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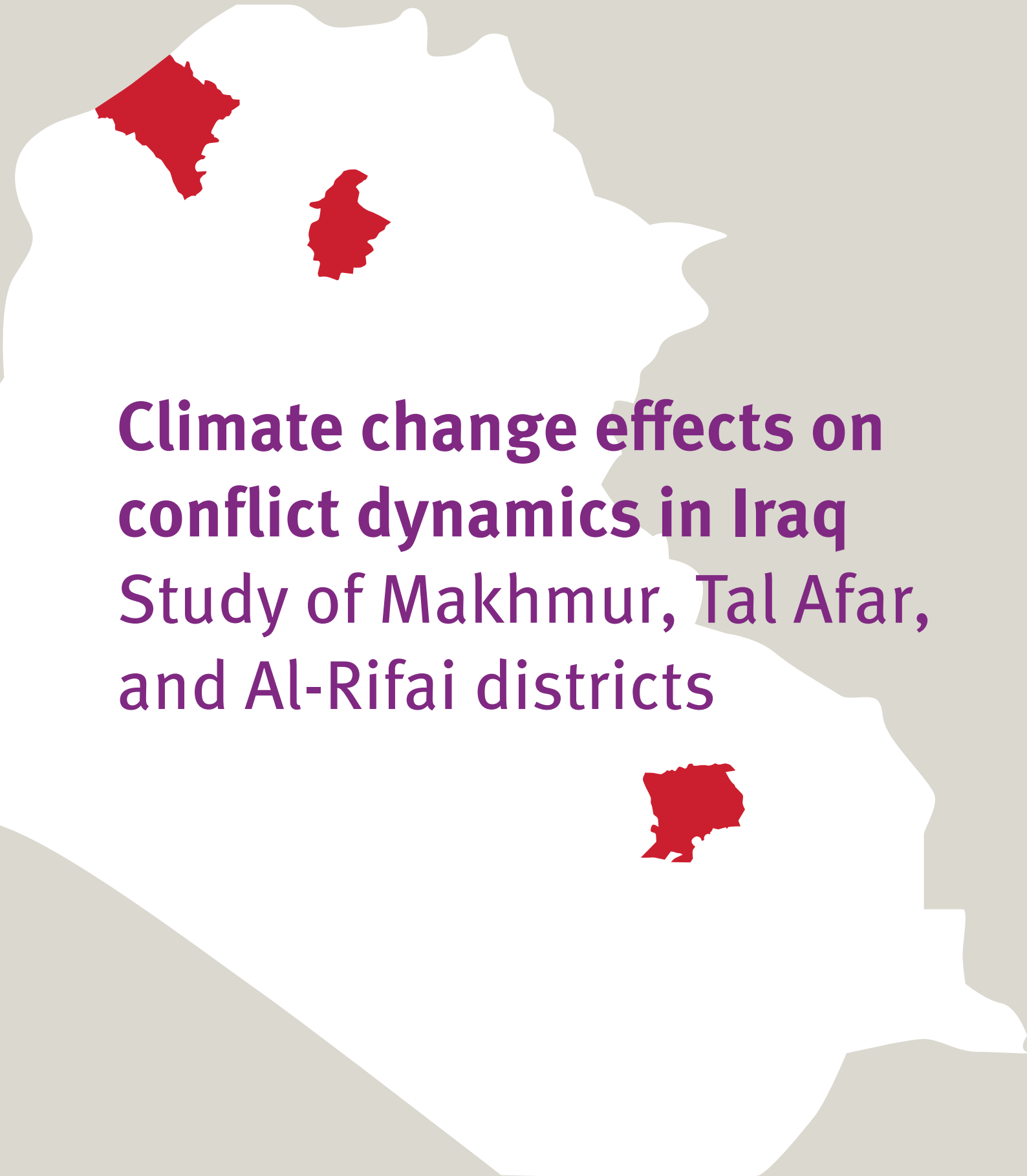

Climate change effects on conflict dynamics in Iraq

Study of Makhmur, Tal Afar, and Al-Rifai districts

About this paper
This report has been produced within the framework of the project "Enhancing understanding and supporting local level dialogue to address climate security risks in Iraq" which has been implemented by the Berghof Foundation and Peace Paradigms Organisation (PPO) with support from the Robert Bosch Stiftung GmbH.

Robert Bosch Stiftung

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Executive summary

The negative effects of climate change and the security risks associated with it are beginning to register across Iraq. Over the past decade, the rise in extreme weather events, such as high temperatures, droughts, desertification, flooding, and sand and dust storms, has caused various severe consequences, including water scarcity, loss of economic livelihoods (particularly for those relying on the agricultural sector), climate-induced displacement and migration, and a rise in food insecurity. The country's vulnerability to these impacts has risen due to capacity constraints and a lack of structures and mechanisms that can effectively respond to and mitigate the effects of climate change. The challenges Iraq is currently facing, including those associated with the recent conflict with ISIS, political exclusion, and poor governance, have only been exacerbated by the effects of climate change.

This study seeks to delve deeper into the issue of climate change and its links to and effects on conflict dynamics throughout the country. Specifically, it focuses on climate pathways – or the ways in which climate change is contributing to conflict and insecurity – in Makhmur, Al-Rifai and Tal Afar.[1] These pathways, established by adelphi,[2] can help policymakers, government actors, national civil society organisations, peacebuilders, and international organisations and donors better understand the climate-security nexus based on concrete examples at the local level, illustrating how various factors interact.

The following climate pathways are used in this study as an analytical lens to explore how climate change impacts on conflict dynamics in the districts of Makhmur, Al-Rifai and Tal Afar.

