



Environmental Politics in the Middle East and North Africa

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The Project on Middle East Political Science

The Project on Middle East Political Science (POMEPS) is a collaborative network that aims to increase the impact of political scientists specializing in the study of the Middle East in the public sphere and in the academic community. POMEPS, directed by Marc Lynch, is based at the Institute for Middle East Studies at the George Washington University and is supported by Carnegie Corporation of New York and the Henry Luce Foundation. For more information, see <http://www.pomeps.org>.

Introduction: Environmental Politics in the Middle East and North Africa

Jeannie Sowers, University of New Hampshire and Marc Lynch, The George Washington University

Environmental politics is no longer a marginal topic in Middle East Studies. Climate change, pollution, environmental degradation, desertification, soil erosion and depletion, waste, and a wide range of other environmental issues have moved to the center of scholarly inquiry across multiple disciplines. The study of the environment, defined as a set of relationships co-produced by human activity and non-human physical and biological processes, has become a vibrant and growing field of study. For Middle East Studies, this has been reflected in a number of influential works, including in the fields of environmental history (Davis 2007, Davis and Burke 2011, Mikhail 2013, Davis 2015); the history of science, technology and infrastructure (Mitchell 2002; Meiton 2019); the history and politics of labor and fossil fuels (Vitalis 2007, Mitchell 2011) the transnational history of specific resources (Barak 2020); the role of natural resources in state formation (Jones 2010, Verhoeven 2017) and environmental geography and anthropology (Barnes 2014, Scaramelli 2021), among other incisive and excellent works. In addition, *Middle East Report* and *Jadaliyya* have mainstreamed the coverage of environmental questions in the Middle East through their attention to new scholarship. These publications also increasingly address the linkages between environmental studies and closely interrelated issues of public health, war and conflict, forms of knowledge production and deployment, and center-periphery relations (e.g. see *MER* Issues 296, 297, and 298).

While some political scientists played key roles in the turn to environmental studies in the Middle East, mainstreaming the environment into politics and policy studies of the Middle East has lagged behind other disciplines. Research in political science has largely focused on linking climate change with conflict, scarcity and instability, (for a critique of simplistic linkages, see Daoudy 2020) or analyzing dimensions of rentier states, the ‘resource curse,’ and its impacts on development and

governance (Luong and Weinthal 2010, Lowi 2011, Ross 2012). Those projects speak to profoundly important questions and have added a great deal to the public discussion on the importance of addressing environmental issues as part of a broader range of security and economic concerns. Political scientists in international relations and political economy also tackled early on the conflict and cooperation possibilities around management of shared rivers and waterbasins (Lowi 1993; Waterbury 2002, Zawahri and Mitchell 2011). A limited but growing number of scholars have grappled more explicitly with environmental politics, social contestation, and governance in the region (e.g. Hopkins 1992, Sowers 2012, 2018; Fikret and Arsel 2016, Abu Rish 2017, Kurtiç 2022), and the unequal vulnerabilities imposed by the man-made climate crisis (Sowers, Vengosh, and Weinthal 2011; Rabinowitz 2020).

Our motivation in this collection, from the virtual workshop in which the ideas were first presented to this publication, was thus to bring political science into broader dialogue with an emerging, rich multidisciplinary literature that helps change the questions we ask and how we address them. Rather than take concepts such as the environment or climate change as a given, we aimed to problematize them from a diverse range of theoretical and intellectual perspectives. Is the desert truly empty and who owns it? Are all citizens (and non-citizens) equally affected by environmental degradation and the climate crisis? How do ordinary people experience dramatic changes in the quality of their soil, their water, and their air? What purposes do high-profile, state-led environmental showcases (such as NEOM and Masdar City, or declarations of moving towards Carbon Zero) really serve?

In February 2022, therefore, POMEPS convened a virtual workshop bringing together interdisciplinary contributions from anthropology, public health, political science, history,

and human geography. Their geographic scope includes Morocco, Jordan, Lebanon, Iraq, Turkey, Kuwait, and other Gulf countries. Many of the papers highlight the importance of field-based research in producing insightful analyses, and all raise important and innovative questions that should inform future research in this area. The papers grapple with the complexity and diversity of environmental politics and issues across the Middle East. In doing so, they contribute to important trends that have emerged in international and comparative environmental politics more broadly. These include growing attention to issues of environmental justice, rights and equity, particularly for local and Indigenous groups; urban environmental challenges and politics; the study of a broader array of environmental issues in different places; and expanded geographic and cultural diversity in both authors and cases (see Sowers, Vandever and Weinthal, forthcoming).

The papers explicitly take into consideration the temporality of ‘the environment,’ in which change over time is intrinsic to analysis. Contrary to popular environmental imaginaries that position the Middle East, and particularly its deserts, as degraded, static, and valueless lands, several of the papers illustrate how human-natural interactions can be productive and restorative but require sustained investment over time. The papers by anthropologists Taraf Abu Hamdan, Kali Rubaii, and Ekin Kurtiç highlight the labor and local expertise needed to sustain viable soils, crops, and pastoral livelihoods, even as the authors highlight the political, economic, and military decisions that have undermined these practices and the communities that sustain them.

In “Soil, Dirt, Earth: Deserts, Rural Communities, and Power in Jordan,” Abu Hamdan shows how the Jordanian state fosters ‘rural development’ schemes in the arid and semi-arid steppe lands that unreflexively reproduce conditions of degradation and marginalize rather than empower the supposed beneficiaries. She notes that nomadic populations are often still blamed for problems of overgrazing and land degradation, rather than the long history of state policies forcing sedentarization and enforcing border restrictions. Initiatives that transfer tribal

land to state and private ownership, to foster investment in agriculture or tourism, have had a poor track record. She argues that the putative employment benefits for local people often turn out to be temporary, while state allocation of property rights often deepens clientelism and rural inequality.

Ekin Kurtiç also explores a space once considered peripheral to the Turkish state, but now figured as central to the project of state-driven ‘modernization.’ Her paper, “Living with Future Submergence: Dams, Temporality, and Sacrifice in Northeastern Turkey,” examines how residents in the town of Yusefeli, which faces imminent inundation from the rising waters of the Yusufeli Dam, grapple ambivalently with their national ‘sacrifice.’ She vividly shows how residents embrace statist and AKP party narratives, in which dam-building is essential to Turkish development and their river valley is an ‘ideal’ spot to build the largest dam in Turkey. At the same time, however, they seek to negotiate the terms of this sacrifice, through advocating delays and compensation.

If Abu Hamdan and Kurtiç grapple with structural violence that stems from technocratic state interventions, Kali Rubaii’s paper explores how small farmers cope with the direct violence wreaked by war, occupation, and sanctions in Iraq. In “What Displacement Teaches Us About Surviving Changed Climates,” Rubaii reminds us that both war and the sustained preparation for war are major contributors to global warming and environmental degradation. Her work looks at how small farmers originally from Anbar and Kurdish areas cope with, and adapt to, displacement induced by war. She thus asks, as Kurtiç does, who is forced to make sacrifices and how they manage these displacements. Thanks to war and sanctions and ongoing violence, Rubaii’s farmers are cut off from irrigation and basic services, and their new lands face dessication, soil degradation, and conflict-related pollution. Some of the coping responses she documents are evident in conflicts elsewhere, particularly in Palestine. Rubaii’s Iraqi farmers are ‘resilient,’ in the anesthetized global language of climate adaptation, but they are also suffering, in the words of one of her interviewees, ‘loss upon loss.’

Many of these losses are to some degree irreversible, whether in terms of land productivity, family health and income, or the sense of continuity and dwelling in a stable landscape and climate over time. Rubaii argues that since more people will be living in a completely different climate as global warming intensifies, the experiences of internally displaced persons-- and returnees who come back to changed landscapes-- foreshadows the experiences of many others in the region.

Other local environments in the Middle East also pose serious environmental health risks. Moving from ethnography to epidemiology, Barrak Alahmad's paper, "Climate, Environment, and Health of Migrant Workers: Lessons from Kuwait," takes a public health perspective to explore the unequal health impacts of climate change on noncitizens and citizens. Migrant workers in Kuwait are subject to residential segregation, extreme outdoor occupational exposure, and limited access to healthcare. Alahmad shows that migrant workers have a higher risk of dying on very hot days or in dust storms than Kuwaiti citizens. The climate crisis thus exacerbates health inequalities associated with citizenship, caste, class, and other forms of social stratification.

Much of the Gulf states' sustainability agenda has consisted thus far of brazen greenwashing of large-scale construction and energy projects. As Deen Sharp notes in his paper, "Arab Climate Urbanism: An Ecological Fix?," however, this is not the only element in emerging urban initiatives in the Arab world. The term 'climate urbanism' refers to mitigation and adaptation efforts undertaken at the city level across key sectors, including transport, housing, energy, and waste. City governments began these initiatives over the past two decades and built networks linking cities on climate action around the world. Sharp argues that emerging forms of climate urbanism in the Arab world exhibit some distinctive features, including top-down control rather than bottom-up initiative. The Arab states generally control urban governance and budgets and prefer high-profile megaprojects, as evident in Egypt, Jordan, and Morocco as well as the Gulf states. Arab climate urbanism is further marked by financialization, through issuing

'green bonds' (including *sukuk* bonds deemed compatible with Islamic ethics), the development of green building codes, and renewed interest in investing in public transit systems. Since the urban areas of the Middle East and North Africa are on the frontlines of the climate crisis, Sharp suggests that Arab climate urbanism will play an ever larger role in the environmental politics of the Middle East.

Exposure to environmental risk is unequally distributed not only within but among countries. State capacity to manage these risks—and to benefit from them by creating and exploiting business opportunities associated with environmental sustainability—often reflects prior levels of wealth. Tobias Zumbargel's paper, "Between 'suffering' and 'surfing': Environmental Sustainability Management and Its Transnational Dynamics on the Arabian Peninsula," compares how Saudi Arabia can 'surf' a global wave of business interest in sustainability, even as its wartime actions—alongside those of the Huthi movement and other armed groups—exacerbate environmental 'suffering' in Yemen. In most of Yemen, the impacts of the war-- in which Saudi Arabia, the UAE, and the Huthi movement are the most influential belligerents-- have exacerbated vulnerabilities to climate-related disasters. These include the intensifying frequency of damaging flash floods, cyclones, intense heat, and dust storms. Degradation of basic services and steep price increases for food and fuel have deepened hunger and acute malnutrition, led to large-scale outbreaks of cholera and other diseases, and intensified local pollution. In neighboring Saudi Arabia and the UAE, however, the monarchies have fostered state-owned enterprises focused on renewable energies with global investment portfolios, engaged in global climate diplomacy, and marketed their mega-projects under the rubric of sustainability. In areas of Yemen under their de facto control, Zumbargel notes that the Saudis and the UAE are investing in renewable energy projects as part of projecting soft power regionally.

The last four papers in the collection examine the environmental narratives and policies promulgated by state agencies, environmental scientists, the media,

and social movements. Authored by political scientists, these papers tackle some enduring questions in the study of comparative environmental politics. Under what conditions do environmental movements build cross-class coalitions and/or link environmental issues to economic and political critiques? What possibilities are there for substantive environmental action when states like Turkey remain wedded to rapid industrialization? How do narratives established in the long colonial period inform state projects of modernization and technocratic development? Who defines what constitutes waste and who benefits from its collection, disposal, and reuse?

Langlois and Daoudy's work analyzes state narratives about environmental degradation to ask why some social movements are able to link environmental issues to national concerns. They argue that Jordan's monarchy was able to limit popular discontent with water scarcity, while in Lebanon, environmental campaigns contributed to broader critiques of the national political system. Langlois and Daoudy note that the monarchy shifts blame for water scarcity to individual consumption and outside forces (such as Israel), and portrays national supply projects, such as the Disi aquifer project that supplies Amman, as essential to the country's sovereignty and security. In Lebanon, in contrast, the authors argue that environmental grievances—particularly through the #YouStink and #SaveBishri campaigns—became part of contentious politics at the national level. It is worth noting that these earlier crises were in some ways harbingers of Lebanon's dire predicament today, which is fiscal, political, and environmental, including the pollution and urban devastation wrought by the August 2020 explosion of improperly stored fertilizers in Beirut's port.

Lauren Baker's paper takes up the issue of trash and waste, building upon a growing interest among Middle East scholars in tackling one of the foremost environmental issues in the region. The hazards of open dumping, accumulations in 'vacant' lots, canals, and plots, and the air pollution generated from open burning, are indictments of governmental failures at both local and national levels. Baker's paper, "The Sanitization of Garbage Politics,"

situates this issue in nested spatial and governance scales, including the increased generation of waste from capitalist consumption globally and the tendency of multinationals and large-scale waste companies to displace existing communities of wastepickers, sorters, and recyclers. Echoing a theme made by Langlois and Daoudy, Baker notes that sanitation efforts often focus on changing individual consumption and disposal habits, rather than the broader political economies that structure waste production and circulation.

The notion that environmental issues need to be embedded in broader questions of domestic and international political economy runs through all the papers in various ways. Murat Arsel and Fikret Adaman in their paper "Environmentalism without Environmentalists?: Climate Change and the State in Turkey," present a pessimistic account of environmental evolution in Turkey. Formal political parties and forces in Turkey have not seriously incorporated environmental issues into their agenda, while the criminalization of protest and narratives of sacrifice detailed by Kurtiç undermine local environmental movements from scaling up in the way that Langlois and Daoudy suggest happened in Lebanon. For Arsel and Adaman, neither the remnants of the old republican coalition nor the Islamists under the AKP have grappled with the structural causes or consequences of environmental degradation, which "cannot be resolved either by economic growth or state violence."

Environmental politics and governance across all the contributions remains very much enmeshed in unequal center-periphery relations, elite commitments to industrialization, and technocratic interventions that focus either on large-scale prestige projects or disciplining individual and communal behavior. These visions of state-society relations have much longer historical trajectories. Khaoula Bengezi's paper, "New Constructions of Environmental Orientalism: Climate Change Mitigation Solar Power Projects in the Sahara Desert," links contemporary calls for building massive solar plants in the Saharan desert with older forms of 'environmental Orientalism.' Echoing Abu Hamdan's findings on Jordan's

rural development initiatives, Bengezi suggests that state elites, popular media, and the development industry reprise old colonial tropes with new twists, in which ‘useless’ and empty deserts can be made productive with the application of foreign technocratic expertise to build large-scale solar facilities. As historian Diana Davis (2015) and others have argued, attributing environmental ruin and desertification to indigenous activities, alongside promises to (re)green the desert, has underpinned settler colonial ventures from Palestine to Algeria. Bengezi cautions that the long lives of these imaginaries overlook both the actual trade-offs of large-scale solar power in these environments, such as water usage, and fuel the continued political and economic marginalization of local communities.

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Soil, Dirt, Earth:

Deserts, Rural Communities, and Power in Jordan

Taraf Abu Hamdan, Central European University

*“The wonder of the desert is that is barren, and lacks vegetation,
and it could die for several years, but it never kills its people.” -Ibrahim Alkoni*

The Middle East and North Africa region has an ever-looming threat of environmental ruin and increasing instability hanging heavily over it. Jordan is not immune to these threats. Its rural areas, in particular, have experienced upheavals, protests, and local mobilizations of discontent, largely centered around issues of corruption and economic grievances. For these communities, access to and control of increasingly scarce natural resources are a matter of survival and subsistence. Agricultural support programs have increased over the past few years, based on a recognition that the country, while water-poor and largely arid, still has untapped economic potential for commercial agriculture with the introduction of technological interventions and strategies. Soil¹ is often missing from these discussions and its role in land use underestimated. Yet soil has a semi-ubiquitous presence in different domains of life, especially in rural areas, making it harder to disentangle its role within different social, political, and economic issues. Where as land has macro and long term socio-economic and political power implications, soil is a day-to-day issue for livelihoods. Access and control of soil resources, as well as interventions and policies related to the mitigation of its degradation and loss, are as important as water issues within natural resource governance.

The MENA region has been especially defined by its environment. What Davis (2020) calls environmental imaginaries have been continually constructed (see Benghezi in this collection), and have often been used to institute political and social decisions that impacted indigenous nomadic communities and their livelihood negatively. Here I explore how imaginaries about the environment and nomadism influence approaches to resource and livelihood governance in rural Jordanian Bedouin spaces. By considering the dynamics related to state, development, and community, I aim to investigate

what soil management can reveal about the tensions and power struggles that underlie the development and control of Badia² resources and livelihoods. This paper is part of a larger project which centers the role of institutions (formal and informal) in rural community livelihoods and natural resource governance.

These expert narratives see desert and arid landscapes as fragile with little inherent value and are used as precautionary landscapes, to be avoided, controlled, and rehabilitated. Soil degradation and its remedies are a matter of expert judgment (Blaikie 2016). This judgement is often rooted in these narratives, as are possible solutions which involve matters of access to resources as well as the availability of alternative livelihoods to allow time for soil recovery. To that end, the various domains of soil management can highlight the different political, social, and economic power dynamics, both historically and presently at play in rural areas. This relates both to the reasons and processes behind its degradation as well as necessary remedies.

Imaginaries of Arid Environments, Nomadic Lifestyles, and Sedentarization

Environmental and ecological features of a landscape are important in how it is used and governed, yet these features are not the only determinants of how nature or resources are managed. In addition to ecological and economic considerations, social and political understandings of nature are also crucial. Given the meanings and values we attribute to it, nature is socially constructed differently over time and by different groups (Pretty 2002). Visions and imaginaries of the environment and their changes over time influence ideas related to social identities (Davis and Burke 2011).

The description of the region as being at high risk of desertification and environmental ruin is accompanied by narratives that implicate indigenous populations in the ruin of their surroundings often constructed by colonial powers. However, narratives and imaginaries around the environment are dynamic and changing since the power relations that underlie them are also changing (Davis 2020).

Those who construct the narratives around environmental changes and what they mean for current and future conditions also determine the winners and losers when such imaginaries are operationalized in programs and policies (Davis 2020). They can be part of efforts to control specific landscapes, creating or maintaining unequal power structures as a means to protect limited resources. This attitude can often extend to those who inhabit these spaces and their role in these changes. These external expert narratives ignore the dwelling perspective, which considers how the landscape is constructed as a record and testimony of those who have dwelt within it (Ingold 1993), and discounts how communities which have been historically able to survive within these landscapes have amassed a wealth of knowledge and strategies for subsistence.

States have also utilized such imaginaries and assumptions in their attempts to bring nomadic communities into the fold, especially since these traditionally autonomous transnational communities threatened the integrity of modern borders and the extent to which these regimes can manage and govern them. Implicating locals (especially nomads) in deforestation, overgrazing and overirrigation, facilitated state-building goals under the guise of efforts for environmental improvement or protection (Davis and Burke 2011). Beyond controlling resources and the environment, states have often forcibly sedentarized nomadic populations, under the guise of development and modernization. Sedentarization is assumed, in the eyes of the state, as better and more desirable than mobile forms of subsistence (Scott 2017). Such policies were advocated by development agencies, conservation groups, and national governments (Fan et al. 2014) which are driven by the

view that pastoralism is economically and environmentally inefficient and damaging while, sedentarization helps integrate former pastoralists with the national economy (Fratkin et al. 2006).

The introduction of modern political borders and limits on Bedouin movement meant that already fragile soil resources were not given the time necessary to recover between grazing and planting seasons. This led to their increasing degradation, while placing the burden and blame of degradation on the Bedouin and their rural livelihoods and practices. Soil degradation, to a certain extent, is a feature of modernization and is a symptom of forced sedentarization and (re)settlement signaling the failure of these schemes to consider the socio-ecological contexts as well as existing knowledge and expertise of communities in these environments. In Jordan, the state criminalized Bedouin livelihood and lifestyles, confiscated their cattle, and forced the sedentarization of nomadic Bedouins (Massad 2001). Moreover, tribal lands became nationalized and placed under government control (Gari, 2006). These programs focused on limiting movement and resettlement of nomadic people and encouraging sedentary activities such as fodder crop growing and animal husbandry (Bocco 2006). The soil degradation which followed can be understood as a feature of modernization and as a symptom of forced sedentarization and (re)settlement, signaling the failure of these schemes to consider the socio-ecological contexts of traditional community knowledge and governance mechanisms. While many of these programs were touted as progress under the guise of modernization, they often served to reinforce neopatrimonialism and royal patronage, bolstered by the allegiance of the pro-monarchy tribes and their coopted leaderships (Abu-Hamdi 2016).

Development, Modernization, and Greening the Desert

Attempts at transforming deserts into cultivation have been a feature of nation-building in different countries, including the United States, Australia, India, Pakistan, China, Central Asia, and the former Soviet Union (Davis and Burke 2011). Both colonial and nationalist regimes

have tried to “green the desert” as part of a multitude of political, economic, and social goals (Sowers 2011). Such projects are common in the region and require massive investments, with technical and material inputs often brought in from the west/ donor countries, further entrenching the idea that desert and arid lands are unused/ usable.

The question of economic development in MENA is often posited as geography vs. demography (see Mitchell 2002). Jordan’s approach to rural development can be understood in similar terms. Alongside the country’s neoliberal turn in the last 30 years, there has been an increase in technocratic solutions that view the environment and rural development as adaptation spaces that require technical or economic solutions while disregarding the impact on societies within these spaces (Mitchell 2002; Abu-Hamdi 2016). These technical solutions can become powerful tools to destabilize the existing community bonds and organizational setups (Abu-Hamdi 2016). Furthermore, these solutions shift knowledge bases from local and traditional sources (tribal elders, community leaders) to technocrats or experts appointed by the government or development agencies. Thus, the community is made reliant on the state/ development agencies as opposed to its traditional grassroots mechanisms. The existing favoritism in terms of access to state resources in turn causes certain communities to become further marginalized, increasing their vulnerability and impacting their livelihoods. This further deepened uneven power relations, community vulnerability and undermined historical and traditional community-based livelihood, solidarity, and resilience strategies.

