iraq, Yemen and Libya) on the Security Council's agenda, make MEPP an increasingly misplaced acronym.

The fear that fractured states within borders once drawn up by colonial powers would disintegrate due to the post-2011 upheaval has not materialized. Instead, there seems to be a tendency away from central control. In Tunisia decentralization is a prominent part of the democratic reform process launched in 2011 and enshrined in the 2014 constitution.[30] Kurdish areas in post-conflict Iraq and post-2012 Syria have become formally or de facto autonomous regions, while Idlib province in Syria remains outside of government control.[31] In Libya, where municipalities already play an important role in providing services independently of any central authority, decentralization has been proposed as the best option in reaching national

States and non-state actors pursue their interests across borders, creating a web of complex and intersecting conflicts

[28] Lynch, M. and Brand, L. 'Refugees and displacement in the Middle East', Carnegie Endowment for International Peace, 29 Mar. 2017.

[29] Hiltermann, J., *Tackling the MENA Region's Intersecting Conflicts* (International Crisis Group: Brussels, 22 Dec. 2017).

[30] Alizira, F., 'Decentralization in Tunisia: Its utility and competing visions for implementation', eds K. Mezran and A. Varvelli, *The Arc of Crisis in the MENA Region. Fragmentation, Decentralization and Islamist Opposition*, Italian Institute for International Political Studies and Atlantic Council (Ledizioni LediPublishing: Milan, 2018).

[31] Hiltermann, J., 'The MENA region's intersecting crises: What next?', *Global Policy*, Special Issue Article, 23 May 2019. On Idlib, see Gopal, A., 'Syria's last bastion of freedom', *New Yorker*, 10 Dec. 2018.

stability.[32] If recentralization in these and other cases is unlikely to happen, local governments with direct accountability to citizens may constitute a new socio-political factor.[33] If sufficiently resourced, this could potentially mean the empowerment of local institutions that are important in building contextually relevant adaptive capacity to the impacts of climate change.[34]

Water- and climate-related pathways to insecurity and conflict

In certain contexts, and under some circumstances, effects related to climate change may exacerbate existing tensions and influence other causal factors in a way that increases the risk of conflict.[35]

The notion of pathways has been used to signify phenomena that may be of special importance as part of climate-triggered dynamic change with violent outcomes. The erosion of livelihoods in societies that fail to offer protection seems to have a special role. In East African contexts characterized by interaction between pastoral and sedentary communities, van Baalen and Mobjörk identified four such pathways under climate-related resource scarcity: worsening livelihood conditions, increasing migration, changing pastoral mobility patterns and elite exploitation of local grievances.[36]

In a recent general overview, Busby noted five causal pathways: agricultural production and food prices, economic growth, migration, disasters, and international and domestic institutions.[37] Both studies gave special significance to the role of institutions in providing services and resources and in mediating and resolving resource conflicts.

In the MENA region, research on climate–conflict linkages has narrowly focused on the role of drought in the Syrian uprising, and soaring food prices in Egypt in the run-up to unrest during the Arab Spring.[38] But the issue needs to be framed in a larger political and economic context. In a region where food, energy and water subsidies are more extensively used than in other regions, any effort at entering into a more sustainable path of resource use, or adapting to reduced state revenue by employing price instruments and reducing subsidies, is fraught with the risk of conflict and violence if not

[32] Mezran, K. and Neale, E. A., 'Decentralization: The last resort for Libya?', eds Mezran and Varvelli (note 30).

[33] Hiltermann (note 31).

[34] Agrawal, A., 'Local Institutions and Adaptation to Climate Change', eds R. Mearns and A. Norton, *Social Dimensions of Climate Change: Equity and Vulnerability in a Warming World* (World Bank: Washington, DC, 2010).

[35] Van Baalen, S. and Mobjörk, M., 'Climate change and violent conflict in East Africa: Integrating qualitative and quantitative research to probe the mechanisms', *International Studies Review,* vol. 20, no. 4 (10 Dec. 2018), pp. 547–75; Schaar, J., *The Relationship between Climate Change and Violent Conflict*, Sida, Green Tool Box/Peace and Security Tool Box: Working Paper, 2017; and Seter, H., 'Connecting climate variability and conflict: Implications for empirical testing', *Political Geography*, vol. 53(2016), pp. 1–9.

[36] Van Baalen and Mobjörk (note 35).

