

Cracked Earth, shrinking harvest: Drought impact on displaced and returnee Iraqis





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REFUGEE COUNCIL

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DISCLAIMER

The **Norwegian Refugee Council** (NRC) is an independent humanitarian organisation helping people forced to flee. In crises across 40 countries, **NRC** provides emergency and long-term assistance to millions every year. **NRC** promotes and defends displaced people's rights locally, nationally and on the world stage.

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Introduction

For the past three years, the Norwegian Refugee Council (NRC) has assessed the links between climate and displacement in Iraq across four broad themes: water security and governance, income and food insecurity, social tension, and drought and displacement.

These reports were produced in a context in flux: between 2017 and 2023, more than 5 million Iraqis who had been displaced by conflict returned home, and the number of people in need of humanitarian assistance dropped from [11 million](#) to [2.2 million](#). Iraqis who returned found that home had changed markedly. War had polluted rivers, left unexploded ordnance in farmland, and weakened markets; bullet holes now pockmarked schools and hospitals, and the canals that connected rivers towns ran dry. Around the same time, Iraq's arid climate experienced rapid deterioration, leading to increased salinity, water scarcity, and extreme temperatures. It is in this context of recovery these reports have attempted to understand the impact of climate in Iraq— not simply as a cause for displacement, but also as a stressor impeding sustainable recovery and, in some cases, precipitating risks of secondary displacement.

Over the years, sectoral partners have generated evidence linking climate to displacement. [As of August 2024, the United Nations estimates 147,000 individuals have been forced to move](#) due to the impacts of changing weather patterns, with most families displaced from rural outskirts to urban centres.

Previous reports by NRC have also outlined rising risks of climate induced displacement in governorates where large-scale returns have occurred, including Ninewa in the north of the country. Far from an academic exercise, this evidence informed our programmatic approach in Iraq. In governorates where Iraqis had returned, NRC rehabilitated water and agricultural infrastructure impacted by war, linked markets to farmer-led cooperatives, and [expanded livelihoods options for Iraqi youth](#). During drought years, these interventions meant household income of our programme participants remained relatively stable.

Unfortunately, while humanitarian assistance can strengthen individual and community resilience, there are limits to what humanitarians can do to change systems. As we have previously outlined, mitigating the impacts of climate change requires managing dwindling resources, and using data-driven approaches to adaptation. This includes, for example, information on rainfall patterns, receding groundwater levels, irrigation practices, and the impact of extreme temperature on crop yield. These initiatives, in turn, need development funding and government leadership.

For our last report in the series, we explore an often-overlooked theme: the **impact of climate on individuals and communities who are still displaced**. How—if at all—does extreme weather impact people's lives in displacement settings? How does it impact the lives of women and children? Importantly, is there a link between climate deterioration and movement intentions of Iraqis still seeking a durable solution to displacement?

We ask these questions as humanitarians, with recognition of the progress made, and with the backdrop of receding humanitarian funding for Iraq. Ultimately, we ask these questions to put the focus around durable solutions where it belongs: as processes that must recognise and facilitate individual agency and choice of displaced people themselves.



Photo: NRC

Methodology

Analysis presented in this report is based on three streams of data.

First, NRC’s ‘post-harvest’ survey is reviewed, which is conducted at the end of each summer and assesses the impact of climate change on crop yield. The survey is run between July and August across four governorates —Anbar, Kirkuk, Ninewa and Salahaddin— and is designed to understand the impact of climate change on yield of staple and cash crops. By primarily targeting households who have returned home after being displaced by conflict, the survey offers insights into post-conflict recovery of income and livelihoods in areas of return and reintegration. This year, the post-harvest survey involved 297 participants, 96% of whom had returned in the past three years.

Second, to understand the impact of climate on internally displaced Iraqis, a survey was run in Anbar, Ninewa, Salahaddin and Duhok governorates involving 419 participants. 95% of respondents had been displaced at least once in the past three years, with 1 in 3 reporting they were currently displaced. This survey was conducted to compare how—and if—climate is impacting progress toward self-reliance and durable solutions between Iraqis who have returned, and Iraqis who are still displaced. Combined, the two surveys engaged 709 Iraqis. For the first time, our climate surveys have been extended to Duhok in the Kurdistan Region, which hosts a large portion of Iraqis who still internally displaced.

Third, over the course of the year, as the international response in Iraq shifted from humanitarian to development leadership, NRC engaged a wide range of development and humanitarian donors to understand donor positions as it related to climate and displacement. Insights from consultations are reflected in analysis and recommendations.