With the increase in foreign aid relevant to rural development since the early 2000s, there has been a renewed interest in rural areas, their resources, and economic potential, as well as competition over access and dissemination of such aid. This is compounded by mega-project projects, including those related to green energy and climate mitigation, as well as tourism development. This has resulted in a renewed tension surrounding access and ownership of land and the management of resources.

From Shepherd to Security Guard: development strategies in the Badia

The development schemes of parts of the Jordanian Badia³ offer a representation of these dynamics. In much of the Badia, the land is considered unusable or of limited use and value. Many of these lands belong to specific tribes, known as *Al-wajhat al-asha'eria* or tribal lands. These often-large swaths of arid lands are used for grazing and pasture. Much of the Badia has limited available infrastructure, access to roads, electrification, or telecommunication. While much of these lands became arid / desert only recently through the process of state building, as discussed above, there is an entrenched narrative that they are desertified and degraded and that this degradation is due to misuse by the Bedouins, pastoralists, and local communities misuse.

During fieldwork in Amman, Jordan and through conversations with agricultural experts and bureaucrats conducted between 2019 and 2022, I explored how imaginaries of Badia and local livelihood practices, often results in development, rehabilitation, or conservation approaches that focus on technocratic and market-based solutions, which in turn further the marginalization of local communities entrenching existing inequalities and power dynamics. Several programs are attempting either to rehabilitate or find a way to take advantage of these “unused/unusable” lands through different schemes.

Restoration and rehabilitation

One example of these projects is the Badia Restoration Program through which lands are rehabilitated and planted with pasture crops that are then redistributed to the surrounding community that makes their livelihoods through pastoralism. The Badia Rangeland Rehabilitation Fund was set up as a compensation scheme due to pasture destruction after the Gulf War.⁴ Lands to be rehabilitated were chosen based on technical specifications that are set and assessed by a committee of experts from the ministry of agriculture. Once the land is chosen, a request for proposals is sent out for the planting, and the seedlings for

salt brush (*qatf Maleh*)⁵ are planted, the land is secured, and harvest is distributed. The land, which often is owned by tribal members, then becomes part of what is called state land (*“Khazenat al dawleh”*). This process is not reversible or time-bound. In turn, the landowner can hire or employ their relatives as security guards or other related positions for taking care of the land; they also reportedly receive other benefits related to employment and the potential to get paid to plant the land. Because the land is seen as valueless or unusable for any other projects, due to its distance from infrastructure and the land cover/soil type, this is often seen as the best way for pastoralists, especially since the crops used are saline and drought tolerant but provide enough feed for animals. *Khazenat al dawleh* lands have been contested in the past, especially once commercial investment returns are higher than the initial promised benefits to the tribal members, or when employment opportunities end. Other rural areas⁶ show that shifting autonomous subsistence livelihoods to wage labor through has been unsustainable and can result in conflict, especially since government employment is being actively rolled back and development funds have a time limit.

Sustainable Agricultural Investment

Another set of programs encourages commercial agricultural investment in lands in Badia and other lands that are considered second or third-tier agricultural land (in terms of suitability and soil conditions) and finding the lands that fit the technical requirements for planting (water availability, soil, and topography that can be rehabilitated, and access to infrastructure). These state lands can then be rented by agricultural companies or investors to use for their commercial activities. However, there are restrictions on which crops can be planted: 1- they must have commercial value, 2- they must be water smart / do not require much water, 3- must be a crop that the country has a shortage in/ necessary for food security or one that would not compete with existing crops in the market (such as tomatoes). Land can be rented from the government for “competitive prices,” with infrastructure being provided (roads, water, electrification), however, it is not clear yet if

it will be provided by the government or the investor or if the cost is embedded in the rental price. The idea behind this newly introduced project, which is backed up by the royal court and the king (shown by the king’s personal visits to some of the locations), is that by supporting agricultural investments, the country will be closer to food security, while these projects will provide economic and employment opportunities to locals in the selected areas. It is worth noting that many of these areas are home to communities that are well below the poverty line. Similar agricultural investments in the late 1980s Badia have not been successful with most contracts being revoked due to water shortages. Given the rampant inequalities within the agricultural sector and in the rural space, such investments in marginalized areas do not hold the promise of remedying inequalities, rather they threaten to exacerbate them. Furthermore, the readiness to allow investments onto contested and supposedly degraded and remote lands without a clear resource governance structure underscores the lack of coherent strategies related to rural development and natural resources.

Concluding thoughts

The current development approaches and agendas revolving around the Badia aimed at the rehabilitation of the land, ensuring food security and economic opportunity underscores the power struggles at play around land and soil use classification. Many of these tensions that underscore rural development strategies are not unique to Jordan, but feature in many post-colonial state formation and development narratives. Yet, when it comes to the MENA region, there is a clear lack of discussion of the issues related to land and agrarian politics (Ajl 2021). Rural inequalities are rife in the region well beyond Jordan (Ajl 2021).

Jordan has seen several protests of tribes demanding to reclaim their lands now that they have been used for commercial purposes. On the surface, the protests seem to center on economic and unemployment grievances; these are often a result of legacies or marginalization in rural areas.⁷ According to activists, community organizers, and

experts underlying tensions resulting from accusations of land and resource theft of tribal lands under government control that is claimed to be rented or sold for commercial or investment purposes (Personal communication Nov 2019 and Jan 2022).

Temporality plays a relevant role in the classification of arid lands. While the land would have been unusable over the past few decades from a commercial exploitation standpoint, this is a changing condition due to technological advancement, the discovery of historical sites, or tourism attraction.⁸ While communities might be willing to give up access or ownership to the lands at the time due to lack of any use, the question remains on how to address the issue of justice when the land becomes valuable from a market perspective due to advances or discoveries.

Soil has a symbolic meaning for grassroots resistance and subsistence, it is part of the everyday livelihood of rural communities. The continued encroachment on these spaces and the livelihoods of those who dwell in them is driven by contradictory narratives about the landscape and livelihoods, that are both damaging of productive lands, and backwards on unusable landscapes, with modernization, technology, and market forces offering the solutions either way. The attempts at commercializing Badia lands through agricultural investments has been attempted and scrapped in Jordan before⁹ due to water scarcity concerns. While the supply of water is even more strained and land more degraded today, the return to such projects underscores contradictions in how the state views its own resources and communities which can be traced back to these long-established narratives about Bedouin responsibility for its degradation and the need to modernize and commodify rural livelihoods.

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Endnotes

- ¹ In most policy and development circles, issues with soil and its management are embedded within land issues, whereby both are often conflated. For purposes of this discussion, land than could be thought of as space where livelihood activities may take place, and soil as one of the ingredients for these activities. Soil is one of the components that determine land use.
- ² Refers to the Jordanian steppe lands that are arid/ semi-arid and constitute 80% of Jordan's land area. The definition of the exact term is controversial, it is sometimes taken to relate to the term Bedaya (start).
- ³ Badia is not considered to be the same as desert since there is extensive plant and animal life, and is characterized by arid and semi-arid areas
- ⁴ The project is funded by the United Nations Compensation Committee – more information can be found on the project site: <http://www.badiarp.gov.jo/en/node/33>
- ⁵ This plant is drought and salinity tolerant and can be used as fodder, it also helps rehabilitate the land by reducing salinity
- ⁶ One prime example is Thiban, See Jarrar, S., & Melhem, Y. (2019, April 9). Society undermined: A Jordanian district's road to poverty and unemployment. 7iber. Retrieved March 19, 2022, from <https://www.7iber.com/politics-economics/society-undermined-thibans-road-to-poverty-and-unemployment/>
- ⁷ Protests span rural and urban spaces focusing on economic issues but differ (at least on the surface) in terms of demands, demographics, and approach.
- ⁸ Examples of this are the community tensions and changes in livelihoods in areas like Petra and Wadi Rum which are active and popular tourism sites. Currently, there have been archeological discoveries in parts of the south eastern parts of Badia which might spur tourism investment.
- ⁹ Contracts to Agricultural companies to operate in Wadi Rum (southern Badia) starting in the 1980s for 25 years, that were not renewed after the decision to divert ground water from agriculture to the urban areas for drinking use.

Living with a Future Submergence: Dams, Temporality and Sacrifice in Northeastern Turkey

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The number 711 is inscribed in several locations, on the rugged mountains, on the doors and walls of houses, and on the stones of terraced fields in Yusufeli, a small town in the Çoruh Valley in northeastern Turkey. In the center of Çeltikdüzü (Rice Plains) Village, the corner of the exterior wall of a house is marked in white paint. Located right in the middle of the main village road, the number is constantly reminding its inhabitants that a significant part of the village, including its rice paddies and vegetable gardens by the river, its irrigation canals, houses, and the mosque, will soon be flooded under the Yusufeli Dam reservoir. In another village, the number 711 is written on a big rock by the tributary stream, indicating the future upper end of the reservoir.

In his column in the Yusufeli Municipality's magazine, Yener Dedeoğlu, the assistant manager of the town's public education center, reflected on the significance of this number with a subheading that read, "711, the code word of Yusufeli": "It depends on your viewpoint. Whichever point you look from, you will see the 711. Again, it is about the viewpoint; according to some, better days will come; for some, it is a new excitement; for others, it is a smackdown, a destruction" (Dedeoğlu 2016: 61). The number 711, marked on a multitude of locations in the town, indicates the dam's reservoir elevation that would submerge the entire town center and nineteen villages. These white painted marks allow the future of the landscape to haunt every aspect of its inhabitants' daily lives.

What does the experience of living with future submergence entail? How do multiple and intersecting temporalities shape the politics of dam building? This article examines the practices and imaginaries through which its inhabitants currently experience the future submergence of the landscapes they dwell in. I shift attention from anti-dam movements - the topic that

critical scholarship has primarily focused on (Baviskar 1995; Ghosh 2006; Sneddon and Fox 2008) - to the everyday lives of those who continue living under the shadow of a planned and already accepted inundation. Dam building engenders an experience of inescapability shaped at the intersection of the past, the present, and the future (Bromber, Féaux de la Croix, and Lange 2014; Evren 2021). The process of waiting for the future submergence, I show, is not an eventless present. It is a time frame during which sacrifice and its politics acquire significance for the town inhabitants in their efforts to navigate the changes in the landscape.



Figure 1. House in Göcek village, inscribed with the number 711. Source: The author.

The making of a hydropower resource

The Çoruh River rushes through the northeastern provinces of Turkey for 354 km before crossing the border with Georgia, where it calmly flows for another 22 km before reaching the Black Sea. Known as the fastest running river in Turkey, it has been transformed into a national hydropower resource through the ongoing construction of 15 large dams. Succeeding the well-known

and widely studied Southeastern Anatolia Project in the Kurdish Region, Çoruh's reservoirs became symbols of the expansion of modernization and developmental endeavors to the last remaining "untouched" valleys in the northeastern borderlands far away from the center of the nation-state.

In the Çoruh Valley, the rainy coastal geography of the Black Sea gives way to a landscape consisting of a narrow valley floor with a swiftly running river surrounded by steep mountains. The valley presents a transit climate zone between the Black Sea coast with high precipitation rates and the terrestrial and arid central Anatolian climate. Its microclimate enables the cultivation of fruits and vegetables, including olives, which are generally not expected to grow in this part of the country. However, the climate's advantage for cultivation is reduced by the narrow valley floor and the lack of flat land. This condition leads to a specific form of farming in the region, requiring, in the first place, creating the land to cultivate. Valley inhabitants construct terraced plots by flattening the slope, retaining it with stonewalls, and bringing fertile soil, mainly from the riverbanks. The agricultural lands in the valley are therefore considerably small in size but surprisingly fertile and diverse in terms of cultivation.

The river's transformation from an ecology that, thanks to its flow, brings along soil for cultivation into a hydropower resource is a long process requiring numerous field observations, calculations, sampling, and documentation. Decades-long surveys and reports continued since the 1930s rendered the Çoruh Valley a site for hydropower development, replacing its value as a special agro-environmental region. Since its construction has started in 2013, the Yusufeli Dam - glorified as Turkey's highest dam - has become an index of this frontier zone's spatial and temporal integration to the national landscape. The governmental actors and technical experts have envisioned it not as a unidirectional connection in which progress is brought to the region via infrastructural development. They have also promoted the dam as a magnificent monument, arising amidst these long-forgotten steep and rugged mountains, which would carry Turkey into the

future. The small town, long inscribed with discourses of underdevelopment and lack of progress, has been cast as the channel and embodiment of future-oriented national achievements that would materialize through technical prowess and infrastructural expansion.

An Inescapable Sacrifice

While the dam indexes ambitions and aspirations for the future, Yusufeli inhabitants experience the process of its construction through another temporal reference, its prolonged history. "God created this valley for it to be dammed" is a frequently used phrase in the town. According to this widely circulating view among the project implementers as well as the local inhabitants, the topographic features of the landscape, and especially the velocity of the river running through the deep valley, have rendered it a perfect fit for dams. For many, this valley, which collects the streams of four different valleys, is a unique place destined for dam construction. Constructing a belief in the ecological destiny of the place, town inhabitants attribute timelessness and inevitability to the dams on the Çoruh. The idea of a "perfect fit" serves as to justify the sacrifice of the valley for the sake of national development.

Like many other town inhabitants, for Servet – a neighborhood *muhtar* – the process of living with future submergence entails constant ambivalence. When we met in 2016 for a lunchtime interview in a local restaurant alongside the river, he expressed the pain staring at the flowing water was causing to him. The reservoir would erase all the beauties of the landscape built through a tremendous amount of human labor, together with the memories and life experiences inscribed in them, he lamented. Soon his voice shifted from sadness to a firmer tone while expressing that the river did not belong only to the people of Yusufeli but to the entire nation. Yusufeli's inhabitants lived on the banks of this river; they were the ones who suffered the difficulties of living here, but on the other hand, all the people of Turkey had a right to benefit from the goods provided by this landscape. To him, the entire nation had the right to use the electricity produced

from this river; for that to happen, Yusufeli people would need to make self-sacrifice. The “local” river, through the trope of sacrifice, was scaled up to a “national natural resource” (Kurtiç 2019; Hoag 2019).

What accompanies the trope of inevitable sacrifice is a reference to the prolonged history of the dam projects on the Çoruh. On an early autumn day in 2016, I accompanied my host in the town and her two neighbors for an afternoon tea on Gülden’s balcony right across the view of the mountains in the town center, where on fawn-colored rocks surrounded by scattered bushes, the number 711 had been written with white paint. As Gülden was serving tea to everyone, her neighbor Fatma, who was a member of the governing Justice and Development Party’s (AKP) women’s branch in the town, started to talk about her feelings about the future submergence: “I have memories on every street of this town. All these streets are vital to me. It is something immaterial and irreplaceable. It tears my heart out (*içim gidiyor/parcalanıyor*).” To her, trying not to think about the approaching inundation was one way to soothe her grief on a daily basis. Another way was to accept it as an inescapable event that those who hold the power to rule have decided for a long time. “But the dam has a long history. Today its construction coincides with this government, but it is a state project that has existed for a long time,” she added.



Figure 2. The mountains above Yusufeli’s town center across Gülden’s balcony, marked with the number 711. Source: The author.

Referring to the long history of the dam projects on the Çoruh is a common way in Yusufeli to disentangle the drastic transformations experienced in the socio-natural landscape from the political power and responsibility of the AKP government, of which many town inhabitants are the constituents. Moreover, the long temporal scale that crosscuts the rule of several different governments creates the notion of a persistent and unpreventable state project beyond the local inhabitant’s sphere of influence.

The future submergence is therefore rendered a lamentable yet inescapable political ecological fate. Just as the marking of the stones and mountains with the number 711 brings the future submergence into the present, Yusufeli inhabitants situate the present within the prolonged history. They do so by hinging on a belief in the destiny of the landscape shaped by its creation and by recalling the long history of turning the river into an observable, legible, and profitable hydropower resource. Nevertheless, life in Yusufeli is not merely reduced to waiting in stillness for the inescapable. Anthropologist Erdem Evren (2014) shows that waiting in Yusufeli generates new forms of hope for profit making from expropriation, as well as it creates a sense of fatigue from suspension and uncertainty. In the next section, I will demonstrate that, as an ongoing socio-material construction site, the town witnesses emergent forms of politics organized not to stop the submergence but to intervene in the process leading to submergence.

Shaping the process that leads to submergence

In 2018, as the dam construction progressed into its fifth year, town inhabitants started to feel its material impacts on their daily lives more directly and drastically. That summer’s primary concern was the construction of a viaduct as part of the main road leading to the new town center at the resettlement site. The viaduct was planned to pass through the very center of the soon-to-be-inundated town where people still resided. Its construction required the displacement of several shops and buildings, including the central secondary school and the buildings of key local state institutions. Ramazan, the owner of the coffeeshop right across from the District Directorates of Agriculture and of

Forestry, whose primary source of income was the tea and coffee he served to these institutions, described to me how shopkeepers decided to organize to oppose the viaduct that would displace them in the absence of a proper plan for resettlement. The sudden demolishment of the existing town center for building a viaduct that would lead to the still non-existing resettlement site seemed unjust to them. They were not actively opposed to the sacrifice of their town under the dam waters for the sake of greater national interest and development, but in turn, Yusufeli inhabitants raised claims for compensation and proper handling of the process. In other words, their sacrifice was not for free; it was built upon and generated a notion of reciprocal relationship (Açıksöz 2020; Govindarajan 2018).

After holding meetings in Ramazan's coffeehouse for about a week, the group, mainly composed of male shopkeepers, decided to organize a march and a press release, and they applied for a permit from the Provincial Governorship. After the 2016 military coup attempt that took place in Turkey, the governor had been prohibiting any kind of public march, protest, or press release in the province, and he did not make an exception for their application.

Still, shopkeepers decided to go ahead with the march. However, on the day of the march, they heard that the riot police assigned to come from the neighboring district to prevent their march had a severe accident on their way and five injured police officers were brought to Yusufeli Hospital. Upon this incident, the committee decided to cancel the march to show their respect for the police, Ramazan explained. Still, thanks to their determination in resisting the viaduct, shopkeepers succeeded in postponing its construction. He believed that delaying the viaduct was partly a political move on the part of the government to avoid public criticism before the upcoming general elections, which included the parliamentary elections as well as the first presidential elections of Turkey. In contrast to his brother-in-law, who perceived the viaduct incident as a signal indicating that it was time for his family to outmigrate, Ramazan and his family stayed in Yusufeli as they acquired more time before their business would be severely impacted, even though they remained skeptical

about for how long the viaduct construction would be halted. Delays in construction and infrastructure projects do not only produce economic and political power (Arican 2020) but they are also forged by inhabitants in finding a way to continue living in sacrificed landscapes.

As life still continues under the shadows of an inundated future, Yusufeli inhabitants enact politics not by resisting the dam and the town's flooding. Instead, their politics entail attempts to intervene in how the process unfolds until the day when the waters will gradually rise to the elevation of 711 meters, like an hourglass made of not sand but water. Ramazan and others, who are not actively opposing the dam, experience the submergence as an inescapable future, which they intend to find ways to live with at the present moment. However, the process of waiting for future submergence is not a passive and eventless one. As the case of opposing the viaduct exemplifies, even if Ramazan and his friends have made a sacrifice and accepted to live in an hourglass, they do not refrain from intending to control the neck of the hourglass to ensure they have a say in the process that will eventually lead to submergence.



Figure 3. A secondary school student's painting from the exhibition "The Future of Yusufeli"

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What Displacement Teaches us about Surviving Changed Climates

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“When I came here, I could not find the right kind of clay,” Ma Jowad¹ told me as she shapes dirt into a paste to plaster her *tannour* bread oven. Displaced from mainland Iraq, Ma Jowad was one of many farmers who resided in unfinished construction sites in the Kurdish foothills, where everything from soil to social topography was different. She taught me soil science in terms of the “clinginess,” “stickiness,” and temperature of clay, soil, and cement. For her, making a *tannour* that would stick enough but not too much to bread dough requires experimentation. This location was contaminated with cement byproducts, but nevertheless she tried to use dirt, and later clay from a nearby hillside, and even later, cement itself. The struggle was getting the side of the oven, the dough, and fire to all interact in the right way. Back at home, she knew from “nerve memory” what worked, but now: “this place is new to me. I have to learn like a child all over again.”

Ma Jowad is doing “climate change adaptation,” or to put it my own way, she is living in a changed environment because she is a displaced person. Adapting to rapidly transformed environments as they move, displaced people know climate change well. That displacement is thoroughly shaped by the role of empire in catalyzing climate change. The Cost of War Project has estimated that the Global War on Terror has displaced 37 million people: 37 million people who have been introduced to new climates in the past two decades, via migration alone, living in ecosystems unrecognizable to their parent’s generation. 37 million people are learning and developing rapid lessons like their many displaced predecessors from diasporic communities who survived plantation slavery (Whayne 2014), global capitalism (Soluri 2005), settler extraction (Voyles 2015), colonialism (Garriga-Lopez 2022), weather crises (Masco 2010), and borderization (Marquez 2012), let alone the political dispossession of those who remain in (Bishara 2022), remain apart from, or return to militarized landscapes (Saleh 2020).

I use the term “climate change” reluctantly, as a phrase deployed by the American right to vanilla the scariness of global warming. “Change,” as opposed to “warming,” is not necessarily bad (that is the purpose in replacing one term with the other). The term “climate change” is a political compromise that, nevertheless, offers useful conceptual openings. For example, this paper addresses how environments do not only change around people as they stand still. Some of the most abrupt, vividly documented, and cutting-edge “climate change adaptations” are based in the experiences and innovations of the displaced, whose environments change because they move to new places, or return to altered ones. While climate change (as in global warming) *causes* mass displacement, climate change (as in changed environments) is also an *effect* of mass displacement.