[37] Busby, J., 'Climate and security: Bridging the policy-academic gap', Peace Research Institute Oslo (PRIO) blog, 15 May 2018.

[38] Smith, D. and Krampe, F., 'Climate-related security risks in the Middle East', eds A. Jägerskog, M. Schulz and A. Swain, *Routledge Handbook on Middle East Security* (Routledge, Taylor & Francis Group: London, 2019).

accompanied by targeted social protection measures to counter the risk of increased vulnerability.[39]

A general question is whether the mix of water and climate crises and the high degree of regional tension leads to MENA-specific climate–conflict pathways. The answer requires an analysis of how governance and institutions in the affected states can be expected to respond to the new challenges.

III. The political economy: militarization and authoritarian governance

Responses to the water and climate crises in MENA states are rooted in their political economy. Governance, power structures and the relationships between rulers and ruled are closely linked to the security elite's involvement in the economy.

In the oil-producing rentier states, as well as states that depend on them financially, the dependence on revenue from oil undermines the development of a diversified and productive economy, market mechanisms and institutions.[40] This leads to an allocative system for distribution of resources and benefits to citizens.[41] Tax collection is not a priority, and the pressure of taxpayers on accountable government is absent.[42] Rather than a social contract where citizens give political acquiescence in return for security and the provision of services, the relationship in the rentier states is closer to submission, with an inherent threat of repression against dissatisfied citizens openly expressing grievances.[43] Horizontal and democratic civil society organizations are perceived as threats to the established order; instead, the states favour vertical social structures such as clans, sects and ethnic groups.[44]

The role of the military

The military has been part of power structures in most MENA states to varying degrees. In Egypt and Algeria the military has played a foundational role in nation building, and it has never been far away from power in republican states such as Syria and Iraq. In the monarchies of Morocco and the Gulf states, senior military personnel are appointed by the royal families. Tunisia is an exception in that the military has never played a leading role,

[39] Woertz, E., *Oil for Food: The Global Food Crisis and the Middle East* (Oxford University Press: Oxford, 2013); and Hossain, N. et al., *Energy Protests in Fragile Settings: The Unruly Politics of Provisions in Egypt, Myanmar, Mozambique, Nigeria, Pakistan, and Zimbabwe 2007–2017*, Institute of Development Studies Working Paper 513 (Institute of Development Studies: Brighton, 2018).

[40] The concept of rentierism in the MENA region was developed by Beblawi and Luciani. See Beblawi, H. and Luciani, G., 'The rentier state in the Arab world', ed. G. Luciani, *The Arab State* (Routledge: London, 1990).

[41] Al-Razzaz, O. M., *The Treacherous Path Towards a New Arab Social Contract* (Issam Fares Institute for Public Policy and International Affairs, American University of Beirut: Beirut, Nov. 2013).

[42] Jewell, A. et al., 'Fair taxation in the Middle East and North Africa', International Monetary Fund (IMF) Staff Discussion Note, SDN/15/16, Sep. 2015.

[43] Al-Razzaz (note 41).

[44] Al-Razzaz (note 41).

and also did not attempt to protect the Ben Ali regime when the popular revolt unfolded in 2011.[45]

High military spending is a distinguishing feature of the MENA region. In 2018 Saudi Arabia ranked as the third-highest spender in the world, with an estimated $67.6 billion or 8.8 per cent of its GDP used on its military.[46] The global average was 2.1 per cent. Using national resources on military expenditure tends to crowd out investments in the social sectors, particularly health.[47] Imports of advanced military technology have not translated into growth in other sectors. In countries where applicable, the high level of conscription has not been used as a human resource pool to be developed through investments in the education of conscripts.[48]

The military has become a prominent economic actor in its own right in several MENA states

The military has become a prominent economic actor in its own right in several of the republican MENA states. The size of its involvement and details of its control are obscure, and estimates vary widely with regard to its part in national economies. In Egypt the military has gained control over manufacturing companies and has secured government contracts, which fuel corruption, distort markets and create inefficiencies. Estimates of the value of Egypt's 'Military Inc.' vary widely, from 5 to 40 per cent of the economy.[49]

The Islamic Revolutionary Guard Corps in Iran oversees large economic holdings. Credit institutions under its control represent a quarter of all banking activity and allegedly launder money from drug, fuel and alcohol smuggling.[50] There are estimates that the economic volume of the security–industrial complex corresponds to 40 per cent of GDP—a figure to be viewed with caution given the lack of transparency.[51]

The military and climate change

Any economic actor is exposed to emerging climate-related uncertainties that may undermine economic opportunity and increase investment risk. This could have implications for the military's understanding of climate change impacts and vulnerabilities in the future. An increasing frequency of extreme weather events and further decline in oil markets due to a surge in renewable energy investments could undermine the economic interests of the elite and ultimately the political order.

