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# **Climate Exodus: Navigating Climate Change, Migration and Security in the Levant**

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lebanese american univeristy

2024

Online at <https://mpra.ub.uni-muenchen.de/122861/>  
MPRA Paper No. 122861, posted 03 Dec 2024 14:52 UTC

# Climate Exodus

## Navigating Climate Change, Migration and Security in the Levant

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### Abstract

Decades of political tension and conflict have led to mass displacement in the Levant, placing immense pressure on the region's limited resources. Climate change acts as a risk multiplier, intensifying vulnerabilities through more frequent extreme events that reduce water availability and make agricultural production less predictable. The resulting competition for dwindling resources fuels tensions, exacerbating the region's security challenges. As climate impacts worsen, conflicts over resources are expected to escalate, perpetuating a cycle of displacement that threatens regional and global stability. Addressing governance failures and enhancing climate resilience through coordinated efforts is crucial to reducing the Levant's vulnerability and mitigating prolonged crises.

### Introduction

The Mediterranean region is warming 20% faster than the global average,<sup>1</sup> heightening climate-related risks in the Levant – a subregion of the Middle East that includes Iraq, Jordan, Lebanon and Syria. Already grappling with severe resource scarcity – limited water, shrinking arable land and declining green cover – this area faces further challenges due to ongoing social and economic instability.<sup>2</sup> The Levant is home to one of the world's largest concentrations of internally and externally displaced people, and fragile governance systems make it particularly susceptible to climate-induced stresses. The increasing frequency and severity of extreme weather events, such as droughts, heatwaves, altered precipitation patterns and floods, are further straining natural resources and critical infrastructure, threatening food security, water availability, livelihoods and public health. These pressures not only destabilise the region but also heighten the risk of resource-driven conflicts, with the potential for wider spillover effects across the Middle East.

### The Climate Crisis in the Levant: A Growing Threat

Climate change in the Levant is manifesting through rising temperatures, changing precipitation patterns, increased extreme weather events and the spread of diseases. These changes exacerbate socio-economic instability, which is further intensified by ongoing conflicts and migration crises.

The Levant has experienced a temperature rise of 1.2°C to 1.5°C, with projections indicating further increases of up to 4°C by the century's end.<sup>3</sup> The “urban heat island” (urban areas that are significantly warmer than the surrounding countryside)<sup>4</sup> effect will exacerbate the already elevated temperatures in urban areas, especially in cities like Amman, Baghdad, Beirut and Damascus,<sup>5</sup> increasing heat stress and health risks for vulnerable populations, including refugees and migrants. Heat-related illnesses are becoming more

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<sup>1</sup> UN Economic Commission for Europe, *First Mediterranean Assessment Report on Climate and Environmental Change in the Mediterranean Basin*, 2024.

<sup>2</sup> UN Development Programme, “Climate Change, Environmental Degradation, Conflict, and Displacement in the Arab States Region, Policy Brief, 2023.

<sup>3</sup> Intergovernmental Panel on Climate Change (IPCC), *Climate Change 2021: The Physical Science Basis*, Contribution of Working Group I to the Sixth Assessment Report of the IPCC, 2021.

<sup>4</sup> <https://climate.mit.edu/explainers/urban-heat-islands>

<sup>5</sup> World Bank Group, *Climate Change Adaptation and Mitigation in the Middle East and North Africa*, 2020.

common, with outdoor workers, children and the elderly particularly at risk.<sup>6</sup> Water shortages heighten tensions in conflict-affected regions, driving displacement.

Unpredictable rainfall patterns have worsened water scarcity in an already dry region. Reduced annual rainfall, alongside higher evaporation, threatens water resources that are crucial for agriculture, leading to food insecurity, especially in Syria and Jordan.<sup>7</sup> Farmers face declining productivity due to erratic rainy seasons, which intensifies economic hardships and drives rural populations towards urban areas or third countries,<sup>8</sup> often exacerbating conflict over dwindling resources.