The displaced have a well-documented history of relating to other species and places in newly configured ways, often under stress. This is not exclusive to humans. The Columbian Exchange,² facilitated by colonial violence, was one of the greatest mass migrations of species, transforming the entire globe by launching invasive species into new places, wiping out whole populations of indigenous plants and humans, and radically shifting food production world-wide (Melville 1997, Simberloff 2013). Melissa Nelson articulates how survival methods including cultural memory practices are central to how indigenous communities survive relocation, both forcible and not (2008, 2018). These forced adaptations are evident in a place like Iraq, which has seen decades of US sanctions, occupation, and war.

“Did you know that if the entire world started *tomorrow* with all the recommended steps it takes to prevent climate catastrophe, we would still see a rise on global temperatures as long as the US military continues to exist?” I did not know this until Dr. Firas told me during my most recent visit with him in Baghdad. Dr. Firas is an

old friend and doctor treating birth defects in Fallujah. He reminded me of the very overt global ties between militarism and climate change in these simple statistical terms. Indeed, the US military has been identified as the world's biggest "climate change enabler," as a catalyst for ecological destruction, and as a major greenhouse gas emitter --the 47th largest in the world, more than most nation-states (DOD 2021, Sanders 2009). The deployment of the US military in warfare alone is a major climate change producer, for both displaced people experiencing new environments and in terms of global warming.

Displacement and climate change are mutual constitutive phenomena integral to military violence. As Catherine Besteman argues, global mobility is increasingly policed and securitized even as migrant labor is in increasing demand by Global North countries (2020). While this is a global trend, insights from specific contexts are not scalable (Yusoff 2018, Tsing 2012). Based on ethnographic fieldwork with Anbari and Kurdish farmers in 2014, 2015, and 2021, this paper details how people displaced by these imperial wars are adapting to changed or new environments in ways that inform ground-up approaches to survival. It is organized into three sections: Displaced people on new landscapes, Displaced landscapes for returnees, and Displacing activist politics. Each section has ethnographically informed lessons about ground-up climate change survival.

Displaced People on New Landscapes:

Ma's Lesson: Let go of purity

As she works the materials around her, Ma Jowad intentionally exposed herself and her grandchildren to known toxins in her new environment in order to adapt. She defined this process as necessary to getting her family connected to the land, or embedding into a new place. Her lesson was one of exposure, contact, and immersion as a generalizable lesson displacement can teach all of us about letting go of purity as we relate to changed environments. This was in 2015. From what I could tell when I visited a few years later, she never did find the right clay. However,

she worked at it for so long that she got her grandchildren acclimated to things that made them sick before: the local water had made them vomit in 2014, but eventually they adjusted.

I had forgotten until reviewing my notes that she described climate change in her childhood that paralleled her experience here. I asked her where she got the idea to keep working the materials around her, when others stopped trying or planned to wait until they returned home. She responded: "During sanctions, we had to do the same thing. We had different farming conditions, suddenly, with no imports and exports, we had to save different seeds, and focus on different ways to make strong crops." She described how "home" changed right under her nose before... the fact that she was the one who moved this time did not alter her mode of adaptation. She tells me, "We always have to start with danger because it is everywhere. Look around... it is everywhere all the time. I mean, think of it, my husband went missing during the Iran war. I can't expect him to return, and I can't assume he is dead. That's just how it is." She ties her relationship to her environment with the equally uncertain condition of her husband's long-term status as "missing." She reminds herself not to wait for perfect conditions, to let go of purity.

Othman's Lesson: Be transhumant, not attached

Othman developed an entirely new rhythm with his land back in Anbar province from his refuge in Kurdistan. He remained displaced for four years during ISIS-related upheaval. He was displaced for two years before, during US bombardment. He "snapped back" to his original method of keeping his crops alive, developing a total of six years practicing transhumance farming: basically, during military battles, Othman flees with his family and then makes short trips to his farm to fertilize, harvest, or do repairs. It does not always work, since he cannot time his trips according to his trees' needs but instead to breaks and shifts in military activity.

He talks about military violence like the weather, an integral part of the overall climate. When we planned a

trip back to his farm, I asked what day we would depart: “It depends on the conditions. We have to see what the news says, and we will go when the skies clear.” (He was not referring to rain forecasts but to missiles in the sky). When we got to his land, a few trees had died because the irrigation was broken and they were too long deprived of water. I felt sadness for the trees, but he said, “You can’t get attached when you come and go like this. Losing some trees is part of the situation. If you get attached, you will want to stay and fight. Some people do, but that is other tribes, not mine.”

Being transhumant – coming and going in a seasonal pattern—is one way of incorporating displacement into staying and surviving. But this requires a different kind of attachment, one that is looser and more flexible than it might have been otherwise. Displacement and climate change are not only contemporaneous processes, but mutually defined conditions.

Displaced Landscapes for Returnees:

Hameed and Haj Ali’s Lesson: Scale down

Hameed traveled to and from his date farm in rural Anbar while displaced. A few years later, in 2021, he has returned full-time, adapting to a changed homeland. Farming conditions were transformed by and in his absence... His soil was fed water by irrigation. The land itself is very dry without irrigated water, and when this is disrupted for too long, the whole place changes in irreversible ways. The worms, molds, and many microbes that make the soil “rich” die without human cultivation. It takes a long time to rebuild soil and underground ecosystems, especially if it becomes salinized. Hameed calls this a “loss beyond loss” – a loss for which he cannot immediately recover, because more than one factor has been changed for too long. It is what an ecologist would call a “tipping point”: conditions can intensify in an ecosystem for quite a while and still snap back, but once conditions push past a tipping point, it is nearly impossible to restore the former conditions (Scheffer 2009). The displacement of humans is part of the tipping

point for Hameed’s land. His return, therefore, cannot solve everything, or maybe even anything. Hameed finds himself beyond the tipping point, past the j-curve, after the fear of potential ecological collapse is realized. He is now a local expert in growing dates in an environment that was changed, in part, because of his displacement.

He has bad choices. He could buy a lot of chemical inputs to fertilize the soil synthetically. This will poison the water supply over time, but it will help him capture a yield of dates large enough to stay in business. This prioritizes urgent matters over important ones. Or Hameed could sell his land to an agricultural company. The Iraqi government, restructured by the US, no longer subsidizes farmers like it used to, so the market leans in favor of Big Agriculture. Many farmers who sell have to find other work. Some return as a day laborer on their own land, so this is not a great economic move if he can hold on to his land another way.

Instead, Hameed is scaling down: he grows fewer trees and uses his adaptive model of pollinating the dates with the assistance of onions and his family. (Hameed uses onions to induce nectar production in his date flowers, which assists in their fertilization. He made this discovery out of desperation in 2014 when the air was too dry for the pollen to stick to his flowers’ stamens.) He also started depending on the dates for food, selling fewer and saving more for himself. He is growing a greater diversity of food, too, pushed into subsistence farming. This is not new, exactly. During sanctions, food availability was limited and Hameed ate what his family grew to supplement rations. Hameed’s experiences of climate change are always overtly anthropogenic –sanctions or war– both require him to manage sudden environmental changes: “...We have to be creative. But we also have to lower expectations. My yield will not be as high as it was before. That is just the way it is. I can be disappointed, or I can be grateful. And I can expand the farm later, when conditions change again.” Scaling down is one way farmer adapt without selling their land or livestock. As Haj Ali, a cattle herder, told me: “We are smaller, but we are still here.”

James' Lesson: Stay shocked

James returned to his hometown in northern Iraq, having been a refugee in England for two decades. At 40, he had spent his first 15 years here, and then returned about 5 years ago. His British accent disappeared as he slipped into Arabic, describing his deep love of the river. "When I was a boy, I would herd goats here. ... We went all over this area, along the river here. Oh! Look here, I remember this spot used to be so deep... [after walking downriver] Yeah, see here? I used to swim here. I used to swim all over here, and drink the water, and I loved it so much. Now it smells. You smell that? This is sewage." For James, a return to his hometown was an abrupt juxtaposition, highlighting changes to his beloved river. He went on: "I think when you go away from home and come back, it shows you how rapidly the whole planet is warming. Like if I returned to England and went to the countryside, maybe I would notice a lot of changes because I have been away. I get so upset, and I want people to notice, but a lot of local people just got used to it. They say, 'What can we do? Things change.' I am still shocked. You have to have a little shock to stay outraged, to really organize the community."

For James, displacement is a catalyst to politics, one that situates him as an insider-outsider. I saw how his shocked state was noticeably contagious and helped with agitation in the grassroots community organizing of which he was a part. I watched him interact with families who seemed complacent about environmental damage and how, over time, he recruited their outrage about destruction.

Displacing activist politics*Ayman's Lesson: Organize everyone*

In 2021, I met a wide range of environmental activists. Many were detained and harassed for putting the environment front and center in the 2018 popular protests and related policy demands. Some were in hiding, some had fled from Baghdad to other parts of Iraq, and others had applications with the UN and IOM to resettle outside

of Iraq. They are working for Iraq's environment from afar, and in hiding, as displaced people. Others, like James, are diaspora returnees.

At dinner one evening with some of these activists, a dish fell and shattered. Ayman jumped with that too-quick, too-strong reaction of someone who experienced a recent trauma. I knew he had been detained by the Iraqi police after being in the Tahrir square protests and that he was based in Baghdad until recently, when he brought his family north. When I asked about his jumpiness, he told me more: he was detained for several weeks, interrogated often, and threatened with torture. "They would take a glass bottle and threaten to sodomize me with it. They did other things, too. They threatened my family... but then I kept telling them, look guys, you need to care about this too. I am talking about the air you breathe, and the water you drink. Don't you care where this trash ends up? Like this bottle, after you put it up my ass, where will it go -- in the river where you get your fish for dinner? Is this the Iraq you are protecting? In the end, I think they were more convinced. Sometimes they seemed to be really concerned and asked me things like, can you tell us if this place has radiation? Can you test my water if I bring some from home? Things like this. It's a lesson for me: we have to organize *everyone*."

Ayman was released just two months before we met. A few days later, his wife was intercepted en route to the grocery store and threatened by secret police. While he was released under the condition that he would discontinue activism, he of course continued to organize even during his detention. His sense of humor and stubborn attachment to his work means he has no intention of leaving Iraq, either, but he would like to leave for just a few years until things calm down for him politically. We strategized ways to get him out, but for now, he continues to work with the knowledge that "eventually they will kill me. If I don't leave, they will kill me."

While Ayman is technically "up river" and still connected to the same waterway he loves, he is among many

environmental activists estranged from the very places they wish to protect. People like Ayman take with them their expertise in soil science, toxicology, ecology, biology, and their skills in community organizing and grassroots political pressure. Whether returnees or newly displaced, many of Iraq's grassroots environmentalists are leading from outside, displaced from their usual categories of citizenship and personhood. This follows a global pattern in the political displacement of environmental activists by assassination, threat, and departure/return.

Conclusion

Many of Iraq's ground-up leaders in climate change adaptation are not self-identified activists, while some are. Their forms of displacement are myriad, as are their theories for surviving in changed environments. As a displaced person in a new environment, Ma Jowad's lesson was to let go of purity, while Othman's lesson was the be transhumant and unattached. As returnees to changed environments, Hameed's lesson was to scale down. And as a politically displaced environmentalist, Ayman's lesson was the organize everyone.

Given displaced peoples' diverse expertise in surviving changed climates, their active inclusion is key to practices and policies of climate adaptation. As more and more people are displaced, new categories of political leadership and representation are forming. Displaced people all over the world are taking new forms of leadership worthy of attention in movements for environmental justice. Their efforts are worthy of attention not only because it is just, but also because, as Melissa Nelson reminds us about traditional ecological knowledge, everyone's survival may depend upon their insights and methods.

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Endnotes

¹ All names are pseudonyms.

² The Columbian Exchange refers to the mass transfer of plant and animal species, disease, and human populations between the Americas and the so-called "Old World" in the 1400s, initiated by Christopher Columbus and subsequent contact between the hemispheres.

Climate, The Environment and Health of Migrant Workers: Lessons from Kuwait

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Workers are often exposed to harmful mixtures of chemical and physical exposures at the workplace that eventually leads to poor health. However, for migrant workers, stressors from many other levels cumulatively wear down their health. In this paper, I use Kuwait as an example. I highlight four key domains where risks can overlap for migrant workers: the individual, the community, the workplace and the environment. Then, I summarize the recent epidemiological evidence that describe key health disparities in migrant workers. In the hot desert climate of Kuwait, I focused especially on two key environmental exposures that are expected to be amplified in the future due to climate change: 1) extreme heat and 2) dust storms. I call for a disaggregated and intersectional data that allows epidemiologists in the region to further examine the adverse health impacts that climate change could bring to migrant workers. Finally, I argue for the inclusion of ‘health’ in the social justice and political conversations on migration.

Background

At the population level, not all communities get the same degree of environmental protections, nor do they get equal access to the decision-making process that ensures a healthy environment. Nothing illustrates this more clearly than migrant workers. Migrant workers are usually left out from protections established by public policies, while facing precarious work conditions characterized by long hours, low pay, and suboptimal occupational safety and health training.⁽¹⁾ They work in conditions often called “3-D jobs”: dirty, dangerous, and demanding employment. (2) Migrant workers tend to take more risks on the job and cannot complain about unsafe working conditions because they always face the risk of losing their jobs or being deported. Often, there is no official unionization that would potentially give voice or provide additional protections for migrant workers. This power differential

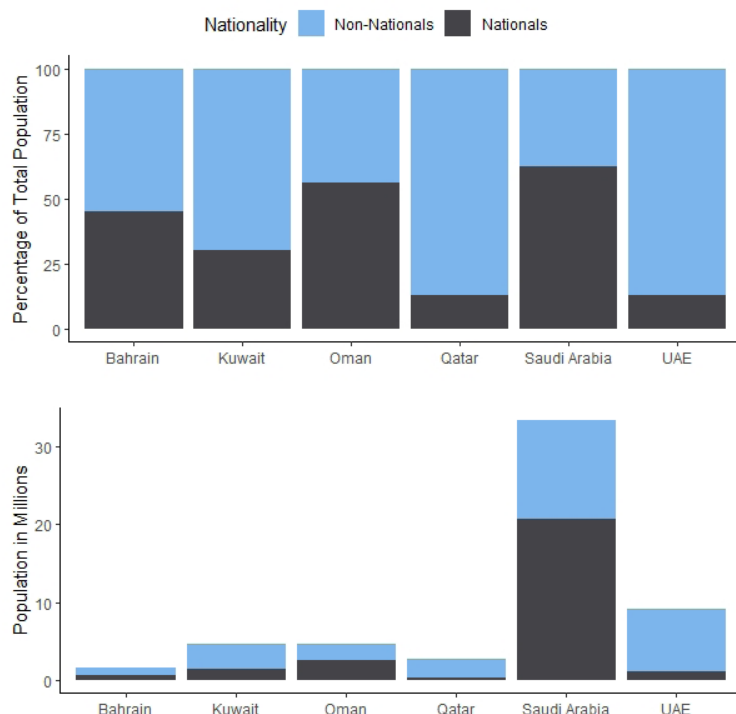
usually results in migrant workers’ unwillingness to assert their rights.

The Gulf countries – Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates (UAE) – host millions of migrant workers. In general, non-nationals constitute a very large percentage of the population (*Figure. Panel A*); more than 80% in Qatar and the UAE, two-thirds in Kuwait, nearly half in Bahrain and Oman, and one-third in Saudi Arabia.⁽³⁾ The vast majority of the non-nationals are migrant workers. Usually, they are middle-aged males who come to the host country unaccompanied by their families.^(4,5) (*Figure. Panel B*) This skew in the population pyramid introduces key vulnerabilities in population health that need to be explored and addressed.

The scientific consensus of the intergovernmental panel on climate change (IPCC) in its sixth assessment report in 2021 was ‘*virtually certain*’ that the magnitude and frequency of heat events have increased on the global scale since the last century. But the warming of our planet is not evenly distributed. In inherently hot and hyper-arid regions like the Gulf countries, temperatures are already soaring to unprecedented record-high levels, and climate change seems likely to have disproportionate impact on countries and specific populations in these regions. For example, extreme heat, beyond the body’s ability to regulate, is associated with increased risk of hospitalization and death. Under hot conditions, the capacity to do physical work and motor-cognitive performances are reduced, leading to serious occupational health concerns. Similarly, blown dust and associated fine air particles penetrate deep into the lungs and the blood stream which in turn can lead to major exacerbations of existing morbidities and other fatal and non-fatal health events.

In this paper, I use Kuwait as an example of how current and future environmental stressors impact the health of

A)



B)

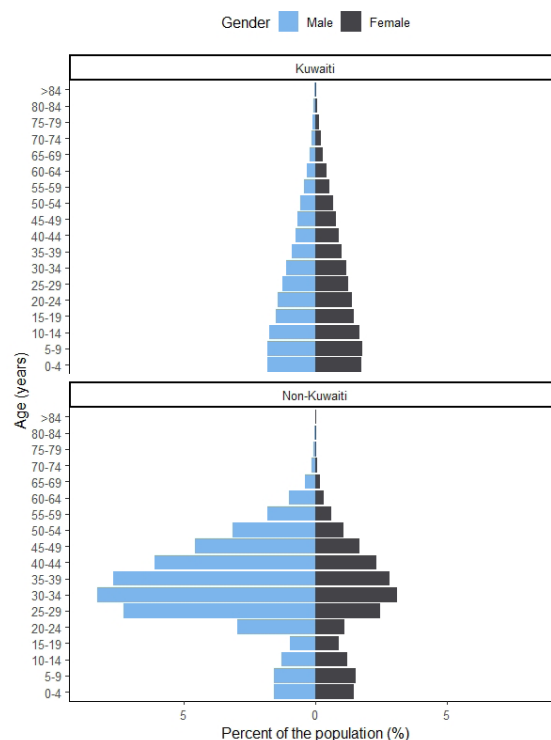


Figure. Panel A: Distribution of the non-national population in the Gulf Countries. Panel B: Population pyramid in Kuwait stratified by age, gender and nationality.

marginalized migrant workers. I summarize the recent epidemiological evidence that describes the health disparities seen in this subpopulation. Finally, I argue for the inclusion of 'health' in the social justice and political conversations and call on epidemiologists in the region to further explore the data on migrants, the environment and health.

Climate change and air pollution in Kuwait: History and future

The oil fires in 1991 following the Gulf war were among the most destructive environmental disasters in recent history. Kuwait recorded extremely high air pollution levels that prompted the country at that time to put serious efforts in assessing environmental exposures. The country has a harsh desert and hyper-arid environment. Frequent dramatic dust storms in Kuwait City deposit more than

270 tons of transported sand per km² each year, one of the largest totals of any city in the world.⁽⁶⁾ Kuwait is also one of the hottest countries in the world. In 2016, the temperature in Mitribah, Kuwait reached 54°C, which was the highest officially recognized temperature globally.⁽⁷⁾

There is little cause for optimism in future projections of these environmental exposures. If current global emissions remain the same (business-as-usual), Kuwait, and the rest of the Gulf region, will likely experience substantial increases in mortality risk due to extreme temperatures. (8)it is essential to quantify and synthesize climate change impacts and characterize the associated uncertainties. By synergistically using projections of climate scenarios from an ensemble of regional climate models and a spatially explicit version of an empirical health risk model, here we quantify the mortality risk associated with excessive heat stress for people aged over 65 years old across the

Middle East and North Africa (MENA) Some researchers suggested that these extreme temperatures will render the region uninhabitable by the end of the century.(9) It is estimated that by 2060 and under a moderately less extreme emissions scenario, Kuwait could see more than 1.8°C increase in average temperature compared to the early 2000s.(10)

For inherently hot regions like the Gulf, an increase in average temperature will bolster heat effects by frequency, magnitude, and duration of occurrence. This will translate into increased burdens of mortality and morbidity, especially among vulnerable subpopulations such as migrant workers who are at-risk from extended periods of exposure to these environmental stressors.

Health vulnerability of migrant workers in Kuwait

Workers are often exposed to harmful mixtures of chemical and physical exposures at the workplace that eventually result in poor health. These exposures, however, do not occur in isolation from other stressors.(11) More specifically, migrant workers are exposed to an array of stressors from what can be conceptualized as from four key risk domains: individual, community, occupation and environment.(12) In Kuwait, the stressors from all domains can overlap and increase the vulnerability of this marginalized subpopulation (Table 1). Looking at all these stressors, poor health of migrant workers is inevitable.

Table 1: Examples of stressors on migrant workers in Kuwait that contribute to poor health from four different risk domains

Risk domain	Stressors
Individual	<ul style="list-style-type: none"> - Lack of information and interpretation services - Poor access to healthcare services - High diagnostic and treatment costs - Undiagnosed chronic conditions (e.g., blood pressure, heart diseases, etc.) - Poor access to healthy diet or food choices - Increased smoking prevalence
Community	<ul style="list-style-type: none"> - Poorly maintained neighborhoods - Cramped and unhygienic housing - Lack of recreational facilities - No physical activity options - Overall community deprivation
Occupational	<ul style="list-style-type: none"> - Limited occupational safety training - Limited availability of personal protective equipment - Exposure to toxicants and chemicals at the workplace - Poorly regulated long hours - Low pay - Stressful demanding jobs - Bullying at the workplace - Job restriction and exploitation through the 'Kafala' system
Environmental	<ul style="list-style-type: none"> - Extended exposure to outdoor air pollution - Extended exposure to outdoor extreme heat - Poor indoor thermal comfort (e.g. air conditioners) - Poorly fitted housing with high infiltration of dust - Water contamination

The Individual, the Community and the Workplace

At the individual level, non-Arab migrant workers in Kuwait do not usually have a serviceable command of the local language, and even Arab migrant workers may not have access to information on the health system and regulations. At the time of writing this paper, there are no programs of integration nor any mandatory interpretation services at public hospitals in the country. Access to healthcare services is free of charge for Kuwaitis but it is not for free for non-Kuwaitis, although some basic healthcare services can be covered by an annual health insurance fee.

