COMMUNITY CHANGE

"Climate Change as a Threat Multiplier": Security and Communal Implications for Iraq

ARTICLE

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ABSTRACT

Climate change is a "threat multiplier" and has posed a deep security concern in many countries by targeting the human security of different communities. Iraq is one of the most climate-vulnerable countries in the Middle East and North Africa (MENA) region. This conceptual study explores how climate change is a threat multiplier to Iraqi human security and poses significant societal and security threats. The article starts by providing some conceptual discussions to measure and comprehend the idea of climate change as a threat multiplier. To define a "threat multiplier," the study articulates some scholarly measurements of the concept and illustrates its leading indicators discussed by the United Nations Environment Programme (UNEP). The author adds intragovernmental disputes and interprovincial tensions to the framework as additional indicators to better understand the security risks of climate variability in Iraq. The article then discusses the societal and security ramifications of the climate-related human movements that have undermined the security and stability of Iraq. Finally, the analysis illustrates how climate change might exacerbate security challenges to the country by enabling tribes, militant groups, and extremists to recruit climate-affected individuals and intensify communal violence in the country.

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INTRODUCTION

Human-induced climate change is already impacting our world. It results from the accumulation of greenhouse gases in the atmosphere, which raises sea levels, causes droughts and rapid desertification, and increases the frequency and intensity of natural disasters. The well-being of people around the globe is threatened by climate stress events, which pose security and social challenges to the livelihood of inhabitants. Climate change exacerbates socio-economic and security issues, such as political violence and armed conflict in developing countries, making them more likely to occur and more severe (Colgan, Green, and Hale 2021). Iraq's environmental, security, political, and economic issues are substantial and intertwined. These issues will probably increase in severity due to climate stress, the repercussions of which are already increasingly recognized.

Iraq is a part of the famed Fertile Crescent, which served as the ancient world's breadbasket. However, as temperatures have risen, severe droughts, decreased precipitation, desertification, salinization, and dust storms have threatened Iraq's water and food security. The country is now struggling with worsening patterns of climate-related issues, such as drought, low rainfall, water scarcity, and desertification, all of which exacerbate several socio-political problems by increasing existing risks or opening novel pathways to cause fragility (Mahmalat and Ahmed 2023). The southern and middle parts of the country are particularly severely affected, and families in rural regions are forced to sell their livestock, pack their belongings, and move to urban areas like Basra, the region's largest city, in search of better jobs and services, though they are not generally welcomed.

This article examines how climate change-related factors such as drought and water scarcity have mainly threatened social and political stability via climate migration. Climate migration is the forceable displacement of people from their homes, which is expected to take place internally within a nation's boundaries because of extreme weather conditions like floods, heat waves, droughts, and wildfires, as well as slower-moving climate impacts, such as rising sea levels and worsening water stress (Prange 2022). This study argues that climate change in Iraq is a "threat multiplier" because it poses an existential threat to climate-vulnerable asset holders, such as farmers and rural families, by jeopardizing their food and water security, escalating resource competition, and displacing them internally. It also contends that climate change exacerbates the country's communal and socio-political tensions.

CONCEPTUAL MEASUREMENT OF THE THREAT MULTIPLIER

Climate change has posed a deep security concern in many countries by targeting the human security of different communities. Scholars and practitioners have frequently referred to the effects of climate change on security as "threat multipliers" in both climate-security literature and policy discussions. Here, some conceptual clarification is required to comprehend the idea of climate change and its security ramifications. According to the United Nations Framework Convention on Climate Change (UNFCCC), climate change is defined as "a change in the climate that is attributable directly or indirectly to human activity that alters the composition of the global atmosphere and that is in addition to natural climate variability observed over comparable time periods" (IPCC 2008, 78). The Secretary General of the International Military Council on Climate and Security and the Center for Naval Analyses (CNA) Military Advisory Board coined the term "threat multipliers" in 2007. This term illustrates that security risks are influenced by how climate change effects interact with and can potentially exacerbate existing threats and other sources of instability (Goodman and Baudu 2023).

Similarly, according to Mazo (2010), climate change is not just one threat among many that planners and policymakers must cope with; it can frequently be a "threat multiplier" that must be considered in policy discussions regarding issues operating on any but the shortest of timescales. The US Department of Defense's Quadrennial Defense Review (2014) also concisely refers to climate change as a "threat multiplier," meaning it may increase other security risks (Werrell

and Femia 2015). Busby (2016) also emphasizes that the climate-security drumbeat began to accrue a constituency in policy circles in Washington, starting with some think tank studies in 2007 and 2008 by the CNA Corporation, his paper for the Council on Foreign Relations (CFR), and an edited volume from the Center for a New American Security and the Center for Strategic and International Studies (CSIS).

By referring to climate change as a "threat multiplier" and an additional "stressor," all of these studies attempted to determine the causal relationship between climate change and security outcomes, specifically tensions and war. These references focused specifically on US national security and highlighted the possibly dangerous multiplier role climate change could play in escalating security issues domestically and abroad. The UK's Secretary of State for Energy and Climate Change, Ed Davey, has also described global climate change as a "threat multiplier" that will exacerbate current resource pressures, particularly in fragile states, stating, "we need to be ready for a world where climate instability drives political instability" (Selby and Hoffmann 2014, 748). Focusing on the types of countries most impacted by climate change (e.g., weak states) is crucial to understanding the impact of climate stress because fragile states have less capacity to tackle climate shocks. In his recent book, *States and Nature: The Effects of Climate Change on Security* (2022), Busby explains that "climate shocks would intersect with weak state capacity, exclusive political institutions, and absent or one-sided aid in a different way" (65). Thus, insights into fragile states must be integrated into the practice of climate security. Furthermore, Busby (2022) discusses that using the language of "threat multiplier" is a way in which the policy community deals with causal complexity but avoids the charge of environmental determinism. If climate change is a "threat multiplier," one can argue that the climate plays a significant role in increasing the likelihood of unfavorable security outcomes; however, it is not the sole driver, and its influence occurs in tandem with other factors.

Another way to describe climate change is as a collective change to the interconnected human-environment system that endangers the survival of both ecological and social systems and requires the development of universally-cooperative solutions backed by shared environmental protection commitments (O'Brien and Leichenko 2009). However, introducing climate change as a global collective action problem among states has been challenged by recent studies like "Asset Revaluation Theory." Colgan et al. (2021) emphasized that the collective action problem of climate change mitigation faces a political challenge from the "free riding" issue, which effectively obstructs any efforts by any state to adopt mitigation policies. Additionally, they believe that collective actions to manage climate change lead to political rivalry between nations with rentier economies (dependent on oil and gas extraction) and those with more ecologically friendly economies. Collective actions can also result in political disputes within nations. For instance, Saudi Arabia is still wholly focused on oil extraction and is less likely to have protracted political contestation compared with countries like Canada. Thus, climate change is a "super wicked problem" as its causes are multiple and complex, its impacts are uncertain and interrelated, and potential solutions might cause further problems (Saab 2019).

However, new research on climate change and security has revealed that the risk of violence is highest in communities that depend heavily on agriculture and have significant levels of "ethnopolitical exclusion" (Von Uexkull et al. 2016). Busby (2022) used this perspective to analyze data on nations that suffered water shortages previously or were projected to suffer from water shortages. Based on their history of violence and agricultural dependence, he discovered that 20 countries, many of which are in the Sahel, are perpetually at risk of conflict and/or humanitarian crises. In late 2018 and early 2019, 11 of these 20 countries experienced significant short-term water deficits. While this is a crude measure of risk factors, it provides helpful direction for assessing how climate vulnerability leads to heightened security threats (Busby 2022).