The Levant is experiencing more frequent and intense extreme weather events, including heatwaves and flash floods. Wildfires, prevalent in Lebanon and Syria, are exacerbated by rising temperatures,<sup>9</sup> while flash floods disrupt infrastructure and livelihoods, particularly in urban areas like Beirut.<sup>10</sup> These events further stress displaced populations, who are often the most affected by poor infrastructure and limited access to resources.

Rising temperatures and changing precipitation patterns create favourable conditions for disease vectors such as mosquitoes, leading to an increase in diseases like malaria.<sup>11</sup> This affects not only human populations but also livestock, placing further strain on farmers.<sup>12</sup> Agricultural diseases are also reducing food security, contributing to migration from rural areas. Climate-smart initiatives, such as adopting water-efficient irrigation systems, drought-resistant crop varieties and agroforestry, are gaining traction as potential mitigation responses.

Water, agriculture and public health are the most vulnerable sectors. Water scarcity exacerbates conflict, particularly in Iraq and Jordan, where competition over resources intensifies instability.<sup>13</sup> Agricultural decline leads to food insecurity, as seen in Lebanon and Syria, where millions face hunger.<sup>14</sup> Climate-driven displacement further burdens fragile socio-economic systems, perpetuating cycles of instability and forced migration. Comparatively, the Sahel region in Africa also experiences these dynamics, where resource scarcity, drought and climate-driven migrations similarly compound conflicts, illustrating that such pressures are not isolated to the Levant. Both these cases highlight a broader, global urgency for addressing climate-security challenges.

The countries of the Levant are taking varied climate actions. Iraq and Jordan have launched national adaptation plans (NAPs), while Lebanon has made strides in climate-smart agriculture.<sup>15</sup> Despite conflict, Syria integrates climate adaptation into recovery efforts.<sup>16</sup> However, more comprehensive action is needed to address the intersection of climate, conflict and migration, particularly in resource-strained areas.

Climate change compounds existing conflicts and migration pressures in the Levant, threatening regional stability. Coordinated climate action is crucial to mitigate the socio-economic impacts that drive displacement.

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<sup>6</sup> Arab Forum for Environment and Development, *Arab Environment in 10 Years*, 2017.

<sup>7</sup> World Bank Group, *Climate Change Adaptation and Mitigation in the Middle East and North Africa*.

<sup>8</sup> Nadim Farajalla, Leya Zgheib, Karim Korbane, and Mira Zaghbour, "Climate Change, Agriculture, and Livelihoods in Lebanon: Consolidated Livelihoods Exercise for Analyzing Resilience", Report prepared for the UN World Food Programme, 2021.

<sup>9</sup> IPCC, *Climate Change 2021*.

<sup>10</sup> NASA, "Middle East Climate Studies: Precipitation and Temperature Trends", 2020.

<sup>11</sup> European Union Institute for Security Studies, *Climate Change and Security in the Levant*, 2018.

<sup>12</sup> Arab Forum for Environment and Development, *Arab Environment in 10 Years*, 2017.

<sup>13</sup> UN Framework Convention on Climate Change (UNFCCC), *Middle East and North Africa Climate Action Report*, 2019.

<sup>14</sup> Abou Zaki, Souhad, Leila Dagher, and Amin Salam. *Addressing Food Insecurity in Crisis-Stricken Lebanon*, University Library of Munich, Germany, 2022; World Bank Group, *Climate Change Adaptation and Mitigation in the Middle East and North Africa*, 2021.

<sup>15</sup> United Nations Iraq, "National Strategy for the Protection and Improvement of the Environment in Iraq", 19 September 2024; Ministry of Environment (Lebanon), *Good Practices for Developing Lebanon's National Adaptation Plan*, PlanAdapt, December 2023.

<sup>16</sup> UNFCCC, *Middle East and North Africa Climate Action Report*, 2019.

## Resource Scarcity and Conflict: A Vicious Circle

The Levant has been plagued by long-standing security issues, many of which are closely tied to resource scarcity. Political instability and violent conflict have been defining features of the region for decades. From the Lebanese civil war (1975–1990) to the more recent Syrian civil war (2011–present), the Levant has seen numerous conflicts fuelled by internal divisions and external interventions.<sup>17</sup> These conflicts have often been exacerbated by disputes over access to scarce resources, including water and fertile land.