- *Natural resources*. Climate change impacts such as changes in temperature and precipitation can alter access to and availability of natural resources such as land and water. This can increase competition and tensions between groups or communities. Increased competition over natural resources can lead to an escalation of violence or conflict.

- *Livelihood insecurity*. Floods, storms, or forest fires or slow onset hazards such as drought or less precipitation have adverse impacts on people's livelihoods. This can result in displacement and migration. Combined with high unemployment rates, state fragility, and low capacities of cities to host newcomers, among other factors, people are often left with little choice but to turn to illicit economies. This can also create competitive tensions between residents and newly displaced migrants.

- *Food insecurity*. Climate change has an impact on livelihoods, such as agriculture, contributing to volatile food prices and supply which can act as a catalyst for protest and political instability. This can lead to social unrest and subsequent state violence against citizens.

1 Among the criteria for selecting the districts are the identification of climate security pathways that provide an entry point for engagement which could be supported by the stakeholders in the respective district and the ability to establish a safe environment for the participants and facilitators in the dialogue. Moreover, balancing the overall demographic composition and representation of various political stakeholders and integrating different drivers for the intersection of climate risks and conflict dynamics are key criteria. This allows for a balanced approach that strengthens the understanding of the climate security nexus from different perspectives and also generates different entry points.

2 For more on adelphi and its approach, see https://adelphi.de/en and Rüttinger et al: A New Climate for Peace, 2015.

- *Weak governance*. Research has shown that climate-related security risks are particularly significant where governance mechanisms are weak or failing. Actual climate effects and events and their impacts on society, human security, and systems depend on many factors which influence the vulnerability of affected people, economies, and political systems. Low adaptive capacities to respond to climate change impacts and weak or absent conflict resolution mechanisms contribute to exacerbating conflict dynamics.

- *Natural disasters*. When combined with inadequate governmental response and perceived exclusion, extreme weather events and disasters such as floods, wildfires or earthquakes can contribute to grievances and political instability. Climate hazards can provoke actions that undermine authorities, erode state capacities, or challenge state control which can lead to social unrest, government crackdowns, and state violence against citizens.

- *Unintended policy consequences*. When climate change policies fail, or central authorities or the international community put policies in place that are not conflict-sensitive, climate factors can contribute to the onset of violence or social unrest. If climate change policies are poorly designed and/or combined with top-down decision making, they can trigger marginalisation of communities or lead to an aggravation of existing grievances in vulnerable communities.

- *No causal link:* The specific causal mechanisms linking climate change to insecurity and (violent) conflict are still to be explored. While there is no simple causal link between climate change and conflict, it is widely thought that climate change acts as a threat or risk that exacerbates existing conflict dynamics.

Overall, the study found that various pathways are present to some degree in the districts, with natural resources, livelihood insecurity, food insecurity, and weak governance the most prominent pathways (see Table 1 below). This study should be considered in tandem with a similar study conducted by the Berghof Foundation and Peace Paradigms Organisation (PPO) which focused on understanding climate pathways in nine further districts. The findings from the districts covered in this report relate very closely to the nine covered in the other report, which include Afak, Baiji, Chamchamal, Eastern Hamza, Hawija, Kalar, Kifri, Shatt Al-Arab and Al-Zubair. As such, the findings here should be seen as confirming, enriching, and expanding upon those produced by the other study.[3]

3 It is anticipated that the report will be published at the end of 2023.

Pathways	Districts		
	Makhmur	Al-Rifai	Tal Afar
Natural resources	x	x	x
Livelihood insecurity	x	x	x
Food insecurity	x	x	
Weak governance	x	x	x
Natural disasters			
Unintended policy consequences			

Table 1: Climate pathways in Makhmur, Al-Rifai and Tal Afar

Key recommendations

- ***Strengthen inclusive processes***
  Facilitate inclusive problem-solving dialogue processes that connect key local leaders with the necessary provincial and national actors and which help inform or adapt the national strategies being developed at district level.

- ***Factor budget into climate plans***
  Advocate for adequate budget allocations from the federal and KRG governments that have a minimum requirement of reflecting the climate response plan's most pressing aspects.

- ***Enhance key stakeholder's capacities***
  Enhance the capacity of governmental actors around the management of natural resources and climate-resilience policy response, something that should be done alongside efforts to tackle administrative corruption.

- ***Strengthen synergistic cooperation***
  Enhance coordination and exchange among the different actors who are aiming to address climate security issues in Iraq to avoid duplication and overlapping at the programming level.

- ***Promote effective governance***
  Support mediation efforts to resolve governance bottlenecks caused by the disputed territories issue which are preventing solutions and actions that can help alleviate the effects of the climate crisis.

- ***Strengthen mediation efforts***
  Support and advocate for GoI mediation with Iran and Turkey given that Iraq is a downstream recipient of water.