Finally, a study by the United Nations Environment Programme (UNEP) in 2011 titled "Livelihood Security" on the potential security consequences of climate change in Africa provides a more comprehensive measurement of the concept. UNEP offers five indicators by which climate change could be seen as a threat multiplier in Africa, listed below (Hamro-Drotz 2014, 14):

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- **Vulnerability**: Climate change jeopardizes food security and human health and upsurges human exposure to extreme events.
- **Development**: If climate change decelerates the development process, the subsequent vulnerability may weaken the aptitude of states to preserve stability.
- **Coping and Security**: In reaction to climate-related threats, households and communities may migrate, compete for resources, and take other coping measures that may impact global security.
- **International Conflict**: International collaboration may be hampered by how climate change affects shared or un-delineated international resources. For example, the Tigris and Euphrates Rivers provide shared water resources among Turkey, Syria, and Iraq.
- **Statelessness**: There are repercussions for rights, security, and sovereignty with the loss of statehood due to the disappearance of developable territory from flooding, hurricanes, sea level rise, etc. This symptom of the climate threat seems less relevant when studying Iraq's climate crisis due to the absence of issues like increasing sea levels or the loss of some of its territory due to extreme weather events.

Although UNEP's measurements are sufficient to comprehend climate change, I add **intragovernmental disputes and interprovincial tensions** to the framework as additional indicators to better understand the security risks of climate variability in Iraq. On the first level (intragovernmental disputes), disagreements and tension among various governmental units and authorities concerned with water, specifically among provincial authorities, the Ministry of Water Resources, the Ministry of Agriculture, and the Kurdistan Regional Government as an upstream actor would result from climate change and some non-climate factors in Iraq, such as demographic pressure and economic and political tension (King 2021). Even though these conflicts have been intensifying over the past ten years, they reached a breaking point when the ministries decided to enforce water allocations and impose crop limitations in response to the continuing drought.

On the second level (interprovincial tensions), disputes between various provinces have also increased, with downstream provinces' governors accusing upstream regions of improperly enforcing water restrictions. Conflicts between provincial governments also result from grievances brought by downstream areas against the damaging practices and water consumption patterns of upstream provinces (Skelton 2022). These climate-related tensions, alongside problems like corruption and mismanagement, have undermined the Iraqi government's capacity to address climate-related issues such as displacement and political violence. I base the following analysis on this adaptation of the UNEP framework for climate change as a threat multiplier.

DEVELOPMENT, DROUGHT, AND DISPLACEMENT

Iraq is one of the nations most vulnerable to the economic and physical (e.g., temperature rise, water scarcity, extreme events) effects of climate change shocks. A recent study by the World Bank warned that climate change and significantly worsening water scarcity threaten Iraq's social and security contract (World Bank Group, 2022). In the global transition to a decarbonized world, where oil as a commodity loses its significance in driving the global economy, Iraq's dependency on oil revenues would make it vulnerable to new economic challenges. As OPEC-plus quota limits were gradually loosened along with nearly record-high global oil prices brought on by the conflict in Ukraine, Iraq's federal government saw record oil sales income in 2022 of $115.657 billion; $40 billion more than in 2021 (Dourian 2023). The Iraq Climate and Development Report urges the country to move away from its reliance on oil toward a more diversified economy driven by the private sector (World Bank Group 2022). It is difficult to imagine that Iraq will put its economy at risk to address climate change, particularly drought and water scarcity, given that it is virtually dependent on oil revenue and energy extraction. However, economic diversification would be beneficial in various ways to mitigate climate risk and its effects on the country. In recent years, upstream countries, including Iran and Turkey, have employed hydrocarbon coercion to prevent enough water from the Tigris and Euphrates Rivers from penetrating the land of Iraq. Therefore, reducing oil extraction in Iraq and its neighbors, particularly Iran, will help to control the climate and reduce water scarcity.

Climate change impacts, particularly water shortages, already exacerbate inequality in Iraq, which may lead to further unrest and instability in the country. Two intersectoral issues—a weak water distribution framework and a decentralized administration that doesn't adequately support local institutions and capacities—are among the many structural factors that relate to this imbalance and have frequently fueled tensions and conflicts over water (Tobias von Lossow 2022, 5). Iraq lacks a clear mandate and a workable plan to systematically solve urgent issues in the water sector. Hence, Iraq's optimal course of action may need a more comprehensive national and long-term policy to govern, manage, and cope with water scarcity.

Climate change is predicted to result in unpredictable weather patterns, such as drought and rising temperatures. Iraq's temperatures have been rising, with the trend becoming more noticeable over the past ten years. Iraq is increasingly witnessing summer temperatures above 50°C/122°F with extreme heat waves predicted to become more frequent (NUPI and SIPRI 2022). Iraq's water resources minister stated that as of September 2022, the country has had "one of the driest years Iraq has seen since 1930" (Al-Monitor 2022, n.p.). Over the next three decades, the average annual temperature across the country is expected to rise by an unprecedented 2°C with more frequent heat waves (USAID 2017), which is greater than the threshold climate experts deem necessary to stop the runaway negative consequences of climate change. The effects of climate change in Iraq were also discussed in a 2009 report issued by the United Nations Development Programme (UNDP). The report highlighted the severe droughts the country had endured and the precipitation levels that had decreased over the Tigris and Euphrates River basins in the five to ten years before the report, amounting to only 25 to 65% of previous levels. These changes have increased the likelihood of massive dust storms due to reduced soil moisture and vegetation cover.

Numerous annual dust storms have been seen in Iraq due to the area's drastic annual average temperature, rainfall, and water scarcity variations. According to a recent study that looked at the yearly and seasonal frequency of all dust events in Iraq, the spring and summer seasons from 1980 to 2015 were when Iraq was exposed to the most dust events. The northern region of Iraq experiences higher levels of dust storms in the summer than in other seasons. In contrast, the southern and central areas see the highest frequency of dust storms in the spring and summer (Attiya and Jones 2020).

Concerns about most of Iraq's arable land turning into deserts are growing. A study by Sissakian et al. (2013) illustrated that climate change could lead to an unprecedented dust storm in Iraq, reporting that "the maximum number of annual dust storms during 1951–1990 was about 24 days/year, whereas the predicted number of annual dust storms during 2013 is estimated to be 300 days" (Sissakian, Al-Ansari, and Knutsson 2013, 1087). It is anticipated that the effects will worsen as time goes on, further deteriorating the soil's physical and chemical characteristics in Iraq's arable and non-arable regions (Adamo et al. 2018). More frequent and severe droughts will also be caused by increased temperature and anticipated extended heat waves, affecting at least 7 million people in Iraq in 2021 alone (NRC 2022). The ramifications of drought in Iraq have generated severe economic and social consequences.

COPING AND SECURITY: CLIMATE MIGRATION

Climate change impacts people's circumstances, available options, and mobility. In the 1990s, the Intergovernmental Panel on Climate Change (IPCC) noted the possible effects of climate change on human migration (Houghton, Jenkins, and Ephraums 1990). Following the IPCC's 2007 assessment report, which highlighted the impacts of climate change on human movement, empirical study of the relationship between climate change and human mobility grew (Weerasinghe 2021). However, Busby (2022) asserts that not all climate risks result in disastrous consequences. He believes that while some "swift-onset" climatic hazards, like cyclones, floods, and storms, represent direct and immediate short-term threats because they happen quickly, other "slow-onset" hazards, including droughts, salinization, and land degradation, take longer to manifest. To put it another way, not all storms result in natural disasters. It is crucial to pay particular attention to the distinctions

between two types of climatic stress to determine the close linkages between migrations and climate change: "sudden-onset" climate shocks, and slow and gradual-onset climate disasters. As a result, it is not always easy to identify migrations influenced by the climate because the "displacement related to slow-onset events often depends on whether the slow onset event has developed into a disaster situation that leaves affected individuals with no other reasonable option than to leave" (IDMC 2018, 4).