At the community level, there are different segregated residential areas for Kuwaitis and non-Kuwaitis with striking differences in neighborhood deprivation. Strict family visa rules result in male migrant workers coming unaccompanied by their families and living in cramped houses that are solely populated by males. These neighborhoods are poorly maintained; they lack recreational facilities, healthy food choices and physical activity options.

At the workplace, there are limited occupational safety protections and training which likely results in increased risk of injuries and work-related diseases. There are systematic problems in the 'Kafala' visa-system that restricts the worker's ability to change employers or change jobs. As a result, most of the jobs are demanding, with long hours and low pay. Migrant workers are often subject to workplace bullying and demeaning behaviors. Examples of bullying include social isolation or exclusion, devaluation of the subject's work and efforts, and feeling threatened or frustrated. Evidence suggests that bullying at the workplace is associated with overall poor health.(13)

The Environment

Environmental stressors further wear down the health of migrant workers. Especially in Kuwait, workers are at high risk of adverse health outcomes because they spend extended amount of time in a harsh outdoor setting. Only

4% of Kuwaitis take jobs that involve manual work(5); these physically demanding jobs are occupied by non-Kuwaitis. There are two environmental outdoor exposures that are amplified in Kuwait's desert environment: 1) dust storms and 2) extreme heat.

Dust

Dust storms carry large quantities of fine particles that, when inhaled, can penetrate deep into the respiratory tract and the lungs. The evidence suggests that there is potentially a direct physical damage to the lung cells that could trigger an inflammatory response.(14) These fine particles can also travel in the blood stream and lead to exacerbations of existing heart diseases. Extended exposure to poor air quality from dust storms is linked to increases in morbidity and mortality rates.(15,16)

In Kuwait, where severe dust storms are frequently observed, our research group examined more than 17 years of mortality data stratified by nationality, age and gender.(17) The local context of this epidemiological investigation provided key insights into the impact of dust storms on mortality in the country. The risk of dying from dust exposure was significantly higher for non-Kuwaitis (total), non-Kuwaiti men and non-Kuwaiti adults aged 15 to 65 years. It was surprising to find that the risk of death for the non-Kuwaiti adults in working age was high from this environmental exposure. One would expect this young age group to be generally healthy. However, they are the ones who get extended outdoor exposure. Overall, we found a 4% increase in the risk of death for non-Kuwaitis during dust days compared to non-dust days. During the same period, there was no noticeable increase in death risk for Kuwaitis from dust storms.

Heat

The body has a complex mechanism in which its core temperature remains unchanged. This 'thermo-regulatory' biological process has a certain threshold that can be exceeded when the body is exposed to extreme hot temperatures over an extended period. The body will try to

cool its core temperature by making changes to its blood vessels, blood pressure, heart rate and other physiological functions. The responsiveness to such cooling attempts may fail and this could lead to serious consequences, and potentially death.

Over the last couple of years, our research group conducted a number of health assessments related to extreme temperatures in Kuwait.(18–20) We found an alarming doubling to tripling of the risk of death for non-Kuwaitis and non-Kuwaiti males during extremely hot days as compared to days with optimal temperature. Similar to our dust findings, non-Kuwaitis despite their young age were still vulnerable to extreme heat. No significant increases in the risk of death were seen among Kuwaitis and Kuwaiti males for the heat exposure.

The data in these Kuwait studies was not stratified by work status but rather by nationality. The use of nationality as a proxy for migrant workers means that many affluent non-Kuwaitis are included in the same analysis group. In that case, however, the published results are even more worrying because they are underestimated due to the inclusion of affluent individuals who have socioeconomic resources and are not often exposed to outdoor dust and heat.

Climate Change

We used historical mortality data to study the risks of environmental exposures on migrant workers. The future health risks that are induced by climate change cannot be easily described due to the uncertainty associated with population dynamics, advances in technology, trajectories of weather patterns, global efforts to curb emissions and many others. However, some researchers attempted to investigate future mortality projections in the region. Studies revealed that in the near future, the risks of heat-related mortality are expected to sharply increase. By the end of the century, mortality rates are predicted to increase by a factor of 8 to 20 times the current rates in the Gulf countries.(8)it is essential to quantify and synthesize climate change impacts and characterize the associated

uncertainties. By synergistically using projections of climate scenarios from an ensemble of regional climate models and a spatially explicit version of an empirical health risk model, here we quantify the mortality risk associated with excessive heat stress for people aged over 65 years old across the Middle East and North Africa (MENA) We need local studies that utilize country-specific temperature and mortality data to project future climate change impacts on migrants in the Gulf.

Additionally, in arid regions, climate change is inducing droughts and desertification of lands. Increasing temperatures and reduced precipitation will lead to loss of cultivable land making the surface soil loose and prone to wind transportation and hence generation of dust storms. An analysis of the last 15 years of satellite data showed that loss of vegetation in Iraq and nearby countries was associated with increased dust storms in Kuwait.(21)

In addition to extreme heat and dust storms, climate change is associated with a number of other health risks (beyond the scope of this paper) such as vector-borne diseases, increased allergens, severe weather events, disruptions to food and water supplies, mental health disorders, and many others.

Other Epidemiological Studies

In recent years, an emerging body of epidemiological studies have investigated different health vulnerabilities of the migrant workers population in Kuwait. The storyline is similar. Young, otherwise healthy, migrant workers in Kuwait are systematically subject to adverse health outcomes. A summary of these studies is provided in Table 2. During COVID-19, migrant workers in Kuwait experienced higher transmission rates (22) and were more susceptible to severe COVID-19 than Kuwaitis.(23) There was a disproportionate increase of 72% in excess deaths among non-Kuwaitis in 2020 (vs. 32% for Kuwaitis).(24) In other non-fatal health outcomes, migrant workers in Kuwait also had a high prevalence of occupational-induced hearing loss.(25)

Table 2: Recent epidemiological evidence on the health vulnerabilities of Non-Kuwaiti migrant workers in Kuwait

Study	Exposure	Health Outcome	Findings
(A) Environmental Health Studies			
Achilleos et al. (2019)(17)	Air pollution and dust storms	Mortality	4% and 5% increase in non-Kuwaitis and non-Kuwaiti males risk of mortality in dust days compared to non-dust days, respectively. No significant increases were seen among Kuwaitis and Kuwaiti males
Alahmad et al. (2020)(19)	Extreme temperatures	Mortality	The risk of dying for non-Kuwaitis and non-Kuwaiti males in extremely hot days is 2- and 3-times higher than optimal temperature days, respectively. No significant increases were seen among Kuwaitis and Kuwaiti males
(B) Other Epidemiological Studies			
Buqammaz et al. (2021)(25)	Occupational noise	Hearing loss	20.4% of non-Kuwaiti workers who work in the Shuaiba area industries were medically diagnosed occupational-induced hearing loss
Hamadah et al. (2021) (23)	COVID-19 infection	Needing intensive care and mortality	Non-Kuwaitis had a two-fold increase in the odds of death or being admitted to the intensive care unit compared to Kuwaitis
Khadadah et al. (2021)(22)	Nationality status	Spread of COVID-19	A partial lockdown in Kuwait reduced the effective reproduction number (R_e ; a transmission factor) of COVID-19 among Kuwaitis, but it nearly doubled for non-Kuwaitis who are typically clustered in certain areas.
Alahmad et al. (2021)(24)	Nationality status	Excess mortality during the pandemic year of 2020	In 2020, deaths among non-Kuwaitis increased by 71.9% whereas deaths among Kuwaitis increased by 32.4%.

Parting thoughts

Population health data is usually collected and analyzed for an aggregate estimate. For the Gulf countries, this carries a significant risk that marginalized migrant subpopulations are left unexamined. I call upon data analysts and epidemiologists in the region to examine the health disparities seen in migrant workers and recognize our responsibility towards the most vulnerable people in our society. Future climate change and health studies must be designed in a way that enables data collection and analysis among those that are marginalized, excluded, and discriminated against.

Many—if not all—determinants of health are centered around the environment in which the individual lives in and interacts with. Communities with low socio-economic resources and deprived neighborhoods are more vulnerable to environmental stressors compared to affluent communities. Beyond heat and dust storms, this environmental injustice observed in Kuwait can manifest in a range of other unhealthy exposures from worsened air pollution to poor water sanitation and exposure to chemical toxins and microbial agents. Early environmental justice movements in the western world grew out of areas that had a brutal legacy of slavery, political disenfranchisement, and racial minorities. I argue for the fair treatment and meaningful involvement of migrant workers to develop, implement, and enforce environmental health protections, especially in light of a changing climate that will amplify these environmental stressors. A changing climate is not felt equally by people, it is always the poor and the most vulnerable that are the worst hit.

Unfortunately, far too often I see social justice and human rights advocates and academics discuss migrants' rights in isolation of public health. However, we continue to witness health disparities arising from systematic injustices that are closely linked with social, economic, and environmental disadvantages; and typically in communities that are historically excluded and discriminated against. I argue that health is inseparable from equal rights and opportunities; it is a fundamental human right that allows

us to enjoy life and pursue our goals. 'Health' should be central to any social justice argument. 'Health' should also be central to any environmental policymaking.

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Arab Climate Urbanism: An Ecological Fix?

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The climate emergency is an urban emergency. Cities, and the processes of urbanization, have been identified by scientists as significant sites of Greenhouse Gas (GHG) emissions. The rapid extended urbanization around the globe has accelerated increases in emissions in recent years. However, while cities and urban infrastructure are a central vector of GHG emissions, they also offer a critical opportunity for adaptation and mitigation of climate change. There are indications, even if insufficient and laggard, that governments across the world are moving to “enact proactive socioeconomic reconfigurations” targeted toward cities that “help write the new rules of the ecological game” in response to the climate crisis (Castree and Christophers 2015, 378). Castree and Christophers (2015) hope for the possibility of an “ecological fix” that switches capital on a massive scale toward an ecologically and socially progressive reconfiguration of infrastructure and the built environment in a way that sustains the long-term viability of biophysical goods and services. They are cautiously optimistic that governments can provide the right incentives for financiers to craft investment vehicles to help decarbonize the world’s current infrastructure assets and to realize its profound potential to “remake the [urban] arteries through which capital flows” (Castree and Christophers 2015, 385). We live in hope.

The recognition by scholars and policymakers of the importance of cities and urbanization to adaptation and mitigation strategies, and the possibility of an ecological fix, has resulted in the formation of the field and domain of practice conceived as “climate urbanism.” In this paper, I outline what climate urbanism is, explain how it is distinct from, but overlaps with, ideas of sustainable urbanism, and unpack its key ideas of “urban climate change resilience” (UCCR) and “low carbon cities.” Within the climate urbanism scholarship, there is significant attention to how UCCR and low carbon strategies are actually frameworks for “greenwashing,” a branding exercise proclaiming

ecological responsibility rather than active material practices to mitigate and adapt to climate change. While scholars do dispute how meaningful climate urbanism is to the actual material practices of contemporary cities and urbanization, few contest that it is a rapidly expanding urban policy field with ever greater financial resources directed toward it. This growing scholarly and policy field of climate urbanism is global in scope, but the Arab world has largely been ignored. The Arab world is part of this global urban and financial restructuring under the rubric of climate urbanism, with implications for urban politics, finance, and governance to which we as scholars and policymakers should be attentive.

In this paper, I consider the complex implications of climate urbanism for the Arab world and outline the distinctive features of an Arab climate urbanism: it is notably top-down, financialized, plagued by greenwashing, and framed around infrastructure and urban mega projects. Greenwashing is, as I detail, pervasive in what I identify as “Arab climate urbanism.” But there are also indications that climate urbanism - its concepts, practices, and the finance that is attached to them - is beginning to change how the urban is thought about and materialized in the region. I highlight the important large scale transport infrastructure that has been built across the region in recent years, the continued expansion in localized building standards, and “green” financial innovations. I do not argue here that Arab climate urbanism is a driver of new models of urbanism. There is no evidence of an “ecological fix” in the Arab world to adapt or mitigate climate change. Whether or not an “ecological fix” is possible will be a question for the history books. My argument here is that climate urbanism is a growing trend in the region, worthy of greater scholarly attention, and one that should be put in conversation with the climate urbanisms that have emerged around the world.

Climate Urbanism

Climate urbanism is defined by the recognition that urban areas and the processes of urbanization are key sites in relation to the causes and consequences of climate change, as well as mitigation and adaptation. Cities and the processes of urbanization (i.e. basic urban services; food, energy, water, and waste systems; transport infrastructure) are understood as crucial drivers of GHG emissions. Reconfiguring urban contexts is therefore critical to reducing human induced GHG emissions in order to keep the goal of 1.5C alive.¹ Urban climate action consists of a myriad of actors reconfiguring urban transport, energy, water, waste, housing, and sanitation, as well as green space (Robin and Broto 2020).

Climate urbanism is a distinct urban paradigm from “sustainable urbanism,” with an intersecting but separate historico-geographical formation (for an overview see, Bulkeley 2021; Long and Rice 2019; Hodson and Marvin 2017). Climate urbanism is rooted in municipal politics. Bulkeley (2021) notes that the seeds for climate urbanism were sown in the 1980s as local authorities (predominantly located in EuroAmerica) began setting their own targets for taking action to combat GHGs. Notably, these early efforts by municipalities focused on mitigating climate change through the reduction of GHGs rather than on adaptation. In the 1990s, Bulkeley (2021) argues, these voluntary municipal efforts were taken up by transnational organizations providing international visibility and in turn, “a new host of new actors, networks and forms of finance came into the urban arena in pursuit of climate change goals” (267).² In the aftermath of the 2008 financial crisis that was accompanied by an intensification of the climate crisis, climate urbanism began to form as a clear force in urban politics, practice, and thought.

Resilience has been a key concept within climate urbanism. Urban climate change resilience (UCCR) is now at the heart of a growing scientific and policy literature, and many cities around the world have UCCR frameworks (Wardekker 2021).³ UCCR is a wide-ranging concept that is framed and interpreted in highly variegated ways. Arjan

Wardekker (2021) has explored four typical framings of UCCR: urban shock proofing; resilience planning; community disaster resilience; and resilience community development. Broadly UCCR is associated with helping cities plan for extreme weather events and worsening air quality and entails investing in infrastructure updates and “climate-smart” planning. UCCR is focused on adaptation to climate change. The climate urbanism concept focused on mitigation has been the idea of the “low carbon city.”⁴ Plans to achieve “low carbon cities” broadly focus on “green” energy, investing in public and low emission transport, waste management, and building efficiency (“green” buildings). The policy approach for low carbon cities has typically been marked by a narrow framework focused on accounting and monitory systems to build complex models of the circulation of carbon through urban environments (Hodson and Marvin 2017, 16). This focus on carbon is driven in part by the rise of carbon markets that operate in some form across the world (in the EU, Canada, China, New Zealand, South Korea, Switzerland, and the US).

Arab Climate Urbanism

The language of climate change, and even climate urbanism, is now mainstream. No region or country can ignore the global shift in discourse and finance around climate change. Indeed, there has been over the past decade, as Mari Luomi (2021) has detailed, a move in the Arab countries at the policy level from an almost non-existent engagement with climate change, to a context in which nearly all countries in the region now have some level of policy development in relation to mitigation and adaptation. Another sign that the Arab region is increasing its engagement with climate change is signalled by the fact that COP27 is scheduled to be held in Egypt in 2022, followed by COP28 in the United Arab Emirates in 2023.⁵ As part of this policy turn, I argue that the contours of climate urbanism are beginning to become visible in the Arab world which have implications for our understanding of the social process of urbanization in the region. Increased attention across countries, from Egypt to Kuwait, is evident in relation to public transport, building

standards, energy use, and the urban hazards climate change poses.

In the Arab world, the energy intensive and nominally market-led urbanization over the past thirty years has been central to the region's rapidly rising GHG emissions. It has also resulted in a significant increase in the number of people in the region exposed to hazards associated with climate change. Climate hazards are increasing in both frequency and severity. It is expected that more than 90 percent of the 300 million people exposed to super- and ultra-extreme heatwaves will live in urban centres in the Arab countries (Zittis et al. 2021). In 2016, the Kuwait Mitribah weather station recorded a temperature of 53.9 degrees Celsius, the uppermost temperature ever recorded in Asia and among the highest recorded on Earth. But climate change not only brings the challenge of ultra-extreme heat to the Arab region and its predominately urban inhabitants. The Arabian desert, one of the driest places on earth, is having to increasingly contend with the consequences of floods in its expanding urban centres and ever more severe dust storms. Rising sea levels threaten the region's coastal cities. The densely settled coastlines along the Red Sea, the Arabian Sea, and the Mediterranean, as well as those who rely on the Nile Basin (an estimated 238 million people), are all at risk.

It has been money, rather than the hazards climate change poses, that has been the prime motivator for those in power in the region to attend to the issue of climate change. The financial and economic stakes of climate urbanism, and its attendant concepts of UCCR (adaptation) and low carbon cities (mitigation), are vast. Trillions are required and will have to be reallocated – what Castree and Christophers (2015) identify as an “ecological switch” - from fossil fuel-intensive sectors, to build the required solar panels, wind farms, green building standards, and transport systems. *The State of Cities Climate Finance* estimates that between \$11-20 billion per year will be required for adaptation alone and that in 2017-2018, an average of \$384 billion was invested in urban climate finance. The report details that most of the urban climate finance is concentrated in OECD countries

(Western Europe, \$85 billion; North America, \$47 billion and East Asia and the Pacific, \$85 billion annually) and China. In the Arab world urban climate finance remains minimal to date. *The State of Cities Climate Finance* reports that urban climate finance in the MENA region accounted for \$11 billion in 2017-2018. The IFC estimates that there is the potential for \$142 billion in urban climate finance private sector opportunities annually.

It is becoming clear in financial centres around the world, including in the Arab region, that to tap into global capital markets you have to engage the field of green bonds. In 2020, Egypt launched a US\$750 million sovereign “green” bond that was five times oversubscribed (and followed by a US\$100 million bond in 2021 by the Commercial International Bank of Egypt). This was the first sovereign green bond in the region and much of these funds will be directed at urban contexts for “green recovery” projects. Many other countries in the region are preparing to raise capital through the issuance of green bonds. Saudi Arabia, through its sovereign wealth fund (PIF), is reportedly currently preparing to issue its first sovereign green bond. Abu Dhabi has announced that it is to launch the first regulated carbon credit trading exchange and clearing house in the world.

Green finance, mainly targeted at the built environment, is making its presence felt in the Arab world. Islamic finance has also developed instruments that utilize ideas of “sustainable finance” and “green finance.” Islamic green *sukuk* (understood as Islamic-compliant green bonds) have emerged following the world's first green *sukuk* that was issued in 2017 by a Malaysian solar photovoltaic company (Liu and Lai 2021). These green *sukuk* are now becoming a Malaysian “innovation export” that are being adopted and acknowledged internationally (Liu and Lai 2021, 1909). In 2019, Majid Al Futtaim Holding issued the first Green *sukuk* by a GCC corporate for \$600 million. A green finance sector has now formed across the Arab region. What constitutes “green” finance or a green project, the supervision of this financing, and the extent that this is all “greenwashing,” are all issues that need to be analysed and debated. But over the past decade, a green finance field has

emerged in the region that has notably social and urban implications that needs further analytical interrogation.

The emergence of green finance has not meant that climate urbanism is a dominant framework in the Arab region. While more and more cities around the world have established at the very least adaptation plans (even if only a limited number have been implemented), most cities in the Arab world still have not. The weak municipal power in the region has likely contributed to the minimal presence of Arab cities in major climate urbanism networks, like C40 Cities. The Arab climate urbanism that has emerged has not been led or initiated by municipalities but by central government and is predominately pursued through private-public partnerships. This has resulted in the formation of many large scale urban mega projects that are clear and rather crude illustrations of “greenwashing.” It has created a “luxury” climate urbanism that is embedded in the urban projects of the rich and disconnected from the everyday realities of the majority of the region’s urban inhabitants.

The UAE’s model Masdar City (which has been the subject of a vast scholarly literature⁶), received great publicity as a zero-carbon, zero-waste, smart-, eco-city that would have 40,000 residents and 50,000 commuters and cost US\$22 billion. According to Griffiths and Sovacool (2020), by 2019 about 10 percent of Masdar had been completed, few residents live there, and officially, rather than US\$ 22 billion, it now has a budget of reportedly US\$10billion (what has been spent and by whom, is not public information). It was never clear to those engaged in Masdar what “zero-carbon” meant (Günel 2019, 123). The greenwashing spectacle that Masdar City achieved has been repeated throughout the region. Dubai Sustainable City, for instance, the first “Net Zero Energy Development,” is a high-end real estate development that features 500 villas grouped into five residential clusters, it also includes a farm and an equestrian centre. In Egypt, the luxury tourist enclave of El Gouna has announced that it aims to be Africa’s first carbon-neutral city. In Saudi Arabia, the fantastical US\$500 billion NEOM project announced that its first development - a city known as “The Line” – will

be a “zero-carbon” city, extend over 170 km and house a million people, and plans include no cars or streets. While these projects *are* merely crude examples of greenwashing, they simultaneously articulate how Arab governments and key actors in the region see it as being important to signify their climate credentials and ecological consciousness. These urban spectacles, however, should not lead us to dismiss climate urbanism as a real material force or urban development logic in the region.

