



# The interlinkages between climate, peace and security in Iraq

A desk review by PMD/DPPA

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# Executive Summary

Iraq is on the frontline of multiple intersecting crises, such as persistent governance challenges, demographic pressures, and environmental degradation. The rapidly worsening impact of climate change can exacerbate political uncertainty and difficult economic prospects, escalate domestic tensions, and ultimately contribute to instability in the country and beyond its borders. Iraq's most vulnerable groups – including women, refugees, internally displaced persons (IDPs), young people, and other marginalized groups – carry the brunt of these intersecting risks as a result of their limited ability to adapt and respond to these impacts.

The United Nations Security Council has recognized the adverse effects of climate change on the stability of Iraq and mandated the United Nations Assistance Mission for Iraq (UNAMI) to provide advice, support and assistance to the Government and people of Iraq, including on challenges posed by climate change. The present desk review prepared by the Policy and Mediation Division (PMD) in the UN Department of Political and Peacebuilding Affairs (DPPA), in partnership with UNAMI and the Climate Security Mechanism (CSM), aims to support the Mission's work on climate, peace, and security. It seeks to build a better understanding of the different linkages between climate change and insecurity in Iraq and presents possible entry points for integrated UN action to anticipate, mitigate and manage climate-related security risks in an inclusive manner.

## **Analysis of the linkages between climate change, peace and security in Iraq**

The study draws on a review of publicly available literature and over 20 interviews conducted with UNAMI, members of the UN Country Team, researchers, and civil society organizations. To situate the effects of climate change in the Iraqi context, the study analyzes factors determining the exposure and vulnerability of the State and communities, including conflict history, capacity and resources of public institutions, patterns of human mobility, and levels of gender equality. It also looks at existing coping capacities, such as tribal networks and Government-led efforts at implementing disaster risk reduction and climate action policies, as building blocks for greater resilience.

Overall, the study identifies four key climate-related peace and security risks in Iraq. First, by increasing the likelihood and intensity of extreme weather events and by reducing livelihood options (especially in rural areas), climate change contributes to human mobility and rapid urbanization. In the absence of sufficient public services and economic opportunities in urban areas, climate-induced mobility and urbanization can reinforce pre-existing structures of marginalization and exclusion, and exacerbate inter-group tensions. Second, the loss of livelihood options and a diminished natural resource base could potentially contribute to social unrest and create an enabling environment for the activities of non-state armed groups. These groups have proved adept at exploiting such circumstances for their gain, including by taking control of scarce resources (e.g. water infrastructure) to expand their influence. Third, diminishing water availability could heighten tensions over shared water resources within Iraq as well as throughout the region. However, a strong body of good practices around water-sharing as a source of cooperation exists and could be explored further in this context. Fourth, climate action – at national as well as global levels – will likely have significant impacts on Iraq. A shift from fossil fuels to renewable energy could result in a loss of revenue, while pressures to enact climate mitigation and adaptation policies at the domestic level run the risk of exacerbating power imbalances and inequality.

## Conclusion

The inherently cross-cutting nature of climate-related security risks provides several entry points for strategic, coordinated UN action in Iraq. Building on the range of existing work across the humanitarian, development and peace nexus, UNAMI and the UN Country Team are uniquely positioned to support the Government of Iraq in building resilience against climate impacts and reducing reliance on fossil fuels. Areas of consideration for concerted UN efforts on climate security in Iraq include:

- **Develop a UN strategy to address the linkages between climate change, peace and security in Iraq.** A system-wide strategy would outline a shared UN vision, define key areas for UN action in this policy area, delineate responsibilities, and describe modes of collaboration across and beyond the UN system, including with the Government of Iraq and local communities. It would also provide a framework to systematically integrate a gender-sensitive and climate-informed lens into relevant UN activities and processes.
- **Strengthen inclusivity and involve a wide range of stakeholders.** A series of inclusive consultations with communities and other stakeholders regarding the impact of climate change on peace and security in Iraq or incorporating climate as a topic into ongoing consultations would allow the UN to learn about local-level and gender-disaggregated experiences, vulnerabilities, and coping capacities, while simultaneously raising awareness of climate-related risks among the population. Stronger collaboration with Iraqi research institutions and the private sector would allow the UN to draw on their insights and potential to contribute to innovative and sustainable solutions.
- **Integrate climate consideration into all political and good office engagement,** including those related to shared water resources and water justice. Provide technical expertise as well as political capital to accompany prevention and conflict resolution efforts, including around transboundary water sharing agreements or other mechanisms.
- **Strengthen monitoring and early warning of climate-related security risks** and establish a shared integrated database accessible to all decision and policy makers. The Iraq Water Security Dashboard developed by the DPPA Innovation Cell as well as efforts underway by ESCWA, UNDP and FAO and other partners can provide starting points towards anticipating potential hotspots and leveraging innovative data in support of prevention efforts.
- **Build the capacity of the Government of Iraq** in the areas of climate-informed peacebuilding and governance as well as on conflict-sensitive climate action. The UN could prioritize efforts to support the development of conflict-sensitive climate adaptation and mitigation strategies, help ensure their fair and transparent implementation, and strengthen the ability of existing conflict resolution mechanisms to address climate-related conflicts.
- **Promote and facilitate Iraq's access to climate finance.** Work with relevant partners (e.g. vertical funds, international financial institutions, bilateral donors, private sector) to assist the Government of Iraq in navigating climate finance mechanisms and exploring ways to engage the private sector.

# 1. Introduction and general context

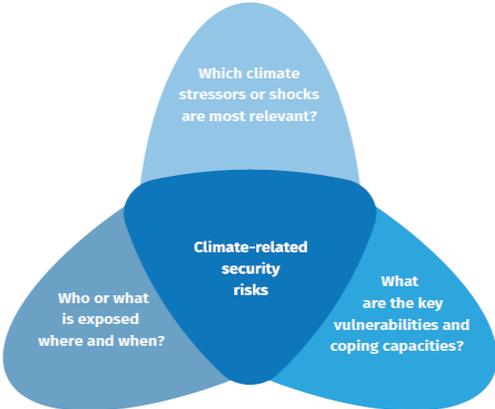
According to the United Nations Environment Programme (UNEP), Iraq is the fifth-most climate vulnerable nation in the world.<sup>1</sup> As the effects of climate change accelerate, droughts, floods, sea-level rise, dust storms, and water scarcity have led to heightened resource competition and the loss of livelihood options across Iraq and contributed to forced displacement and migration. The interplay of these cascading climate impacts combined with a volatile security condition, persistent governance challenges, and demographic pressures exacerbates risks to peace and stability in Iraq.

The linkages between climate change, peace and security have received a growing amount of attention in recent years, both at the global level and in the context of Iraq. UNAMI is one of 11 UN special political missions and peacekeeping operations whose mandate references climate risks. UN Security Council resolution 2631 (2022) recognized that “the adverse effects of climate change, ecological changes, and natural disasters, among other factors, can contribute to desertification and drought, adversely impact the humanitarian situation, and aggravate any existing instability” in Iraq. In line with its mandate, UNAMI stands ready to advise, assist and support the Government of Iraq, at its request, on “facilitating regional dialogue and cooperation”, including on issues relating to the “environment, water, adverse impacts of climate change in particular those contributing to desertification and drought, resilience building, infrastructure, public health, and refugees”.<sup>2</sup> The United Nations Country Team (UNCT), through its various programs and projects, is carrying out operational activities at community, governorate, and national levels to identify, address, and mitigate climate-related security risks.

This paper aims to summarize major climate-related security risks in Iraq, take stock of ongoing UN system efforts in this area, and articulate a common vision for UN engagement moving forward. It draws on publicly available climate science reports, emerging literature on climate security, and over 20 interviews conducted with UNAMI, members of the UNCT, researchers, and civil society organizations.

The paper follows the conceptual approach to integrated climate-related security risk assessments developed by the UN Climate Security Mechanism (CSM) – see Figure 1. It considers the security risks resulting from the direct and indirect effects of climate change at a more localized level (e.g. on livelihoods and natural resources), as well as those resulting from the impact of climate change on complex systems.<sup>3</sup> It interprets climate-related security risks as being a function of the interplay between climate stressors, climate exposure, and existing vulnerabilities and coping capacities. The paper starts with an overview of climate stressors and exposure in Iraq and their multiple and overlapping manifestations.

Figure 1: Dimensions of climate-related security risks



Source : Climate Security Mechanism. “United Nations Conceptual Approach to Integrated Climate-Related Security Risk Assessments”, April 2020.

It subsequently examines how climate stressors interact with different dimensions of vulnerability and coping capacity before discussing four main pathways through which climate change affects peace and security in Iraq:

- 1) climate-induced migration and rapid urbanization,
- 2) an enabling environment for social unrest and non-state armed group activities,
- 3) heightened local and regional tensions over shared water resources, and
- 4) unintended negative consequences of climate policies.