A recent analysis argued that the decline in oil prices and revenue since 2014 erodes the social contract upheld through benefits and subsidies while reducing the large financial support from oil-producing to non-oil producing countries in the region.[52] If not met by reforms towards a new social contract and productive economies, the region could face a new wave of

[45] Masri, M. S., *Tunisia: An Arab Anomaly* (Columbia University Press: New York, 2018).
[46] Tian, N. et al., 'Trends in world military expenditure, 2017', SIPRI Fact Sheet, May 2018.
[47] Cammett, M. et al., *A Political Economy of the Middle East*, Fourth edn (Westview Press: Boulder, CO, 2015).
[48] Cammett (note 47).
[49] Cammett (note 47).
[50] De Bellaigue, C., 'Half-baked revolt in Iran', *New York Review of Books*, vol. 65, no. 3 (2018).
[51] Cammett (note 47).
[52] Muasher, M., 'The next Arab uprising: The collapse of authoritarianism in the Middle East', *Foreign Affairs*, vol. 97, no. 6 (16 Oct. 2018).

uprisings. Many MENA states try to use targeted social support to replace energy subsidies, while increasing repression against public expressions of discontent. It remains to be seen how elastic the social contract is in rentier oil-producing states, where the population has no experience of alternatives, and where relationships between rulers and ruled have historic roots in a pre-oil society.

As an omnipresent actor in the MENA rentier political economy, the security elite has high stakes in governance and profound economic interests. Repression protects it from discontent and opposition, leading to resistance of information and analysis that questions the current development course, as discussed in the following section. But the water and climate crises expose the elite to new risks and threats. Their realization of this situation could potentially open avenues for dialogue and policy debate.

IV. Climate policies

The climate policies of MENA states reflect the dominant role of hydrocarbons in the region, both as the main export commodity of Gulf states and the dependence on fossil fuel imports among other states. At the 21st session of the Conference of the Parties to the UN Framework Convention on Climate Change in Paris in 2015, UN member states agreed to express their individual voluntary commitments to reduce emissions and to increase their ability to adapt to the adverse impacts of climate change as nationally determined contributions (NDCs). The registry of NDCs is the most comprehensive source of climate policies, allowing for comparisons among states.[53] For MENA states, the climate narrative differs markedly for oil producers, non-oil producers in relative stability and countries in conflict.

Oil producers in the Gulf have the most wasteful energy policies in the world, the highest energy consumption per capita, the highest energy subsidies and the lowest level of renewable energy use.[54] They have submitted brief NDCs with few details or quantitative targets.[55] Their climate policies are inscribed in a framework aimed at diversifying economies to reduce the dependence on volatile revenue from oil exports, and to reduce the domestic dependence on hydrocarbons as the main source of energy.

Planned greenhouse gas emission reductions among Gulf Cooperation Council (GCC) countries are focused on increasing energy efficiency using readily available technologies, and using pricing policies to encourage savings.[56] Ambitious plans for wind and solar infrastructure are under way. The UAE is in the lead, seeking to portray itself as a champion of sustainability

[53] All NDCs can be found at <http://www4.unfccc.int/ndcregistry/Pages/Home.aspx>. The Climate Watch portal, managed by the World Resources Institute, provides a tool for comparative analysis of all NDCs, <https://www.climatewatchdata.org/>.

[54] ESCWA, *Arab Region Progress in Sustainable Energy. Global Tracking Framework Regional Report*, E/ESCWA/SDPD/2017/2 (United Nations: Beirut, 2017).

[55] See e.g. UN Framework Convention on Climate Change (UNFCCC), 'The Intended Nationally Determined Contribution of the Kingdom of Saudi Arabia under the UNFCCC', Riyadh, Nov. 2015; and UNFCCC, 'Intended Nationally Determined Contribution of the United Arab Emirates', 22 Oct. 2015.