The more prosaic forms of Arab climate urbanism can be seen in transportation, a sector that has a large share of global GHG emissions. There has been a notable expansion and awareness of the need for greater public transport across the Arab region. Several cities have built or expanded existing metro and bus systems. Most notably, Saudi Arabia has recently established a mass transportation system plan for all its major cities. In Riyadh, a metro system is due to be opened very soon – with testing currently underway – that consists of six main lines, 85 stations, and covers 176 km. A bus network has also been launched along with it. The media reports that the metro system cost \$22 billion. In Egypt, the third metro line is soon to open (expected to be June 2022) in Cairo and construction has begun on a fourth line with further lines planned. In Alexandria, there is significant investment being undertaken on expanding and rehabilitating the tram system. The train system across Egypt has also received notable investment in recent years. It is this type of large-scale concentrated diversions of investment that Castree and Christophers (2015) are pointing to in their hope that financiers can achieve a massive “capital switch” along more eco-friendly lines. Of course, these initiatives are not enough to stem GHG emissions in the region or address the climate emergency. Equally, they are substantive material achievements that cannot be dismissed as “greenwashing.”

Less visible and flashy urban initiatives have also been developed and are growing in the region regarding climate urbanism but have not received the same scholarly attention as urban mega or infrastructure projects. Green building codes and standards are one notable example.

While only the UAE and Jordan have established green building councils registered with the World Green Building Council, several councils across the region are being actively formed. Egypt, Kuwait, Lebanon, and Qatar all have “emerging” status for their councils and Bahrain and Palestine “prospective.” Most notably, Abu Dhabi has developed its own sustainable certification system for sustainable design. The Estidama program (similar to BREEAM and LEED) has a “Pearl Building Rating System (PBRs)” that encourages water, energy, and waste minimization, local material use, and aims to improve supply chains for sustainable and recycled materials and products. In 2010 an order was issued that all new buildings in Abu Dhabi must meet Estidama requirements. Saudi Arabia has also recently developed Mostadam (based on LEED). There has been a notable shift in attention toward “green” building regulations and their importance.

Conclusion

Arab climate urbanism is still in its infancy. The region’s major cities do not have urban climate change resilience (UCCR) strategies or climate action plans more broadly. Those projects that are framed as zero or low carbon urban initiatives are overwhelmingly crude examples of greenwashing, utilized to merely add an extra polish to luxury real estate developments. Furthermore, unlike climate urbanisms in other global regions, Arab climate urbanism is notably led by central governments rather than by municipalities (top-down) and is intensely financialized. The result of this is a distinctive Arab climate urbanism characterized almost entirely by large-scale infrastructure and urban mega-projects. These transformations in public transport, energy, building codes, and the rise of green finance are worthy of scholarly attention. But they are not an “ecological switch,” nor do they constitute “new rules of the ecological game.” This top-down financialized Arab climate urbanism also produces a profound disconnect between the inhabitants of the region’s cities, climate urbanism initiatives, and the significance of mitigation and adaptation efforts more broadly (see for example, Sharp et alia. 2021).

This paper seeks to be among the first to identify Arab climate urbanism as a field of policy and practice to encourage further scholarly and policy conversations to assist in the effort to forge the required socioeconomic reconfigurations into being. As the next two COPs bring the conversation around climate change to the region, I hope that this can create an opening for a more substantive conversation over the critical role urban contexts in the Arab world can have to mitigate the climate emergency, as well as their need to adapt to it. The International Panel on Climate Change (IPCC) has made clear that climate change is a threat to human wellbeing and the health of the planet and that there remains a brief but rapidly closing window to secure a liveable future. An ecological fix remains possible, and inaction increasingly impossible.

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Endnotes

- ¹ The Paris Agreement agreed to the goal to limit global warming to well below 2 degrees and preferably 1.5 degrees. stands for the goal of trying to limit future warming to 1.5 degrees Celsius since pre-industrial times. The International Panel on Climate Change (IPCC) has detailed that global warming of 1.5C – that we are on track to breach within two decades - will result in increases in the frequency and intensity of hot extremes, marine heatwaves, heavy precipitation, agricultural and ecological droughts, more intense tropical cyclones and reductions in Arctic Sea ice and permafrost. The IPCC has also stressed that a 2C increase would result in a notably worse outcome.
- ² "Networks" constituted mainly by municipal actors have been notable actors in the formation of low carbon urban policies. In the 2000s a range of networks emerged - such as the Cities for Climate Protection programme, Energy Cities, the C40 Cities Climate Leadership Group, the US Mayors Climate Protection Agreement, the European Covenant of Mayors, and the Asian Cities Climate Resilience Network – that made a significant impact on the scale and scope of municipal responses to climate change. These networks have continued to grow and solidify. The C40 Cities Group is now a network of mayors across 97 cities that seeks to "halve the collective carbon emissions of member cities within a decade, while promoting equity, building resilience".
- ³ Indeed, as part of COP26 a "race to resilience" initiative was launched as part of the climate adaptation summit. The Rockefeller Foundation, the major corporate engineering firm Arup and associations like the Asian Cities Climate Change Resilience Network have been key in creating the normative templates for UCCR.
- ⁴ This is not to suggest, however, that what constitutes a low carbon city is not a site of intense scholarly and policy debate (for an overview see,

Luque-Ayala, Marvin and Bulkeley 2018).

- ⁵ The Arab region has hosted two COPs previously both in Morocco (COP7 in 2001 and COP22 in 2016). Morocco is a notable exception regarding climate change in the Arab region and is seen as an international leader on climate change; it has sought international climate financing actively. But as Luomi (2021) outlines Morocco while the most active Arab country in terms of climate action, it has done this mainly orientated toward Africa and Europe and sought little regional cooperation with its Arab peers (318-319).
- ⁶ The fact that Masdar City that is in its final physical form is an inconsequential architectural and urban project has attracted such a vast scholarship, should be cause for concern amongst urban scholars (see for instance: Günel (2019); Caprotti and Romanowicz (2013); Crot (2013); Cugurullo (2013, 2016); Cugurullo and Ponzini (2019); Evans, Schliwa and Katherine (2018); Griffiths and Sovacool (2020))

Between ‘Suffering’ and ‘Surfing’: Environmental Sustainability Management and its Transnational Dynamics on the Arabian Peninsula

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Over the past years, the Arabian Peninsula has experienced increasing and extraordinary environmental and climate-related threats (see Alahmed and Sharp in this collection). These environmental stressors include unprecedented heatwaves in Kuwait and Abu Dhabi, flash floods in Saudi Arabia and Yemen, and cyclones in Oman. In light of these risks and challenges, the concept of ‘sustainability’ (*‘istidāma*) has received broader attention. Although the concept is widely used and accepted, there is much disagreement masked behind that seeming consensus (Scoones 2016; Mensah 2019). Claiming that we need a clearer idea of what this means and a better understanding of its transnational dynamics, this paper investigates sustainability management across the Arabian Peninsula.

It takes the conceptual springboard of “surfing” and “suffering” sustainability that denotes ‘winners’ and ‘losers’ of environmental sustainability (Brinkmann 2020, 6). While the oil- and gas-rich Gulf monarchies, particularly Saudi Arabia, Qatar, and the United Arab Emirates (UAE), might be considered ‘winners’ of a sustainable transformation, Yemen is broadly considered an example of ‘suffering sustainability’ (see also: Brinkmann 2020). However, it shows the limitations of such a nation-centered and dichotomous approach by emphasizing the regional entanglements. At its core, this article argues that such a perspective misses significant aspects of environmental justice and ecological responsibilities since Saudi Arabia and the UAE have been involved in the military conflict in Yemen, which adds to the country’s environmental vulnerability and climate crisis.

The concept of environmental sustainability

Sustainability has become a popular buzzword, but it is also a vague and challenging concept. Various terms such as sustainable development, economic sustainability,

social sustainability, and environmental sustainability exist simultaneously, raising ambiguities about sustainability’s meaning. The classic understanding refers to the UN-led approach to three canonic dimensions of environment, economics, and social equity. In this regard, sustainability refers to social equity and progress (i.e. improving cultural, health, and educational systems), sustainable economic growth (i.e. capital accumulation in line with the planet’s regenerative capacity), and environmental protection (i.e. conserving and safeguarding ecosystem integrity and climate systems) (Mensah 2019).

In practice, however, the two pillars of social and especially economic sustainability received greater attention and priority. Until recently, a common perception among policy makers and experts was “to grow first and clean up later” (Elder & Olsen 2019, 70). It has only been recently that the environmental pillar gained a revitalized public interest. This was particularly apparent in the articulation of the Sustainable Development Goals (SDGs) (2016-2030). In order to delimit the idea of environmental sustainability, this study applies a practical approach and relies on the environmental-related goals of the SDGs. Out of the overall 16 goals, the following have an explicit reference to environmental sustainability: (6) Clean Water and Sanitation, (7) Affordable and Clean Energy, (11) Sustainable Cities and Communities place special indirect emphasis on environmental sustainability and goals, (12) Responsible Consumption and Production, (13) Climate Action, (14) Life below Water, and (15) Life on Land (Elder & Oleon 2019).

The different ‘roles’ of sustainability on the Arabian Peninsula

Surfing sustainability: The case of the rich Gulf monarchies

The Arabian Peninsula's arid and hyper-arid climate has always been a harsh environment for human settlement. Its water-scarce and prevailing hot and dry climate impeded large-scale agricultural activity. Frequent sand and dust storms acted as further strains on human health (see Sharp and Alahmad in this collection). The exploration of oil during the first half of the 20th century was a game-changer. The oil boom brought prosperity, development, and modernization that helped the state-building processes among the Arab Gulf monarchies. However, the countries' extremely rapid and hypermodern development course created an ecologically questionable lifestyle of unprecedented overconsumption. Today, oil- and gas-exporting Gulf monarchies have the largest ecological footprints on earth and face an "era of natural unsustainability" (Luomi 2012). In an increasing climate- and carbon-constrained world, they have to undertake a fundamental energy transition and adapt to climate change and its existential threats such as unprecedented temperature increase, sea-level rise, and more frequent natural disasters (e.g. sand/dust storms and flash floods).

Nevertheless, the oil- and gas-exporting Gulf monarchies have been able to weather these challenges quite successfully so far, in part due to their exceptional financial resources. In fact, some leaderships, especially in Doha, Abu Dhabi, and Riyadh, were able to turn constraints into opportunities and thus, depict an interesting case of 'surfing sustainability'. By integrating environmental sustainability in their strategic development papers (visions), they were able to embark on an ecological modernization course that is both economically and politically beneficial at several levels.

In the mid-2000s, countries in the Gulf started to develop cutting-edge sustainable or greening already existing grand projects. A very early example is the Masdar Initiative or simply 'Masdar'. Especially, the creation of Masdar City as the region's first-of-its-kind eco-city (see Sharp in this collection) turned into the key steering instrument in promoting Abu Dhabi's green image (Cugurullo 2013; al-Sulayman 2021). Several years later, Qatar received attention by promising to carry out the

first carbon-neutral Soccer World Cup in 2022. Since then, large-scale sustainable urbanization projects such as a public transport system, green stadia, and a number of eco residential areas have been constructed. Lately, Saudi Arabia has also announced the development of its futuristic US\$500 billion NEOM project, which will include a 'zero-carbon' city called 'The Line'. All these eye-catching announcements and projects help to increase the country's popularity inside and outside. Frequently, they are portrayed as the brainchild of a leader's wisdom and vision (Koch 2014). One very common and apparent practice is name recognition, whereby environmental-friendly vanity projects are closely linked to the respective ruler at the top of the state. Examples include Dubai's biggest solar-generated power plant, the Muhammed bin Rashid Al Maktoum Solar Park or Saudi Arabia's King Salman Renewable Energy Initiative, the Salman Environmental Awareness and Sustainable Development Program, and the creation of the Mohammed bin Salman Natural Reserve.

At the same time, the countries have developed their own national companies specializing in renewable energy. Backed with political and financial power, Saudi Arabia's Acwa Power, Abu Dhabi's Masdar Power, and to a lesser extent, Qatar's Nebras Power, have established themselves as leaders in developing clean energy projects worldwide. They are not only responsible for developing many of the national renewable energy projects but are also key investors across the globe with a special focus on the Arab region. The strong presence of these companies in close partner countries indicates that these investments in alternative energy are also strategic (al-Sulayman 2021; Sim 2022). This is particularly apparent in Jordan, where all companies account for an impressive share (Acwa Power: 40%, Masdar Power: 18% and Nebras Power: 14%) of the country's installed renewable energy capacity (Sim 2022). Hence the strategic promotion of renewable energy through national champions is both a form of new business opportunities and soft power considerations.

The Gulf countries have further aligned their national sustainable transformation plans with their foreign policy.

Over the last decade, Saudi Arabia, Qatar, and especially the UAE made some constructive contributions during the last UN Climate Change Conferences and also comply with internationally agreed climate commitments like submitting and updating their NDCs on a regular basis. They all have also engaged in numerous climate and environmental international networks and, in the case of Saudi Arabia and the UAE, also proposed their own regional climate plans and initiatives. In 2011, Qatar was also the host of the climate summit and Abu Dhabi has been awarded lately to host the event in 2023. This new form of climate diplomacy can be seen as a further way to bolster the countries' international reputations and partially revise their previous image as climate laggards. At the same time, it may also strengthen their influence in the global community.

Suffering sustainability: The case of Yemen

At the same time as these advances, resource poor and less developed Yemen, situated on the same peninsula, is on the brink of a humanitarian and environmental catastrophe. Climatic stress and environmental degradation considerably impact the country's agriculture and rural life causing food insecurity and extreme water scarcity. Against this backdrop, access and distribution of resource management is a serious problem. Dwindling resources due to climate change and environmental degradation increase the suffering of millions of Yemenis. Yemen's 'endemic' water scarcity and the competition over access and distribution of water resources have received some attention (Weiss 2015; Ward 2015). At the same time, conflicting parties are engaging in military action over the control of Yemen's natural resources (Sowers & Weinthal 2021). Especially the Southern and Eastern parts of the country, including Hadhramaut, Shabwah, and Marib, have experienced fighting over the economically viable oilfields (Al-Mowafak 2022). More recently, practices of illegal and excessive wood cutting are becoming more common. Due to the lack of diesel, there is an increase in cooking gas prices and flourishing black market activity in fuel derivatives of all kinds (diesel, petrol, cooking gas) (Bilkis & Zumbrägel 2022).

The growing threat of climate change only accelerates the bad situation. Torrential rain and floods affected almost half a million people in 2020, many of whom were already displaced due to the conflict. Flash floods, especially in the Hadhramawt governorate, damaged agricultural lands, public infrastructure, and private property. At the same time, the rainwater mixes with sewage water, wastewater, and byproducts from oil refining, which are transported over long distances, causing cancer cases and further public health problems (Al-Akwa & Zumbrägel 2021). In addition to occasional natural hazards, the country is also suffering from long-term climate effects such as sea-level rise in the densely populated coastal areas. Climate-induced migration flows constitute another source of growing environmental vulnerability and social tension. Oftentimes, internally displaced people (IDPs) suffer the most from already poor hygiene and sanitation situations. In areas such as Ta'iz, there are increasing reports about conflicts over dwindling freshwater reserves between host communities and IDPs (Bilkis & Zumbrägel 2022).

While Yemen has suffered from many of these threats prior to the war, the outbreak of the civil war in 2014 followed by a Saudi-led intervention has amplified many of the problems. Amid the disastrous humanitarian crisis that resulted from the ongoing war, sustainability has no priority at all. In clear contrast to other countries on the Arabian Peninsula, Yemen is suffering from sustainability. The decentralized and powerless government fails to adequately address the ecological challenges: there is no coordination and cooperation among the various national and local governmental institutions and authorities. Many of them have ceased work, mostly because of a lack of financial, human, and technical resources. One of the visible results of this non-existent sustainability management is the widespread pollution problems in Yemen. The politics of waste which Baker describes in her contribution to this collection can also be extended to the Yemen case: urban centres in the country suffer from solid waste, sewage, and garbage accumulation since existing waste management stations stopped working or are highly overloaded.

The external parties to the conflict such as Saudi Arabia and the UAE also have an impact on Yemen's environmental suffering. Since 2015, both countries have been involved in large-scale damage of the natural environment and destruction of civilian infrastructure that is crucial for Yemen's human security (Sowers & Weinthal 2021). In fact, the UAE has benefitted from the war economy by strategically occupying critical seaports and oilfields along the Southern area of Yemen. This is particularly apparent on the island of Socotra, as Hadil Al-Mowafak from the Yemen Policy Center notes, the creation of military bases and major urban planning projects have not only caused "severe damage to the island's unique ecosystem," but the Emirati government has also illegally sold large parts of protected areas of the island, especially on the Dixam plateau (al-Mowafak 2022). In its occupied territories, the Emirati government has also issued a ban on fishing in some areas, leading to the loss of livelihoods for many Yemenis that work as fishermen (al-Mowafak 2022). At the same time, Saudi Arabia and the UAE provide large-scale humanitarian aid and development assistance to Yemen (Sowers & Weinthal 2021). However, they do so with their own terms and conditions. During the flash floods in 2020 and 2021 help was exclusively channeled to their allied partners in Yemen (Al-Akwa & Zumbärgel 2021).

Additionally, the above-mentioned strategic deployment of clean energy for economic and political gains is also part of the Gulf monarchies' involvement in Yemen. During the last climate summit, the UAE's special climate envoy and former CEO of Masdar, Sultan al-Jaber, declared that his country "views development aid and climate action as powerful catalysts for economic growth" (Permanent Mission of the UAE to the UN, 2021, November 11). In this vein, the UAE has made large-scale investments in solar power plants in Socotra over the last two years (Emirates News Agency 2020, June 29). The largest power plant, which has been recently inaugurated, has been named after the UAE's president, Sheikh Khalifa, and was funded by the Sheikh Khalifa Foundation. While it was initially promised that electricity would be free of charge, electricity counters with a prepaid system were soon installed in Socotra. The

responsible operator of electricity is an Emirati "shadow company" (Interview with a researcher, 2022, January 28). Saudi Arabia has lately started to construct solar-powered water pumping stations and thus, assists Yemen in its water crisis; although the Saudi kingdom was long-term the key export market for water-intensive crops from Yemen.

Conclusion: Open questions of environmental responsibility and 'just sustainability'

The approach of sustainability management differs greatly on the Arabian Peninsula. Frontrunners such as Qatar, Saudi Arabia, and the UAE follow the idea of ecological modernization that comes with several benefits for their own national development. Yemen, in turn, reveals the dialectic relationship between the management of nature and violent conflict. The Gulf monarchies' way of 'surfing' sustainability further reveals that they mainly adopt a weak approach to sustainability that almost exclusively focuses on economic prosperity and energy security. In fact, they are mainly focusing on two of the Sustainable Development Goals, namely goal 7 of clean energy and goal 11 of sustainable cities and link them to their overall state vision.

For these states, a climate- and carbon-restricted world is not a constraint but an opportunity. Environmental sustainability has been largely seen as making good business and improving the Emirate's reputation as the world's petrol station. They invest heavily in alternative and cleaner sources of energy (e.g. solar, wind, and nuclear power) as well as decarbonization measures. At the same time, the Gulf monarchies are gradually expanding their oil and gas production. According to decision-makers that rule over the oil exporting country, this is not contradictory. For them, it is not the hydrocarbon commodities that need to be restricted but their fugitive emissions from exploiting and processing. This provides several benefits: investments can shift into new non-hydrocarbon and promising sectors, while the leadership continues to receive revenues from selling oil and gas as long as it remains profitable. Additionally, this article further indicates how climate diplomacy and clean energy

investments also reveal soft power projections of some assertive Gulf states. In short, one can ‘surf’ the global trend of sustainability and can make economic and political capital out of it.

The article further shows that there is a transnational dynamic to sustainability management that is not often considered in nation-state centered research. Saudi Arabia and the UAE’s schizophrenic involvement between exploiting Yemen’s ecosystem and environmental capital and providing environmental assistance are further aspects to take into consideration when describing the discrepancy between suffering and surfing sustainability on the Arabian Peninsula. This forces questions concerning environmental justice and ecological responsibilities and complicates the seemingly disparate categories of ‘suffering’ and ‘surfing’ sustainability.

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Words, Water, and Waste:

How Government Discourse Shapes Environmental Protest in Lebanon and Jordan

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When do preexisting environmental demands enter the discourse of wider episodes of mass mobilization? This memo revisits theory developed in the study of social movements in Latin America to assess one key variable that could answer to this question in the Middle East and North Africa. We argue that government discourse around water, waste, and disaster management can help account for cross-case variation in whether protesters elevate preexisting environmental grievances to the national level during episodes of mass mobilization. In doing so, we highlight the explanatory power of discursive battles between state and society over the “imbued meaning” of industrialized resources. By examining environmental movements in two cases from the “second wave” of 21st century Arab uprisings, we assess different policy discourses toward environmental concerns in past decades.

Lebanon and Jordan both experienced mass protests during the 2010-2013 Arab Spring and then again in a 2018-2019 “second wave.” In both cases, environmental frames featured as fringe elements in 2010-2013, if at all. Yet the two countries witnessed varying degrees of environmental mobilization between these two waves and, most importantly, saw a strong divergence in environmental demands and frames in the second wave of protests. In Jordan, demands of protests that began in December of 2018 focused largely on economic grievances,¹ while environmental protests tended to remain hyperlocal. Lebanon’s more radical wave invoked a critique of the country’s political system and sectarian governance. Concerns around water, trash, and disaster management served as central symbols for the government’s illegitimacy.²

While we limit our discussion to two cases and do not seek to control for every possible variable, comparisons between Jordan and Lebanon generate a multi-pronged comparative paradox with implications for trends in the

region’s contentious politics. Why would Jordan’s severe water crisis yield such weak environmental mobilization when compared to Lebanon? Though Jordan remains an extreme case, this same question could be posed with reference to other counterfactual cases in the region. For example, Algeria³ and Morocco⁴ saw numerous rural protest movements that invoked environmental issues emerge in the 2010s. Yet as these movements grew into each country’s respective *Hirak*, these frames had to compete with other political and economic as these movement coalitions grew to include urban populations. This highlights the uniqueness of the Lebanese case, where environmental grievances seemed to resolve sectarian collective action issues and persisted as a prominent frame in the 2019 protests. This paradox has generalizable implications, as environmental precarity itself rarely predicts the emergence of successful environmental movements. We hope isolating one key variable can add nuance to debates on environmental mobilization, particularly within a region faced with a similar set of environmental challenges.