The paper concludes with thoughts on potential entry points for UN action on climate security in Iraq. Consideration of the differentiated impacts of climate-related security risks on women, IDPs, and youth cuts across the various sections.

## 2. Climate stressors and exposure in Iraq: current trends and projections

Iraq’s location in an arid and downstream region makes it particularly exposed to a number of hydrological, meteorological, and climatological risks.<sup>4</sup> These include both slow-onset hazards (e.g. desertification, reduced rainfall, sea-level rise in the South) as well as rapid-onset hazards (e.g. droughts, floods, dust storms, and heatwaves).

Based on the Notre-Dame Global Adaptation Initiative, which examines countries’ vulnerability to climate change and other global challenges in combination with their readiness for adaptation, Iraq is ranked the 82nd most vulnerable and 42nd least ready country to cope with climate impacts.<sup>5</sup> Meanwhile, the INFORM Index for Risk Management considers Iraq the world’s 14th most at-risk country in terms of levels of exposure to hazards, vulnerability and coping capacity, with **high to very high flood, drought and conflict risk indicators**.<sup>6</sup>

Figure 2: Hazard and Exposure to natural and human risks in Iraq

| INFORM Hazard & Exposure |                  |         |   |                         |
|--------------------------|------------------|---------|---|-------------------------|
| Natural                  |                  |         | Human                                     |                         |
| Flood                    | Tropical Cyclone | Drought | Current Highly Violent Conflict Intensity | Projected Conflict Risk |
| 9.5                      | 0                | 5       | 9   | 9.9                     |

|           |           |
|-----------|-----------|
| 0 - 1.9   | Very Low  |
| 2 - 3.4   | Low       |
| 3.5 - 4.9 | Medium    |
| 5 - 6.4   | High      |
| 6.5 - 10  | Very High |

Source: INFORM Index for Risk Management

Iraq is experiencing a high frequency of **drought** scenarios. The worst drought in modern times occurred in 2021 and caused the depression of water levels by more than half in the Euphrates and Tigris rivers.<sup>7</sup> By 2050, based on a 1°C temperature increase scenario from current levels, annual precipitation is expected to decrease by 10% and cause a 20% reduction in available freshwater.<sup>8</sup> According to the Intergovernmental Panel on Climate Change (IPCC), precipitation projections under a medium to high emissions scenario will decrease over time, with the west and south of the country being most strongly affected.<sup>9</sup> Seven million people in Iraq are currently suffering from reduced access to water and Iraq could face a water shortfall of as much as 10.8 billion cubic meters annually by the year 2035, which corresponds to more than a 30% reduction in Iraq’s current annual water withdrawal.<sup>10</sup> When accounting for future population growth, Iraq’s per capita water availability is also very likely to drop to alarming levels.<sup>11</sup> The situation is particularly dire in the south of the country, where lower rainfall and the reduction of river flows are causing seawater to back-flow the Shatt Al Arab estuary and into irrigation canals used for crop farming.<sup>12</sup> This contributes to an acute lack of freshwater, widespread **saltwater intrusion** into farmlands causing soil salinity and land degradation which are common push-factors triggering the displacement of hundreds of rural communities (see Annex 5: Climate-induced displacement flows in central and southern Iraq).<sup>13</sup> In areas where tensions are already high, such as the Al-Hamdaniya District in the Ninawa Governorate, drought-like conditions have added an additional layer of friction between tribal leaders and government, military and political actors, who in some cases are perceived as favoring certain communities over others on issues relating to access to land, property and services, including provision of water.<sup>14</sup>

The **salinity** of Iraq’s southern marshes (Thi Qar, Missan, Basra and Al-Warkaa) has already risen to dangerous levels, with dire impacts on human and animal health, loss of biodiversity, and large-scale displacement.<sup>15</sup> Marsh Arabs, a historically marginalized community of about 20,000 people, are particularly exposed to serious health and environmental risks caused by saline or polluted groundwater.<sup>16</sup> Population growth, water management challenges, upstream damming projects and high levels of water pollution further compound the effects of climate change on **water scarcity**. And while 60% of Iraqis are estimated to have access to safely managed drinking water, up to 70% of Iraq’s industrial waste is dumped directly into rivers or the sea, further deteriorating water supplies.<sup>17</sup>

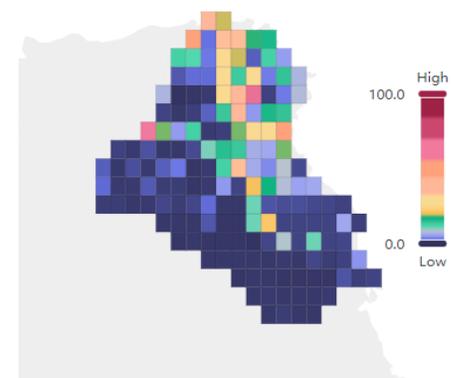
Despite suffering from severe water shortages, northern Iraq is also occasionally affected by increasingly intense episodes of heavy rains, leading to **floods** and the destruction of crops and infrastructure.<sup>18</sup> More frequent and extreme floods are also expected all along the Euphrates-Tigris basin, due to increased rainfall variability and sea-level rise in the southern governorates, which could lead to higher flood-related mortality, landslides, and severe damage to vital infrastructures and ecosystems.<sup>19</sup>

The coastal low-lying Governorate of Basra is facing the highest risk of **sea-level rise** in Iraq and is at high risk of sustained inundation by the year 2050.<sup>20</sup> Basra is Iraq’s second-largest urban center, hosts the country’s main port and largest oil fields (producing some 70% of the country’s crude oil), and has

**Figure 3: Drought and Vulnerability map of Iraq**

### Drought and Vulnerability

May 2024



- ① The Drought and Vulnerability sub-model captures the frequency and intensity of droughts and their impact on the main crops harvest and yield, as well as communities’ vulnerability to climate-related impacts, agricultural dependence and adaptive capacity in agriculture.
- ② Predicted probability of at least one fatality per location per month.

Source: The Violence Early Warning System (ViEWS-ESCWA) Portal.  
Accessed April 2022

traditionally been a fertile agricultural area. Sea level rise could flood up to 38% of Basra Governorate's total surface area by the end of the century, with significant negative impacts on infrastructure and economic activity.<sup>21</sup>

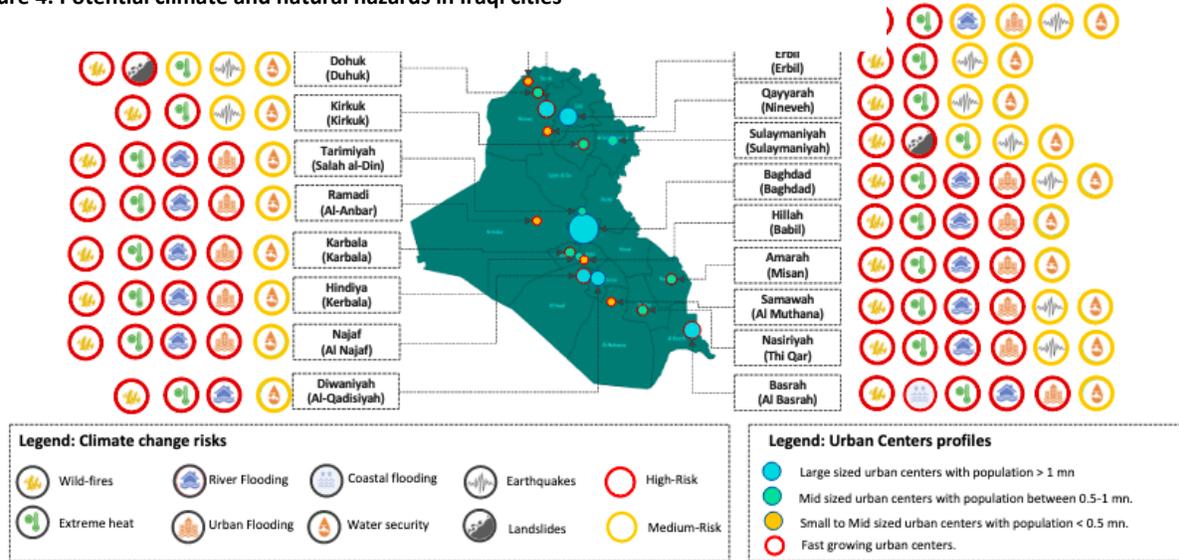
**Temperatures** in Iraq are rising up to seven times faster than the global average.<sup>22</sup> Compared to preindustrial levels, temperatures in Iraq will very likely rise by between 1.6 and 2.4 °C by the year 2030, between 1.9 and 3.2 °C by the year 2050, and between 1.8 and 4.8 °C by the year 2080.<sup>23</sup> Baghdad, which is already experiencing prolonged heatwaves and record-high temperatures in parallel to high rates of population growth and urbanization, will be hit particularly hard.<sup>24</sup> The expansion of cement buildings – particularly near oil refineries – and the proliferation of air conditioners and private vehicles further contribute to the phenomenon of “urban heat island” in the city.<sup>25</sup> Record-high temperatures also put pressure on the country's already strained infrastructure, including its power grid as well as irrigation and water systems. By the year 2030, between 12 and 36% of Iraq's total population will very likely be exposed to heatwaves annually.<sup>26</sup>