[56] Energy efficiency is a measure of the amount of energy needed to produce a given unit of production or services.

and renewable sources of energy, despite its continued dependence on exports of fossil fuel.[57]

Although the Gulf is also highly dependent on food imports, the UAE is the only country that mentions projects to strengthen food security as part of its climate policies, which may be a reference to its large investments in agricultural land in Africa.[58]

Climate policies of the high-population countries Iraq and Iran (which are rich in fossil fuels) are affected by their political circumstances.[59] Iraq's NDC is available only in Arabic, and is therefore difficult to access internationally, and contains few details. Iran emphasizes the growing burden of droughts and dust storms, but argues that mitigation and adaptation measures related to climate change require the absence of any forms of restrictions and sanctions.

Climate policies from the resource-poor oil-importing countries are very different from the brief NDCs submitted by the oil-exporting MENA states. Morocco and Tunisia stand out, even in a global comparison, in terms of ambition, clarity of strategy and concrete targets for energy efficiency, renewable energy and climate adaptation.[60] Both countries are already highly exposed to reduced rainfall, which undermines water availability and agricultural productivity, while being heavily dependent on fossil fuel imports. Both countries demand international support for their massive adaptation needs.

The climate narrative differs markedly for oil producers, non-oil producers in relative stability and countries in conflict

The two countries have enacted legislation to anchor their climate policies. In Tunisia this is framed within the new 2014 constitution, and Morocco has established special constitutional provisions. Both countries have created institutions to promote and regulate the expansion of renewable energy, in Morocco's case providing a platform for the ambition to play an international role.[61]

No climate policies were submitted by Syria and Libya, both in internal conflict, while Yemen referred to future studies to develop its NDC due to the current challenging situation, including political turmoil and armed conflict.[62]

Nuclear power

Nuclear power is increasingly part of the political vision of MENA states, aimed at meeting rising demands for electricity and increasing energy

[57] ESCWA, *Case Study on Policy Reforms to Promote Renewable Energy in the United Arab Emirates*, E/ESCWA/SDPD/2017/CP.8. (United Nations: Beirut, 2018).

[58] UNFCCC, 'Intended Nationally Determined Contribution of the United Arab Emirates (note 55).

[59] For NDCs of both countries, see the Climate Watch portal (note 53).

[60] UNFCCC, 'Morocco. Nationally Determined Contribution under the UNFCCC' Sep. 2016; and UNFCCC, 'Intended Nationally Determined Contribution, Tunisia', Tunisian Ministry of Environment and Sustainable Development, Aug. 2015.

[61] ESCWA, *Case Study on Policy Reform to Promote Renewable Energy in Morocco*, E/ESCWA/SDPD/2017/CP.6. (United Nations: Beirut, 2018).

[62] Climate Watch, 'Republic of Yemen, Intended Nationally Determined Contribution (INDC) under the UNFCCC', 21 Nov. 2015.

security by reducing the dependence on fossil fuels.[63] Fifteen states are considering nuclear energy programmes, six of which have material proposals or actual plans for building reactors.[64] However, political instability, a lack of scientific expertise, the absence of grid infrastructure and unreliable suppliers make nuclear plans high-risk and high-cost ventures in the region according to several analysts.[65] Nuclear power raises the risk of nuclear arms proliferation in the light of the Saudi Arabia and UAE positions vis-à-vis Iran.[66] This comes after the US withdrawal from the Joint Comprehensive Plan of Action on Iran's nuclear armaments and in the absence of an agreement of a zone free from weapons of mass destruction in the region.[67]

Historically, the USA has dominated global exports of nuclear technology. However, in the MENA region, Russia and China are increasingly providing the technology, partly at concessional rates, and with limited restrictions to prevent the risk of civilian technology being transformed into the development of nuclear weapons. Legal requirements on the implementation of International Atomic Energy Agency proliferation safeguards to prevent reprocessing and enrichment have restricted the use of US technology since 1954. Saudi Arabia has recently sought to get this restriction lifted through allies in the US Congress and the White House.[68]

Repression of the climate and environmental discourse

Analyses and debate on the environmental and climate crises in MENA are unnerving for those seeking to maintain stability and protect their interests. At a time of widespread conflict, MENA regimes portray those that address social and environmental challenges as threats to national security, territorial integrity and national identity.[69] Repression and negative public relations campaigns are used to control and discredit environmental actors, but also to neutralize them through partial, negotiated acceptance of their demands.[70]

There are some recent examples where the activities of environmental scientists and activists have led to repressive action. In Iran a large-scale crackdown on environmentalists, including arrests and trials, has taken place.[71] The Egyptian Government has detained activists, raided their offices and filed lawsuits against prominent environmental and social

[63] Shay. S., 'The Sunni Arab countries going nuclear', Institute for Policy and Strategy (IPS) Publications, Feb. 2018.