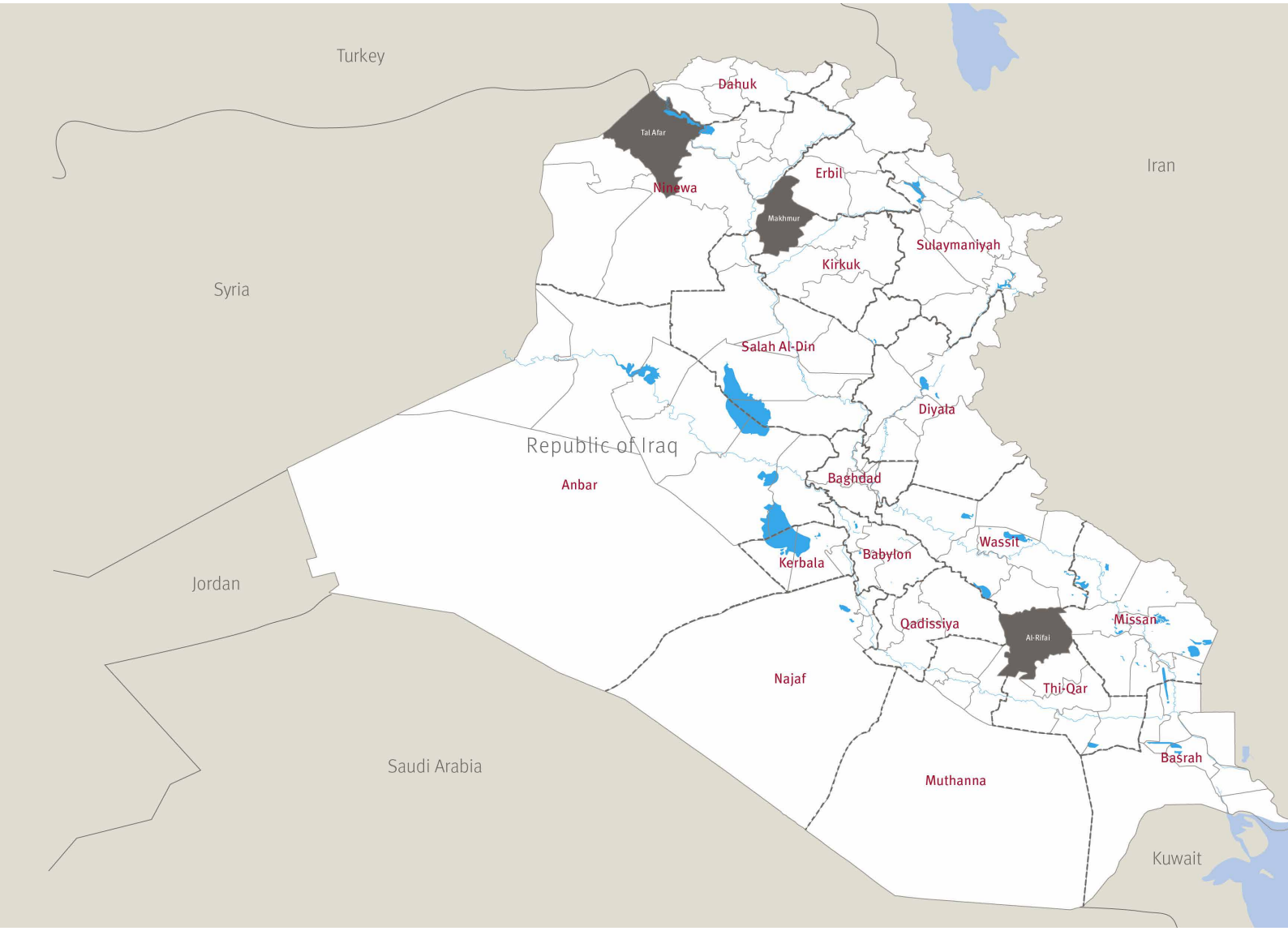
- ***Foster comprehensive research***
  Support additional research to generate data, explore further interconnected areas such as the interplay between climate, conflict, and gender, and supplement the existing analytical approach with further methodologies to ensure a holistic understanding of the subject.

Methodology

The Berghof Foundation and Peace Paradigms Organisation (PPO) have conducted a study within the framework of the project “Enhancing understanding and supporting local level dialogue to address climate security risks in Iraq”. This project aims to provide a better understanding of the impact of climate change on existing conflict dynamics as well as to identify entry points for the initiation of consultations, exchange, and dialogue.

The study was conducted in three districts:

- Makhmur, located in Erbil governorate
- Tal Afar, located in Nineveh governorate
- Al-Rifai, located in Dhi Qar governorate



The methodology used for this study relies on collecting qualitative data through semi-structured In-Depth Interviews (IDIs) and Focus Group Discussions (FGDs). In total, 20 IDIs were conducted. They targeted heads of districts and sub-districts, heads of directorates responsible for agriculture, environment, and desertification, security actors, tribal leaders, mukhtars, activists, and school cohorts. These positions are mainly occupied by men. With women being significantly less represented in influential political positions in Iraq, few women were interviewed in the IDIs. However, the FGDs represented a better opportunity for engaging women. Ten FDG sessions were held, attended by a total of 124 participants, including 39 women and 85 men. While there were instances where it was not feasible to include women in mixed settings or engage them for interviews, the support of the local communities in Al-Rifai facilitated a high participation rate among women. Moreover, Al-Rifai remains relatively isolated from the presence of the international and civil society communities. As a result, the interview sessions provided an opportunity for both the community as a whole and women in particular to express their challenges and concerns. In general, many different actors, including farmers, university professors, government officials, private sector employees, journalists, civil activists, and doctors were brought together. The breakdown of participants per district can be found in the table below:

Topics explored in the interviews and focus group discussions included existing conflict dynamics and trends as well as climate change effects witnessed in the district, their consequences, and the coping mechanisms and responses from communities and authorities.

The study is split into three sections. The first provides an overview of conflict dynamics and climate change trends in Iraq. The second delves into the cross-cutting and district findings that emerged. On the district findings, the three districts are profiled individually and recommendations provided for each. Note that the district findings presented are abridged versions taken from more in-depth district reports. The study concludes by offering several general recommendations aimed at the international community and government actors that can help mitigate some of the challenges and tensions associated with the effects of climate change.