Iraq is also suffering from increasing rates of **desertification** and **soil erosion** causing land degradation due to the combined impact of climate change, unsustainable farming practices, and the increased occurrence and severity of droughts, heatwaves, dry spells, and dust storms.<sup>27</sup> In 2021, drought conditions meant that the country could produce only about half the agricultural output it usually would.<sup>28</sup> While almost 50% of Iraq's territory is already desert, an additional 100 square kilometers of fertile land continue to be lost each year to desertification, threatening the livelihoods of rural communities, such as nomadic herders in the Muthanna Governorate.<sup>29</sup>

Largely due to soil degradation, Iraq is witnessing more frequent **dust storms**.<sup>30</sup> The number of days of dust storms rose from 24 in the period 1951-1990 to 122 in 2013. This trend is likely to continue, with significant adverse implications for human health as well as crops and infrastructure.<sup>31</sup> Between April and May 2022, Iraq experienced ten dust storms, causing numerous human casualties and the shutdown of Baghdad and Najaf airports.<sup>32</sup>

Despite Iraq's high level of climate vulnerability, adaptation efforts are hampered by the **lack of access to climate finance**. Between 2014 and May 2021, Iraq received merely \$12 million in climate adaptation and mitigation finance through grants and other resources and \$33 million in co-financing for climate mitigation.<sup>33</sup> This reflects the global discrepancy in climate finance flows going to fragile and conflict-affected countries, with the latter receiving only \$8.8 per person from vertical funds, compared to \$161.7 per person for non-fragile states, over the period 2014 to May 2021. Iraqi authorities have repeatedly expressed their desire to access more climate finance in order to meet the conditions set forth in the 2015 Paris Agreement.<sup>34</sup> On 20 March 2023, a Joint EU-Iraq Declaration on sustainable development, green transition, governance, regional connectivity and sustainable finance was adopted, with the goal of advancing engagement with financial institutions, such as EIB and EBRD, to accelerate Iraq's decarbonization of energy and transport.<sup>35</sup>

Figure 4: Potential climate and natural hazards in Iraqi cities



Source: World Bank Group. "Iraq Country Climate and Development Report", November 2022

### 3. Vulnerabilities and coping capacities in Iraq

To understand the cascading impacts of climate change on peace and security in Iraq, the effects of climate change discussed in the previous section must be situated in the socio-economic, political and demographic context. This was reiterated by Working Group II of the Sixth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC), which noted that the vulnerability of human systems to climate-related risks depends more on the actions taken to adapt (or lack thereof) than on the climate hazards themselves.<sup>36</sup> The below section briefly highlights the interplay of these factors with key vulnerabilities and capacities to cope with climate-related security risks.

The INFORM index on humanitarian crises and disasters shows overall a high level of risks associated with vulnerability, hazard and exposure in Iraq.

Figure 5: Iraq’s vulnerability and coping capacity

| Lack of Coping Capacity |            |                |                         |                         | <table border="1"> <tr><td>0 - 1.9</td><td>Very Low</td></tr> <tr><td>2 - 3.4</td><td>Low</td></tr> <tr><td>3.5 - 4.9</td><td>Medium</td></tr> <tr><td>5 - 6.4</td><td>High</td></tr> <tr><td>6.5 - 10</td><td>Very High</td></tr> </table> | 0 - 1.9 | Very Low | 2 - 3.4 | Low | 3.5 - 4.9 | Medium | 5 - 6.4 | High | 6.5 - 10 | Very High |
|-------------------------|------------|----------------|-------------------------|-------------------------|---|---------|----------|---------|-----|-----------|--------|---------|------|----------|-----------|
| 0 - 1.9                 | Very Low   |                |                         |                         |   |         |          |         |     |           |        |         |      |          |           |
| 2 - 3.4                 | Low        |                |                         |                         |   |         |          |         |     |           |        |         |      |          |           |
| 3.5 - 4.9               | Medium     |                |                         |                         |   |         |          |         |     |           |        |         |      |          |           |
| 5 - 6.4                 | High       |                |                         |                         |   |         |          |         |     |           |        |         |      |          |           |
| 6.5 - 10                | Very High  |                |                         |                         |   |         |          |         |     |           |        |         |      |          |           |
| Institutional           |            | Infrastructure |                         |                         |   |         |          |         |     |           |        |         |      |          |           |
| DRR                     | Governance | Communication  | Physical Infrastructure | Access to Health System |   |         |          |         |     |           |        |         |      |          |           |
| 8.4                     | 7.8        | 2.7            | 3.5                     | 5.4                     |   |         |          |         |     |           |        |         |      |          |           |
| Vulnerability           |            |                |                         |                         |   |         |          |         |     |           |        |         |      |          |           |
| Socio-Economic          |            |                | Vulnerable Groups       |                         |   |         |          |         |     |           |        |         |      |          |           |
| Development Deprivation | Inequality | Aid Dependency | Uprooted People         | Other Vulnerable Groups |   |         |          |         |     |           |        |         |      |          |           |
| 5.1                     | 4.4        | 1.2            | 8.9                     | 3.8                     |   |         |          |         |     |           |        |         |      |          |           |

Source: INFORM Index for Risk Management

The coping capacity dimension is an aggregate metric examining which issues have been addressed by governments to increase societies’ resilience. The vulnerability dimension captures the predispositions of a population to be affected by hazards (economic, political and social characteristics of the community) and assumes that the more developed a country is the better its people will be able to respond to humanitarian needs using their own individual or national resources.

With 18% of Iraq's population considered to live in water-scarce areas, water shortages arguably pose the single most important climate-related challenge for Iraq.<sup>37</sup> However, Iraq relies on the Tigris and Euphrates for 98% of the water needed for drinking, sanitation, and irrigation, which, **with no effective water sharing agreements in place** with riparian states, makes it vulnerable to upstream water usage.<sup>38,39</sup> Climate change effects will compound already significant pressures on water resources in Iraq, stemming not only from a growing population's rising demand – Iraq's population is expected to double to 80 million by 2050 – but also from weak water supply linked to integrated water resource management challenges.<sup>40</sup>

Iraq's ability to cope with the effects of climate change and other stressors has also been compromised by a combination of prolonged **conflicts** and governance challenges. Over the past half-century, numerous episodes of conflicts have left profound and enduring effects on Iraqi society, including undermining public institutions as well as social cohesion.<sup>41</sup> Asymmetric attacks remain a significant threat as remaining Islamic State of Iraq and the Levant (ISIL) cells continue to occasionally carry out operations, which could potentially further complicate the country's security situation.<sup>42</sup>

**Governance** remains difficult as the fragile political and security context has left its mark on basic public services, such as water and electricity.<sup>43</sup> Despite some advancements, including the increased efficiency of water usage since 2008, decades of war have devastated vital installations and infrastructures, such as systems to treat and distribute potable water and irrigation facilities.<sup>44</sup> Furthermore, gaps remain in Iraq's institutional and legislative systems framework for disaster risk reduction (DRR).<sup>45</sup> Direct and indirect effects of climate change (such as a major natural hazard or a climate-induced spike in food prices, respectively) risk disrupting already strained government services and exacerbating distrust in public institutions, which in turn could potentially trigger social unrest and lead to violence. The deadly 2018 protests over water shortages in Basra are examples of the dangerous interplay between climate change impacts and governance challenges.<sup>46</sup>

In many areas, **localized tensions** related to water are affected by tribal dynamics.<sup>47</sup> (According to the Armed Conflict Location & Event Data Project (ACLED), incidents of tribal violence in Iraq more than doubled in 2020 compared to 2019).<sup>48</sup> As climate change reduces the availability of water and fertile land, it could further exacerbate tensions over access to, and ownership of, diminishing vital natural resources. With limited resources, authorities might be compelled to make difficult policy decisions about prioritizing which measures to implement, with trade-offs between benefits for different communities.<sup>49</sup> If such investments are perceived as being distributed unfairly or in a way that is more favorable to certain groups over others, this too could feed local tensions and grievances.