[64] Sazak, S. C., 'Cooperating on nuclear power: Regional management of energy initiatives', The Century Foundation, 28 Feb. 2018.

[65] Ahmad, A. (ed.), *Energy Transitions in the Gulf: Key Questions on Nuclear Power* (Gulf Research Centre: Cambridge, 2018).

[66] Sazak (note 64).

[67] Erästö, T., 'The lack of disarmament in the Middle East: A thorn in the side of the NPT', SIPRI Insights on Peace and Security no. 2019/1, Jan. 2019.

[68] Harris, B., 'Republican rebels block restrictions on Saudi nuclear deal', Al Monitor, 25 Sep. 2018; and US House of Representatives, 'Whistleblowers raise grave concerns with Trump administration's efforts to transfer sensitive nuclear technology to Saudi Arabia', Interim Staff Report, Committee on Oversight and Reform. Feb. 2019.

[69] Sowers, J., 'Environmental activism in the Middle East and North Africa', ed. H. Verhoeven, *Environmental Politics in the Middle East* (Oxford University Press: Oxford, 2018).

[70] Sowers (note 69).

[71] *The Guardian*, 'Top scientist leaves Iran after crackdown on environmentalists', 18 Apr. 2018.

organizations.[72] Researchers and journalists working on issues related to the River Nile have been instructed by state security to keep to official talking points, or remain quiet.[73] A major study by the UN Development Programme on the expected consequences for Egypt of climate change was not translated in full into Arabic, and civil society actors report that efforts to inform domestic stakeholders of risks have been discouraged.[74] In the UAE any public discussion of the sovereign wealth fund that is based on oil revenue is prohibited.[75] However, in Algeria extensive public protests against plans to use fracking to extract oil and gas, with potential depletion and pollution of groundwater, have been met with some concessions by the government, which also engaged in a counter-narrative against the protesters.[76]

These examples suggest that information, analysis and advocacy on environmental issues and climate change impacts, and their potential security implications, are highly sensitive in the MENA region. By extension they are perceived by states as questioning the current order and course of development, thus representing threats to national security.

The narrow securitized approach to societal and political challenges is a barrier to a broad policy discourse that includes environment and climate change issues. A lack of transparency on how decisions are made on resource allocation, along with constraints on the freedom of expression, prevent an informed public debate on pressing global threats.

V. Regional stalemate

Some challenges facing the MENA region cannot be addressed by states individually but require collaboration among them. However, national pursuits of narrow security interests are reflected in a deficit of joint approaches and common action. For example, there are few transboundary water agreements, despite obvious needs.[77] Resource-sharing agreements in settings of high tension could help to build confidence and dampen conflict dynamics.[78] Arrangements do exist (e.g. between Lebanon and Syria, and between Jordan and Syria), but these have been hampered in their implementation as tensions have grown during the Syrian crisis. Increasingly serious sandstorms and dust storms in Iran cannot be tackled properly without agreements with Iraq, Saudi Arabia and Turkey, as the sand and dust are partly brought by westerly winds from across borders and areas with degraded drylands.[79]

Attempts have been made in the MENA region at finding transboundary arrangements and to use environmental dialogue among nations to reduce tension and conflict, albeit with limited progress.

[72] Sowers (note 69).
[73] Cairo-based journalist, Communication with author, Mar. 2019.
[74] Sellwood (note 27).
[75] UAE civil society representative, Communication with author, Feb. 2019.
[76] Sowers (note 69).
[77] ESCWA, *Progress on Shared Water Resources Management in the Arab Region: Regional Baseline for SDG Indicator 6.5.2*, Working Paper, E/ESCWA/SDPD/2018/WP.1 (United Nations: Beirut, 2018).
[78] For a recent and comprehensive overview, see Swain and Öjendal (note 14).
[79] Hanrath, J. and Abdul-Shafi, W., *Environmental Challenges in a Conflictive Environment: Iranian and Saudi Perspectives on the Risks of Climate Change and Ecological Deterioration*, Center for Applied Research in Partnership with the Orient e.V. (CARPO) and EastWest Institute Policy Paper, Brief no. 8 (CARPO: Bonn, 11 Sep. 2017).