Location	# of IDIs	# of FGDs	# of FGDs' participants
Makhmur	10	3	34 (inc. 15 women and 19 men)
Tal Afar	5	3	35 (inc. 4 women and 31 men)
Al-Rifai	5	4	55 (inc. 20 women and 35 men)

Climate change and conflict in Iraq

The effects of climate change in Iraq have become more and more evident. Drought, extreme temperatures, floods, desertification, and dust storms have become a regular feature of daily life across the country. The World Bank notes that that over the last thirty years, 15 different types of disasters linked to climate change have occurred, resulting death, the loss of property, and displacement of communities, with the 2018 flash floods one of the most severe in recent years, affecting nearly 300,000 people across five governorates.[4] The effects have become so pronounced that the United Nations has categorised Iraq as one of the top five countries in the world most susceptible to the effects of climate change.[5] In a recent speech, the Iraqi Prime Minister, Mohammed al-Sudani, acknowledged the severe impact the climate crisis is having on the country, stating that, "more than seven million citizens have been affected in Iraq [by the effects of climate change] and hundreds of thousands have been displaced because they lost their livelihoods that rely on agriculture."[6]

Indeed, the agricultural sector, the second largest sector of employment in the country, has been severely impacted by the changing climate. Lands that were once fertile have become more arid due to drought and desertification. The drought has been particularly harsh on the two main sources of irrigation: Rainfall, which 36% of all farming lands depends on for irrigation; and the country's two main rivers, the Euphrates and the Tigris, which 64% of cultivated lands rely on.[7] With less water available for irrigation, crop yields have been stunted, leading to a loss of income for those dependent on the sector for an economic livelihood. One estimate put the impact on wheat production, a key cash crop for farmers in Nineveh province, to be a loss of nearly 70% due to the ongoing drought.[8] Beyond crop production, raising livestock, the other major activity in the agricultural sector, has also been negatively impacted, with 40% of households raising livestock having lost animals due to the climate crisis.[9]

In sectors other than agriculture, the effects of climate change can be seen most immediately on water availability in general. Without sufficient rainfall, which helped fill underground wells and refill private and public water storage tanks and reservoirs, more and more people have turned to the country's river network to fulfil their water needs. Yet the flow and levels of this network is shrinking due to drought, poor water management policies by Iraqi authorities, and the building of dams in Iran and Turkey, where Iraq's rivers have their sources.[10] These factors have seen the river network's water flow decrease by 30% since 1980

4 World Bank: Country, Climate, Development Report: Iraq. 2022.

5 UN Iraq: Factsheet. The Impact of Climate Change on the Environment in IDP and Returnee Locations - Integrated Location Assessment VII, October 10, 2022. Link: https://iraq.un.org/en/202663-factsheet-impact-climate-change-environment-idp-and-returnee-locations-integrated-location; and UNEP: GEO 6, March 04, 2019. Link: https://www.unep.org/resources/global-environment-outlook-6.

6 AP: Iraqi PM promises action to tackle crippling climate change, March 12, 2023. Link: https://apnews.com/article/iraq-basra-climate-change-a110e41a9f1c70b61ab5fa363992a624#:~:text=BAGHDAD%20(AP)%20%E2%80%94%20Iraq's%20prime,electricity%20demands%20using%20renewable%20energy.

7 Von Lossow, Tobias: More than Infrastructures: Water Challenges in Iraq. Clingendael Policy Brief. Clingendael Institute, 2018.

8 NRC: Water crisis and drought threaten more than 12 million in Syria and Iraq. August 2021. Link: https://www.nrc.no/news/2021/august/water-crisis-iraq-syria.

9 NRC: One in two families in drought-affected Iraq need food assistance. December 2021. Link: https://www.nrc.no/news/2021/december/one-in-two-families-in-drought-affected-iraq-need-food-assistance.

10 Hall, Natasha and Harper, Caleb: Local to Global: Tensions Course through Iraq's Waterways. In: CSIS. May 12, 2023. Link: https://www.csis.org/analysis/local-global-tensions-course-through-iraqs-waterways.

and has caused a gap between water supply and demand of some 5 billion cubic metres, something that is expected to rise to 11 billion cubic metres by 2035.[11] In addition to scarcity challenges, water quality is also being acutely impacted. Water salinity and pollution have decreased the amount of potable water, something that puts the health of citizens at risk but also further undermines the agricultural sector and its ability to irrigate crops. These water issues have had facvorknock-on effects on food security and livelihoods. Crop production, as mentioned, has decreased, meaning both a loss of income for those dependent on the agricultural sector and higher prices in general for key crops, meat, and poultry across the country.[12]

It is therefore no surprise that tensions and conflict have increased due to the effects of drought and desertification. Such tensions and conflict include those among farmers and with government authorities over the issues of water access and rationing; between provincial authorities and communities over water management, with downstream authorities and communities accusing upstream authorities of either turning a blind eye to water use restrictions or tacitly accepting illegal water access and riverway diversion due to political pressures and considerations;[13] between landowners and livestock owners over illegal grazing practices; and between the farmers, herders, and livestock owners forced to migrate into urban areas in search of new employment opportunities and existing residents over competition for jobs, public services, and scarce resources.[14]

The impact of climate change on the country is only expected to worsen in the future. Recent studies have found that temperatures are expected to rise between 1.5 and 2.4 °C by 2030 and by 1.9 to 3.2 °C by 2050, with the rising temperatures leading to more heat-related fatalities across the country and an increase in sand and dust storms.[15] Additionally, per capita water availability is expected to severely decrease in the coming years. With rain runoff to southern provinces decreasing by 22%,[16] drought conditions are also expected to continue and increase and sea levels are projected to rise, threatening key areas of Basra province by 2050.[17]

11 Adelphi: Climate Risk Profile Iraq, 2022. Link: https://adelphi.de/en/publications/climate-risk-profile-iraq; World Bank: Country, Climate, Development Report: Iraq, 2022.