**Women** are generally more affected by the impacts of climate change as they lack the livelihood options and resources to adapt to external shocks, for example by finding another job or migrating. Years of conflict, insufficient educational opportunities and inadequate political representation, limited healthcare and land/asset ownership, restricted access to the labor market (only 13% of Iraqi women participate in the formal labor force), along with high levels of gender-based violence, have taken a heavy toll on Iraqi women. Interviews informing this paper noted that women who joined anti-government protests against the lack of basic services in Basra became targets of gender-based violence and assassination attempts. In 2021, Iraq ranked 154th out of 156 countries in the Global Gender Gap, which points to a significant gender difference also in resilience to disasters and climate change ([https://www3.weforum.org/docs/WEF\\_GGGR\\_2021.pdf](https://www3.weforum.org/docs/WEF_GGGR_2021.pdf)).

During a focus group discussion with farmers in Basra, held as part of the World Bank Group's Iraq Climate and Development Report, women who used to grow Henna trees and vegetables reported having stopped their work because of the drought and increased heat (<https://openknowledge.worldbank.org/handle/10986/38250>).

Efforts are underway to address these structural inequalities. The Government of Iraq launched a National Action Plan on Women's Economic Empowerment for 2021- 2022 which includes steps to address the barriers to women's participation in the labor force. Moreover, in June 2022, the General Secretariat of the Council of Ministers, in collaboration with UNDP, launched a National Strategy on the Advancement of Women for the period 2023-2030 that includes a section on the role of women in addressing climate-related challenges.

Even though Iraq ranks in the medium **human development** category – 123<sup>rd</sup> out of 189 countries in the 2022 Human Development Report – a substantial portion of the population suffers from deteriorating living conditions, with significant and persistent geographic and group disparities that are compounded by climate change, in addition to displacement, prevalent unemployment, malnutrition, and difficult economic prospects.<sup>50</sup> The country has witnessed a sharp increase of the national poverty rate (from 20% in 2018 to over 30% in 2020 and the total number of people living in poverty reached over 11.4 million in 2020, with children and adolescents facing the highest increase in poverty.<sup>51</sup> According to UNICEF, an additional 4.5 million (11.7%) Iraqis are at risk of falling below the poverty line because of the socio-economic impact of COVID-19.<sup>52</sup> Some 2.5 million Iraqis were in need of humanitarian assistance in 2022.<sup>53</sup> Against the backdrop of an eroding middle class, recent episodes of increased heat exposed divides between those who can afford expensive private generators to power air-conditioning or fans, and the majority that cannot.<sup>54</sup>

The lack of economic diversity represents another vulnerability. The oil sector contributes 42% of Iraq's GDP, over 90% of government revenue, and over 99% of its total exports.<sup>55</sup> This fossil fuel dependence creates additional risks related to the unfair distribution and mismanagement of oil revenues, and which in turn has the potential to undermine the legitimacy of state institutions and drive instability by worsening existing societal divides.<sup>56</sup> The likely long-term reduction of oil exports induced by global climate mitigation efforts could make oil revenues insufficient to provide social protection, thereby increasing communities' overall vulnerabilities.

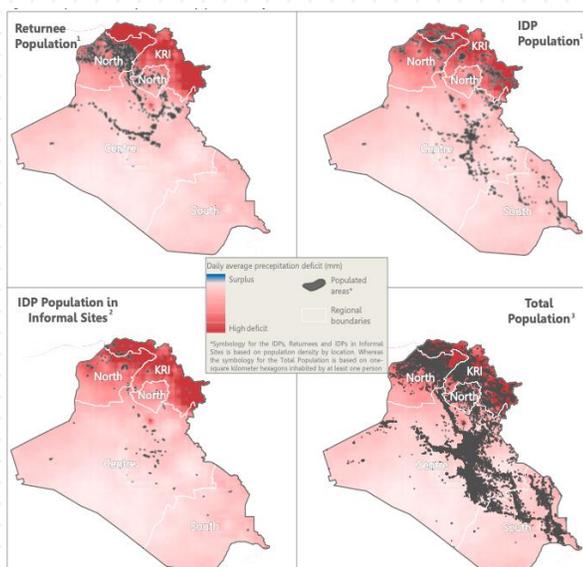
**Irrigated and rainfed crops and livestock** constitute important sources of livelihood for most of the rural and peri-urban population. In the northern governorates, which have traditionally been the country's primary breadbasket, 90% of agriculture is rainfed but erratic rainfall has undermined agricultural productivity and threatened income as well as food security, further increasing Iraq's reliance on grain imports.<sup>57 58</sup> Similarly, the valleys of the Euphrates and Tigris rivers, which rely on surface water for irrigation, have also been hit by declining water levels in the two rivers.<sup>59</sup> Nearly one-third of irrigated land in Iraq is projected to be without access to groundwater by 2050.<sup>60</sup> As climate change continues to compound water scarcity and accelerate desertification, the associated rising food prices and food insecurity could increase the risk of social unrest. Female-headed households are particularly affected by elevated food prices as they tend to spend a higher share of their income on food.<sup>61</sup>

**Food production** in Iraq shrunk by 40% in the mid-2010s, due to ISIL-related insecurity and a combination of reduced rainfall levels, prolonged droughts, dust storms, decreasing soil fertility, and delapidated irrigation infrastructure.<sup>62</sup> A significant number of livestock have been lost, killed or injured during conflicts, which erased the only source of income of many pastoralist Iraqis. During the 2020-2021 cropping season, drought was also reported to have caused dramatic crop and income losses for households relying on agriculture for livelihoods, with far-spread consequences given that the agricultural sector employs around one fifth of the population.<sup>63</sup> According to a 2021 survey by the Norwegian Refugee Council (NRC) in drought-affected areas across 7 Iraqi governorates, 37% of wheat farmers and 30% of barley farmers suffered crop failure, driving up the need for food assistance. In addition, up to 37% of households lost cattle, sheep or goats during the previous six months due to insufficient water and livestock feed or diseases.<sup>64</sup> This situation intensifies Iraq's reliance on food imports, which are already indispensable to cover half of the country's food needs.<sup>65</sup> Covid-19 and the war in Ukraine have demonstrated the fragility of global supply chains and provided an indication of the potential impact of climate disruptions to the global food market. Already, food insecurity in Iraq has increased in recent years and reached the level "serious" according to the International Hunger Index.<sup>66</sup> Women, who make up the majority of the agricultural workforce – although mostly informally and with poor social protection – are particularly vulnerable.

While conflict remains the primary cause of **displacement** in Iraq – 6 million people were internally displaced during the fight against ISIL and around 1.2 million remain in a protracted state of displacement– climate-related disasters have forcibly displaced at least 140,000 people between 2010 and 2020.<sup>67</sup> Over 21,000 Iraqis from southern and central Iraq left their homes due to water shortages in July 2019.<sup>68</sup> According to the Norwegian Refugee Council, around 200 households in various regions of the country reported that a family member had to **migrate** to search for work elsewhere due to water scarcity conditions.<sup>69</sup> Climate change also has a profound effect on the living conditions of displaced communities, irrespective of the cause of displacement, and reduces their chances of returning to their homes.

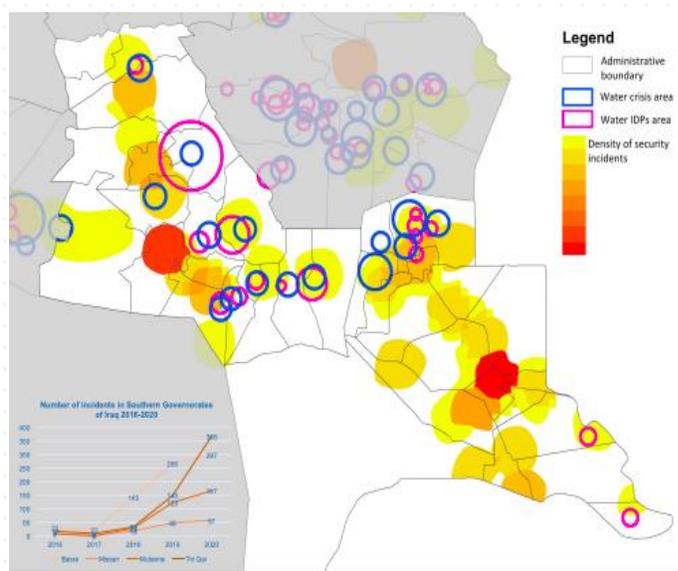
In several areas, the influx of displaced persons has compounded competition for limited water resources.<sup>70</sup> In the Southern part of the country, IOM estimates that as of November 2021, Thi-Qar Governorate hosted the largest number of families experiencing climate-induced displacement (1,110), followed by Missan (728) and Karbala governorates (339).<sup>71</sup>

**Figure 6: Precipitation deficit map overlaid with population density**



Source: WASH Cluster. *Precipitation and Temperature change in Iraq, November 2021*

**Figure 7: Conflict and water-induced displacement in Basra and Thi Qar**



Source: SWEDO. *Basra and Thi Qar Governorates, 2021*

**Figure 6** shows that the precipitation deficit is higher in the Kurdistan Region of Iraq (KRI) and northern Iraq compared with central and southern Iraq. It further suggests that IDPs are the most vulnerable group, with around 74% of IDPs estimated to live in high deficit zones.<sup>72</sup> **Figure 7** illustrates the increased occurrence of security incidents in areas within the Basra and Thi Qar Governorates where water scarcity was already pronounced.