The case of the rivers Euphrates and Tigris is illustrative of such attempts.[80] Efforts at agreeing on water sharing between the three riparian states Turkey, Syria and Iraq have been made since the 1920s, with agreements and protocols drafted but never concluded and ratified.[81] Progress has been made during periods of relative stability and reversed in times of tension and open conflict. The current conflict in Syria, where Turkey and Iraq are directly implicated, has brought efforts to a standstill. Dramatic downstream reductions in water availability in southern Iraq, also influenced by Iran's building of dams on tributaries to the River Tigris, have contributed to local unrest.[82] The crisis, triggered by advanced Turkish plans to start filling the Ilisu Dam during 2018, was halted only after a strong reaction from Iraq, demonstrating the fragility of the situation.[83]

Technocratic approaches that address water issues from an apolitical perspective are unlikely to produce outcomes in the securitized MENA context

The regional impasse is not due to a lack of hydrological data or technical information, or because shared resources have been insufficiently mapped.[84] A draft framework convention on shared water resources among members of the League of Arab States has existed for several years, aligned with existing international legal instruments, but never concluded and agreed.[85] In 2017 the Arab League further reduced its level of ambition by reformulating the potentially binding convention into a set of guiding principles.[86]

These developments underscore that without overcoming constraining national policies, genuine progress is unlikely.[87] It is improbable that technocratic approaches that address water issues from an apolitical perspective would produce outcomes in the highly securitized MENA context where the control of water has strategic implications. Without a political process with security-building objectives, it may be difficult to constructively address needs for joint natural resource management.

In settings such as Iraq and eventually Syria and Yemen, large numbers of internally displaced and refugees can be expected to return home, where in the meantime others may have gained control of land, water and other property, and where they could potentially meet people displaced from other areas.[88] Experience from other countries shows that in the absence of governance arrangements and conflict-resolution mechanisms, access to water and land will become a contentious issue that risks reigniting or exacerbating local tensions and conflicts.[89] Most peace negotiations fail to

[80] Ide, T., Sümer, V. and Aldehoff, L. M., 'Environmental peacebuilding in the Middle East', eds Swain and Öjendal (note 14).

[81] Al-Ansari, N., 'Hydro-politics of the Tigris and Euphrates basins', *Engineering*, vol. 8, no. 3 (2016), pp. 140–72.

[82] Von Lossow, T., 'More than infrastructures: Water challenges in Iraq', Netherlands Institute of International Relations 'Clingendael' Policy Brief, July 2018.

[83] Hassan, K., Born, C. and Nordqvist. P., *Iraq: Climate-related Security Risk Assessment*, Expert Working Group on Climate-related Security Risks, Aug. 2018.

[84] ESCWA and Bundesanstalt für Geowissenschaften und Rohstoffe (BGR), *Inventory of Shared Water Resources in Western Asia* (ESCWA and BGR: Beirut, 2013).

[85] ESCWA and BGR (note 77).

[86] ESCWA and BGR (note 77).

[87] Sellwood (note 27).

[88] Middle East Eye, 'Assad amends Law 10, giving Syrians a year to claim their property', 13 Nov. 2018.

[89] Krampe, F. and Gignoux, S., 'Water service provision and peacebuilding in East Timor: Exploring the socioecological determinants for sustaining peace', *Journal of Intervention and*

include resource management mechanisms.[90] For example, the ongoing political process to resolve the conflict in Yemen does not include such issues, although competition over scarce water resources is part of its dynamics.[91] Future efforts at resolving conflicts in the MENA region, at a time of increasing water scarcity, and exacerbated by climate change impacts, should incorporate resource-sharing arrangements for reconciliation and reconstruction.

The potential of technical dialogue

It is paradoxical that despite the absence of progress in resolving shared natural resource issues, there are regional institutions conducting advanced analyses and developing policy recommendations in climate-relevant areas.[92] They include neutral bodies, such as ESCWA, with their natural role of bringing together parties at a technical level who may be adversaries in their bilateral relations. There are also the region's own institutions such as the League of Arab States with technical bodies on water, electricity, agriculture and the environment, and the GCC.