Due to these factors, countries have set up several institutions and allocated sizable budgets to cope with climate migration. These institutions are the main pillars for formulating policy decisions and planning related to climate migration (IOM 2022). To carry out the provisions of the Global Compact for Migration, the government of Iraq established a Technical Working Group on Migration in 2020 (with the technical assistance of the International Organization for Migration (IOM). The National Strategy for Migration Management, the immigration policy framework for putting the Global Compact for Migration into effect in Iraq, was approved by the government of Iraq in October 2020. Recent data and reports indicate a sharp rise in the number of families in Iraq affected by the climate (DTM 2021; Loveluck and Salim 2021; UNDP 2020). However, some contend that the circumstances driving people to leave Iraq are not caused solely by climate change. Other societal factors, such as ineffective management of water resources, stale farming practices, pollution, and decreased water flow imposed by upstream nations, are equally essential in causing people to relocate. These factors are equally important to address since they intensify the impact of climate change (IOM 2022).

Climate mitigation is already a reality in Iraq. According to the Norwegian Refugee Council (NRC 2021), one in five households in drought-affected areas had a family member who was compelled to migrate in pursuit of employment due to the consequences of the drought. Displacement will probably rise rapidly as environmental changes become more severe. Drought, land degradation, and increased salinity in rivers and tributaries continue to strain the agricultural sector, with many families unable to guarantee sufficient and sustainable livelihoods in rural areas. Recently, the IOM-Displacement Tracking Matrix published a report tracking climate-induced displacement across Iraq's central and southern regions since June 2018. As of September 2022, 10,464 families (62,784 individuals) remain displaced because of drought conditions across ten governorates. The displaced families are dispersed across 259 locations, with the majority (76%) being urban and 3,854 families displaced within their district of origin (37%) (DTM 2022). The number of migrant families affected by climate change in Iraq's central and southern areas as of March 2023 is represented in the map below (Figure 1) provided by the Displacement Tracking Matrix (DTM) Unit. The map shows that the southern Iraqi regions of Najaf, Thi-Qar, and Missan are particularly impacted by climate-related migration.

The social and security implications of climate change migration are considerable, especially in countries divided along racial and sectarian lines. The social impacts of climate migration in Iraq are severe for families with fewer market skills. Due to the nature of their work, which is primarily agriculture and livestock breeding, they face great difficulties in finding suitable jobs when they migrate to the cities. Thus, when they go to the cities and towns, they are either not welcomed properly or become cheap labor and are exploited. For example, a person who goes to work may earn less than 20,000 Iraqi dinars ($15) a day due to lack of experience and is less qualified for the market job demands, which is not enough to feed their family's daily basic needs.

Another social consequence is that most climate-migrated families, including children, must work tirelessly to survive. The drought in Iraq has caused the death of many animals and forced people who depend on this land to move elsewhere. Migrating to other areas has increased their chances of being exposed to unsafe working and living conditions, especially children (UNICEF 2022, 24). Families have been relocated to areas like Najaf, Diwaniya, Basra, Kirkuk, and Nasiriya due to their poor economic situation and the lack of decent living conditions following the loss of income from agriculture, cattle grazing, and even fishing (Al_Amal_Association 2015). Climate-impacted families may force or encourage their children, mainly the males, to work alongside other male family members, which causes their children to drop out of school and join the labor force, where they will be subject to abuse. A study by the International Rescue Committee (IRC) reported that

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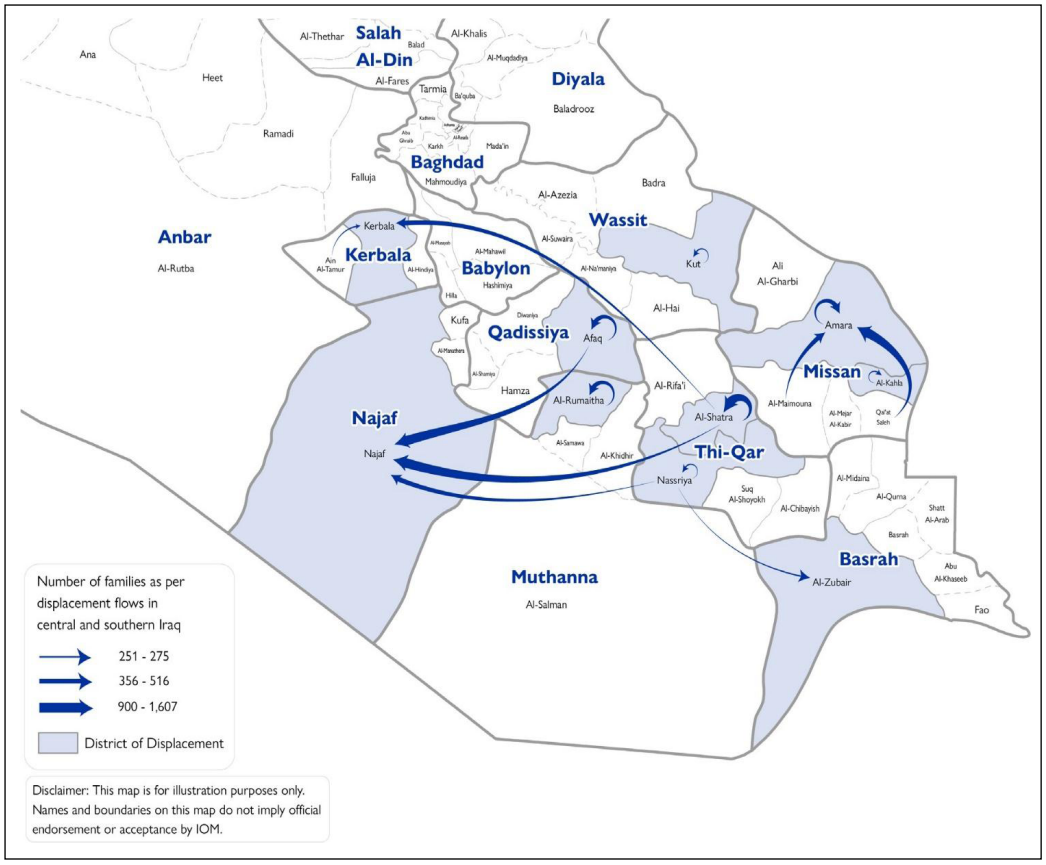

Figure 1 The Top Climate-Related Migration Movements in Southern and Central Iraq (Map originally published in IOM 2023, 1).

"85% of children in Iraq in 'East Mosul' did not feel safe in their place of work, describing instances of harassment and not having the proper equipment to protect themselves during work in factories or on the streets" (Ata 2022, n.p.). Child labor violates human rights regardless of whether it is considered a crime in Iraq. Therefore, when these children go to the markets, they will likely be mistreated, forced to do hard work, and may even be exploited through drug trafficking, theft, and abuse, including but not limited to kidnapping and harassment (Al_Amal_Association 2015, 39). The considerable increase in the number of children working in different parts of Iraq may be partly related to migration due to climate change.

The impact of climate migration can be more dangerous in some parts of Iraq, which has already suffered from years of sectarian wars. Mosul, the city severely impacted by climate change that is being destroyed because of the fight against the ISIS terrorist organization since 2014, has a higher proportion of child labor and climate issues; water scarcity is notably rising in the northern province of Nineveh, the most wheat-productive part of the country, exacerbating already dangerous levels of food insecurity. According to an interview with Iraqi journalist Sanar Hasan and agricultural consultant Anas al-Tai for the website Mosul Eye, which focuses on the security, cultural, and environmental situation in Mosul, 90% of the province's arable plains have been affected by desertification in the capital of Nineveh (Hasan 2022). According to the UN's migration agency, between June and December of 2021 at least 303 families – around 1,800 people – from Nineveh were forced to leave their homes because of drought. An unnamed 27-year-old Mosul farmer also claimed he had no choice but to give up the land he inherited from his father, as "[he] was spending more on [farming] than [he] was earning from it." Another mentioned that "in 2021, [he] decided to sell the land. With no option but to look for another source of income, he moved to Duhok with his family and took up construction work. [He stated that] he works twice a week, earning roughly $20 a day [and] explained that some days he still can't find enough work to pay the rent or provide food for his three children" (Hasan 2022, n.p.). Farmers like these are more likely to send their children into the labor force in conflict-torn cities like Mosul, which has experienced jihadist movements for years.