While Iraq is particularly exposed to climate impacts and suffers from multiple overlapping vulnerability factors, there is momentum from the Government and civil society to build resilience and maximize **existing capacities** to prevent, cope with, and recover from external shocks, including those related to the effects of climate change. The Government of Iraq has expressed strong commitment to tackle challenges related to climate change. From 12 to 13 March 2023, the Iraq Climate Conference was held in Basra Governorate with the presence and support of Prime Minister Muhammad Shia Al Sudani, focusing on the theme "*Our Climate is a Life*". The conference served as a platform to shed light on the extent and complexity of Iraq's climate-related challenges, particularly water scarcity and the vulnerable areas affected by climate change. It aimed to clarify existing cooperations mechanisms and prioritize funding for climate change activities. Conference participants issued a joint declaration that recognizes, inter alia, that "*The climate is no longer just an environmental issue, but rather a fundamental development and security issue that affects the present and future generations*".<sup>73</sup>

The Government of Iraq has also actively strengthened its policy frameworks to cope with the effects of climate change. In 2009, the Iraqi Parliament ratified joining the Framework Convention on Climate Change and this has led to many important steps in climate action, including the establishment of the National Center for Climate Change in the Ministry of Environment and a national committee to supervise climate action. Since 2020, with support from UNEP and the Green Climate Fund (GCF), Iraq has been developing and implementing a National Adaptation Plan, with a particular focus on

strengthening institutional, technical, and financial capacities to ensure that medium- to long-term adaptation needs are integrated into national development planning. As part of this work, climate risk assessments are being carried out to identify the livelihoods and sectors most threatened by climate impacts, as well as the most urgent adaptation priorities.<sup>74</sup> Some progress has also been achieved in strengthening Iraq's disaster risk reduction capacity, including through the drafting of legal frameworks designed to reduce vulnerabilities and strengthen the resilience of the state and communities.<sup>75</sup> On 24 March 2023, the Government of Iraq formally acceded to the Convention on the Protection and Use of Transboundary Watercourses and International Lakes, which aims to ensure the sustainable use of transboundary water resources by facilitating cooperation across borders.

In certain highly vulnerable areas, tribal networks can also play a role to enhance social cohesion and communities' overall coping capacities. They have assumed an important function as service providers and can serve as entry points for building resilience.<sup>76</sup> With roughly 75% of Iraq's population being either a member or an associate of one of the 150 main tribes in Iraq, and given the challenges faced by public institutions, tribes play a critical social protection function. Tribal networks are most prominent in Sunni areas (Anbar, Salah al Din, Kirkuk and Ninewa) and in the southern areas (mainly Basra), where they help protect community members against violence and facilitate employment opportunities as well as access to government services.<sup>77</sup>

Tribal customary law and dispute resolution mechanisms are also important tools to help manage conflict and maintain stability. Tribal negotiation and conflict resolution mechanisms that occur outside the purview of formal legal processes (e.g. Sulha) could be used to mediate climate-induced disputes at the local level, particularly with regard to water-sharing agreements between different communities.<sup>78</sup> While tribal processes – and the role played by tribal leaders – are not substitutes for state institutions, connecting these to national and subnational actors while ensuring that they are inclusive of women and protect their rights may be an important component in efforts to manage climate-related security risks and sustain peace in Iraq.

## 4. Key climate-related peace and security risks in Iraq

An analysis of the intersection between the above factors – climate stressors, exposure, vulnerabilities, and coping capacities – provides insights into the pathways through which climate change effects can affect peace and security in Iraq. While four major areas emerge from the research conducted, all have important implications for gender norms and power structures.

### 4.1 Climate-induced migration and rapid urbanization

The effects of climate change can contribute to migration and urbanization in Iraq in at least two ways. In the more direct pathway, extreme weather, floods or rising sea levels forcibly displace communities from their homes, leaving them with no choice but to move to other – often urban – areas. In the indirect pathway, climate-induced water scarcity and diminishing agricultural production exacerbate the prevalent shortage of livelihood options and high poverty levels among rural communities in Iraq, which combined with other socio-economic and governance dynamics, such as limited public services, make a move to urban areas an increasingly used adaptation strategy.<sup>79</sup> Irrespective of the cause of displacement, the effects of climate change can deter people from returning to their homes and thus prolong displacement. According to a report examining water and conflicts in the MENA region, 25% of IDPs in Iraq cited water scarcity as the main reason for displacement and for preventing their return

home.<sup>80</sup> The expected closure of numerous IDP camps in Iraq will likely redistribute tens of thousands of IDPs across the country, with many expected to move to urban areas.<sup>81</sup>

The urbanization rate in Iraq currently stands at around 70%, several percentage points above the average for the MENA region, and the urban population is rising by 3% each year.<sup>82</sup> A further rapid influx of people into cities will likely increase the pressure on limited infrastructure and municipal services. Where authorities already face challenges in safeguarding communities from climate impacts, growing population numbers can compound security risks. Limited economic opportunities for young people in crowded urban areas further risk reinforcing feelings of marginalization, exclusion, and injustice. This could fuel tensions between different ethno-religious groups or increase grievances vis à vis state institutions, as well as jeopardize the sustainability of the country's ethno-sectarian power-sharing system.<sup>83</sup>

#### 4.2 Enabling environment for social unrest and non-state armed group activity

By reducing livelihood options and diminishing the resource base needed for a dignified and healthy life – including food, water, and clean air – climate change has the potential to compound grievances and heighten inequality. If left unaddressed, climate impacts can contribute to social unrest that can spill over into violence, as was seen in the deadly Basra protests in 2018. Similarly, on 15 March 2023, protesters in the Al-Islah district of Thi-Qar Governorate took control of government facilities after a prolonged water crisis left residents without water for over ten days. The protests, initially peaceful, turned violent as the demonstrators grew increasingly frustrated.<sup>84</sup>

Climate change effects that worsen the situation of vulnerable populations can also play into the hands of non-state armed groups (NSAGs), who have proven adept at exploiting such circumstances for their own gain, including by intensifying recruitment. Analysts have identified water scarcity and loss of agricultural income resulting from the 2007 drought among factors boosting the ISIL recruitment in rural areas of Iraq.<sup>85</sup> A lack of alternative livelihood options makes income from illicit activities more attractive and lowers the opportunity cost of joining armed groups. Recent research carried out by the United Nations University Centre for Policy Research (UNU-CPR) and the United Nations Institute for Disarmament Research (UNIDIR) found that 29% of survey respondents in Tal Afar knew people whose livelihoods were impacted by climate change and had joined a range of armed groups as a result (including not only ISIL but groups that mobilized to combat ISIL).<sup>86</sup> NSAGs have also been able to manipulate climate impacts to expand their influence in Iraq, for instance by taking control of water resources or by offering food to alleviate the impact of drought, crop failures and high food prices.<sup>87</sup> The risk of “weaponization of water”, for instance, was exposed in 2014, when the Islamic State of Iraq and the ISIL suddenly seized control over the Mosul dam on the Tigris River in Northern Iraq and threatened to flood Baghdad.<sup>88</sup>

#### 4.3 Heightened tensions over shared water sources

The Euphrates-Tigris basin is not only the primary fresh water source for Iraq, it also represents a vital source of socio-economic development for 54 million people in one of the world's most water-scarce regions.<sup>89</sup> The effects of climate change aggravate the situation by decreasing water availability. However, there is also a long history of cooperation over shared water resources around the world, including in the Euphrates-Tigris basin. While a basin-wide agreement has been elusive so far, several existing mechanisms – such as bilateral protocols, Memoranda of Understanding, joint technical committees, high-level strategic councils, and track II diplomacy tools – could provide a basis for further cooperation.<sup>90</sup>

The impact of water on peace and stability in Iraq can be summarized along three axes:

- 1) Competition over scarce water resources and the socioeconomic impacts of water shortages could compound existing tensions between different water user groups.<sup>91</sup>
- 2) Water resources could put a strain on dynamics among regional stakeholders.
- 3) Shared water resources could also serve as a source of cooperation. An extensive body of good practices exists on the peaceful management of shared water resources, at transboundary as well as local levels, whereby technical solutions can provide entry points for dialogue.<sup>92</sup>

#### 4.4 Unintended consequences of climate policies

Policies to address the effects of climate change – at the global as well as country level – will likely have significant long-term effects on Iraq and the region’s geopolitical dynamics. Transition away from fossil fuels could alter political economy calculations, including public budgets, labor markets, and state-society relations. Iraq currently lags behind some regional peers in the development of renewable energy technologies and still lacks a strategy to develop its renewable energy sector. The perception of inequitable distribution of climate-related investments could exacerbate existing grievances and feelings of marginalization, potentially eroding trust in the state's legitimacy.