The considerable analytical work on climate change carried out within the collaborative framework of RICCAR, bringing together regional expertise, UN bodies and external partners, is a case in point. In addition, some Mediterranean initiatives include Maghreb and Mashreq countries in addressing shared environmental challenges, such as the Mediterranean Union, the Barcelona Convention and its Mediterranean Action Plan.[93]

An interesting and low-key regional meeting place exists in the form of networks of scientists, where Jordan plays a leading role as the host of institutions such as the Middle East Scientific Institute for Security, dedicated to capacity building against chemical, biological, radiological and nuclear risks.[94] Jordan also hosts the Synchrotron-light for Experimental Science and Application in the Middle East (SESAME), which uniquely brings together Cyprus, Egypt, Iran, Israel, Pakistan, Palestine and Turkey, but GCC countries have not become involved because of Israel's and Iran's participation.[95]

Many climate-relevant areas beyond transboundary water have been identified as suitable for regional collaboration. Food security could be enhanced through regional trade, coordination of market information, shared food stocks and dedicated funds.[96] Energy security could be improved by connecting subregional electrical grids.[97] Nuclear power could be made safer and more efficient through regional arrangements.[98]

Statebuilding, vol. 12, no. 2 (2018), pp. 185–207.

[90] Swain and Öjendal (note 14).

[91] Senior Yemeni Government official, Communication with author, Mar. 2019.

[92] El Hajj, R. et al., 'Enhancing regional cooperation in the Middle East and North Africa through the Water-Energy-Food Security Nexus', Netherlands Institute of International Relations 'Clingendael' Policy Brief, Apr. 2017.

[93] Sellwood (note 27).

[94] Sazak (note 64).

[95] Sazak (note 64).

[96] ESCWA and FAO (note 15).

[97] Sazak (note 64).

[98] Sazak (note 64).

The affiliation of Iran to regional institutions deserves special mention. In the UN context, Iran is linked to the Economic Commission of Asia and the Pacific, headquartered in Bangkok, not ESCWA where MENA affairs are addressed. In the World Bank, Iran and the rest of MENA are part of the West Asia region, but there seem few occasions when the Bank convenes regionally in ways that would include Iran together with other MENA states. This makes the SESAME initiative mentioned above particularly valuable and poses questions around what arrangements could be promoted to give Iran a seat at the table. Under other political circumstances Iran would be a natural member of the GCC. Obvious environmental issues on a shared agenda would include the pollution and degradation of marine ecosystems in the Gulf, as well as issues related to dust storms and transboundary water.

What arrangements could give Iran a seat around the table? Under other circumstances Iran would be a natural member of the GCC?

Civil society would be expected to play an important role in this context, but generally has a contested standing in MENA, although there are examples of successful national initiatives.[99] Regional exceptions are Ecopeace, with offices in Israel, Jordan and Palestine, and the Euphrates Tigris Initiative for Cooperation.[100] Another regional entity gathering civil society and states is the International Union for Conservation of Nature's Regional Office for West Asia, of which Iran is a part. Nevertheless, there seems to be limited interaction between intergovernmental institutions and civil society in the MENA region.[101]

Local resource conflicts

In some MENA states the combination of authoritarian or failing governance, high tension, absence of regional agreements and frameworks, and the growing impact of water scarcity and the changing climate could emerge into local resource conflicts, possibly the harbingers of future threats on a larger scale.

Recent reports point to cases of unrest where the impacts of climate change and threats to water availability play direct or indirect roles, interwoven in the larger context of conflict or failing governance. In Yemen in 2013 it was reported that most rural conflicts were water related.[102] Violent protests in southern Iraq were directly related to the breakdown of water and energy services, a crisis exacerbated by the impending opening of upstream dams in Turkey.[103] In the Bekaa Valley in Lebanon the presence of Syrian refugees in informal settlements is locally perceived as the main reason behind tension

[99] Sowers (note 69).

[100] Ide, Sümer and Aldehoff (note 80).

[101] However, several national environmental NGOs were present at The Regional Consultation on Climate Change for the 2019 Arab Forum on Sustainable Development and High-Level Political Forum, held in Beirut in March, 2019. A personal observation by the author is that the perception of MENA governments was well captured by the following utterance from a senior LAS official at the Consultation: 'we welcome dialogue with good civil society, not with politicized civil society'.

[102] Smith and Krampe (note 38).