The Imbued Meaning of Industrialized Resources

We intend for this memo to serve as a heuristic for future work through two primary contributions. First, contemporary cases in MENA suggest that environmental grievances being framed within wider moments of contention rely on the *imbued meaning* of resources as shaped by government discourse. Erica Simmons developed this concept in a comparative study of protests in Bolivia and Mexico, where she argued that resources must be “artisanal” for community-generated meaning to matter.⁵ Drawing on Karen Bakker’s earlier work,⁶ Simmons defines an artisanal relationship with a resource as one where “people [interact] directly with cultivation and distribution—and often each other in the process” due to scarcity and service provision failure.⁷ Conversely,

an “industrial” relationship with water suggests a degree of abstraction in how communities interact with the resource, namely, that acquiring water is a matter of turning on the tap.⁸ We suggest that a careful look at environmental contention in the Middle East implies that even industrialized manifestations of water supply, consumption, and infrastructure contain conflicts over meaning between communities and the state apparatus. Moreover, while Simmons deployed the concept of imbued meaning to understand the success and nature of protest around subsistence goods like water and corn, we contend that our cases show the concept can explain the *emergence* and *escalation* of environmental claims in the first place. In doing so, we seek to expand upon and refine emerging approaches in social movement theory that seek to explain scale-shifts and assess the nature of grievances as an independent variable.

We recognize that Jordan and Lebanon are not identical cases. A tempting answer to the question posed in this essay would be that the Jordanian state has a coercive apparatus capable of more directly dictating the terms on which citizens can mobilize. While this is true, we posit that state capacity only tells half the story and cannot explain why national protests do occur in Jordan but largely eschew environmental claims. Our definition of environmental activism is intentionally broad in scope. It consists of any contentious activity that invokes claims or grievances related to distribution and management of natural resource, pollution, and waste. We contend a definition any narrower that leans on evaluating the motivations of individual activists that could exclude movements whose goals, if realized, would *directly* reshape environmental politics.

Jordan

The failure of environmental grievances to surface as a salient frame in the 2018-2019 protests in Jordan can be understood as a function of the government’s success in contesting the *meaning* of water in society. The government’s nimble securitization discourse around water ascribes responsibility to individual consumption habits

and proved effective in preventing the emergence of water concerns as a main frame and demand in the 2018-2019 uprising.

This is not because of the absence of a water problem. The vast majority of the population encounters the most pronounced water crises in their homes on a daily basis. All but the most well-off Jordanians carefully plan their household water consumption around a government-mandated rationing program or face hefty fees for excess consumption. Moreover, like Lebanon and other cases in the region, environmental protests in Jordan proved salient at the local level in peripheral regions during the 2010s. Mafrq experienced “nearly daily water protests in the summer of 2013” to the point that eventually King Abdullah himself visited the city to respond to protester demands.⁹ Moreover, as Taraf Abu Hamdan writes in this collection, Jordan’s rural Badia communities have increasingly mobilized around environmental issues affecting land rights in recent years, yet these grievances remained largely local.

The regime’s construction of a securitized discourse around water in Jordan deftly invokes narratives that draw on the country’s prevailing domestic and international security concerns. As numerous scholars have noted in extensive empirical studies of water discourse in Jordan, the government has successfully pursued a two-prong strategy to deflect blame on water scarcity in the eyes of the population.¹⁰ First, awareness campaigns serve to convince citizens of their individual responsibility when it comes to water—effectively defining the issue as one of consumption, and therefore not a failure of the state. These efforts have taken a number of forms, not least of which has been the mobilization of religious authorities and mosque networks to educate the public on water consumption practices.¹¹ As Benedict & Hussein note, “The intent of this program was to link the state’s legitimacy of water authority with the authority of citizens’ religious communities to strengthen appeals of personal water responsibility and hydraulic citizenship by entangling them with appeals to leading a pious life within Jordan’s religious communities.” They also note the equally

important role of water education in schools in creating a society-wide consensus on hydro-citizenship. Science and geography curriculum feature water scarcity as a key subject, and list numerous controversial government projects, including the Disi aquifer, as key to maintaining the nation's prosperity and sovereignty.¹² A final prong of the government's internal blame strategy rests on effectively controlling the narrative around environmental protests itself. As Helena Wisbach Frid argues, the sabotage campaign in the carried out by local communities against the Disi aquifer pipeline has been instrumentalized by the government to divide environmental activism in the southeast and discredit its motives in larger cities.¹³

Second, the government has effectively depicted the source of water scarcity as being triggered by outside actors, whether directly blaming Israel's diplomatic bullying around water deals or indirectly defining the large influx of refugees as a strain on the limited resource. This has served to largely localize and compartmentalize the question of water, while insulating it from direct political challenge. Jordan's limited water protests between 2011-2019 appealed directly to local authorities or municipal water suppliers rather than invoking parliamentary leadership or the King. When water issues are occasionally evoked in protests directed at the central government, they are often lumped into wider grievances around price hikes of consumer commodities and goods. As such, the question of water in Jordan, rather than evolving to symbolize a rupture in the social contract between a government and its people, occupies a relatively minor role in contention despite being a strained feature of everyday life.

Lebanon

In Lebanon, concerns with waste and trash removal ultimately formed a catalyst through which a "post-sectarian" frame of contention emerged in 2019. This, combined with mobilization around water infrastructure like the World Bank supported Bisri Dam saw activists successfully use preexisting contention around regional identity and convert them into broader grievances about government corruption, incompetence, and failure. In

essence, Lebanese activists framed a nexus between environmental concerns and the political economy of the state's failed social contract, effectively redirecting contention away from local authorities and toward the regime. Lebanon's particular history of environmental activism and the way in which elites sought to invoke environmental symbolism helps illustrate the "imbued meaning" within environmental issues in Lebanon.

There is a long history of such framing. As Nagel and Staeheli note, historically "nationalist elites in Lebanon wove themes of nature and landscape into their narratives of national origins and uniqueness."¹⁴ Dating back to the 1960s, rural Shia communities consistently raised environmental issues of water and land access as key grievances in their marginalization from the state's social contract.¹⁵ Yet by the 1970s, the environmental movement experienced an NGOization, catering to depoliticized issues dictated by the logic of the neoliberal international order. Environmental activism in the post-war era witnessed an "explosion" but became coopted to serve the interest of Lebanon's various clientelist networks.¹⁶ At the same time, the maze-like coalitions and interest groups that form the Lebanese state, far less centralized than in Jordan, failed to develop cohesive discourse around mounting environmental challenges in the 21st century.

After the 2010-2013 Arab Spring, new modalities of environmental contention began to depart from these patterns. The "YouStink" (*talaeat ryhatukum*) movement emerged in late July in 2015 in response to the closure of the Naameh landfill that triggered a sanitary crisis in Lebanon, particularly in densely populated Beirut.¹⁷ While the movement would eventually evolve to encompass a wide array of issues, the initial grievances focused specifically on the health risks posed by the mismanagement of the landfill.¹⁸ For the rest of the summer and well into 2016, environmental activists staged sit-ins and protests demanding a resolution to the sanitary crisis that eventually escalated into calls for "the fall of the regime."¹⁹ For Assaad Thebian, a leader of the YouStink movement, the moment represented a shift away from more localized forms of contention to discussions on

taxation, governance, and public services.²⁰ The movement also prompted political parties in subsequent elections to run on an anti-corruption platform, setting the stage for wider economic grievances when the new government failed to make good on said promises. While some scholars have drawn attention to the organizational woes that plagued the movement's "neoliberal logic," YouStink's success in elevating environmental grievances to the national stage speaks to how resource management, even in its "industrialized" form—can hold imbued meaning in cases of service failure. As Dr. Sarah El-Richani noted:

“As the protest continued and grew larger and more powerful and then there was a fear also from government and also people realized that the garbage crisis is intrinsically connected to the political system and the corruption that exists on the political system and you cannot treat the garbage crisis without touching upon the corruption that exists on the level of the country.”²¹

YouStink also birthed parallel movements like *Beirut Madinati* that sought to address wider environmental concerns surrounding “livability” and broader discussions on the use of public space.²² As such, while YouStink cannot be considered the direct progenitor of the 2019 protests, it successively created a diffusion of environmental grievances that eventually expanded to a new contentious discourse on corruption in Lebanon.²³ It also laid the groundwork for reframing contention away from cross-sectarian critiques toward an anger with the corrupt ruling class. It proved able to mobilize a “typically quiescent cosmopolitan class” away from mobilization within “demographic lines” and toward a more cross-class, cross-identity movement.²⁴

Protests erupted in mid-October of 2019 in the wider context of an economic crisis that first began affecting the country in 2017. The crisis consisted largely of issues surrounding the government's liquidity in the fallout of a bond downgrade, as Moody's noted that, “government's greater reliance on the (central bank's) drawdown on foreign exchange reserves to meet upcoming foreign-

currency bond maturities risks destabilizing the (central bank's) ability to sustain the currency peg.”²⁵ As a result, Lebanese citizens, who in certain areas relied largely on the U.S. dollar for daily commercial transactions, found themselves unable to access useable currency. This drove up the black market rate of dollars to record highs, making goods and services inaccessible for many working and middle class Lebanese.²⁶

The movement that emerged in response to these economic grievances came to be known as the *Thawrat al-Tishrin*. Members of YouStink and other environmental groups not only proved to be among the early risers²⁷ of the Tishrin movement, but also provided key organizational support over the many months that would follow. Some scholars speculate that the group's organizational capacity stemmed from their experience coordinating technical grassroots solutions to the garbage crisis several years prior.²⁸ Existing groups also capitalized on the environmental grievances sparked by the state's gross mismanagement of a series of over 100 wildfires earlier in August.²⁹ These groups built a repertoire of activities that included cross-sect garbage pick-up efforts to maintain the logistical apparatus at the sites of protest required to sustain the medium-term occupation of public spaces. Clean-up efforts during the protests by environmental activists also helped smooth over tensions that could have arisen from graffiti inscribed on the walls of mosques and churches.³⁰

Meanwhile, activists in the #SaveBisri campaign began to deploy increasingly sophisticated tactics to invoke Lebanon's nationalist frames around natural resources. According to Roland Nassour (2020, 61-62), one of the movement's main architects, the group's Facebook page sought to reveal “the valley's rich natural and cultural heritage as opportunities for ecological tourism, inciting the interest of many nature lovers, and seeking to make the valley a coveted destination. For example, the video of the valley's ‘secret waterfalls’ went viral on social media and was followed up by special TV reports. Hikers from distant regions came to discover the site.” Nassour also reported that these posts routinely reached over 1 million views

and caught the attention of international Francophone media such as TV5Monde. Outside Beirut, in places like Bisri, other local environmental organization that had long been organizing against the ecological harm of potential infrastructure plans also played a key role in the geographical diffusion of protest.³¹ While the YouStink protests did not serve as a direct catalyst for the 2019 uprisings, it is difficult to imagine the emergence of the post-sectarian 2019 frames without the groundwork from prior movements.

Conclusion

When do preexisting environmental grievances feature in the discourse of more widespread subsequent social mobilization? In short, we suggest that the unevenness of environmental demands during the “second wave” of the Arab Spring is best understood as a function of discursive battles over the imbued meaning of resources. The Jordanian state’s relatively cohesive messaging around water and water-related infrastructure means that national-level protests rarely invoke environmental

demands. Water’s meaning is imbued as part of the social contract, yet is constantly under threat from outside forces or seditious internal movements like rural populations already marginalized in mainstream politics. In Lebanon, larger processes of privatization prevented the state from ever developing an effective discourse that spoke to the imbued meaning of water infrastructure or waste management. Instead, state actors and elites alike used the very issues that would go on to mobilize national protests in 2019 as sites of rivalry and in-fighting. Ultimately, just as analysts drew parallels between the current COVID-19 crisis and the challenges governments will face with respect to climate change, understanding how and whether regimes can “get their story straight” when it comes to resource failure and environmental degradation will prove essential for future research. Some states like Jordan may be able to temporarily forestall environmental mobilization by successfully blaming exogenous forces. Others like Lebanon may witness curious coalitions arise that invoke environmentalism not for lofty “green” goals, but as a unifying and radicalizing force against the state more generally.

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The Sanitization of Garbage Politics:

A Case for Studying Waste at the Local, State, and International Politics in the MENA

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Introduction: Bag bans, global environmental politics, and sanitization

In 2016, the Moroccan government passed a law banning the production, import, sale, and distribution of single-use plastic bags. The law was rolled out just months before the kingdom hosted COP22, the annual meeting of the Conference of the Parties (COP) to the UN Framework Convention on Climate Change (UNFCCC), in Marrakech. Coming the year after the landmark Paris Agreement, the major event held the potential to garner attention as well as scrutiny for the host state. While the COP meetings are most evidently sites of formal international negotiations with broad mandates to shape our global future, they also represent important moments when international, state, and local politics intersect. Event outcomes and the experience of thousands of policy makers, scientists, interest groups, and activists are shaped by the choices and leadership of the host government as well as by engagement from local communities. In 2022, Egypt will host COP27. Like Morocco did six years ago, Egypt's Minister of Environment announced a media campaign ahead of the meeting to similarly limit single-use plastic bags, highlighting the importance of raising awareness, engaging community participation, and working with the private sector, civil society, and youth organizations.¹

Such campaigns may seem like laudable efforts to combat the major environmental issue of plastic waste. Indeed, plastics are an especially problematic source of waste because of their indefinitely long afterlives.² Images of plastic bags in the bellies of marine animals and ominously growing floating islands of garbage in the ocean offer a compelling narrative to ban plastic in favor of more environmentally friendly materials. However, this tells only a partial story. Although a coalition of civil society groups had advocated for the ban in Morocco, its rollout was not uniformly well received by the population. The ubiquitous small corner

stores, *hanout*, struggled to find viable and inexpensive alternatives, while larger international chains like Carrefour switched to thicker "reusable" plastic options and absorbed the cost difference.³ Four years after the ban, the law appeared to have had minimal effect on plastic waste in Morocco.⁴ While some 90 percent of shoppers surveyed were aware of the law and a majority agreed that plastic bags had a negative effect on health and the environment, most still used them.⁵ If not effective at reducing waste or addressing the lived environmental priorities of a population, what is the purpose of such initiatives? Why do they garner such attention and accolades?

Bans like these are one example of what I term *sanitization* of garbage politics. As I illustrate below, garbage is always a political object: its management, or lack thereof, depends on levels of governance and control. Sanitization *depoliticizes* potentially mobilizing issues by *performing* cleaning and ordering in ways that support the political status quo. This cleaning and ordering may be discursive, such as proclamations about cleaning up streets, or material, as with voluntary beach clean-up days. States, international organizations, and civil society can all sanitize garbage politics, albeit with different goals and tactics. Like the banning of plastic bags, certain "environmental" policies may be championed precisely because they seem to avoid politics. These actions align with dominant forms of transnational environmentalism, focusing on individualized responsibility.⁶ In this paper, I argue that we should study moments of continuity as well as rupture in garbage politics, using cases of interconnected garbage politics across the state, local, and international scales in the Middle East and North Africa.

Why waste?

I focus on waste for four main reasons. First, notions of inefficiency, waste, and "wasted land" have been used to

justify colonial endeavors for centuries, and more recently have been employed by states and development agencies to justify neoliberal development projects.⁷ Second, while often represented as outside the logic of global capitalism – or at most unfortunate externalities of it – waste, disorder, and pollution are actually constitutive of its success.⁸ In other words, access to pollutable space and discardable materials *enable* capitalist production and consumption. Third, and relatedly, waste management reveals levels of governance. Garbage-filled streets are an obvious and odorous indication of limited state capacity. And finally, unlike other elements of environmental political action that can seem abstract and distant from lived experience, waste is intimate and tangible. Most people produce and interact with trash in some way every day, and those experiences are highly mediated by class, location, gender, and other overlapping identities.⁹ Sanitization discursively wipes away these lived differences, redirecting attention from the systemic and material to the personal and abstract. If individuals are responsible for fixing waste through their consumption and disposal habits, systems need not change.

In her influential 1966 work, *Purity and Danger*, anthropologist Mary Douglas writes that: “Where there is dirt there is system. Dirt is the by-product of a systematic ordering and classification of matter, in so far as ordering involves rejecting inappropriate elements.”¹⁰ In other words, waste management is not only a negative subtraction of the unwanted, but also a positive ordering of space and society. What is and is not considered valuable? What – and importantly – who is considered disposable? Building on Žižek, some (Moore 2012; Arefin 2019) propose that waste is best understood as a “parallax object,” meaning that a change in position – either of the subject or object – makes it appear out of place and “disrupts the smooth running of things.”¹¹ Garbage collector strikes – New York 1911, Memphis 1968, Glasgow 2021 – can shut down a city or at least seriously frustrate residents with the newly visible, and *odorous*, waste. As I describe below, mobilization against waste buildup can prompt cross-class cooperation.

However, by focusing exclusively on moments of contention and collapse, we risk missing the “slow

violence” (Nixon 2011) of systems operating exactly as designed. While continuity can seem a less exciting research endeavor than breakdown, both require analysis. While I focus on cases from the MENA region for this paper, slow violence and the sanitization that occludes it takes place around the world and across governance types. Studies of environmental racism and environmental justice in the United States have shown that dumpsites are disproportionately located in Brown and Black neighborhoods.¹² In their ethnographic study of environmental suffering in the shantytowns outside Buenos Aires, Ayuero and Swiston (2009) posit that “the poor do not breathe the same air, drink the same water, or play on the same soil as the nonpoor do.”¹³ Tracking environmental harm that accumulates gradually and occurs in the margins of societies present challenges but are no less important than environmental catastrophes with easily identifiable culprits and victims.¹⁴ As anticolonial geographer Max Liboiron cautions, focusing exclusively on the *harms*, or effects, of pollution, risks obscuring the *violence* caused by polluters.¹⁵ End of line policies aimed at changing consumer behavior and punishing deviance do not improve environmental and health problems, but they do dangerously redirect attention.

State, local, and international politics of waste

Studying waste is a uniquely informative lens through which to examine politics because its management is so closely connected with local governance, state capacity, and globalized patterns of production and consumption. Unlike other public services, waste management does not concern *allocation* of a finite natural resource or good, but instead the *removal* of ever-increasing byproducts of consumption. As IR scholar Kate O’Neill articulates, this can generate perverse incentives, rewarding collection but ignoring where the waste ultimately is put.¹⁶ Therefore, a comprehensive political analysis of waste in a global world is necessarily cross-scalar, considering waste’s long afterlives as well as policies and contestation around its collection at the local, state, and international levels.

State waste politics: Governance, order, and slow violence

The management of waste is widely recognized as one of the most basic tasks of a state. State-level actors can sanitize the politics of waste to legitimize their own rule to domestic and/or international audiences. Inability to collect garbage leads quickly to perceptions of state incapacity and even failure. In 2015, garbage began piling up on the streets of Beirut. Following the closure of a dump that had received the capital area's municipal solid waste, the non-functioning Lebanese government failed to find an alternative dumpsite, causing trash to accumulate at alarming rates. The crisis made international headlines and prompted previously unseen cross-sectarian and cross-class mobilization to protest not only the immediate garbage crisis, but also the broader political incompetence and problems of the state.¹⁷ Slogans like #YouStink (طلعت ریحتم) made pointed comparisons between government corruption and the decay of trash.¹⁸ Incompetence to perform this most basic function was proof of state failure. On the other extreme, evidence that ISIS picked up garbage has been listed alongside its taxation efforts as proof that it acted as a "state of administrative efficiency."¹⁹

In short, modern states must manage waste.²⁰ In her 2019 work *Waste Siege: The Life of Infrastructure in Palestine*, anthropologist Sophia Stamatopoulou-Robbins shows how people's experiences with waste and the infrastructures used to manage it are inseparable from their experiences of the state.²¹ However, because of its "murky indexability" – i.e. the difficulty in precisely tracing origins – actors can and do attribute responsibility and blame for waste problems to a wide range of actors depending on the context.²² In the case of Palestine, engineers and the Palestinian Authority have to "perform" competencies of a state for the international community, despite not being recognized as such.²³

Local waste politics: Municipalities, local organizing, and informality

While the ability or failure to deal with waste may reflect levels of stateness and governance, municipalities are

most often practically responsible for managing it. In an analysis combining municipal leaders' interviews and surveys of municipal candidates and Tunisian citizens, cleanliness and waste disposal (النظافة وتصرف النفايات) were among the top concerns for both citizens and their leaders alike, with several mayors listing cleanliness as *the* primary responsibility for a municipality.²⁴ Regardless of where it ultimately ends up, waste is *initially* always a local concern. Returning to the case of Lebanon, while striking images of garbage piling up in the capital and pithy hashtags made headlines around the world in 2015, residents of the community adjacent to the Naameh dump that received Beirut's waste had actually been organizing against it since its opening in 1998 to no avail.²⁵ One reason the garbage crisis took so long to resolve was that no other municipalities would agree to host the new dump.²⁶ State level analysis risks missed the subnational variations, micro-level encounters with governance, and local forms of resistance.