## 5. Conclusion

This paper has sought to summarize the accelerating effects of climate change in Iraq and outline their potential impact on peace and security. The UN system is uniquely placed to support the Government of Iraq, the region and local communities to mitigate climate-related risks, reduce vulnerabilities, and build resilience. Areas of consideration for concerted UN efforts include:

- Develop a UN strategy on how to support the Government of Iraq in addressing the linkages between climate change, peace, and security. Building on lessons learned from UN engagement in related areas, a system-wide strategy would outline a shared vision for the UN and describe responsibilities as well as modes of collaboration across and beyond the UN system. It would provide a framework to systematically integrate a climate lens into relevant activities and processes, and define key areas for UN support on climate, peace, and security to the Government of Iraq as well as local communities. The strategy would operationalize the humanitarian-development-peace nexus and serve as an integral part of broader prevention efforts, identifying opportunities where climate, peace, and security considerations could inform each other and simultaneously achieve peacebuilding, climate action, and women empowerment, peace and security objectives. The design and implementation of the strategy would likely require dedicated capacity to lead efforts and convene relevant stakeholders and to demonstrate a UN commitment to addressing the adverse effects of climate change.
- Strengthen inclusivity and expand the scope of stakeholders driving the discourse around climate, peace, and security in Iraq. A series of inclusive consultations with vulnerable communities and civil society regarding the impact of climate change and environmental degradation on peace and security would allow the UN to learn about local-level and gender-disaggregated experiences, vulnerabilities, and capacities, and simultaneously increase awareness of climate risks among communities. Consultations could be accompanied by a public information campaign on how climate change undermines human security in Iraq, including food and water security, health, biodiversity and infrastructure. Moreover, the UN could strengthen collaboration with Iraqi research institutions and the private sector to draw on their insights and potential for innovative solutions to climate-related challenges.
- Ensure that political and good offices engagements are informed by and, as appropriate, integrate climate considerations. Ensure that climate issues, especially around water resources, are also leveraged as an entry point for women to access political dialogues. While women are often excluded from other decision-making fora, their societal roles (often managing scarce water, energy, and food for their households) can facilitate the inclusion of women in political discussions around resource management. Provide technical expertise to accompany dialogue, prevention and conflict resolution efforts and build the capacity of the Government of Iraq, at its request, on water management issues.
- Build the capacity of the Government of Iraq in the areas of climate-informed peacebuilding and governance as well as on conflict-sensitive climate action. The UN could prioritize efforts to support the development of conflict-sensitive climate adaptation and mitigation strategies and help ensure their fair and transparent implementation. Furthermore, reconstruction efforts that integrate measures to mitigate the impacts of water scarcity and climate change also represent an opportunity to strengthen long-term resilience.<sup>93</sup>
- Work with relevant partners (e.g., vertical funds, international financial institutions, bilateral donors, private sector) to promote and facilitate Iraq's access to climate finance. This could

include closer partnerships with the IMF, the Green Climate Fund, or the Global Adaptation Fund, as well as assistance to the Government in preparing applications for funding opportunities and in exploring ways to engage the private sector in innovative initiatives.

# Annexes

## Annex 1: Dams in Tigris Euphrates River Basins

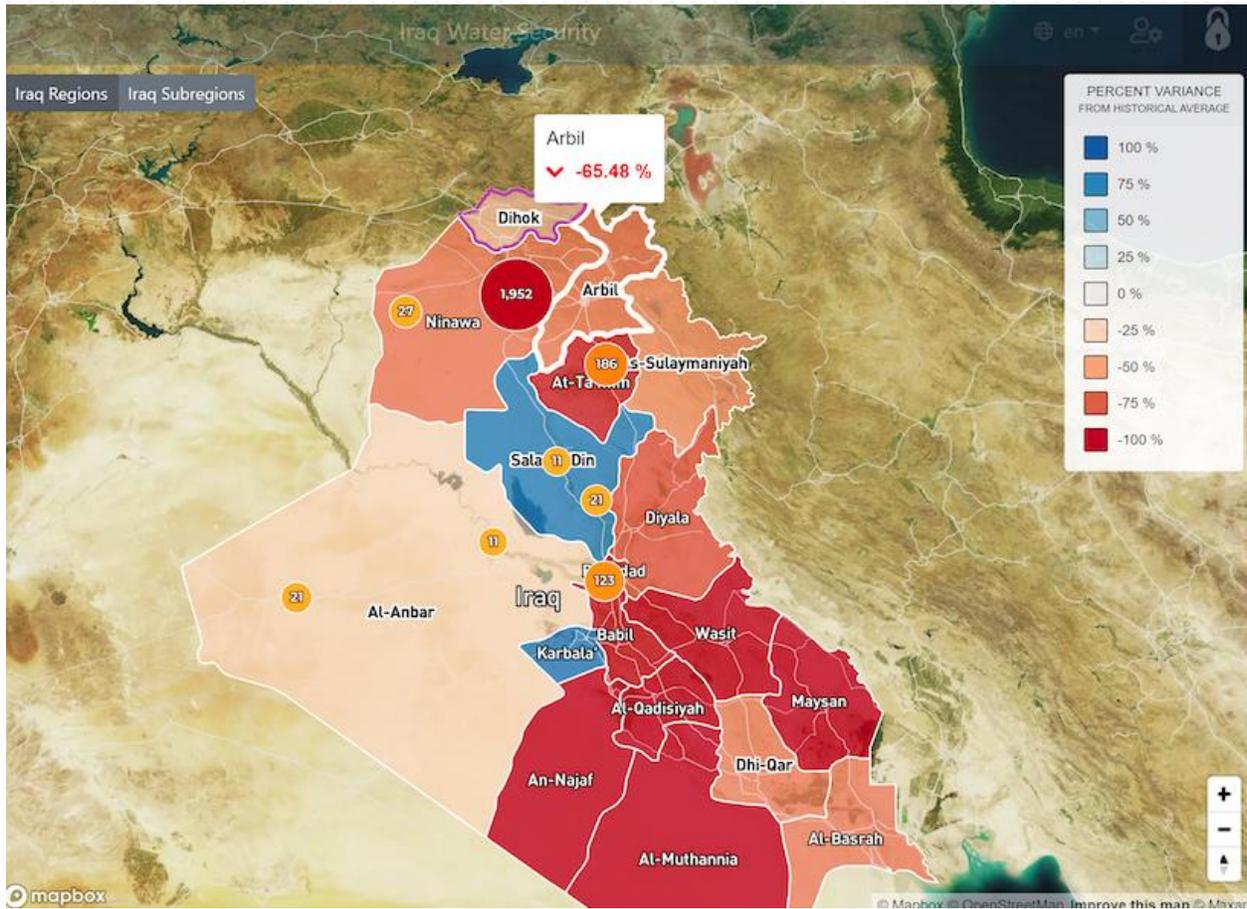


| 17

Source: N.A. Al-Ansari (2013), Management of Water Resources in Iraq: Perspectives and Prognoses. Scientific Research, Vol.5 No.8, Article ID:35541. [http://file.scirp.org/Html/6-8101946\\_35541.htm#txtF2](http://file.scirp.org/Html/6-8101946_35541.htm#txtF2)

Source: Ministry of Foreign Affairs of the Netherlands. "Climate Change Profile of Iraq", April 2018.