Key findings

Impact of climate on Iraqis who have returned to areas of origin in Anbar, Kirkuk, Ninewa and Salahaddin:

- 57% were forced to cultivate less land or use less water during the 2024 farming season
- **1 in 3** households reported farming less arable land due to lack of water for irrigation
- **30%** of households had to borrow to cover basic expenses during the summer months. **15% reported having to reduce expenditure** on healthcare and education, and **8% had to expend savings**
- 5% of returnees were forced to move due to drought-like conditions in 2024, down from 11% in 2023

Impact of climate on Iraqis who are currently displaced in Anbar, Ninewa, Salahaddin and Duhok:

- **1 in 5 Iraqi households in informal sites** do not have access to clean water
- **3 in 4 households** reported community tensions over sharing of water resources, and 44% of households report local authorities barring certain groups from accessing water
- **62% of households had to borrow money** to cover basic expenses during the summer months, and **59% of households** reported having to reduce food expenditure
- **80% of Iraqis** who are currently displaced link decision to return on ability to farm. **93% are currently making decisions** to stay, move or return based on information about resources in areas of origin

Background: climate change and durable solutions to displacement

Durable solutions are considered to have been achieved when people no longer have any specific assistance and protection needs that are linked to their displacement. In contexts of internal displacement, there are generally three pathways to a solution: return to area of origin, integration into communities hosting internally displaced persons (IDPs), or resettlement in a third location. Importantly, voluntary and informed decision-making by IDPs is central to the sustainability of each solution pathway.

Almost 5 million Iraqis who have returned home following the end of conflict can be considered as being on the path to durable solutions. However, while these numbers are strong indicators of post-conflict recovery, the act of return, in and of itself, does not always mean a durable solution to displacement has been achieved. Returns occurred in two ‘bursts’ in Iraq—spontaneously following the end of conflict in 2017, and in more ‘formalised’ fashion as camps were closed by Federal authorities between 2020 and 2021. In other words, many Iraqis returned not by choice but out of necessity.

Agriculture accounts for [5 to 7 percent of Iraq's Gross Domestic Product \(GDP\)](#), employs around 20% of its workforce, and is the primary source of livelihoods for most returnees. This means when the climate changes, livelihoods suffer and, when this happens year after year, progress toward durable solutions is stalled or worse overturned. This report provides evidence to support this theory by exploring the links between household income and food security to climate-induced stressors.

For Iraqis who are still displaced, climate also poses challenges to durable solutions. There are still 1.12 million Iraqis who are [displaced](#) in the Kurdistan Region, or in informal sites in Federal Iraq. Of the approximately 650,000 IDPs hosted by the Kurdistan Region, at least 150,000 Iraqis are still [housed in formal camps](#) while the rest are generally considered to have integrated with the host community. As the government prepares to close formal camps in the Kurdistan Region of Iraq (KRI), the question for remaining IDPs in Iraq is choice, and state capacity to support and reinforce individual agency. Mediating this choice is the impact of climate in areas of return, and in the sites where IDPs are currently staying. This report presents evidence on both—in informal sites, we link access to water to rising social tensions between IDPs and host communities and, in areas of origin, the evidence indicates links between climate and return intentions.

Importantly, this report is not an argument against government's response to internal displacement. On the contrary, authorities in Iraq have taken significant steps to facilitate solutions for its citizens, including through high-level advisory committees, expanded access to courts, and a national plan for IDPs. What seems to be missing, at least in conversations around durable solutions, is how a (climate) crisis of the future is impacting decisions by IDPs in the immediate present.

Section 1: How climate impacts durable solutions for returnees

The ability of returnees to rebuild livelihoods and restore economic stability is increasingly undermined by climate-induced stressors. These environmental pressures, in turn, complicate progress toward durable solutions, particularly in agriculture-dependent regions like Anbar, Kirkuk, Ninewa, and Salahaddin.

Agriculture, which forms the backbone of livelihoods for many returnees, has been especially affected by climate change. In the 2024 farming season, **one in two households reported cultivating less land or using less water due to drought-like conditions. One in three returnee households also reported farming less arable land** as a direct result of limited irrigation water. This reduction in agricultural output, in turn, translated to reduced household income and food insecurity, **forcing 30% of returnees to borrow money to cover basic needs.** A further 15% were forced to cut back on healthcare and education, while 8% expended savings.

Previous NRC reports have shown how measures taken in response to low water levels often compound problems. In Salahaddin for instance, the Directorate of Water Resources closed certain canals throughout the summer of 2023, making it impossible for farmers downstream to continue crop production. **According to the United Nations, over 760,000 Iraqis have returned to Salahaddin, approximately 240,000 of whom are still living in areas with high severity needs.**

Compounding this problem is the broader economic environment, which presents additional barriers to sustainable livelihoods. While most returnees possess the civil documentation necessary for formal employment, multi-sectoral assessments indicate upwards of [60% still struggle to earn a stable income](#). Despite efforts by humanitarian agencies to support vocational training and start-up capital, many small businesses fail within the first year, and local markets are too often undercut by cheaper imports. Furthermore, access to financing remains constrained by high interest rates and inefficiencies within Iraq's banking system, further limiting entrepreneurship and employment.