[103] International Crisis Group (ICG), *How to Cope with Iraq's Summer Brushfire*, Middle East and North Africa Briefing no. 61 (ICG: Baghdad/Brussels, 31 July 2018); Saleem, A. Z. and Skelton, M., *Basra's Political Marketplace: Understanding Government Failure after the Protests*, Institute of Regional and International Studies (IRIS) Policy Brief (IRIS: Sulaimani, Apr. 2019); and Hassan, Born and Nordqvist (note 83).

around scarce water resources.[104] In Egypt in April 2018 the government suddenly imposed a ban on the water-intensive irrigated rice crop in the Nile Delta to reduce water use, which led to demonstrations by farmers.[105] In the Maghreb there have been hundreds of local protests against water shortages during 2017 and 2018.[106] Protests against large-scale land leases by GCC states were among popular grievances against the military regime in Sudan during early 2019.[107] Measures to reduce the use of fossil fuels by promoting renewable sources of energy led to violent reactions from vested interests in Lebanon.[108] Using the control of water as a weapon against the civilian population is commonplace in the region, as well as for militant groups like the Islamic State.[109] In Iraq droughts undermined rural Sunni livelihoods, and no assistance from the central government was forthcoming, which helped Islamic State recruitment.[110]

The question is whether such incidents of tension related to resource scarcity can be contained and managed without governance and programme frameworks that have a broad adaptation orientation, encompassing decentralized approaches and empowerment, supported by enabling national policies as well as mechanisms for resource conflict resolution. These incidents also underline that adaptation capacity that is sufficient in dealing with expected stresses and crises under conditions of political stability may be seriously challenged when unprecedented climate-related events become the new normal.

VI. Conclusions

This paper has argued that regionalized and intersecting tensions and conflicts, with a path dependency that is difficult to break out of, stand in the way of addressing the water and climate crises confronting the MENA region. It has also focused on the requirement for post-conflict arrangements that include natural resource management and conflict-resolution mechanisms. The military's role in the political economy and in areas of critical importance for adaptation and mitigation of climate change impacts has been stressed as an important factor in dealing more effectively with the confluence of crises.

In a region where many issues are securitized, authoritarian regimes run resource-related affairs based on their own interests. They perceive publicity and debate on water and climate as threats to national security. Attempts at conflict resolution are compartmentalized, and ignore the water and climate crises. The current political order does not allow regional institutions to tackle the confluence of crises.

[104] El-Kareh, J. et al., 'Water conflict in the Bekaa: Assessing predisposition and contributing factors', American University of Beirut Policy Institute, Policy Brief 3/2018, 2018.

[105] Sellwood (note 27).

[106] Malka, H., *Water Pressure: Water, Protest, and State Legitimacy in the Maghreb*, Center for Strategic & International Studies (CSIS), 15 June 2018.

[107] Schwartzstein, P., 'One of Africa's most fertile lands is struggling to feed its own people', Bloomberg Businessweek, 2 Apr. 2019.

[108] Sellwood (note 27).

[109] Alimehri, F., 'An Arab Spring with no water: How uprisings in the Middle East can be linked to resource scarcity', *Georgetown Security Studies Review*, 13 Nov. 2016.

[110] Schwartzstein, P., 'Climate change and water woes drove ISIS recruiting in Iraq', *National Geographic*, 14 Nov. 2017.

One issue is if the water and climate crises can be effectively addressed without a regional security framework that reduces tension and deals with conflicts. Another issue is that dedicated effort towards agreements on the management of shared natural resources and climate challenges cannot ignore the political dimension. These issues need addressing together.

Can the water and climate crises be addressed without a regional security framework that reduces tension and deals with conflicts?

Therefore, the challenge for the immediate future is to increase adaptive capacity in societies that are unstable or face conflict. With this comes the need to better understand potential MENA-specific pathways that link climate change impacts and the risk of violence. Emphasis must be placed on establishing transboundary natural resource management agreements. A further challenge is then to navigate the political obstacles that stand in the way of reaching these agreements.

With regard to the MENA regional institutions, it is clear that climate security must enter the agenda. Avenues for addressing shared problems can be identified by recognizing interlinkages among climate-related change and security risks. How these challenges are framed and conceptualized will define what actions and measures can be taken. Finally, a political framework is needed where Iran can interact with MENA regional institutions to address shared problems related to climate change and security.

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A CONFLUENCE OF CRISES: ON WATER, CLIMATE AND SECURITY IN THE MIDDLE EAST AND NORTH AFRICA

JOHAN SCHAAR

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