The final effect of climate change-related migration is tied to the early marriage of daughters of migrating families. UNEP estimates that 80% of those displaced by climate change are women and are more vulnerable to violence, including sexual violence. While women sleep, wash, shower or dress in shelters, tents, or camps, the risk of sexual violence becomes a tragic reality in their lives as migrants or refugees. Women and girls who are on the move must deal with human trafficking, child marriage, early marriage, and forced marriage (UNHR 2022). In Iraq, the climate migrant families' economic status is precarious; as was already stated, they lack the essential skills to meet market expectations. In terms of the marriage of their daughters, they continue to be plagued by tribal traditions. As a result, when they relocate to the cities, they pressure their daughters into young marriages, which violates the women's human rights and sets the stage for societal and even security issues.

The Center for Civilians in Conflict (CIVIC) (2022) reported that the secondary effects of climate change in Iraq, linked to the loss of livelihoods and migration, have tremendous potential to exacerbate inter-and intra-communal tensions, deepen mistrust of the government, and widen security gaps. As families struggle with declining economic capacity, early marriage is becoming more common for young girls and women under such circumstances. Child marriage is an evident practice in tribal communities. It is not a recent phenomenon, but efforts to reduce the financial burdens placed on families affected by climate change have contributed to its growth. Furthermore, a community activist in Basra told CIVIC that "for many agricultural families, it is 'easier' to marry off girl children because of the economic incentives (such as bride price and dowries)" (CIVIC 2022, 13).

INTERNATIONAL CONFLICT AND REGIONAL DISPUTES: WATER AND FOOD SECURITY

National and regional political uncertainty will make mitigating the effects of climate change and addressing global water management very difficult. Water flow volumes from upstream nations like Turkey and Syria have changed annually due to climate change and political instability (Adamo 2018). Shrinking water quantities and acutely declining water quality have reached unprecedented levels and pose tremendous challenges in Iraq. Several factors have caused the water shortage in Iraq, mainly in the southern part of the country. The Tigris and Euphrates Rivers serve as Iraq's water security base. Following 1991, the Iraqi government launched a brutal counterinsurgency campaign in the marshes in parallel with mass killing and forced population resettlement. The state used hydrological infrastructure to divert water from the wetlands, permanently desiccating the area. Studies mentioned that the marshes' destruction resulted from a complex interplay among sectarianism, development planning, and security imperatives (Ahram 2015).

However, in the last three decades, other developments have also contributed to the water crisis in Iraq. First, dam building in Turkey and Iran significantly reduced water inflow into the Euphrates and Tigris Rivers. Secondly, Iraqi water installations had been deplorable before the Islamic State terrorist group used water as a weapon and further damaged infrastructure. Next is the Kurdish de facto control over the Tigris River's upstream water flow (Saab 2018). The fact that irrigation water in Iraq flows through a system of open-air canals results in high evaporation rates throughout the summer when temperatures rise; hence poor water management is another critical concern (Skelton 2022). Farmers also utilize wasteful flood techniques instead of precision drip or spray irrigation, wasting even more water when it reaches the fields.

Furthermore, the lack of sufficient precipitation and alternative water resources have also caused a water shortage in the country. Iraq's precipitation is characterized by high seasonal and regional variability. While the annual average rainfall on the steppe ranges from 200 to 400 mm, most rainfall occurs in the north and northeast, with 400 to 1,000 mm falling primarily between November and March. The South receives only between 40 to 60 mm, mainly between October and December. Predictions show that by 2050, the mean annual rainfall in Iraq will fall by 9%, and the maximum number of rainy days is also expected to diminish (NUPI and SIPRI 2022). Decreasing rainfall is anticipated to extend dry seasons, severely affecting food and water

security and leading to disputes and political protests in the country. The implications of water scarcity have recently impacted the political and social climate. Every summer, residents of many provinces in Iraq and the Kurdistan region protest the lack of services, particularly in the water and energy sectors. Security forces have cracked down on protesters, often resulting in violence that has left many dead or injured (Aawsat 2015; France24 2021). The map below (Figure 2) shows the overlay of water stress, the extent of the protests against water shortages, and violence against civilians among the Iraqi provinces.

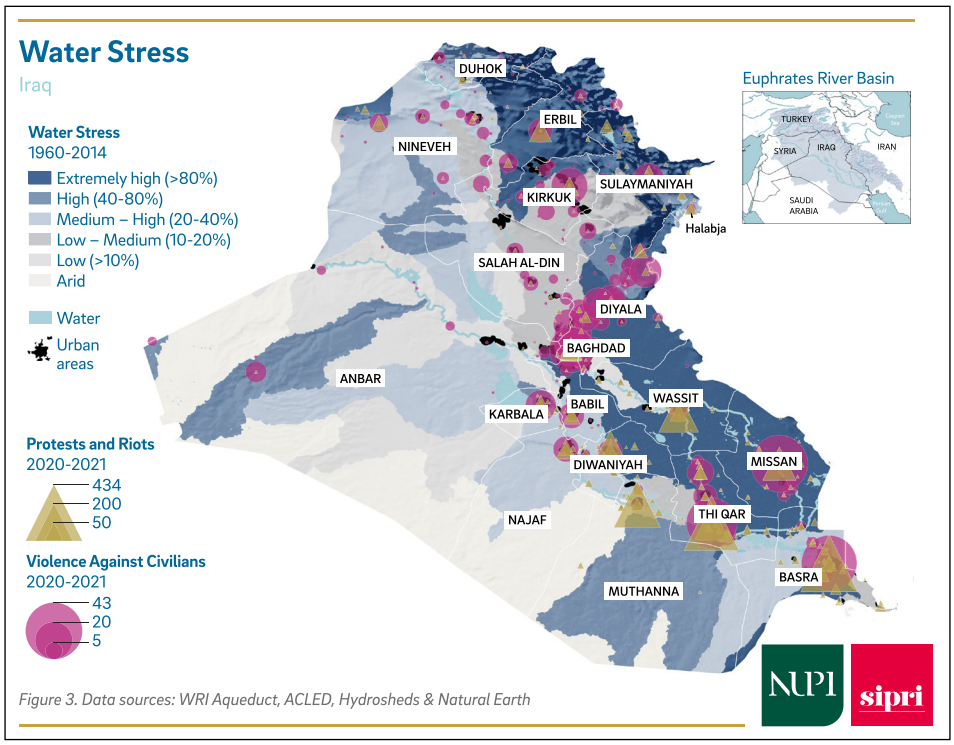

Figure 3. Data sources: WRI Aqueduct, ACLED, Hydrosheds & Natural Earth

Figure 2 Water Stress, Protests, and Violence Against Civilians in Various Iraqi Regions (Map originally published in NUPI and SIPRI 2022, 8).

Tensions frequently involve numerous provinces along the Tigris and Euphrates. For instance, in recent years, inter-provincial tensions between several southern areas have arisen due to water shortages and drought, with the governors of downstream provinces accusing the upstream regions of improperly implementing water quotas. For instance, the governor of Basra, to confront the issue of high salinity and flooding of significant lands in the area, threatened to stop supplying energy to the Dhi Qar Governorate and demonstrate against it if the governorate would not agree to close the Al-Khamisiyah Dam (AlmadaPaper 2013). Ultimately, Dhi Qar relented and formally committed to closing the dam.