12 NRC: One in two families in drought-affected Iraq need food assistance. December 2021. Link: https://www.nrc.no/news/2021/december/one-in-two-families-in-drought-affected-iraq-need-food-assistance.

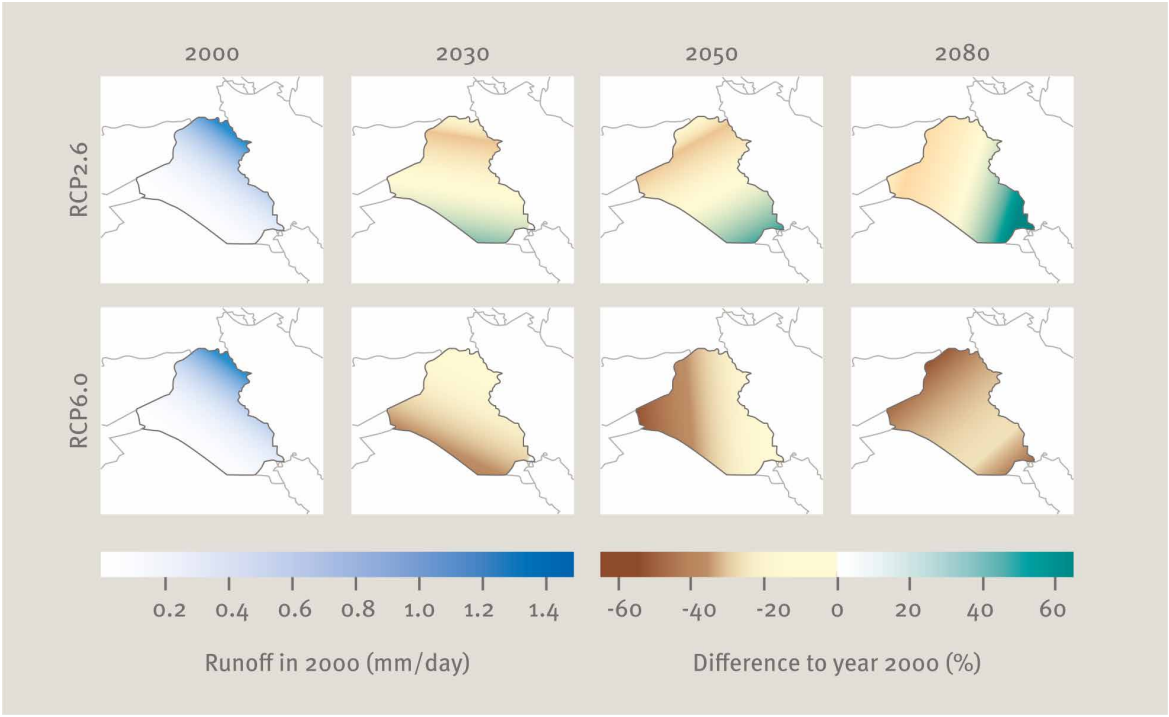
13 Skelton, Mac: Competing Over the Tigris: The Politics of Water Governance in Iraq. IRIS, 2018. Adelphi: Climate Risk Profile Iraq, 2022. Link: https://adelphi.de/en/publications/climate-risk-profile-iraq.

14 IOM: Migration, Environment and Climate Change in Iraq, 2022. Link: https://environmentalmigration.iom.int/sites/g/files/tmzbdl1411/files/documents/Migration%2C%20Environment%20and%20Climate%20Change%20in%20Iraq.pdf.

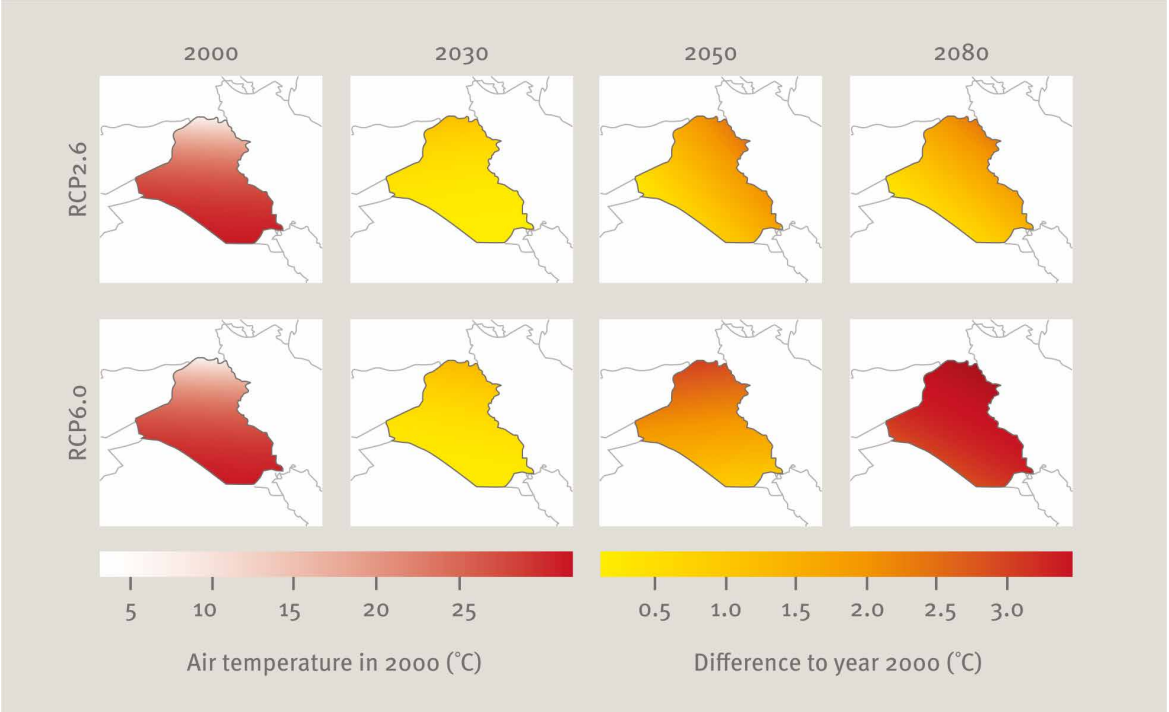
15 Adelphi: Climate Risk Profile Iraq, 2022. Link: https://adelphi.de/en/publications/climate-risk-profile-iraq.