The Levant, marked by chronic resource scarcity, particularly in water and arable land, risks two-way interaction between conflict and resources scarcity. On the one hand, natural limitations, compounded with poor governance, have historically constrained development in the region, fuelling major disputes and conflict. For instance, Syria's prolonged droughts and inadequate water management hindered the expansion of agricultural projects, leading to crop failures and rural–urban migration. Similarly, Iraq's water scarcity, worsened by upstream damming and inefficient water use, has delayed urban water infrastructure improvements and limited agricultural growth. These constraints have not only slowed economic development but also heightened competition for resources, intensifying social and political tensions.

In many parts of the Levant, weak state institutions, corruption and lack of coordinated resource management have led to unsustainable practices.<sup>18</sup> For example, in Syria and Iraq, water mismanagement – such as the lack of regulatory oversight and unsustainable agricultural practices – has led to the over-pumping of aquifers. This excessive groundwater extraction, often to compensate for limited surface water and rainfall, has depleted reserves faster than they can naturally replenish, leading to long-term water scarcity and reduced agricultural productivity. These issues are compounded by a lack of infrastructure and inefficient water distribution systems. Agriculture, a major consumer of water, suffers from outdated irrigation techniques that waste precious water resources, intensifying the effects of scarcity.<sup>19</sup>

The lack of effective social cohesion frameworks within host communities further amplifies these pressures, often creating tensions between local residents and displaced populations who both struggle to access resources. Effective integration and social cohesion policies are essential to manage these pressures sustainably.

In Syria, for instance, competition for limited resources played a role in fuelling unrest during the early stages of the civil war. Years of drought (from 2006 to 2010) led to widespread crop failures and the displacement of rural populations, particularly in northern Syria.<sup>20</sup> Migration to urban areas placed additional strain on already overburdened cities, contributing to social tensions that were among the triggers of the 2011 uprising. The breakdown of state control has led to further disputes over access to key resources, particularly water, which is vital for both agricultural and military purposes.<sup>21</sup> However, as Marwa Daoudy argues in *The Origins of the Syrian Conflict: Climate Change and Human Security*,<sup>22</sup> it was not merely climatic factors but also long-standing issues of poor governance, corruption and mismanagement that critically contributed to the 2011 uprising. According to Daoudy, these governance failures exacerbated the impacts of drought by neglecting rural needs, implementing inequitable resource distribution and fostering public distrust – conditions that amplified Syria's vulnerability to climate-induced pressures.

Iraq has similarly experienced conflict fuelled by resource scarcity. The competition over water resources, especially in the Euphrates-Tigris basin, has been a source of tension both within Iraq and with

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<sup>17</sup> Francesco Belcastro, "From Domestic to Regional: The Civil War Conundrum and the Cases of Syria and Algeria", *Civil Wars* 19, no. 2 (2017): 198–219.

<sup>18</sup> Anna Corsi and Harris Selod, *Land Matters: Can Better Governance and Management of Scarcity Prevent a Looming Crisis in the Middle East and North Africa?* World Bank Publications, 2023.

<sup>19</sup> Christopher Ward, Sandra Ruckstuhl, and Isabelle Learmont, *The History of Water in the Land Once Called Palestine: Scarcity, Conflict, and Loss in Middle East Water Resources* (Bloomsbury Publishing, 2023).

<sup>20</sup> Pinar Dinc and Lina Eklund, "Syrian Farmers in the Midst of Drought and Conflict: The Causes, Patterns, and Aftermath of Land Abandonment and Migration", *Climate and Development* 16, no. 5 (2024): 349–362.

<sup>21</sup> Peter H. Gleick, "Water, Drought, Climate Change, and Conflict in Syria", *Weather, Climate, and Society* 6, no. 3 (2014): 331–340.