Nevertheless, reports said residents close to the dam associated with tribal groups vowed to block the closure because it would harm and flood their agricultural lands downstream. The Ministry of Water Resources and agrarian communities are involved in these interprovincial disputes because downstream provinces accuse the Ministry of enforcing water usage restrictions upstream and stopping farmers from illegally tapping into water supplies (Skelton 2022). As a result, bitter disagreements over water – between upstream and downstream provinces, between provincial governments and national ministries, and between groups of farmers – have become more frequent, especially in the southern Iraqi agricultural regions. Farmers' disputes have occasionally turned violent, giving rise to foreboding and exaggerated warnings about Iraq's future era of "water wars" (Skelton 2022).

VULNERABILITY: AGRICULTURE AND THE WATER SUPPLY

Conflict, climate change, and a lack of water are just a few of the issues that have hampered the agricultural sector's sustainability in recent years (ICRC 2022). Agricultural pursuits and the local way of life in the marshes are in danger of extinction. Communities that once produced rice and

wheat now struggle to survive in climate-affected areas due to drought and water shortages. Historically, smallholder agriculture has provided for the country's inhabitants and is the foundation of Iraq's food supply. Drought and declining rainfall in Iraq threaten traditional cultivation, such as amber rice production. Rice is the third most consumed crop by the Iraqi people; however, its cultivation and production are declining due to water scarcity (Al Azzawi et al. 2020).

Furthermore, desertification affects 39% of Iraq's territory. Drought, dust storms, and lack of rainfall have dried up thousands of dunams of agricultural lands (ICRC 2022). Authorities and residents in southern Iraq believe rice production will disappear if these circumstances persist. The Norwegian Institute of International Affairs and Stockholm International Peace Research Institute claim that the area devoted to growing only rice in Najaf has decreased from over 230,000 dunams to just 5,000–6,000 dunams. Most of what is produced now is not even amber rice, one of Iraq's most important agricultural products, because it requires a lot of water (NUPI and SIPRI 2022).

Additionally, a 2021 study by the Norwegian Refugee Council (NRC) that polled 2,800 families in climate-affected regions of Iraq discovered that 37% of wheat and 30% of barley farmers saw crops fail by at least 90% of the anticipated harvest. As a result, the average monthly income fell below the monthly survival threshold in six of the seven governorates studied (NRC 2021). CIVIC also illustrated that nearly 90% of the Iraqi marshlands have gone dry. The number of vital date palms has also decreased from a one-time high of 33 million to just 9 million in 2021 (CIVIC 2022). All of these have put Iraq's food security in danger, as the NRC reported that one in two families in Iraq's drought-affected regions need food aid, and one in five do not have enough food for their entire family.

Water is needed for drinking, irrigation, and agricultural reasons in farming areas all over Iraq. However, the broader impacts of climate change, failing infrastructure, and declining river flows have made it even harder to acquire enough safe water. In 2021, 61% of households reported that their ability to access drinking and domestic water had been hampered. One in five said they were running out of water, while others had to rely upon lower-quality water (NRC 2021). For example, in Basra, 41% of households in Qurna and 29% in Shatt al-Arab reported no drinking water available in rivers or canals due to decreased water levels and high water salination. According to HRW, this became a full-blown crisis in the summer of 2018, when at least 118,000 people were hospitalized due to symptoms related to water quality (Wille 2019).

INTERPROVINCIAL TENSIONS: SECURITY RAMIFICATIONS OF CLIMATE CHANGE

The nexus of climate change, political, and communal violence is a significant part of the discussion of how climate change threatens a society. While some argue that climate change is a causal factor of political and communal violence in already weak and failed states, others believe it exacerbates existing tensions. Climate change has increased communal tensions between asset owners (farmers and herders) in Iraq's southern areas. A disagreement over water distribution is at the heart of many disputes between farmers and tribes. Water is one of the natural resources the clans are trying to control, especially since the southern regions frequently experience severe droughts due to the reduction in water flow from the Tigris and Euphrates rivers and the rise in water demand. The clans do not hesitate to carry weapons and engage in intraclan conflict to dominate or gain influence (Al_Hassan 2020). Numerous casualties and injuries have occurred in recent years due to armed clan conflicts in northern Basra that originated in the water crisis. One of the region's notables, 60-year-old Safi Mawali was quoted in Al-Madapaper, an independent Iraqi newspaper, saying that "clan disputes brought on by water scarcity make up around 10% of all existing conflicts, but they could rise if we have more drought in the future" (Al_Hassan 2020, n.p.). The same newspaper reported that due to the scarcity of water and the methods used by tribes in southern Iraq to utilize it, other areas in the governorates of Dhi Qar and Maysan were experiencing similar conflicts and violence. For instance, because of decreasing waters in the marsh during the dry seasons, there was an armed confrontation between two tribes in Al-Medina in Basra and Hor Al-Chibayish in the Dhi Qar Governorate.

Studies have also reported that drought and water scarcity have worsened inter- and intra-communal tensions among Iraqi communities and urged the climate migrants and affected groups to be recruited by terrorist groups and armed militias. According to the Norwegian Refugee Council, challenges in pumping water due to the decreased river and canal levels and illegal drilling of boreholes or water pumping have amplified inter-communal tensions in several ruler areas and districts (NRC 2022, 16). Notably, the places where the highest percentage of households experienced these tensions are districts significantly impacted by the conflict and continue to host Internally Displaced People (IDPs) or witness waves of returns. For example, 57% of households in Hawija, 63% in Rumadi, and 55% in Mosul described this rise in community tensions (NRC 2022). Thus, water security is critical in restoring the social capital necessary for post-conflict economic recovery and achieving durable solutions.

Additionally, urban migration patterns in Iraq have shown that most migrants settle in slums. These slums, together with the migrants' precarious conditions, have created a breeding ground for recruitment into armed groups and the growth of criminal networks. Sources of insecurity in host cities are centered around tribal conflicts, unemployment, lack of services, and drug and alcohol trafficking (NUPI and SIPRI 2022). This is relevant in Iraq, especially in the South, given that many groups emerged post-2014 to respond to the ISIS conflict. These groups gathered around the Popular Mobilization Forces (PMF) have different degrees of alignment with the government. Still, a common element among most of them is that their traditional base and manpower primarily come from the southern governorates. Recruitment into one of the groups may be a viable livelihood option for many households (DTM 2021). Joining Shiite groups and militias is typical for Shiite youth and is seen as a religious duty, primarily when a religious fatwa has formed these groups against the terrorist organization ISIS. Therefore, young people in southern Iraq affected by the negative consequences of climate change are more likely to join those groups, though not necessarily terrorist groups.

However, studies have found that diminished agricultural livelihoods due to water shortage and higher temperatures negatively impact agricultural output and farmers' ability to harvest crops, increasing local support for terrorist groups (O'Driscoll 2018). Opportunities for a terrorist group such as ISIS to gain support could increase with climate change, especially among neglected and marginalized communities already affected by terrorist activity. Previously flawed water and agricultural policies have repeatedly marginalized certain sections of the population, creating tensions between groups. These communities were known to be hotspots for ISIS recruitment and support in exchange for access to primary resources, livelihood security, or other services not provided by the state (Hassan, Born and Nordqvist 2018). During the war, ISIS deliberately operated in water-scarce regions. In Kirkuk, ISIS gained support during extreme weather events. For example, during droughts and floods, ISIS provided food and cash payments to the population in exchange for aid. In 2014–2015, ISIS drew support to a higher degree from water-deprived communities in and around Tikrit, compared to farmers less affected by water deficiency and drought. As water becomes scarce and livelihood conditions more insecure, people in ISIS-liberated areas could again look to terrorist groups for access to primary resources. Therefore, water management and agricultural investment are closely connected to stabilization, security, and peace.