Local populations can also organize and sanitize waste politics in ways that reinscribe the status quo as well as oppose it. The day after the ouster of longtime Egyptian president Hosni Mubarak in 2011, the streets were again filled, but this time with cadres of citizens armed with trash bags, brooms, and gloves, picking up garbage and cleaning public spaces in the wake of the successful revolution. Anthropologist Jessica Winegar termed this organized cleaning effort *aesthetic ordering*, which "reproduced both the civilizing, exclusionary tendencies of that state ideal, in which middle-class people are the exemplary citizens, and, inadvertently, also reproduced neoliberal exclusions based on individualist, consumer citizenship."²⁷ Individual subjects can resist or participate in the sanitization of garbage politics.

However, processes of sanitization are neither totalizing nor uncontested. As in much of the world, local waste management in parts of the region has long depended on the labor of informal waste pickers, who continue to supplement the formal private sector. Perhaps the best known case is the *zabaleen* in Cairo, the predominately Coptic Christian informal garbage collectors who have been essential and efficient parts of Cairo's waste

management system since the 1940s.²⁸ Various attempts to formalize and render trash collection profitable in Cairo have constrained and oppressed but not eliminated the deeply embedded *zabaleen*.²⁹ Neoliberal sanitization efforts to replicate European models of waste management failed to account for local practice.

International waste politics: Externalizing hazards, trading resources

In addition to illustrating state capacity and local politics, contemporary waste management is deeply connected to international political economy. O'Neill argues that: "Waste needs to be re-imagined as a global resource, not a local problem. Making this frontier visible is the only way to create effective governance mechanisms that enable the reuse of these valuable resources while mitigating the magnified risks."³⁰ But the distinction between hazard and resource is not always clear. In July 2016, Moroccan media began reporting about an Italian ship carrying some 2,500 tons of waste arriving in the Atlantic port city of Jorf Lasfar as part of a deal set up by the Ministry of Environment to accept 5.5 percent of Italy's annual waste.³¹ Rumors and reports suggested that the waste was toxic. Minister of Environment Hakima El Haite argued that it was instead part of Morocco's broader needs to import 450,000 tons of foreign waste a year to meet its domestic energy demands. However, the public outcry persisted, the shipments were – at least temporarily – halted, and the minister eventually resigned. El Haite had been an influential diplomat at the COP22 climate negotiations in Marrakech the same year as the scandal. In an interview in November 2016, she said that public opinion had been manipulated and maintained that importing the waste was essential to maintain Moroccan industry.³² Depending on one's position, the same waste can be a toxic hazard or an essential resource. A change in perception can drastically shift how disruptive or visible waste can be.

Regrettably, but perhaps unsurprisingly, much of the international politics of waste occurs in these types of exports of waste from richer to poorer states. In a now infamously frank internal memo, former World Bank

president Lawrence Summers described the "impeccable" economic logic of dumping toxic waste in the least developed countries: "I've always thought that countries in Africa are vastly under polluted; their air quality is probably vastly inefficiently low compared to Los Angeles."³³ While most public-facing development rhetoric is not so blatant in its assessment, the externalization of hazards like waste and pollution is nothing new. However, as the Moroccan case illustrates, recipient states do have some amount of agency. Additionally, waste trade is not exclusively unidirectional. O'Neill describes how "South to South" e-waste trade, including refurbishing and reselling, is increasingly common and how poorer countries are refusing to accept waste and "recyclable" materials of dubious quality from richer countries.³⁴ Sanitization requires removing perceived dangers of waste; the violence of sanitization is that it must go somewhere. International waste politics may initially seem like a familiar story of rich and powerful states externalizing hazard, but more nuanced investigation reveals the many opportunities for disrupting this process.

Conclusion

Waste is universal but experiences of it are not. Sanitization offers a façade of environmental progress, while failing to address systemic causes of problems. However, the hypocrisy between discourse and lived reality can prompt action despite efforts to depoliticize these issues. Days before the COP22 in Morocco, a fishmonger was crushed to death in the back of a garbage truck while attempting to retrieve a valuable swordfish confiscated because it was out of season.³⁵ In a context where unsanctioned protest is illegal, demonstrations were nonetheless held across the country, with protestors holding signs like: "Welcome to COP22, We Grind People Here."³⁶ International attention can be leveraged not only by the state but also by organizers to draw attention to the hypocrisy of greenwashing. Studying the politics of waste with careful attention to both the local context and international linkages illustrates how actors across scales create and contest value.

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- ² Liboiron, *Pollution Is Colonialism*. See in particular Liboiron's discussion of how plastics challenge notions of temporality in the section "Otherworlds and Alterlives" p 16-22 and the importance of disaggregating terms like plastic and even single-use plastics, which can have a variety of uses that make the world inhabitable for disabled people in section: "Plastics' Specificity" p 27-28
- ³ Ennaji, "Zero Mika"
- ⁴ Ghallab, "Zero Mika or the Difficulty in Getting Rid of Plastic Bags in Morocco."
- ⁵ ibid
- ⁶ I am choosing to use "dominant" rather than "Western," which is a generally recognizable yet problematic shorthand that is not only inaccurate but also elides analytically important distinctions. Not all forms of Western environmental knowledge and practice are dominant, and the geographic distinction breaks down the moment interrogated. Western of what? What of Indigenous communities? Here I follow Liboiron, who uses "dominant science" rather than the more common "Western science" to 1) "keep the power relations front and centre" and 2) remind readers that not all Western science is dominant, citing practices like midwifery and preventative medicine (see Liboiron 2021, p. 20-21 note 77).

- ⁷ Davis, "Neoliberalism, Environmentalism, and Agricultural Restructuring in Morocco." See also Bengezi in this collection for a description of historical and contemporary examples of environmental orientalism.
- ⁸ See: Mitchell 2002, *Rule of Experts*, 242; see also: Liboiron 2021, *Pollution Is Colonialism*.
- ⁹ Much of this work is informed and inspired by the nascent transdisciplinary field of discard studies, which centers the *construction* of the categories of waste both materially and discursively: "The field of discard studies is united by a critical framework that questions premises of what seems normal or given, and analyzes the wider role of society and culture, including social norms, economic systems, forms of labor, ideology, infrastructure, and power in definitions of, attitudes toward, behaviors around, and materialities of waste, broadly defined. As its starting point, discard studies holds that waste is not produced by individuals and is not automatically disgusting, harmful, or morally offensive, but that both the materials of discards and their meanings are part of wider sociocultural-economic systems." Liboiron, "ABOUT | Discard Studies."
- ¹⁰ Douglas, *Purity and Danger; an Analysis of Concepts of Pollution and Taboo*, 11–12.
- ¹¹ Žižek, *The Parallax View*, 17. Žižek elaborates: "The philosophical twist to be added, of course, is that the observed difference is not simply 'subjective,' due to the fact that the same object which exists 'out there' is seen from two different stances, or points of view. It is rather that, as Hegel would have put it, subject and object are inherently 'mediated,' so that an 'epistemological' shift in the subject's point of view always reflects an 'ontological' shift in the object itself."
- ¹² A major 1987 United Church of Christ report on toxic waste argued that this correlation between communities of color and toxic waste location was intentional. While a variety of statistical analyses have found conflicting interpretations of the causation – for example: were dumps intentionally sited in places where there would be little viable political resistance? or do poor and marginalized communities have fewer resources and opportunities to relocate? – there is still a strong correlation. For an overview of these debates see: Heiman, "Race, Waste, and Class: New Perspectives on Environmental Justice."
- ¹³ Auyero and Swistun, *Flammable*, 18.
- ¹⁴ As Nixon articulates: "In an age of degraded attention spans it becomes doubly difficult yet increasingly urgent that we focus on the toll exacted, over time, by the slow violence of ecological degradation." Nixon, *Slow Violence and the Environmentalism of the Poor*, 13.
- ¹⁵ Liboiron, "Not All Marine Fish Eat Plastics." Importantly, *polluters* here does not refer to individual consumers but the broader stream of production
- ¹⁶ O'Neill, *Waste*, 39.
- ¹⁷ The causes leading up to the 2015 Beirut garbage crisis are more complex than often portrayed and while briefly united different factions had both different framing strategies and demands. However, the case still represents a telling example of waste as a mobilizing factor. For context see: Arsan, *Lebanon*; Atwood, "A City by the Sea"; Civil Society Knowledge Centre, "Social Movement Responding to the Lebanese Garbage Crisis"; Louthan, "From Garbage to Green Space."
- ¹⁸ "Corruption" in Arabic (فساد) can also refer to a foul odor, making the comparison all the more readily available. See Ekdawi, "Beirut's 'You Stink' Movement." For more on Lebanon, see Khneisser and see Langlois and Daoudy in this collection.
- ¹⁹ Callimachi, "The ISIS Files." Note: the "ISIS files" project of articles and podcasts from the New York Times has been widely and rightly criticized for removing documents without Iraqi permission and for contributing to neo-imperial extractive knowledge production. See for example: Brand and Tucker, "The ISIS Files." I include the reference here as an extreme example of the perceived importance and centrality of waste management to state-like functions, but not without qualification.
- ²⁰ This was not always the case. For one account of how waste management gradually became a duty of the state in France, see: Laporte, *History of Shit*. Originally Published as *Histoire de La Merde* (1978) In many ways this centralization of control mirrored the development of the modern state itself and its need to create public order and governable spaces.
- ²¹ Stamatopoulou-Robbins, *Waste Siege*, 4–5.
- ²² Stamatopoulou-Robbins, 8.
- ²³ Stamatopoulou-Robbins, 6.
- ²⁴ Blackman, Clark, and Sasmaz, "Local Political Priorities during Tunisia's First Democratic Municipal Elections."
- ²⁵ Arsan, *Lebanon*, 375.
- ²⁶ A classic example of the "not in my backyard" (NIMBY) challenge of environmental politics: even if people support an initiative in theory, they may oppose its proximity to their own residences.
- ²⁷ Winegar, "A Civilized Revolution," 611.
- ²⁸ Kuppinger, Hourani, and Kanna, "Crushed?," 624.
- ²⁹ Kuppinger, Hourani, and Kanna, "Crushed?"
- ³⁰ O'Neill, *Waste*, 10.
- ³¹ Chalfauat, "Morocco's Political Tensions Play Out in the Media."
- ³² Benargane, "Hakima El Haité se dit fière de la COP22 et veut oublier la polémique sur les déchets italiens [Interview]."
- ³³ 1991 confidential World Bank memo, cited in Nixon, *Slow Violence and the Environmentalism of the Poor*, 1.
- ³⁴ See Chapter 6 in O'Neill, *Waste*. In 2018, China stopped accepting scrap materials from the United States in an effort known as "Operation National Shield," which disrupted the entire global system. Recycling and other waste materials were redirected to smaller recipient states such as Thailand, Malaysia, and Vietnam (O'Neill 160), but even some of these states began refusing the subpar materials as well. See for example, This is an important note because it complicates the notion that poorer countries lack agency in these waste-trade relationships and highlights how the rejection of waste can powerfully disrupt global capitalist systems.
- ³⁵ Chalfauat, "Anger over the Crushed Fishmonger Continues, but Are Officials Listening?"
- ³⁶ Bouhmouch, In Echo of Arab Spring, 1000s Protest in Morocco After Garbage Truck Fatally Crushes Fish Seller.

Environmentalism without Environmentalists?

Climate Change and the State in Turkey

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In the wake of dramatic warnings from the IPCC regarding the intensification of human-induced global climate change, it is clear that nation-states will need to transform their relationship with nature in significant ways.¹ In what is now a classic contribution, Karen Litfin had painted an optimistic portrayal of the possibility of achieving this by arguing that while the “traditional goals of the state—to defend borders and promote industrial development”—are arguably in friction with the quest of ecological integrity, there existed “*no a priori reason...for saying that environmental protection cannot become one of the state’s primary objectives, and there is evidence that it is doing just that*.”² Overall progress around the world has been slow enough to cast doubts on Litfin’s optimism, but some states are greener than others. Turkey stands out as a laggard in terms of its national response to climate change, and its record could even be said to be declining in recent years.³ Which actors could potentially be the drivers of meaningful change in Turkish policy making and implementation towards more green policies?

It could be argued, *pace* Litfin, that the core objectives of the modern nation-state are intrinsically ill-suited to co-exist with the imperative of ecological sustainability. Environmental protection clashes with the drive for ever increasing economic growth, especially if delivered through unchecked capitalism, in a finite world. Seeing environmental concerns through the lens of national security is more likely to trigger competition than to foster the type of global collaboration necessary to respond to ecological crises.⁴ Nevertheless, these challenges cannot be used as an excuse to absolve nation-states from even attempting to construct meaningful environmental policies. The threats posed by climate change are real, and the accumulated evidence suggests that ecological collapse within the current global order is not yet inevitable. As such, drivers of environmental policymaking within individual states require closer scrutiny.

The unique materiality of climate change as an environmental problem is worth highlighting. Four specific dimensions stand out as germane to our analysis. First, there is a temporal disconnect between the socio-economic sacrifices that need to be made and the ecological gains that will be secured. Second, much of these gains will manifest themselves as avoided negative ecological change, rather than observable improvement of already existing deterioration. Third, while environmental change is almost always experienced differently along lines of spatial and socio-economic differences (be it class, race, ethnicity, or gender), there is the possibility that extreme manifestations of climate change will pose a national threat whose impact might transcend existing fault lines of inequality. Finally, meaningful action on climate change would necessarily be holistic in many ways, rather than being concentrated in specific sectors or regions within a nation-state. Taken together, it can be argued that climate change presents a unique challenge to nation-states.

Turkey offers an exceptionally good example of the primacy of Litfin’s two core necessities for the reproduction of state legitimacy. The establishment of the modern republic in 1923 was a defensive move. By retreating from the rapidly eroding borders of the Ottoman Empire, the founders sought to simultaneously create a homogenous nation and to defend it from a future possibility of further territorial loss. To this end, the defense of the integrity of territorial boundaries emerged as a key national ambition, as it can still be seen in the violent response to all—real and perceived—threats. The nation itself, however, was earmarked for fundamental transformation socially and culturally with economic development acting as a driver of change. The ambition was the modernization of the society as the Turkish nation, with a view to making it a member of the Western world.⁵

This still ongoing project has not been without its critics.

Most attention has gone towards its two most significant fault lines, which have become impossible to ignore from the 1980s onwards: the Kurdish struggle for autonomy and the Islamist challenge to (cultural) Westernisation. The former has been violently contained if not entirely quashed. The latter has been largely co-opted and neutralised by a combination of capitalist accumulation and cultural conservatism, with political and social liberalism increasingly being abandoned as necessary goals as economic growth is no longer seen as necessarily leading to European Union membership.

Environmental degradation can be seen as the third major fault line of the modern Turkish republic, one that cannot be resolved either by economic growth or state violence. As such, a meaningful response to environmental degradation would require a fundamental rethinking of state-society relationships. The Turkish state, as with many other developing countries, ignored the salience of environmental questions until the late 1980s and early 1990s. While Turkey does have an exceptionally well-developed environmental legislation, these have historically been sidelined in the interest of economic growth. Instead, eco-modernist top-down projects such as reforestation programmes have been presented as a response to environmental degradation. These have been largely ineffective.⁶

A thorough overview of Turkey's climate change performance is beyond the scope of this paper, but its overall ineffectiveness demonstrates the chasm between official pronouncements and actual policies.⁷ For example, during the Paris conference of 2015, President Erdoğan boldly stated that "[t]he international community is on the verge of a new era in combatting climate change" and that Turkey would aim to reduce its greenhouse gas emissions by 21 percent below the business-as-usual scenario by 2030. Yet, a few months later, at an event celebrating the inauguration of a new coal power plant he spoke as follows: "As you know, you will have many opponents of such projects who will yell 'Over my dead body!' But we need to force them to accept that such projects are indeed in the interests of the country."⁸ In other words, climate

change policies of the state are performative at best and are unlikely to contribute in a meaningful way to global efforts.

What could change this? The history of Turkish environmental politics is a relatively brief one, dating to the end of 1980s. It was driven almost entirely from the grassroots by countless spontaneous social movements that were formed in the countryside.⁹ These have focused almost exclusively on three types of interrelated sectors that have been the driving engine of Turkish economic growth during the past three decades: extraction of precious metals, construction of transport infrastructure, and energy generation projects concerning coal, nuclear and hydropower. Beyond occasionally achieving their stated aims (e.g. the cancellation of the Gerze coal power plant¹⁰), these movements have also had an impact on the development of Turkish environmental policies. For instance, the Bergama resistance against gold mining was instrumental in the "discovery" of a strong environmentalist bend in the constitution, and the resistance against copper mining in the (neighbouring) Mount Ida helped shaped the legislation concerning the protection of olive groves. Nevertheless, these site-specific movements are unlikely to make a meaningful contribution to advancing Turkey's response to climate change. There has been little coordination between them and there exists no institutional structure—such as a political party—that can tap into their energies. The Republican People's Party, which has been the main opposition to Erdoğan's regime during the past two decades, is wedded to an unquestioning belief in rapid industrializing growth. Efforts of establishing a credible Green Party have so far floundered, due partly to internal squabbles and partly to obstruction from the state itself. Furthermore, to the extent that certain movements, such as those struggling against coal mining or coal power generation, can be seen as contributing to the development of Turkey's climate change policies, they have a strong not-in-my-backyard component that inhibits their potential to formulate a broader, national vision for climate change mitigation.

If local movements have been one promising driver of environmental change during the 1990s, the European

Union seemed like their counterpart acting on the Turkish state from above. To that end, negotiations concerning the harmonisation of Turkish legal framework with the EU's *acquis communautaire* did indeed bring some progress. Environmental policies were a particularly productive arena for early engagement between Turkey and the EU since they were perceived by the Turkish state as being relatively apolitical and technical concerns and certainly as far less sensitive as many other issues, be it the Kurdish issue, the Cyprus problem, or women's rights. Furthermore, the EU itself is increasingly playing a major role in global climate change negotiations and pushing member states towards making deeper cuts to their greenhouse gas emissions. Unfortunately, this influence has faded as Turkey's membership prospects have severely dimmed during the past decade. Although the revival of Turkey's European ambition could perhaps be possible, it is unrealistic to expect the EU playing an important role in driving Turkey's climate change policies forward in the near future.

Although corporate capital has historically been reluctant to recognize the existence or severity of the issue of climate change, there are some limited evidence of change in attitudes and performance around the world. Much of these changes—discussed under various rubrics such as ecological modernisation, cradle-to-grave design, green growth or, most recently, circular economy—have been predicated upon a combination of policy changes that encourage environmental innovations and technological improvements that increase efficiency in production and reduce ecological footprint. There is little evidence that the Turkish industrial sector has made any progress in this regard, due mainly to the nature and composition of its production, which is concentrated in lower value-added sectors where competition in terms of environmental performance is either not viable or necessary. To the extent that Turkish capital has invested in putatively climate-friendly sectors, this has been driven primarily from a predatory rather than environmentalist instinct as demonstrated by the rush of investments into the micro-hydro power plants that caused extensive ecological problems and social conflicts in the countryside.¹¹

The Kurdish movement, one of the long-standing challengers to the modernization of the Turkish state, has moved in an environmental direction recently. The movement's leader Abdullah Öcalan has called for a change in political and intellectual orientation of the movement away from the establishment of a Kurdish state towards radical new forms of local governance. Drawing on the work of Murray Bookchin, the new strategy is distinguished partly by its focus on its emphasis of ecological sustainability. The clearest concrete manifestation of these gestures can be found in the Rojava canton, which is located within the borders of Syria.¹² Whether such experiments can also be carried within Turkey itself remains to be seen. It is also important to recognize that meaningful action on climate change would necessitate national policies. The ability of the Peoples' Democratic Party (HDP) to extend its electoral base beyond the Kurdish community or to make effective alliances with other progressive voices to climate change policies is limited at best and will likely remain so until the current authoritarian turn in Turkey is reversed.

The Islamist challenge to Turkish modernization is less likely to take a green turn. Whether Erdoğan's party (*Adalet ve Kalkınma Partisi*—AKP) was from its early days predestined to abandon its social and cultural liberalism and inclusive democratic aspirations or not, it is now undeniable that its leadership and sizeable electoral base are intent on settling scores with the secular modernist project and the institutions they see as central to this project (as demonstrated in the ongoing attacks on the autonomy of Boğaziçi University in Istanbul).¹³ With Westernisation (understood historically as Europeanisation) also abandoned, the only meaningful connection the Islamist project has to the foundational ideas of the Republic can be found in its commitment to rapid industrialising economic growth. This growth at any cost posture is buttressed not only by the neo-Ottomanist ambitions of the AKP (as manifested in its foreign policy in Syria and sub-Saharan Africa) but also the electoral necessity of improving the economic standing of its supporters or, absent that, delivering prestige projects such as the world's largest airport, and longest suspension

bridge.¹⁴ National or international leadership in climate change politics does not seem to figure in AKP's priorities.

For much of the modern Turkish history, the modernisation project was defended and advanced by an alliance between state bureaucracy and military, which were both staunchly secular. Seeing their function as the defence of the Kemalist project, they had responded harshly to all threats and quashed all opposition in the name of staying on course with the modernisation project. Although these forces resisted what they saw as creeping Islamism, AKP has since domesticated both and it could even be said that it is in the process of establishing total control over them. As such, even if elements within either one was to recognize the fundamental threat posed by climate change to the Republic (a questionable proposition since they have never shown any interest in environmental politics beyond perfunctory high-modernist gestures such as reforestation campaigns), they no longer have the

power or legitimacy to lead a meaningful transformation in environmental policy making and implementation.