<sup>22</sup> Daoudy, Marwa. *The Origins of the Syrian Conflict: Climate Change and Human Security* (Cambridge University Press, 2020).

neighbouring countries, particularly Turkey.<sup>23</sup> The damming of rivers upstream has reduced water flow into Iraq, creating further strain on agriculture and human settlements downstream. Internally, sectarian and ethnic conflicts have also been tied to control over oil-rich regions, particularly in northern Iraq, where the control of resources has been a key issue in disputes between the central government and the Kurdish regional government.<sup>24</sup>

On the other hand, conflict has also played a significant role in driving resource scarcity. The wars in Iraq and Syria have not only destroyed infrastructure but also disrupted traditional agricultural and water management practices. The destruction of dams, irrigation systems and farmland has severely hampered local economies, reducing agricultural output and cutting off water access for communities. For instance, in Syria, the destruction of irrigation infrastructure led to a 60% drop in wheat production, undermining food security and livelihoods.<sup>25</sup> In Iraq, damaged water systems left rural communities unable to irrigate crops, forcing many to abandon agriculture and seek precarious work in urban areas, straining limited resources further.<sup>26</sup> The consequent collapse of institutional capacity further hinders efforts to manage these resources effectively. The worsening impacts of climate change are only expected to further strain these limited and poorly managed resources.

Both Lebanon and Jordan host large populations of refugees from neighbouring Syria and Iraq, adding additional pressure on already scarce resources. In Lebanon, where the political system is deeply divided along sectarian lines, governance has struggled to cope with the strain on resources caused by the influx of refugees. The recent Israel-Hezbollah war has had devastating effects on Lebanon, with more than 1 million people internally displaced or fleeing to Syria or Iraq, and around 7% of farms and agricultural infrastructure destroyed, as of mid-October 2024.<sup>27</sup> Water shortages, power cuts and poor waste management are persistent issues that have only been exacerbated by the refugee crisis. Jordan, too, has faced similar challenges, particularly in managing water resources and providing adequate services to both its citizens and the large refugee population.<sup>28</sup>

## Migration Patterns and the Climate-Migration Nexus

The Levant's population growth has been shaped by both natural increase and forced displacement due to conflict. Iraq, Jordan, Lebanon and Syria have all experienced significant population growth in recent decades, placing additional pressure on already scarce resources. This growth has been driven not only by high birth rates in some areas, but also by the movement of refugees and internally displaced persons (IDPs) fleeing conflict.<sup>29</sup>

The conflicts in Syria and Iraq have significantly disrupted traditional migration patterns, with millions of people being displaced internally or fleeing to neighbouring countries. Refugees from Syria, for instance, have settled in large numbers in Lebanon, Jordan, Turkey, and Iraq, while others have made the perilous journey to Europe.<sup>30</sup> Internally, both Syria and Iraq have experienced significant internal displacement, with people fleeing from conflict zones to relatively safer areas.

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<sup>23</sup> Aysegül Kibaroglu, *Building a Regime for the Waters of the Euphrates-Tigris River Basin* (Brill, 2021).

<sup>24</sup> Pinar Ipek, "Oil and Intra-State Conflict in Iraq and Syria: Sub-State Actors and Challenges for Turkey's Energy Security", *Middle Eastern Studies* 53, no. 3 (2017): 406–419.

<sup>25</sup> Pinar Ipek, "Oil and Intra-State Conflict."

<sup>26</sup> Christopher Ward and Sandra Ruckstuhl, *Water Scarcity, Climate Change and Conflict in the Middle East: Securing Livelihoods, Building Peace* (Bloomsbury Publishing, 2017).

<sup>27</sup> UNDP, *Economic and Social Consequences of the Escalating Hostilities in Lebanon – Rapid Appraisal*, October 2024.

<sup>28</sup> Anne Marie Baylouny, *When Blame Backfires: Syrian Refugees and Citizen Grievances in Jordan and Lebanon* (Cornell University Press, 2020).

<sup>29</sup> Ümit Seven, "Armed Conflict, Violence, and the Decision to Migrate: Explaining the Determinants of Displacement in Syria", *Migration and Development* 11, no. 3 (2022): 1029–1045.

<sup>30</sup> Anne Marie Baylouny, *When Blame Backfires: Syrian Refugees and Citizen Grievances in Jordan and Lebanon* (Cornell University Press, 2020).