The increase in climate migrant movements to Iraq's northern regions is another security impact of climate change in the country. Any migration will have a detrimental security impact because of the religious and ethnic tensions in Iraq (Mahmoud 2022; Kurdistan 24 2023; Rudaw 2023). For instance, the relocation of Shiite families from southern Iraq to the Sunni-populated center regions of the country puts their safety in danger, mainly when jihadist terrorist groups are still operating in these regions. Additionally, both sects vividly remember Iraq's sectarian and civil strife between 2006 and the present. Another aspect of the risks is that any migration to these areas could endanger the Shiites because the Sunni community in Iraq publicly blames the Shiite government for the instability and oppression of their regions.

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However, the flow of Arab migrant families (whether Shiite or Sunni) to the disputed territories between the Kurdistan Region and Baghdad poses a more significant security threat. While the Ba'ath regime was in power, these places were Arabized; however, once the Ba'ath regime was overthrown, a sizable portion of the imported Arabs relocated back to their communities in southern and central Iraq. The Kurdistan Regional Government claims sovereignty over the contested lands, most inhabited by Kurds. However, a wave of Arab migration from central and southern Iraq to Kirkuk and the disputed territories has resumed following the failure of the Kurdish independence referendum in 2017 and the loss of the disputed territories. Because of this, the Kurds see every movement of Arab families into the disputed areas as a demographic change and a new round of Arabization attempts. Since October 2017, communal conflicts have broken out between returning Arab migrants and the Kurdish farmers living in the disputed territories (KirkukNow 2022).

Due to the water scarcity, drought, and desertification of agricultural lands in their home regions, many Arab climate migrant families desire to settle in disputed territories to farm and herd livestock. For instance, in 2022, following a wave of rainfall that promised a good agricultural season, clashes between Arab and Kurdish farmers resurfaced in various communities in the Kirkuk region because of legal issues over who owned the agricultural grounds in many areas. Local estimates place the size of the contested agrarian regions in the Kirkuk Governorate at 80,000 local dunums (19768.431 acres), spread along the entire fertile agricultural arc in the districts of Daquq, Lilian, and Debs in Kirkuk's southern and western region, which is renowned for its wheat, barley, and maize farming (Mahmoud 2022). Returning Arab families to those areas would threaten their demographic makeup and intensify existing intercommunal violence based on ethnicity.

CONCLUSION

Iraq is one of the five nations most impacted by some of the real consequences of climate change, particularly prolonged droughts and water scarcity (USAID 2023). The two rivers of Iraq, the Tigris and the Euphrates, which serve as the primary irrigation system for the bulk of the farmers in the country, are now streams with scarce water, a clear example of this tragic phenomenon. This study claims that since climate change is a significant problem in Iraq, it is a threat multiplier and poses a multifaceted threat to the human security of the country's climate-vulnerable asset holders (farmers and villagers). Rising temperatures, a worsening drought, and a lack of water for irrigation and drinking have all affected Iraq. The migration and displacement of farmers from their land, particularly in the southern provinces and liberated territories under the control of ISIS, is one of the many unfavorable effects of climate change in Iraq. The main characteristics of climate change as a multilateral threat are the emergence of an immediate threat to human security. The drought and water shortage have threatened the livelihood and food security of many herders and farmers in different regions of Iraq. People have lost their livestock and arable lands. People and families who leave their areas are no longer guaranteed food and water security. Their crops are destroyed by drought and water scarcity. Their livestock, such as cattle, sheep, and goats, have disappeared due to a lack of food, fodder, and water.

As a result, families are displaced internally in some parts of Iraq, mainly the southern regions. This sort of displacement has further intensified challenging economic situations in some governorates and puts additional pressure on the Iraq state's institutional capacities. The Iraqi government established some regimes and institutions to handle this issue, such as a Technical Working Group on Migration, the National Strategy for Migration Management, and the Global Compact for Migration. These institutions are the main pillars for formulating policy decisions and planning related to climate migration. Yet, the number of climate migrants has increased due to ineffective climate change governance policies, mainly due to failed management of water resources.

The societal and security implications of climate migrations are many in Iraq. Societally, the members of climate migrant families suffer from a lack of reputable employment to provide food for their family once relocated. Their choices are limited to being part of a cheap labor force and

exploited for a lower wage and long work hours or remaining unemployed in their new community. In contrast, young girls and women from these migrant families marry at a very young age due to poor living conditions. Male children of migrant families are also subject to abuse as they join the labor force, rife with unsafe working conditions. These issues are more notable in the rural areas of Iraq because people have strong ties to tribal traditions.

Additionally, in part due to the loss of livelihood and relocation to cities, young men from rural families will join militias, particularly the Popular Mobilization Forces, a network of Shia militias mainly in the southern regions, in order to feed their families. Therefore, militarizing some critical segments of society (farmers) is one of the profound security implications of climate stress in communities with climate shocks and informal armed groups. Recruitment into armed groups provides former farmers with access to weapons and money and can pose a threat to state power and rival tribal groups alike. In recent years, armed conflicts have broken out in southern regions of Iraq between groups and tribes where climate-related issues like gaining control over water shares have been at the front line of the tribal conflict in the area. Clan conflict escalation correlates somewhat with climate change, particularly during years of drought (Saadoun 2018; Hussain 2022; Koli 2022). Therefore, it can be concluded that local community stability in southern Iraq will continue to deteriorate because of regional climate change impacts and the predominance of severe drought conditions.

The building of enormous dams by Turkey and Iran at the headwaters of the Tigris and Euphrates Rivers and the Karkheh and Karun Rivers are additional factors that contribute to the worsening of the drought and water scarcity in Iraq. Iraq's water security has been further jeopardized by the use of hydropower coercion by its neighbors, which has created international disagreements regarding policy for water sharing and fostered domestic unrest in downstream areas.

Finally, the impact of COVID-19 on environmental conditions is another point that needs to be considered in studying climate change, according to the fifth report in a series issued by the UNDP on the impact of the coronavirus on environmental sustainability in Iraq (UNDP 2021). The report underscores how the pandemic has exacerbated environmental fragility in Iraq, which is already affected by conflict, lack of significant public sector reforms and governance, lost development gains, illegal activities such as poaching, fishing, and logging, and other factors. The report also noted that "the devastating health and economic consequences of the pandemic in Iraq have had significant implications for environmental sustainability. Direct negative environmental impacts include increased quantities of medical waste. But some positive effects have also [occurred] such as temporary improvements in air quality and ecosystems" (UNDP 2021, 5). Further research is required to fully understand the direct and indirect effects of the COVID-19 pandemic on the country's ability to preserve its climate and stabilize its people, particularly regarding the government's response to climate pressures on top of pandemic response efforts.

COMPETING INTERESTS

As a current editor of *Community Change*, I was completely removed from the selection, peer review, and publication process of this article, except as an author responding to comments from the editors and peer reviewers. Other than this piece, I have not published articles or book reviews in *Community Change* while serving as a current editor. I chose to publish this article in *Community Change* in lieu of other journals because it is an open-access journal.

I, Farhad Hassan Abdullah Mamshai, pledge that every action was taken to mitigate potential bias by both the journal and myself in publishing this article.

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REFERENCES

Aawsat. 2015. "Water and electricity demonstrations extend to the cities of central Iraq." *Aawsat*. Accessed 14 July 2023 from https://aawsat.com/.

Adamo, Nasrat, Nadhir Al-Ansari, Varoujan K Sissakian, Sven Knutsson, and Jan Laue. 2018. "Climate change: consequences on Iraq's environment." *Journal of earth sciences and geotechnical engineering* 8 (3): 43–58.