In sum, contemporary Turkish politics is not able to produce the necessary thrust to address the challenge of climate change. This is not the same as arguing that environmentalism in Turkey is dormant or ineffective. Rather, the various actors described above are pursuing a type of environmentalism that is either particularistic (as is the case of with site-specific environmental social movements or with the Kurdish movement) or uninterested in bringing about meaningful transformation politically or economically (as is the case with the state or business interests). The specificities of climate change require a set of solutions that need be holistic, cross-sectoral, transformative of state-society relations and oriented beyond narrow group interests. Unfortunately, there exists no political actor—domestic or external—that has the willingness and ability to take on this mammoth task.

Endnotes

- ¹ See the IPCC 2022 Report: *Climate Change 2022: Impacts, Adaptation and Vulnerability. Working Group II Contribution to the IPCC Sixth Assessment Report*, <https://www.ipcc.ch/report/ar6/wg2/>.
- ² Karen Litfin, 1997. "Sovereignty in World Ecopolitics," *Merson Review of International Studies* 41 (2): 167–204; p. 195.
- ³ For an overall assessment of the political economy of the environment in Turkey, see Fikret Adaman, Bengi Akbulut and Murat Arsel (eds). 2017. *Neoliberal Turkey and its Discontents: Economic Policy and the environment under Erdoğan*. London: IB. Taurus; for the political economy of the climate policy in Turkey, see Fikret Adaman and Murat Arsel. 2017. "Climate Policy in Turkey: A paradoxical situation?" *L'Europe en Formation* 380: 26–38.
- ⁴ For the relationship between economic growth and carbon footprint, see Jason Hickel, Paul Brockway, Giorgos Kallis, Lorenz Keyßer, Manfred Lenzen, Aljoša Slameršak, Julia Steinberger and Diana Ürge-Vorsatz. 2021. "Urgent Need for Post-growth Climate Mitigation Scenarios," *Nature Energy* 6 (8); for a discussion on the importance of cooperation on the climate policy, see Philippe Le Billon and Rosaleen Duffy. 2018. "Conflict Ecologies: Connecting political ecology and peace and conflict studies," *Journal of Political Ecology* 25(1): 239–60.
- ⁵ See, for example, Fikret Adaman and Murat Arsel. 2012. "Political Economy of the Environment in Turkey," in Metin Heper and Sabri Sayarı (eds), *Handbook of Modern Turkey*, 317–26, London: Routledge.
- ⁶ Fikret Adaman and Bengi Akbulut. 2021. "Erdoğan's Three-Pillared Neoliberalism: Authoritarianism, Populism and Developmentalism," *Geoforum*, 124: 279–89.
- ⁷ Fikret Adaman and Murat Arsel. 2017. "Climate Policy..."
- ⁸ For the sources of the quotations, as well as a thorough analysis of Erdoğan's position, see Fikret Adaman and Murat Arsel. 2017. "Climate Policy..."
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- ¹⁰ Murat Arsel, Bengi Akbulut and Fikret Adaman. 2015. "Environmentalism of the Malcontent: Anatomy of an anti-coal power plant struggle in Turkey," *Journal of Peasant Studies* 42 (2): 1–25.
- ¹¹ Bengi Akbulut, Fikret Adaman and Murat Arsel. 2018. "Troubled Waters of Hegemony: Consent and contestation in Turkey's hydropower landscapes," in Filippo Menga and Erik Swyngedouw (eds), *Water, Technology and the Nation-State*, 96–114, London: Routledge.
- ¹² Bengi Akbulut. 2017. "Commons Against the Tide: The project of democratic economy," in Fikret Adaman, Bengi Akbulut and Murat Arsel (eds). 2017. *Neoliberal Turkey and its Discontents: Economic Policy and the environment under Erdoğan*, 231–45, London: IB. Taurus.
- ¹³ Ayşe Gürel. 2022. "Boğaziçi a Year on: A damage report," *Bianet*, <https://bianet.org/5/27/257321-bogazici-a-year-on-a-damage-report>.
- ¹⁴ Fikret Adaman and Bengi Akbulut. 2021. "Erdoğan's Three-Pillared Neoliberalism..."

New Constructions of Environmental Orientalism: Climate Change Mitigation Solar Power Projects in the Sahara Desert

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The Sahara Desert represents a binary duality: it is imagined as a spatial abyss of non-production and thus useless, while simultaneously continually capturing the colonial and capitalist imaginaries of the West and national elites as a site from which a new clean modernity can be materialized. These imaginaries are rooted in colonial-capitalist conquests and the Western modernity project. Popular imaginings and imageries of the desert in today's socio-technical imaginings of the desert reflect orientalist understandings of the desert as a barren, bare and ever-expanding space that is confined in a time capsule of primitivity due to its unproductive 'nature'.¹ This paper relies on a post/anticolonial theoretical framework to explore the ways in which the desert's arid ecological composition has and continue to be constructed and represented vis-a-vis the West's orientalist imaginary gaze. I analyze the ways in which environmental orientalist dualities of the desert continue to be reproduced through climate mitigation solar power technologies and what such renewed imaginings of a green modernity may mean for desert communities, their desert ecologies from which they have generationally sought provisioning, as well as greater regional and international ecological harms.

Colonial-Orientalist Constructions of the Desert and its Inhabitants

The environmental history of North Africa has been inundated with exaggerated orientalist constructions of declining ecologies that were once fertile due to the mismanagement of environmental resources (Davis 2007; Davis 2020). The desert was framed by colonial powers and administrators, particularly the French, as an increasingly desolate, barren and useless space that needed to be revitalized and saved by modern and progressive Western scientific knowledge and technologies (Davis 2007). In "Orientalism," Edward Said (1978: 55) makes evident

the ways in which time and space as well as history and geography are "more than anything else, imaginative". Said describes how the social construction of subject/object by so-called experts and scientists is imaginative knowledge that is rendered objective and natural. This analysis provides the analytical optics from which I discern the orientalist trajectories of the desert through the gaze of privileged Western expertise. I apply Said's analysis to build on Diane K. Davis' analysis of the environmental history of North Africa, wherein we see the ways in which the North African subject was depicted in relation to constructions of their collapsing environment.

According to Davis (2011), the French colonizers fictionalized the narrative of the lazy and primitive North African subject as being responsible for what they perceived as the degradation of their environment. This narrative fits well into dominant orientalist discourses that were circulated about the Arab/North African subject. Davis (2011) highlights how dichotomies and binaries were constructed to represent what the Western was/is and what the Orient Other was/is by referencing the work of Montesquieu and his work on despotism. Montesquieu's characterization of despotic governance of the East (Althusser 1978; Lockman 2004) was based on "classical beliefs that northerners are active, strong, and brave due to the cold while southerners are weak, passive, dull and therefore more servile due to the heat" (Davis 2011: p. 114). The incapable Orient and their degraded environment was the basis for the dissemination of 'desiccation theory' by colonial administrators, military personnel, missionaries and scientists. The spread of desiccation theory relied on "blam[ing] the indigenous peoples, especially herders, for deforesting and degrading what was once the apparently highly fertile 'granary of Rome' in North Africa" (Davis 2007: 2; Davis 2011). These constructions and their fear-inducing exaggerated narratives of desertification

were widespread in the Maghreb during the colonial period (Adams 2001). Such fears were largely driven by embellished fears about an ever-expanding desert and an increasingly desolate environment rooted in Christian notions that deemed the desert's aridity a result of the original sin (Davis 2007; Davis 2020).

The orientalist imaginings of the desert and the North African subject were produced in conjunction with the imageries of the desert as a potential site from which progress and socio-technical imaginaries can be actualized by the West.² For instance, French orientalist art mirrors the European discourses on Orientalism wherein such art provides a contrasting duality that, on the one hand, depicts a "barren, sunbaked and lifeless wilderness... entirely devoid of hope" against "more optimistic images" (Heffernan 1991: 38). According to Michael J. Heffernan, the most common utopian imagining of the desert is depicted through the "heroic efforts of mankind, and particularly through the energetic activities of Europeans" (ibid). Davis (2007: 6) echoes this by examining the ways in which "armed with the colonial environmental narrative, the French passed new laws and policies as early as the 1830s to curtail and criminalize many of the traditional uses of the environment by the Algerians". The colonial laws on property and land tenure, as well as laws pertaining to forests and grazing in the Maghreb "transformed the use of the land but also effected the appropriation of large amounts of land and resources for the settlers and the French administration" (ibid). These orientalist environmental narratives, according to Davis (2007), are utilized to justify the expropriation, exploitation and extraction of environmental resources and dissolve subsistence production and economies in the name of progress, modernity and the environment itself. Colonial-orientalist dualities such as these continue to be reproduced in the Maghreb's Sahara Desert through fearful scientific and mainstream discourses about an ever-expanding desert against the backdrop of rhetoric of the utopian and world transforming potentials of utilizing the desert for solar farming (Sawyer & Agrawal 2002; Davis 2011; Al-Marashi 2019).

New Versions of the Same Old Colonial-Orientalist Dualities of the Desert's Demise and Potentials

Much of the rhetoric and understanding of the environment of the Maghreb is rooted in the colonial-orientalist conceptions of a declining environment that needs to be attended to through the socio-technical imaginaries of the West (Sawyer & Agrawal 2002; Davis 2007). Sustained narratives continue to place blame for the current ecological crises on the mismanagement of resources and destruction of ecological surroundings by the peoples of Global South (Sawyer & Agrawal 2002; Davis 2007; Davis 2011; Al-Marashi 2019; Davis 2020). For instance, Taraf Abu Hamdan's contribution to this collection discusses the ways in which the Jordanian desert landscape is subject to similar socio-technical imaginings as other arid lands like the Sahara through the legitimization of scientific 'expertise' while local knowledges are rendered ecologically harmful. This harm is rooted in the narrative that indigenous ecological practices are a threat to "...the ecological conditions of a given region, due to mismanagement of recourses, overstocking, and overgrazing" (Abu Hamdan, 2022). According to Clemens Hoffmann (2018: 94), such narratives that glorify a certain type of expertise while simultaneously rendering local ecological knowledge and practices as useless and harmful maintain an imperial oriental assumption "that a scarce nature is mismanaged by societies and states overall incapable of negotiating modernity". While these constructs are not as visible as those explicitly disseminated during the colonial era of a backward and lazy orient, they continue to be reproduced in how socio-technical imaginings prioritize variations of Western techno-scientists gaze of the desert and its potential.

According to William M. Adams (2001) the desertification industry, which links environmental degradation, poverty and utopian imaginaries of development, has captured much of the international environmental rhetoric since the Sahel drought of 1972-4. This rhetoric, often produced by scientists, environmental organizations and international actors such as the UN and the World

Conservation Strategy, has become a key focus within sustainable development discourses and policy practices. The UN was greatly influenced by the World Commission on Environment and Commission's report titled "Our Common World" (1987) which stated that "each year another 6 million hectares of productive drylands turns into worthless desert" (Brundtland 1987: 2). Without denying the validity of ongoing desertification and its real-life consequences to those who call the desert home, it is critical to highlight how the threat of desertification was and continues to be exaggerated by Western environmental experts and utilized to justify its transformation into a site of production. Climate change and desertification are real, but in this context are largely exaggerated and utilized to fuel the socio-technical imaginaries of techno-scientists while dismissing desert ecologies and their usages by locals entirely (Adams 2001: 180; Davis 2020).

The attention given to technocratic scientific visions of the Sahara and its pitfalls and potentials is rooted in positivist Eurocentric traditions that uphold the myth of objectivity as a marker of truth (Halpern & Heath 2017). According to Sandra Halperin and Oliver Heath (2017: 55) "This has been subjected to great criticism by those who argue that knowledge production, through social-scientific research, cannot be value-free and is constantly shaped by various external factors, such as politics, power relations, cultural beliefs and meanings, as well as the researchers own biases" (ibid). Within the realm of sustainability governance, science and technological innovation rely on technoscientific visions to be legitimized through positivist accounts that are rendered as objective and taken-for-granted universal truths (Benessia & Funtowicz 2015). This fixed logic within sustainability governance discourses can be seen with mainstream media's techno-scientific orientalist accounts which depict a fearful narrative of an ever-expanding and creeping desert against the backdrop of utopian greener socio-technical imaginaries.

For instance, an article produced by NPR in 2018 visualized this through an image of the Sahara Desert 'creeping' on an oasis of palm trees and greenery with a description that read "The Sahara Desert creeps up on

a palm field" (Charles 2018). This solemn imagery was juxtaposed with the idea of covering the barren, useless desert wasteland with solar panels (ibid). In citing the works of atmospheric scientist Eugenia Kalnay, the article states that inhabiting the desert landscape with solar panels can not only provide the world with four times as much alternative and green forms of energy production than is currently being consumed but can also prevent further desertification. This is because solar panels are dark enough not to reflect the sun's light and thus can induce rain-inducing air currents which eventually would reverse the cycle of desertification and thus increase in vegetation (ibid). This socio-technical imagery has taken off and has been continuously reproduced by techno-scientists, scientific websites and mainstream media in general (e.g., Moroccan City Defies Desertification by Harnessing Solar Power and Treated Wastewater 2017; Armstrong 2018; McGrath 2018).

Other headlines produced by science-related websites like Live Science and Enterra Solutions read: "Here's How to Make the Sahara Desert Green Again" (Geggel 2018) and "Solar Power: Taking Advantage of Desertification" (DeAngelis 2010). These articles detail the ways in which desertification can be used as a tool for utopian socio-technical imaginings of a new modernity based on the extraction of solar energy to fuel the world over. These utopian imaginaries have become part of the mainstream discourses on the Sahara Desert and are largely fueled by the colonial-orientalist assumptions that the desert is truly nothing but a barren and unused wasteland. Moreover, mainstream Western news sources as well as various YouTube videos repeatedly ask the question, "Why don't we build solar panels in the Sahara Desert?" (e.g., Rogowsky 2014; Jade 2019; Regen Sustainable Power Solutions 2021; Ted-Ed 2021), "What If the Sahara Desert Was Covered in Solar Panels" (e.g., Bright Side 2019; Lockett 2021; Real Life Lore 2021; What If 2021). Moreover, it is important to note that these orientalist understandings and imaginings of the desert are not grounded in realities of financial and logistical implications that covering 20 percent of the desert would entail, particularly for the developing countries of the Maghreb.

One country that has taken on the task of populating their desert landscape with solar power is Morocco. Among the various driving motivations for Morocco's turn to sustainable technologies two interlinked and dominate factors have been economic growth and energy production, as Morocco had largely relied on importing fossil fuel from neighbouring countries like Algeria (Hamouchene 2016). These imaginaries have captured the Moroccan monarchies attention and goals for economic growth and potentials for export energy production. As such, in 2016, at a ribbon-cutting ceremony in the desert town of Ouarzazate, King Mohammed IV of Morocco proudly announced the completion of phase one of the four phases of Noor Ouarzazate (NoorO) Solar Power Plant, estimated now to be the world's largest solar power plant (International Climate Initiative 2016). While the initial phase of this project is aimed for national consumption, the Moroccan monarchy has set great sights on exporting solar energy to Europe (Alami 2021; Hamouchene 2016; Hanger et al., 2016). Since Morocco's leap into sustainable infrastructure and technology, Libya and Tunisia have followed suit with initial phased constructions of two massive solar power plants in Kufra and Rejim Maatoug respectively (Guest 2012; Construction Review Online 2020). In fact, the ten largest solar power plants in the world have been constructed in deserts (Lu & Smith 2021). However, as I will demonstrate in the subsequent section, these utopian imaginaries pose harmful consequences to desert ecologies as well as the ecologies of spaces and places beyond the desert.

Utopian Imaginaries, Dystopian Realities: Potential Consequences of Ambitious Socio-technical Potentials of the Desert

"If you think that the desert is empty, you do not know how to look at it" - Amazigh Proverb

The win-win rhetoric that has been popularly perpetrated about the potential for solar power as force by which to revitalize the Sahara Desert back to the mythical oasis it once was while simultaneously sustaining energy and saving the planet from ecological demise can have harmful

implications not only to local desert communities but also to regional and global climates and thus communities of the Global South. Zhengyao Lu and Benjamin Smith (2021) bring to light the ways in which covering 20 percent of the Sahara Desert with solar energy may have detrimental effects regionally and globally as the remainder of the sunlight not absorbed by solar panels is returned to the environment as heat. Moreover, in their text "Impacts of Large-Scale Sahara Solar Farms on Global Climate and Vegetation Cover", Lu et al. (2020: 1) found that "a redistribution of precipitation [would cause] Amazon droughts and forest degradation, and global surface temperature [to] rise and sea-ice loss..." Drought is increasingly plaguing the Amazon Forest and its ability to withstand the effects of climate change (Boulton et al. 2022). Thus, the utopian prospects of filling the Sahara Desert would exacerbate the threat of drought in the Amazon and thus further making vulnerable the already marginalized diverse Indigenous communities that inhabit the Amazon who continue to face the effects of drought due to climate change (Ellwanger et al. 2020).

Consider the effects of solar energy on water resources. Water scarcity due to climate change is an issue that plagues North Africa. Morocco particularly is at risk of losing all of its water resources by 2040 (Rignall 2016). According to farmers and nearby residents, the depletion of Morocco's water resources have been magnified since the construction of the first phase of the NoorO. Wet-cooling concentrated solar power plants (CSPs) require vast amount of water for cooling; this is especially the case for the massive NoorO project which taps into the regions El-Mansour Eddahbi Dam water dam (Ryser 2019; Belghazi & Sammouni 2020). This has caused much anxiety in the surrounding communities about not being able to access water for daily provisioning and sustaining the ecological habitats that they have nurtured and have sustained them (Rignall 2016; Hanger et al., 2016). According to Amin Belghazi and Mohammed Sammouni (2020) most of the farmers in the vicinity of the NoorO plant are struggling to grow and make a living off of the crops that have provided them a livelihood due to the dire water shortages that have increased since the construction

of the first phase of the project. One farmer situated near the dam complained that “obtaining water, even for drinking, has become a daily struggle. The ground is dry and cracked” (Belghazi & Sammouni 2020: para. 8). While the Moroccan government did not adequately anticipate this consequence, they have since addressed this by shifting towards dry-cooling CSP technologies for the subsequent phases of the project (Noor Ouarzazate Solar Complex 2020). The governments shift from wet-cooling to dry-cooling technologies between phases prompts the question of why the government decided to pursue the first phase of the project, which covers a massive 450 hectares of land, using a wet-cooling system (ibid).

Ultimately, the ecologically dangerous effects that Western utopian socio-technical imaginings of the desert produced through the placement of millions of solar panels across the deserts landscape are reminiscent of the capitalist aspirations of the 19th century French colonizers of the Sahara. Such utopian imaginaries, which confine the narrative of the desert to that of a barren and desolate abandoned space erases the communities that have and continue to call the desert home and presents adverse effects to them and their ecologies.

Conclusion: Some Suggestions on ‘Decolonial Alterities’

This paper has sought to provide a trajectory of the ways in which colonial-orientalist dualities of the Sahara Desert are formed and framed both during the colonial era and in the present day. Ultimately, in framing the desert as a useless and barren space, the colonial mind is able to rationalize their colonial-capitalist utopian imaginaries of transforming the desert landscape to something productive. The socio-technical imaginings of the desert that are now being envisioned privilege the visions of Western techno-scientists who attempt to make the desert a space from which a new green modernity can be visualized through clean energy that can sustain the world over. Anna M. Agathangelou and Lily H.M Ling (2004: 536) ask “whose desires are privileged and whose needs are sacrificed” in such imaginaries. This guiding question

is pertinent when examining desert ecologies and local peoples’ knowledge of the desert environment in a world that has rarely appreciated that not only such ecologies exist but have kept communities alive for centuries.

I echo Agathangelou and Kyle D. Killian (2021: 822) and their call for ‘decolonial alterities’ through inventions that expose and counter “capital fantasies and irrationality”. They see a need for the creation of conditions for multiple decolonial ecologies that evade being enslaved by capitalist-colonial utopian imaginaries. Ecological knowledges of peoples indigenous to the desert need to be taken up within academic, scientific, governance and mainstream spaces to counter the commonly exaggerated narratives about the desert and its lack of ecological provisioning. This is further backed by Catherine A. Odora Hoppers (2011: p. 398), who states that “the local contextual expertise and technologies that indigenous knowledge frames offer can complement some of the mechanical and technical precision capabilities of the Western knowledge systems to generate forms of creativity that benefit and empower everyone. But for this to happen, power must shift”.

This subject of power requires us to ask, “what else could have been known if the leaders of modernity and modern knowledge had not limited, appropriated, and even obliterated sources of life and inventions and their contingent visions about the planetary and life in the name of a global racial planetary capitalist order?” (Agathangelou & Killian 2021: 822). Limited but emerging scholarship on SWANA indigeneity and alternative ecological possibilities has begun to take shape. This scholarship centres the fluid and temporal ecological knowledge of local farmers and their ability to grow and sustain life in harsh climates (Briggs 2007; Davis 2007; El-Kholei & Al-Jayyousi 2016). However, more research needs to be done outside of the discipline of environmental science, particularly within political science research that examines the global governance-development nexus and new fascinations with developing climate change solar energy technologies.

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Endnotes

- ¹ I use the term orientalism broadly to encompass the larger colonial project based on the colonizer's construction of distinct binaries of 'us' versus 'them' rooted in gender, racial and spatial differences.
- ² I use socio-technical imaginaries the same way that Sheila Jasanoff and Sang-Hyum Kim do in their book "Dreamscapes of Modernity: Sociotechnical Imaginaries and the Fabrication of Power" 2015. Here Jasonoff and Kim (2015: 4) define socio-technical imaginaries as "collectively held, institutional stabilized and publicly performed visions of desirable futures, animated by shared understandings of forms of social life and social order attainable through and supportive of, advances in science and technologies".

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