Annex 2: Precipitation and conflict visualized over a multidecadal horizon for the governorate of Arbil in October 2016

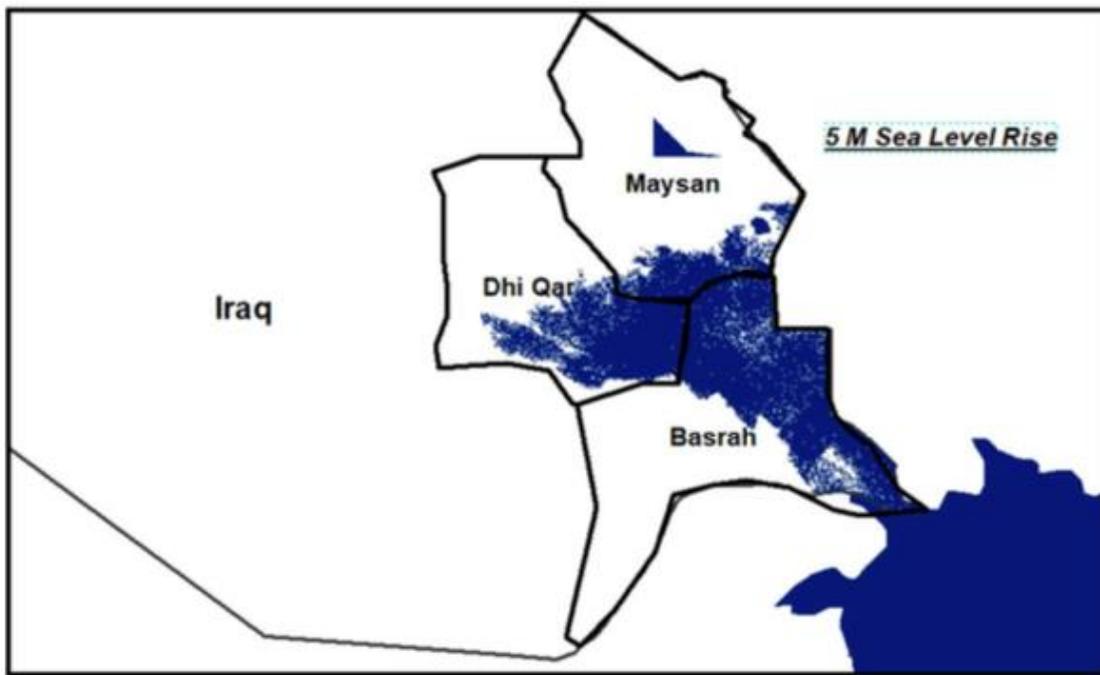


(Circles represent conflict events)

Source: [Iraq Water Security dashboard](#), UNDPPA Innovation Cell

**Table 1.** The impacts of SLR on Basrahh, Al-Nasiriyah and Maysan under five scenarios, 1, 2, 3, 4, 5 M SLR.

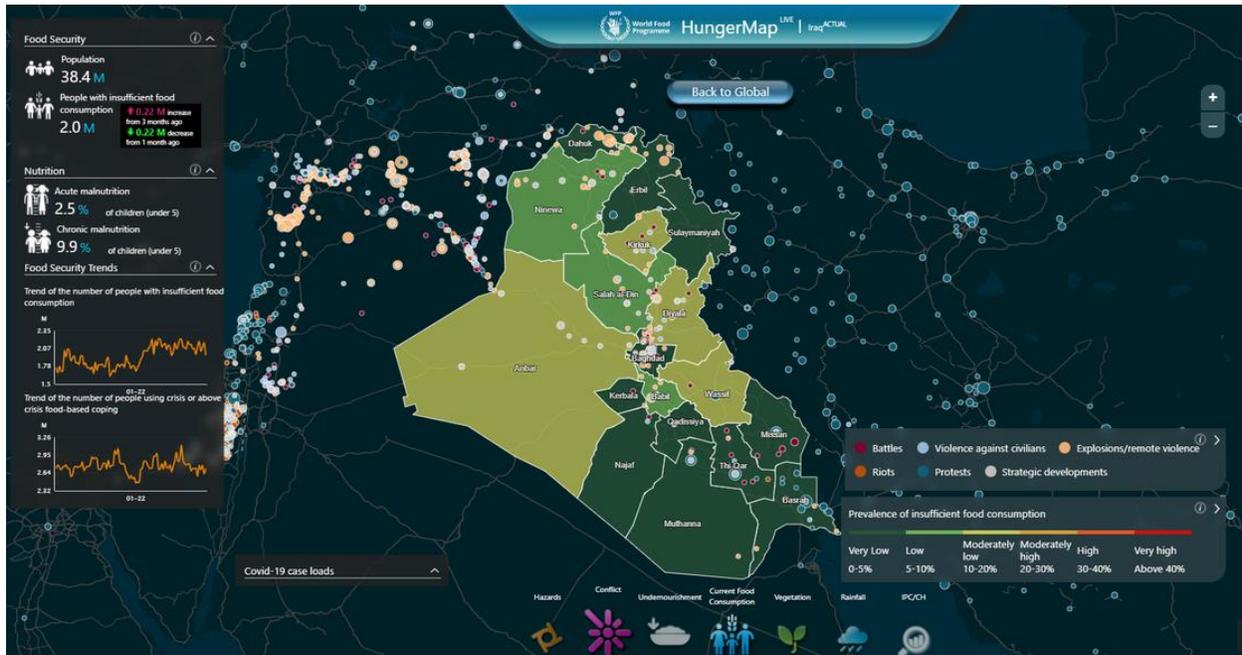
| Cities       | Total area<br>KM <sup>2</sup> | Inundated<br>area under 1<br>M SLR | Inundated<br>area under 2<br>M SLR | Inundated<br>area under 3<br>M SLR | Inundated<br>area under 4<br>M SLR | Inundated<br>area under 5<br>M SLR |
|--------------|-------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|
| Basrahh      | 19,070                        | 944                                | 2379                               | 4124                               | 6486                               | 7379                               |
| Al-Nasiriyah | 12,900                        | 271                                | 1235                               | 2350                               | 2980                               | 4676                               |
| Maysan       | 16,072                        | 328                                | 460                                | 1215                               | 1861                               | 2632                               |



**Figure 8.** 5 M SLR impacts on Bsrh, DhiQar and Maysan.

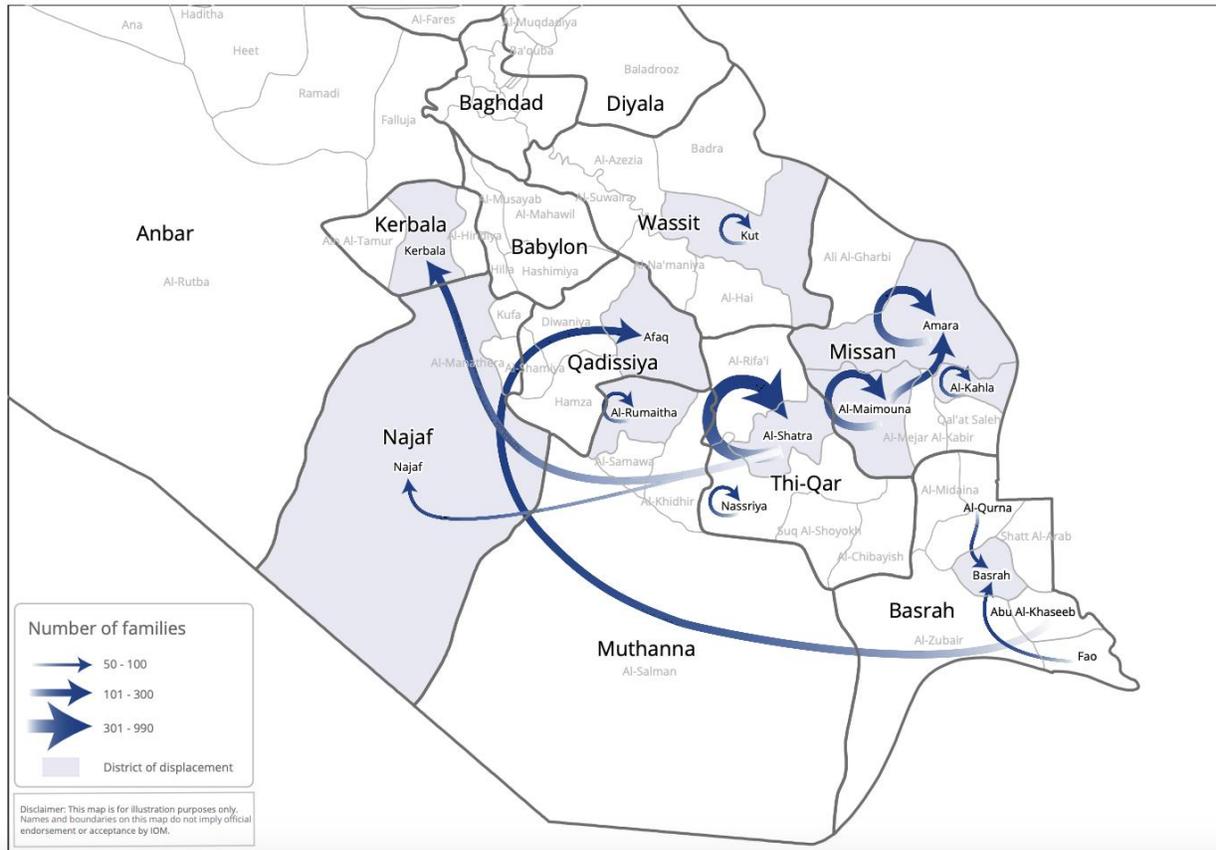
**Source:** Abbas, Nahlah, et al. “[The Impacts of Sea Level Rise on Basrah City, Iraq.](#)” Open Journal of Geology, vol. 10, no. 12, 2020, pp. 1189–97. DOI.org (Crossref),