**“What support?” Abu Halim told NRC.
“We have no support. When we go to the bank for loans to buy water pumps, they want collateral. They laugh us out.”**



“We have no support.” Photo: NRC

Previous [research](#) from NRC and International Trade Cooperation links the lack of sustainable livelihoods options in Iraq to lack of diversified investment, limited job creation, and inadequate protection for local economies. Climate change amplifies these systemic issues, disrupting market dynamics and further threatening the progress made by returnees.

Iraq’s water infrastructure has been impacted heavily by two decades of conflict and remains ill-suited for the challenges of the present and future. Irrigation practices are ill-suited to Iraq’s present: approximately 70% of farmers in Iraq still use flood irrigation in a context of acute water shortage. No early warning systems (EWS) exist, and farmers rely on word of mouth and social media to get alerts of climate hazards, seasonal trends and extreme weather events. These vulnerabilities are amplified by climate: according to estimates by the United Nations Development Programme ([UNDP](#)), **Iraq loses up to 400,000 donums of arable land (approximately 100,000 acres) annually due to drought.**

The argument for Iraq to diversify its oil-reliant economy is not new and holds merit for returnees as well. However, the environment required to foster income diversity is not always present in areas of return. Joint [research](#) by NRC and the International Trade Centre consistently finds support for small businesses is either inadequate or unavailable altogether, especially in rural settings. A recent United Nations report [estimates one in three Iraqi youth are unemployed](#), and these trends hold true for the youth engaged during the study: 37 percent

reported being unemployed, and a similar percentage reported not being enrolled in any educational or vocational institute. The percentage of youth in business is also showing a downward trend: compared to last year's 14 percent, only 10% of youth this year reported owning small enterprises.

Positively, approximately **90% of Iraq youth** report being interest in entrepreneurship as a career choice. Over the years, this has remained relatively constant and indicates broad socio-cultural support for youth owned enterprises. Research by NRC also indicates youth in Iraq understand entrepreneurship is linked to the acquisition of skills— **70% of respondents** see Technical and Vocational Training (TVET) schemes as useful, compared to just over 50% last year. As the response shifts to development-oriented solutions, the need for investment to be directed to areas of return is clear.



Photo:Fareed Baram/NRC

Section 2: How climate impacts self-reliance and durable solutions for displaced Iraqis

Oula* is a single mother of eight who fled Sinjar in 2014. Over the past decade, Oula has been displaced three times, from Sinjar to a camp in [Hamam-al-Ajl](#), to Erbil, and most recently to an informal site in West Mosul. Each relocation was a product of necessity, not of choice, and neither is Oula’s story an anomaly. The area where she lives is ‘home’ to at least 10,000 other displaced families, all living at the mercy of local authorities with little access to services and a near-constant threat of eviction. Because civil documentation is tied to paternal lineage in Iraq, Oula’s family does not have the documents necessary to access public services including food assistance, healthcare and education.



The informal site where Oula lives in Mosul. Photo: NRC

Informal sites materialised as a by-product of the closure of IDP camps in Federal Iraq in early 2021 and can be characterised as locations not integrated within the surrounding communities. As such, residents of informal sites often do not have access to government provided services like electricity and power, and often live without legal tenure. Estimates of numbers of IDPs in informal sites in Iraq is outdated and inaccurate—the last [survey](#) conducted by IOM’s DTM places the number of IDPs in informal sites across Federal Iraq and the KRI at 79,470 and was conducted in 2022. A recent multi-sectoral assessment on informal sites highlights significant primary needs such as dignified shelter, healthcare, livelihood opportunities and food security. In addition, surveys by the Protection Consortium of Iraq (PCI) indicates families in informal sites are in debt, and at risk of eviction and harm due to legal status, a lack of housing, land and property rights and social stigma.

As Iraq moves to close its displacement file, vulnerabilities linked to displacement status are being deepened by the climate. Most displaced families living in informal sites are “Families

with Perceived Affiliations” (FPA) to the former Islamic State (ISIS) group. On paper, Iraq’s legal framework guarantees access to civil documentation for all Iraqi citizens, but in practice, extra-legal barriers are often imposed on IDPs, especially those perceived to be affiliated to ISIS. This includes, but is not limited to, DNA tests, security clearances, and providing proof of missing fathers; often alongside other [extrajudicial practices](#) like *tabriya* and *ikhbar*. Navigating these barriers is time consuming and expensive, and functionally excludes IDPs from courts. This, in turn, means IDPs are stuck in informal sites, trapped by increasingly extreme summers.