16 World Bank: Iraq dashboard: Climate Future. Link: https://climateknowledgeportal.worldbank.org/country/iraq.

17 Adelphi: Climate Risk Profile Iraq, 2022. Link: https://adelphi.de/en/publications/climate-risk-profile-iraq.



1 Annual mean precipitation projections for Iraq for different GHG emissions scenarios, relative to the year 2000 (regional variations).[18]



2 Air temperature projections for Iraq for different GHG emissions scenarios (regional variations).[19]

18 Adelphi: Climate Risk Profile Iraq, 2022. Link: https://adelphi.de/en/publications/climate-risk-profile-iraq. The maps and plots included in this section provide an overview of projected climate change parametres and related sector-specific impacts in Iraq until 2080 under two different climate change scenarios (RCPs): RCP2.6 represents a low emissions scenario that aims to keep global warming below 2 °C above pre-industrial temperatures, and RCP6.0 represents a medium to high emissions scenario.

19 Adelphi: Climate Risk Profile Iraq, 2022. Link: https://adelphi.de/en/publications/climate-risk-profile-iraq.

Governmental response

The Iraqi government's response to climate change has been mixed. On the one hand, the government has produced or is in the process of producing key strategies that aim to mitigate the impact of the effects of climate change on various sectors. These have included a national decarbonisation plan aimed at decarbonising the country's economy which is heavily reliant on the oil and gas sector. The government also developed a strategy on water resources and land management, aptly called the Strategy for Land and Water Resources of Iraq, which attempts, among other things, to restore and reconstitute the country's irrigation infrastructure and incentivise better water and land management and use practices. Furthermore, governmental responses include the yet-to-be released National Adaptation Plan (NAP), which is being developed in cooperation with the United Nations Environment Programme, and focuses on enhancing the capacity of government actors to respond to climate change risks, identifying areas to prioritise in terms of resource mobilisation, and increasing all relevant stakeholders' awareness of the strategy.[20]

Two key institutions were also created through the NAP to help tackle the climate crisis: The Permanent National Committee on Climate Change and the National Climate Change Centre. The NAP is being complemented by the development of a more operationally focused strategy, called the Green Paper. This strategy is currently being worked on by a special committee established by the government and aims to identify, assess, and implement actions and projects that can alleviate the impact of climate change and help transition the country to net-zero emissions.[21] Though not finalised, parts of this strategy have been highlighted in recent public speeches by government actors, such as a massive reforestation initiative that seeks to plant five million trees across the country.[22]

Key ministries have also tried to allay the negative effects climate change is having on water and agriculture. The Ministry of Water Resources, which is responsible for water management in the country, has also moved forward with a series of actions meant to help mitigate water scarcity caused by climate change. First, it supported the digging of over 500 wells across the country to be used for irrigation of farmlands and access to potable water for families.[23] At the same time, the Ministry has tried to combat illegal drilling of wells, something that has depleted ground water levels, created tensions among and between communities, and led to general environmental degradation.[24] The Ministry has also put in place new limits and restrictions on river water flows in an attempt to halt over-usage. Lastly, the Ministry has, among other things, moved forward with a project supported by the Food and Agriculture Organization of the UN (FAO) that aims to increase the capacity of the ministry and sub-national authorities to monitor and improve water and land productivity in agriculture.[25]

The Ministry of Agriculture has also attempted to enforce restrictions on water usage by farmers,

20 For more on the NAP, see Green Climate Fund: Adaptation Planning Support for Iraq through UNEP, 2019. Link: https://www.greenclimate.fund/document/adaptation-planning-support-iraq-through-unep.

21 The National News: Iraq lays out plans to tackle climate change and address water supply problems, March 07, 2022. Link: https://www.thenationalnews.com/mena/iraq/2022/03/07/iraq-lays-out-plans-to-tackle-climate-change-and-address-water-supply-problems/.

22 AP: Iraqi PM promises action to tackle crippling climate change, March 12, 2023. Link: https://apnews.com/article/iraq-basra-climate-change-a110e41a9f1c70b61ab5fa363992a624#:~:text=BAGHDAD%20(AP)%20%E2%80%94%20Iraq's%20prime,electricity%20demands%20using%20renewable%20energy.

23 Kurdistan 24: Iraq digs 500 wells to combat water scarcity, July 18, 2022. Link: https://www.kurdistan24.net/en/story/28967-Iraq-digs-500-wells-to-combat-water-scarcity.

24 France 24: For water-stressed Iraq, wells threaten race to the bottom October 30, 2022. Link: https://www.france24.com/en/live-news/20221030-for-water-stressed-iraq-wells-threaten-race-to-the-bottom.