Ahram, Ariel I. 2015. "Development, counterinsurgency, and the destruction of the Iraqi marshes." *International Journal of Middle East Studies* 47 (3): 447–466. DOI: https://doi.org/10.1017/S0020743815000495

AlmadaPaper. 2013. "Basra demands Dhi Qar to close the Khamisiyah channel to stop the salinity and threatens to demonstrate against it." *Almada Paper*, 2013. https://almadapaper.net/view.php?cat=81089.

Al_Amal_Association. 2015. "A Rapid Assessment of Worst Forms of Child Labour Republic of Iraq." No Lost Generation (NLG). Accessed April 20, 2023. https://www.nolostgeneration.org/media/5261/file/A%20rapid%20assessment%20of%20worst%20forms%20of%20child%20labour%20in%20the%20Republic%20of%20Iraq.pdf.

Al Azzawi, Tiba Nazar Ibrahim, Murtaza Khan, Adil Hussain, Muhammad Shahid, Qari Muhammad Imran, Bong-Gyu Mun, Sang-Uk Lee, and Byung-Wook Yun. 2020. "Evaluation of Iraqi rice cultivars for their tolerance to drought stress." *Agronomy* 10 (11): 1782. DOI: https://doi.org/10.3390/agronomy10111782

Al_Hassan, Shukri. 2020. "Drought fuels tribal conflicts in southern Iraq." *Al_Mada Paper*. May 4, 2023. https://almadapaper.net/view.php?cat=228114.

Al-Monitor. 2022. "Iraq drought displaces 1,200 families in parched south." *Al-Monitor*. Accessed December 22, 2022. https://www.al-monitor.com/originals/2022/10/iraq-drought-displaces-1200-families-parched-south#ixzz7m9S5kNsr.

Ata, Elias Abu. 2022. "High child labor rates in Iraq continue to disrupt children's education, childhood and basic rights, the IRC warns." *International Rescue Committee (IRC)*. Accessed December 20, 2022. https://reliefweb.int/report/iraq/high-child-labor-rates-iraq-continue-disrupt-childrens-education-childhood-and-basic-rights-irc-warns.

Attiya, Ali A., and Brian G. Jones. 2020. "Climatology of Iraqi dust events during 1980–2015." *SN Applied Sciences* 2 (5): 845. DOI: https://doi.org/10.1007/s42452-020-2669-4

Busby, Joshua. 2016. "Climate change and US national security: Sustaining security amidst unsustainability." In *Sustainable Security: Rethinking American National Security Strategy, ed. Jeremi Suri and Benjamin Valentino*. Oxford University Press. https://tobinproject.org/books-papers/sustainable-security. DOI: https://doi.org/10.1093/acprof:oso/9780190611477.003.0008; https://doi.org/10.1017/9781108957922

Busby, Joshua. 2022. *States and Nature: The Effects of Climate Change on Security*. Cambridge University Press.

CIVIC. 2022. "Climate Change and Civilian Protection in Iraq. Center for Civilians in Conflict". Accessed April 4, 2023. https://reliefweb.int/report/iraq/if-i-leave-i-cannot-breathe-climate-change-and-civilian-protection-iraq.

Colgan, Jeff D., Jessica F. Green, and Thomas N. Hale. 2021. "Asset Revaluation and the Existential Politics of Climate Change." *International Organization* 75 (2): 586–610. https://www.cambridge.org/core/article/asset-revaluation-and-the-existential-politics-of-climate-change/0963988860A37F6988E73738EA93E0A1. DOI: https://doi.org/10.1017/S0020818320000296

Dourian, Kate. 2023. "Iraq rakes in record $115.7 billion in 2022 oil revenue." *Iraqi Oil Report*. Accessed April 5, 2023. https://www.iraqoilreport.com/news/iraq-rakes-in-record-115-5-billion-in-2022-oil-revenue-45393/.

DTM. 2021. "Climate-Induced Displacement – Southern Iraq (International Organization for Migration (IOM)". IOM Displacement Tracking Matrix. Accessed November 20, 2022. https://iraqdtm.iom.int/files/Climate/202210103550928_iom_DTM_ET_ClimateDisplacement_Center_South_Nov_2021.pdf.

DTM. 2022. "Displaced Families in Central and Southern Governorates." IOM Displacement Tracking Matrix. Accessed February 12, 2023. https://reliefweb.int/report/iraq/dtm-emergency-tracking-climate-induced-displacement-southern-iraq-data-collection-period-1-15-september-2022#:~:text=As%20of%2015%20September%202022,76%25)%20being%20urban%20locations.

France24. 2021. "Protests in Iraq against electricity and water cuts, amid a heat wave that exceeded 50 degrees Celsius." *France24*. Accessed 14 July 2023.

Goodman, Sherri, and Pauline Baudu. 2023. "Climate Change as a "Threat Multiplier": History, Uses and Future of the Concept." *Climate and Security*. Accessed April 13, 2023. https://climateandsecurity.org/2023/01/briefer-climate-change-as-a-threat-multiplier-history-uses-and-future-of-the-concept/.

Hamro-Drotz, Dennis. 2014. "Livelihood security: Climate change, migration and conflict in the Sahel." *Conflict-sensitive adaptation to climate change in Africa* 195.

Hasan, Sanar. 2022. "Climate change leaves Iraq's 'breadbasket' with less water, wheat, and farmers." The New Humanitarian. Accessed February 20, 2023. https://www.thenewhumanitarian.org/news/2022/09/06/Iraq-wheat-farmers-climate-change-conflict.

Hassan, Kawa, Camilla Born, and Pernilla Nordqvist. 2018. "Iraq: Climate-Related Security Risk Assessment." *Report of the expert working group on climate-related security risks*. 23pp.

Houghton, John Theodore, Geoffrey J Jenkins, and Jim J Ephraums. 1990. "Climate change: the IPCC scientific assessment." *American Scientist* 80 (6).

Hussain, Dilshad. 2022. "The water crisis portends clan conflicts in central and southern Iraq." *Irfaasawtak*. Accessed 14 July 2023. https://www.irfaasawtak.com.

ICRC. 2022. "Iraq: Expanding deserts, searing temperatures, and dying land: Climate crises deepen struggle of farmers" [EN/AR]. *International Committee of the Red Cross*. Accessed December 20, 2022. https://reliefweb.int/report/iraq/iraq-expanding-deserts-searing-temperatures-and-dying-land-climate-crises-deepen-struggle-farmers-enar.

IDMC. 2018. "Synthesizing the state of knowledge to better understand displacement related to slow onset events." Internal Displacement Monitoring Centre. Accessed November 13, 2022. https://environmentalmigration.iom.int/task-force-displacement.

IOM. 2022. "Migration, Environment, and Climate Change in Iraq." The International Organization for Migration. Accessed January 12, 2023. https://reliefweb.int/report/iraq/migration-environment-and-climate-change-iraq.

IOM. 2023. Displacement Tracking Matrix (DTM) Iraq – Emergency Tracking - Climate-Induced Displacement – Southern Iraq (1 March-15 March 2023). *The International Organization for Migration.* https://reliefweb.int/report/iraq/dtm-emergency-tracking-climate-induced-displacement-southern-iraq-data-collection-period-1-15-march-2023.

IPCC. 2008. Climate Change 2007: Synthesis Report. Contribution of Working Groups I, II and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, Pachauri, R.K and Reisinger, A. (eds.)]. IPCC, Geneva, Switzerland, 104 pp. Accessed July 10, 2023. https://www.ipcc.ch/site/assets/uploads/2018/02/ar4_syr_full_report.pdf.