Access to water in informal sites is an issue in inequity and stigma. **One in five households in informal sites lack clean water and three out of four households report social tension over shared water resources. Concerningly, 44% of households told NRC local authorities are actively restricting certain groups’ access to water.**

The financial burden on displaced families is increasing. During the summer, **62% of households had to borrow money** to cover essential costs. Additionally, **59% of families reported having to reduce food expenses**. Most families linked lack of opportunities to lack of income generating opportunities over the summer months—as **agricultural production suffered due to water scarcity, this in turn meant fewer labour opportunities for IDPs**. Economic instability in these camps is aggravated by the effects of climate change, which disrupts local economies and impacts livelihood opportunities.

In theory, lack of livelihoods opportunities can be as a driver for onward movement. However, an outsized focus on returns, coupled with the legal dispute FPAs find themselves in, means IDPs in informal settlements are left with few options. Concerningly, according to previous [research](#) by the Protection Consortium of Iraq (PCI), 85% of respondents have no intention to move from their area of displacement in the next 12 months. **Only 6% of respondents are looking to move within the next three months; 5% over the next six months; and 4% over the next year.**

Overlaying climate considerations on to return intentions provides interesting insights on the decision making of IDPs. NRC data finds **decisions about return are closely tied to climate patterns. For 80% of displaced Iraqis, the ability to farm is a key factor in deciding whether to return home. Further, 93% of households base their choices—whether to stay, move, or return—on available information about resources in their areas of origin.**

What works: IDPs in Duhok

Circumstances in which IDPs live are not the same across Iraq. In Federal Iraq, internally displaced families live in informal settlements while, in the Kurdistan Region, approximately 140,000 IDPs are housed in formal encampments. IDPs who live in Duhok report knowing more about conditions at home, fewer indications of community tension over resources, and limited interference in resource allocation. While **74% of water points are shared between host communities and IDPs, 96% of IDPs in Duhok do not report any discrimination while accessing water. Additionally, 85% of households report having access to clean water, compared to 62% in Anbar.**



Livelihoods programming in Duhok with IDPs, host communities and Syrian refugees. Photo: NRC

Gaps in support: informal sites

Water and arable land remain central to IDPs' decision-making and it is increasingly clear that IDPs are being forced to stay in informal sites because alternate solutions are not available or realistic—partly because of an inadequate mitigation of the impacts of climate change.

“Where should we go?” Osman told NRC. “The land my ancestors farmed for generations in barren, and those who have returned home tell us every day is a struggle. **Life is tough here, but the reality at home is tougher.**” Osman is from Ninewa, where **40% of respondents** report heightened tensions resulting from water sharing, and **70% are aware** of local authorities directing water to certain communities over others. Previously, NRC has warned the Ninewa Plains show signs of an emerging hotspot, with interlinkages between climate, peace and security exacerbating community trust and movement intentions. In 2023, **1 in 5 respondents** in Ba’aj linked climate change to increased social tensions, and **1 in 4 small scale farmers** in Sinjar and Ba’aj reported being forced to give up farming due to resource shortages. This year, the evidence indicates these undercurrents are gaining strength.

Recommendations

The Government of Iraq

- **Strengthen water resource management and agricultural infrastructure:** Prioritise improved management of water resources, with expedited focus on climate-affected areas that are recovering from conflict. Subsidize switch to alternate irrigation systems like drop irrigation to reduce strain on dwindling water resources and rehabilitate agri-infrastructure affected by war.
- **Invest in climate-resilient agriculture, protect local markets:** Raise awareness around and investment in drought-resistant crops and innovative farming techniques to stabilise agricultural output during drought years.
- **Enhance climate and resource information systems:** Implement early warning systems and improve data collection on climate patterns to better inform farmers and displaced communities. Timely access to climate data can help mitigate risks of secondary displacement and improve decision-making.

Donors and International Financial Institutions

- **Support climate-resilient agriculture initiatives:** Provide funding for projects that target the rebuilding of agriculture in conflict-affected regions of Iraq, especially in governorates where large-scale returns have occurred.
- **Promote livelihood diversification:** Continue to encourage the development of diversified employment opportunities to reduce dependency on climate-sensitive sectors. This can involve supporting small businesses and improving access to vocational training for displaced and returning Iraqis.
- **Invest in community-led peacebuilding projects:** Climate change is aggravating social tensions over resources. Fund initiatives that promote collaboration between communities and displaced populations, aiming to reduce tensions over water access and land use.



Photo:Fareed Baram/NRC



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