25 UN Iraq: New agreement between ministry of water resources and FAO introduces innovative tools to monitor water productivity in Iraq, August 11, 2022. Link: https://iraq.un.org/en/194385-new-agreement-between-ministry-water-resources-and-fao-introduces-innovative-tools-monitor.

which falls within its remit, and had also reduced the areas cultivated each year in 2022 by half due to water scarcity.[26] It has also encouraged farmers to adopt modern irrigation practices to limit water wastage, an effort that has had varying degrees of success due to the fact that many areas do not have access to irrigation infrastructures which are not fed by rain as well as the high costs associated with implementing new irrigation techniques.

On the other hand, however, these efforts have been undermined by financial constraints, weak institutions, and ineffective governance practices caused by years of conflict, administrative corruption, poor planning and budgeting processes, and gaps in governance know-how.[27] They have also been weakened by federal/provincial authority disputes and tensions.
For example, the water usage directives issued by the Ministry of Water Resources have been ignored by some governors and other sub-national authorities who do not wish to adhere to the new ceilings imposed by the ministry.

Despite the many challenges facing Iraq, the government of Prime Minister Mohammed al-Sudani has made tackling the effects of climate change a key policy priority. This was evidenced by a recent two-day conference on the issue in Basra, which was held on March 11-12, 2023. At the conference, the government announced plans to invest in renewable energy, modernise irrigation techniques, and reduce carbon emissions. The government also plans to hold a regional conference aimed at engendering regional cooperation on climate change.

Pathway district findings

Cross-cutting

The three districts covered in the report are largely experiencing the same climate pathways, all of which are interrelated. Natural resources, livelihood insecurity, and weak governance pathways are all present to varying degrees in Makhmur, Al-Rifai and Tal Afar districts. These pathways and their dynamics in each of the districts are interrelated. Agricultural land, including that used for livestock grazing, has become less fertile and less productive due to the drought and water scarcity has increased in all three districts. This has increased tensions as competition, generating conflict over water and, to a lesser extent, land (natural resources). Without sufficient resources to help sustain a productive agricultural sector, those dependent on the agriculture for their livelihoods in Makhmur, Al-Rifai and Tal Afar have abandoned their professions and sought new economic opportunities elsewhere, mainly in urban areas (livelihoods). As a result, tensions between the new economic migrants and existing residents have appeared over jobs and resources and some individuals, mainly in Al-Rifai, are reported to have sought meet their financial needs illegally through drug trafficking. The lack of agricultural production, combined with other intervening variables, such as the currency's devaluation, has also made some key food staples and other commodities unaffordable for many living in these districts (livelihoods and food insecurity).

Natural resources, livelihoods and food insecurity pathways and dynamics have been exacerbated by

26 Skelton, Mac: Competing Over the Tigris: The Politics of Water Governance in Iraq. IRIS, 2018; and: NRC: Water crisis and drought threaten more than 12 million in Syria and Iraq. August 2021. Link: https://www.nrc.no/news/2021/august/water-crisis-iraq-syria.

27 For more information on these constraints, see World Bank Country: Climate, Development Report: Iraq. 2022.

capacity and resource constraints among national and sub-national government authorities (weak governance) who have largely been unable to effectively address the consequences of climate change. In turn, public trust towards governing institutions has fallen and tensions have appeared between communities and government authorities, furthering the gap between the two (weak governance). These dynamics and outcomes are exacerbated in Tal Afar and Makhmur districts due to the fact that these areas are territories contested between the Federal Government and the Kurdistan Regional Government (fully in the case of Makhmur, and partially in the Tal Afar sub-district of Zummar). Dual and unclear governmental arrangements therefore exist, something that not only produces confusion and frustration among residents but also yields ineffective governance outcomes. At the same time, the effects of climate change through the pathways described above have compounded the challenges and further strained already weak governance institutions in all three districts. Furthermore, they intensified competition and mutual blame dynamics among authorities at different levels, including districts, governorates and the national level.

Existing drivers of tension and conflict have been amplified and a new set of immediate drivers have appeared due to the effects of climate change. In all three districts, existing drivers of tension and conflict such as unequal access to services, political marginalisation and neglect, and weak governance have been exacerbated by climate change. For instance, in Al-Rifai district, the climate crisis has intensified pre-existing disparities in water provision, further fuelling longstanding grievances regarding public service delivery. This has led to both old and new sources of tension emerging, including conflicts over water, land, and economic livelihoods. Similarly, in Makhmur, farmers are experiencing increased competition for limited resources due to drought, resulting in tensions between them and government authorities. In Tal Afar, drought has led to disputes among herders over scarce grazing lands, causing intercommunal violence.

These examples highlight the importance of collaboration and cooperation among various stakeholders to effectively address these challenges. Local authorities must work together with farmers, tribes, and other community members to establish fair and sustainable resource management and sharing systems. By doing so, they can ensure that the needs of all individuals and groups are met, reducing the likelihood of conflict and promoting social cohesion. It is essential to acknowledge the value of collective action in addressing the complex issues arising from climate change.

Several key actors in the districts have been identified as vital to allaying tensions caused and exacerbated by climate change. These include tribal and religious leaders, governmental authorities – local, provincial and national – security actors, international organisations and national non-governmental organisations, and local peace mechanisms in the form of a tribal council (Makhmur), district working groups (Tal Afar and Makhmur), and a local peace committee (Zummar). However, a cross-cutting impediment has also been identified in the districts under discussion. Though some key actors are praised for their efforts, there is a sense that governmental authorities and decision-making processes in general are ineffective due to restricted resources and capacities.