King, Marcus Dubois. 2021. *Water and conflict in the Middle East*. Oxford University Press. DOI: https://doi.org/10.1093/oso/9780197552636.001.0001

KirkukNow. 2022. "Arab and Kurdish farmers in desperate confrontation over land." *KirkukNow*. Accessed February 20, 2023. https://kirkuknow.com/en/news/69115.

Koli, Alaa. 2022. "Water scarcity threatens thousands of residents in southern Iraq. Fears of the outbreak of clan conflicts." *Al Jazeera*. Accessed 14 July 2023. https://www.aljazeera.net/.

Kurdistan24. 2023. "'Arab arrivals' escalate against Kurdish peasants in a village in Kirkuk." *Kurdistan24*. Accessed July 11, 2023. https://www.kurdistan24.net/.

Loveluck, L. and Salim, M. 2021. "From Cradle to Grave." *The Washington Post*. Accessed January 20, 2023. https://www.washingtonpost.com/world/interactive/2021/iraq-climate-change-tigris-euphrates/.

Mahmalat, M. and Ahmad, A. 2023. "In Iraq, mitigating fragility means addressing climate change." *World Bank Group*. Accessed May 4, 2023. https://blogs.worldbank.org/arabvoices/iraq-mitigating-fragility-means-addressing-climate-change.

Mahmoud, Rustam. 2022. "The return of the property dispute between Kurdish and Arab farmers in Kirkuk." *Al-Nahar Al-Arabi*. Accessed May 8, 2023. https://www.annaharar.com/.

Mazo, Jeffrey. 2010. *Climate Conflict: How Global Warming Threatens Security and What To Do About It*. Vol. 409. Routledge. DOI: https://doi.org/10.4324/9780203824108

NRC. 2021. "Iraq's drought crisis and the damaging effects on communities." *Norwegian Refugee Council*. Accessed November 10, 2022. https://www.nrc.no/resources/reports/iraqs-drought-crisis-and-the-damaging-effects-on-communities.

NRC. 2022. "A dry horizon: Iraq's interlinked drought and climate crises." *Norwegian Refugee Council*. Accessed December 20, 2022. https://www.nrc.no/globalassets/pdf/reports/a-dry-horizon/a-dry-horizon-2022.pdf.

NUPI and SIPRI. 2022. "Climate, Peace and Security Fact Sheet: Iraq." Norwegian Institute of International Affairs and Stockholm International Peace Research Institute. Accessed May 16, 2023. https://reliefweb.int/report/iraq/climate-peace-and-security-fact-sheet-iraq-april-2022.

O'Brien, Karen L., and Robin M Leichenko. 2009. "Global environmental change, equity, and human security." *Global environmental change and human security*: 157–176. DOI: https://doi.org/10.7551/mitpress/8210.003.0014

O'Driscoll, Dylan. 2018. "Conflict in Kirkuk: A comparative perspective of cross-regional self-determination disputes." *Ethnopolitics* 17 (1): 37–54. DOI: https://doi.org/10.1080/17449057.2017.1401789

Prange, Mia. 2022. "Climate Change Is Fueling Migration. Do Climate Migrants Have Legal Protections?" *Council on Foreign Relations*. Accessed April 16, 2023. https://www.cfr.org/in-brief/climate-change-fueling-migration-do-climate-migrants-have-legal-protections.

Rudaw. 2023. "Clashes between Kurds and Arab recruits in Balkana village, Kirkuk." *Rudawarabia*. Accessed 10 July 2023. https://www.rudawarabia.net/arabic/kurdistan/210420233.

Saab, Anne. 2019. "The Super Wicked Problem of Climate Change Action." *Geneva Graduate Institute*. Accessed December 3, 2022. https://www.graduateinstitute.ch/communications/news/super-wicked-problem-climate-change-action.

Saab, NW. 2018. "More than infrastructures: water challenges in Iraq." *Clingendael Institute*. Accessed May 16, 2023. https://www.jstor.org/stable/pdf/resrep21320.pdf.

Saadoun, Mustafa. 2018. "Water scarcity in southern Iraq sparks clan conflicts." *Al-Monitor*. Accessed 14 July 2023. https://www.al-monitor.com/ar/contents/articles/originals/2018/02/water-security-iraq-tribal-conflicts.html.

Selby, Jan, and Clemens Hoffmann. 2014. *Rethinking climate change, conflict and security*. Taylor & Francis. DOI: https://doi.org/10.1080/14650045.2014.964866

Sissakian, Varoujan, Nadhir Al-Ansari, and Sven Knutsson. 2013. "Sand and dust storm events in Iraq." *Journal of Natural Science* 5 (10): 1084–1094. DOI: https://doi.org/10.4236/ns.2013.510133

Skelton, Mac. 2022. "Competing Over the Tigris: The Politics of Water Governance in Iraq." *Institute of Regional and International Studies*. Accessed May 16, 2023. https://www.auis.edu.krd/iris/frontpage-slider-publications/competing-over-tigris-politics-water-governance-iraq.

Tobias von Lossow, et al. 2022. "Water Governance in Iraq Enabling a Gamechanger." (Water, Peace, and Security). *Clingendael Institute*. Accessed May 16, 2023. https://www.clingendael.org/publication/water-governance-iraq.

UNDP. 2020. "Climate Change, Energy and Natural Resource Management." *United Nations Development Programme*. Accessed May 12, 2023. https://www.undp.org/sites/g/files/zskgke326/files/migration/iq/Climate_Change.pdf.

UNDP. 2021. "The Impact of COVID-19 On Environmental Sustainability in Iraq." *United Nations Development Programme*. Accessed May 8, 2023. https://www.undp.org/ar/iraq/publications/.

UNHR. 2022. "Climate change exacerbates violence against women and girls." *United Nations Human Rights Office of the High Commissioner*. Accessed May 8, 2023. https://www.ohchr.org/en/stories/2022/07/climate-change-exacerbates-violence-against-women-and-girls.

UNICEF. 2022. "UNICEF Report – By 2050, every child in Iraq will be exposed to high heatwave frequency." *United Nations Children's Fund*. Accessed May 7, 2023. https://www.unicef.org/iraq/press-releases/unicef-report-2050-every-child-iraq-will-be-exposed-high-heatwave-frequency.

USAID. 2017. "Climate Change Risk in Iraq: Country Risk Profile." *United States Agency for International Development*. Accessed May 11, 2023. https://www.climatelinks.org/sites/default/files/asset/document/2017Mar3_GEMS_Climate%20Risk%20Profile_Iraq_FINAL.pdf.

USAID. 2023. "Sustainable Solutions to Combat Climate Change in Iraq." *United States Agency for International Development*. Accessed 13 July 2023. https://www.usaid.gov/iraq/climate-and-environment.

Von Uexkull, Nina, Mihai Croicu, Hanne Fjelde, and Halvard Buhaug. 2016. "Civil conflict sensitivity to growing-season drought." *Proceedings of the National Academy of Sciences* 113 (44): 12391–12396. DOI: https://doi.org/10.1073/pnas.1607542113

Weerasinghe, Sanjula. 2021. "What we know about climate change and migration." Institute for the Study of International Migration (ISIM), Georgetown University. *Center for Migration Studies*. Accessed May 4, 2023. https://cmsny.org/wp-content/uploads/2021/02/What-We-Know-About-Climate-Change-and-Migration-Final.pdf.

Werrell, Caitlin E, and Francesco Femia. 2015. "Climate change as threat multiplier: Understanding the broader nature of the risk." *Center for Climate and Security Briefer* 25: 1–5.

Wille, Belkis. 2019. "Basra is Thirsty: Iraq's Failure to Manage the Water Crisis." *Human Rights Watch*.

World Bank Group. 2022. "Iraq Country Climate and Development Report." CCDR Series. World Bank, Washington, DC. http://hdl.handle.net/10986/38250.

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