Syria has seen the most dramatic population displacement in recent years due to the civil war. According to the United Nations High Commissioner for Refugees (UNHCR), over 5.6 million Syrians have fled the country, and millions more have been displaced internally. Many of these refugees have sought refuge in neighbouring countries like Lebanon and Jordan, creating further demographic pressures in these host countries. Lebanon, with a population of around 6 million, hosts over 1 million Syrian refugees, while Jordan, with a population of around 10 million, hosts over 650,000 registered refugees.<sup>31</sup> The sudden influx of people has strained public services, infrastructure and natural resources, particularly water, in both countries.

The ongoing Israel-Hezbollah war, which started on 8 October 2023, resulted in significant displacement within Lebanon. Over a million people were internally displaced during the conflict, with many fleeing from the southern regions and the suburbs of Beirut, areas heavily affected by the hostilities. While some were internally displaced, others sought refuge across the border in Syria and Iraq. These sudden movements further burdened the limited resources and fragile infrastructure of host countries already dealing with crises of their own. Meanwhile, a reverse displacement trend also emerged, as some Syrian refugees in Lebanon returned to Syria during the conflict. This movement occurred as refugees sought safety from the intensified conflict zones in Lebanon, adding complexity to the already delicate refugee dynamics in the region.

Iraq has similarly seen significant displacement, both as a result of internal conflict and the regional instability caused by the rise of ISIS. Between 2014 and 2017, large numbers of people were displaced from northern Iraq and the areas around Mosul and Kirkuk during the conflict with ISIS, with many fleeing to the Kurdistan region.<sup>32</sup> The influx into Kurdistan has placed additional pressure on the Kurdish regional government and further strained local resources.

Migration in the Levant is driven by a combination of economic factors and conflict-induced displacement. Conflict remains the primary driver of mass displacement, but economic migration also plays a role in shaping the region's migration patterns. Many people in the Levant, particularly from rural areas, migrate to cities or abroad in search of better economic opportunities. Lebanon and Jordan, in particular, have seen high levels of outward migration, with many citizens seeking work in the Gulf states or Europe due to limited opportunities at home.

Climate change is increasingly recognised as a major force behind these migration pressures. Rising temperatures, prolonged droughts and unpredictable weather patterns threaten agricultural livelihoods, particularly in rural areas where dependence on farming is high. As water becomes scarcer and food security more fragile, people are forced to move in search of stable living conditions, adding a layer of climate-induced migration to the already complex landscape of conflict-driven displacement. This gradual environmental degradation compounds economic hardships, making it a silent yet powerful catalyst for migration, particularly in regions already destabilised by conflict.

## Conclusion

To safeguard the Levant's future, it is imperative to address the compounded challenges of climate change, migration and security with coordinated and comprehensive policies. The region's vulnerability to conflict, environmental degradation, resource scarcity and governance failures highlights the need for urgent and proactive action. Without such measures, the cycle of displacement and conflict will only intensify, further destabilising the region and jeopardising its long-term stability.

To effectively address these challenges, a cohesive and forward-looking policy approach is essential. First, regional cooperation on resource management should be prioritised, with the establishment of a Levant-wide coalition to manage shared water resources and promote agricultural resilience. Investments in

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<sup>31</sup> Ali Ali, "Disaggregating Jordan's Syrian Refugee Response: The 'Many Hands' of the Jordanian State," *Mediterranean Politics* 28, no. 2 (2023): 178-201; Anne Marie Baylouny, *When Blame Backfires*.

<sup>32</sup> Lahib Higel, *Iraq's Displacement Crisis: Security and Protection*, Minority Rights Group, 2016.

climate-resilient infrastructure, including water conservation, agricultural modernisation and renewable energy, are crucial to building long-term resilience. Furthermore, governments must create climate-smart migration policies that address climate-induced displacement, while offering support for both refugees and host communities. Strengthening institutional capacities to manage natural resources, respond to climate crises, and enhance public service delivery will be vital to promoting adaptive governance and ensuring the region's stability in the face of escalating climate risks.

# Working Paper