## Annex 4: Hunger map of Iraq



Source : WFP, Accessed March 2022. <https://hungersmap.wfp.org/>

Annex 5: Climate-Induced Displacement Flows in Central and Southern Iraq



Source: [IOM Displacement Tracking Matrix \(DTM\)](#), covering 1-14 November 2021

# Glossary

## Climate change

- Climate change refers to long-term shifts in temperatures and weather patterns. These shifts may be natural, such as through variations in the solar cycle. But since the 1800s, human activities have been the main driver of climate change, primarily due to burning fossil fuels like coal, oil, and gas. ([United Nations](#))

## Climate change adaptation

- Adaptation refers to adjustments in ecological, social, or economic systems in response to actual or expected climatic stimuli and their effects or impacts. It refers to changes in processes, practices, and structures to moderate potential damages or to benefit from opportunities associated with climate change. ([UNFCCC](#))

## Climate change mitigation

- Mitigation is a human intervention to reduce the sources or enhance the sinks of greenhouse gas. Examples include using fossil fuels more efficiently for industrial processes or electricity generation, switching to solar energy or wind power, improving the insulation of buildings, and expanding forests and other sinks to remove greater amounts of carbon dioxide from the atmosphere. ([UNFCCC](#))

## Climate finance

- Climate finance refers to local, national, or transnational financing – drawn from public, private, and alternative sources of financing – which seeks to support mitigation and adaptation actions that will address climate change. ([UNFCCC](#))

## Climate-induced migration

- The movement of a person or groups of persons who, predominantly for reasons of sudden or progressive change in the environment due to climate change, are obliged to leave their habitual place of residence, or choose to do so, either temporarily or permanently, within a State or across an international border. ([IOM](#))

## Climate Justice

- Climate justice is a term used for framing global warming as an ethical and political issue, rather than one that is purely environmental or physical in nature. This is done by relating the effects of climate change to concepts of justice, particularly environmental justice and social justice and by examining issues such as equality, human rights, collective rights, and the historical responsibilities for climate. This entails ensuring representation, inclusion, and protection of the rights of those most vulnerable to the effects of climate change. Solutions must promote equity, assure access to basic resources, and ensure that young people can live, learn, play and work in healthy and clean environments. ([UNEP](#))

## Conflict-sensitivity

- Systematically taking into account both the positive and negative impacts of interventions, in terms of conflict or peace dynamics, on the contexts in which they are undertaken, and,

conversely, the implications of these contexts for the design and implementation of interventions. ([OECD](#))

#### **Climate stressor or shock**

- This includes erratic, extreme and/or changed rainfall patterns, temperature increase, storms, shifting seasonal patterns, and ecosystem degradation. ([UN Climate Security Mechanism](#))

#### **Coping capacities**

- The ability of people, institutions, organizations, and systems, using available skills, values, beliefs, resources, and opportunities, to address, manage, and overcome adverse conditions in the short to medium term. ([IPCC](#))

#### **Desertification**

- The degradation of land in arid, semi-arid, and dry sub-humid areas. ([UNCCD](#))

#### **Disaster risk reduction**

- The concept and practice of reducing disaster risks through systematic efforts to analyze and manage the causal factors of disasters, including through reduced exposure to 11 hazards, lessened vulnerability of people and property, wise management of land and the environment, and improved preparedness for adverse events. ([UNISDR](#))

#### **Early warning system**

- The set of capacities needed to generate and disseminate timely and meaningful warning information to enable individuals, communities, and organizations threatened by a hazard to prepare and to act appropriately and in sufficient time to reduce the possibility of harm or loss. ([IPCCC](#))

#### **Ecological change**

- Environmental degradation is the deterioration in environmental quality from ambient concentrations of pollutants and other activities and processes such as improper land use and natural disasters. ([OECD](#)) The effects of environmental degradation are varied and often contribute to an increase in vulnerability, and the frequency and intensity of natural hazards. ([UNISDR](#))

#### **Exposure**

- The presence of people, livelihoods, species or ecosystems, environmental functions, services, resources, infrastructure, or economic, social, or cultural assets in places and settings that could be adversely affected ([IPCC](#)).

#### **Food insecurity**

- Food insecurity refers to both the inability to secure an adequate diet today and the risk of being unable to do so in the future. ([FAO](#))

#### **Nationally Determined Contributions (NDCs)**

- Nationally determined contributions (NDCs) are at the heart of the Paris Agreement and the achievement of long-term goals to combat climate change. NDCs embody efforts by each country to reduce national emissions and adapt to the impacts of climate change. ([UNFCCC](#))

**Natural hazard**

- Natural process or phenomenon that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage. ([UNISDR](#))

**Natural resource management**

- Activities related to the environmentally sustainable management of natural resources. This includes monitoring, surveys, administration, and actions for facilitating structural adjustments of the sector concerned and their exploitation. ([OECD](#))

**Resilience**

- The ability of a social or ecological system to absorb disturbances while retaining the same basic structure and ways of functioning, the capacity for self-organization, and the capacity to adapt to stress and change. ([UNFCCC](#))

**Vulnerability**

- The degree to which a system is susceptible to, or unable to cope with, adverse effects of climate change, including climate variability and extremes. Vulnerability is a function of the character, magnitude, and rate of climate variation to which a system is exposed, its sensitivity, and its adaptive capacity. ([UNFCCC](#))

**Wetlands**

- Land that stays flooded all or part of the year with fresh or salt water. ([UNFCCC](#))

**Water scarcity**

- Water scarcity can mean scarcity in availability due to physical shortage, or scarcity in access due to the failure of institutions to ensure a regular supply or due to a lack of adequate infrastructure. ([UN Water](#))

**Water security**

- The capacity of a population to safeguard sustainable access to adequate quantities of and acceptable quality water for sustaining livelihoods, human well-being, and socioeconomic development, for ensuring protection against waterborne pollution and water-related disasters, and for preserving ecosystems in a climate of peace and political stability. Water insecurity occurs when any or all of these needs cannot be met. ([UNICEF](#))

## Endnotes

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- <sup>5</sup> Iraq ND-Gain country index rank, 2019 <https://gain-new.crc.nd.edu/country/iraq#:~:text=The%20high%20vulnerability%20score%20and,the%2042nd%20least%20ready%20country.>
- <sup>6</sup> *The INFORM Risk Index is a global, open-source risk assessment for humanitarian crises and disasters developed by the European Commission and the Inter-Agency Standing Committee Reference Group on Risk, Early Warning and Preparedness. It aims to support decisions about prevention, preparedness, and response.* **Sources:** European Commission DRMKC. “INFORM RISK Index”, <https://drmkc.jrc.ec.europa.eu/inform-index> ; The Index for Risk Management – INFORM Risk Index. European Commission. <https://drmkc.jrc.ec.europa.eu/inform-index/INFORM-Risk> found in ESCWA. “Risk Assessment Report: Iraq September 2022 Projections”, 2022 (forthcoming)
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- <sup>9</sup> Binder, Lisa; Barbora Šedová, Lukas Rüttinger, Julia Tomalka and Stephanie Gleixner. “2022: Climate Risk Profile: Iraq”. Adelphi/PIK, 2022 [https://www.adelphi.de/en/system/files/mediathek/bilder/Climate\\_Risk\\_Profile\\_Iraq\\_8.pdf](https://www.adelphi.de/en/system/files/mediathek/bilder/Climate_Risk_Profile_Iraq_8.pdf)
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- <sup>14</sup> Stakeholder remote interview with the United States Institute of Peace.
- <sup>15</sup> IOM. “Assessing water shortage-induced displacement in Missan, Muthanna, Thi-Qar and Basra”, April 2019. [https://reliefweb.int/sites/reliefweb.int/files/resources/IOM\\_assessing%20water%20shortage%20induced%20displacement%20in%20South%20Iraq.PDF](https://reliefweb.int/sites/reliefweb.int/files/resources/IOM_assessing%20water%20shortage%20induced%20displacement%20in%20South%20Iraq.PDF)

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- <sup>16</sup> *Following the 1991 Gulf War, thousands of Shi'ite rebels took refuge in the Marshlands. Saddam Hussein drained the marshes and exposed their hiding place.* **Source:** UNEP. "Iraq's Marsh Arabs more optimistic after World Heritage status", November 2016. <https://www.unep.org/news-and-stories/story/iraqs-marsh-arabs-more-optimistic-after-world-heritage-status> ; UNEP. "Assessment of Environmental Hot Spots in Iraq", 2005. [https://postconflict.unep.ch/publications/Iraq\\_ESA.pdf](https://postconflict.unep.ch/publications/Iraq_ESA.pdf)
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