Climate risk factors exacerbate existing power asymmetries and affect women in particular. The impacts of climate change in Iraq are likely to disproportionally affect women and other vulnerable populations. Oftentimes, women are responsible for securing household resources, including food and water, and are therefore more likely to be affected by price increases and food insecurity. For example, in Al-Rifai district, women reported increased prices for essential commodities such as food and materials. Additionally, women face security risks due to the absence of adequate security provisions and protective measures, particularly in areas where climate-induced migration and displacement have occurred. Furthermore, due to social norms and traditions women are less likely to have access to information and resources related to climate resilience

and adaptation efforts, limiting their efforts to secure alternative livelihoods and their ability to participate fully in decision-making processes. However, there are also examples of women actively engaging in finding solutions to promote conflict-sensitive climate resilience and dialogue-based solutions to negative climate change impacts. For instance, in some communities, women have taken on leadership roles in organising and implementing climate resilience projects, such as rainwater harvesting and soil conservation initiatives. These efforts not only improve the lives of women and their families but also contribute to building more peaceful and inclusive communities.

These findings are explored in more detail in the following sections of this report.

District findings

Makhmur district

District background

Makhmur District lies approximately 70 km southwest of Erbil city in the Erbil governorate and is surrounded by two other governorates, Nineveh and Kirkuk. It comprises five subdistricts, Makhmur centre, Dibaga, Gwer, Mala Qara and Qaraj. The population of the district is close to 200,000, the majority of whom are from the Kurdish community. Sunni Arab residents comprise a small proportion of the district and are largely concentrated in the southern sub-district of Qaraj. Tribal identity is a salient feature of social dynamics. The major Arab tribes, most of whom reside in Qaraj, include the Jabour, Lahib, al-Tay, al-Hamdani, Sada Naim, and Sabawi. Kurdish tribes include the Bandian, Lak, Surija, Omrbel, Baglan and Dzai. The district's economy is dominated by agriculture, characterised by the cultivation of wheat and barley, and livestock herding, especially the rearing of sheep, poultry, and cattle. The district primarily relies on rainfall for agricultural irrigation and private consumption (via wells). Makhmur also has two main oil fields, Avana and Bai Hassan, both of which border Kirkuk province.

Given its mixed population, strategic location at the dividing line between federal Iraq and the Kurdistan Region, and oil reserves, the control of the district is officially disputed between the Government of Iraq (GoI) and the Kurdistan Regional Government (KRG). As with the other disputed territories, the future of the district is still to be resolved, leaving the district divided between GoI and KRG controlled areas, with the southern and western parts of the district in direct control of the GoI (i.e., all of Qaraj and most of Makhmur Center) and the northern half under the auspices of the KRG (i.e., most of Gwer, Dibaga, and Mala Qara).

Conflict dynamics

The conflict dynamics within the district have been significantly influenced by its contested status. During the era of the former Baathist regime, specific policies were implemented to alter the demographic composition of the district, resulting in the displacement of communities residing in Qaraj, Gwer, Dibga, and Makhmur centre. Subsequent to the regime's downfall in 2003, the households that had been relocated due to the prior enforced policies departed, allowing the original inhabitants of these aforementioned communities to return and assert their property rights.

In the period following 2003, the district gradually fell under the jurisdiction of the Kurdistan Regional Government (KRG), with particular emphasis on the Kurdistan Democratic Party (KDP). The KRG's authority gained traction during the campaign against ISIS, although this ascendancy was transitory. After the KRG's pursuit of independence in 2017, substantial portions of the district were brought back under the control of the Iraqi army. At present, the district remains partitioned between the two administrations. Ongoing conflicts have triggered population displacements, exemplified by Kurdish families from Qaraj relocating to regions

administered by the KRG.[28]

Most interviewees report a strong social cohesion, with previous tensions between Arabs and Kurds only existing between the Kurdish community and the transplanted Arabs, the majority of whom left the district.[29] What tensions do exist between the two communities is largely blamed on government actors as they are seen as fomenting ethno-religious divisions to further their respective claims to the district.[30] Residents also report that some land dispute issues remain from the Arabisation period with tensions remaining between farmers and certain security actors due to the latter's actions that impede the transport of crops to GoI controlled areas.[31] This means that farmers are unable to sell their goods in key markets, such as Mosul. Security actors have also raised tensions with famers by not allowing them to grow maize, which they reportedly state can be used by the remnants of ISIS to hide in.[32] Some Arab residents also complain that they are unfairly treated by some administrative actors tied to the KRG.[33]

Residents also complain about the state of public services in the district, which are provided in both GoI and KRG areas only intermittently and are made worse by the dual administrative presence in the district. Indeed, the presence of dual administrations is seen as a key grievance for communities as it creates unnecessary governance challenges. These include lack of coordination resulting in conflicting priorities and inefficient use of resources, fragmented decision-making and delays in taking informed action, political polarisation leading to ineffective governance as well as lack of transparency and accountability leading to eroded trust, among others. Members of the Kurdish community also fear that land appropriation will once again be used as a political tool in the future, given the lack of clarity over the future jurisdiction of the district.[34] The threat of Turkish airstrikes are also a cause of concern as members of the Kurdistan Workers' Party (PKK) are known to reside in a nearby mountain range.[35] The effects of climate change are also creating new tensions, which are explored in more detail in the Climate Pathways section.

Climate change implications on Makhmur

Residents note that effects of climate change began to appear most conspicuously in 2019 as high temperatures, drought, and desertification took hold in the district.[36] This in turn led to green spaces and pastures across the district shrinking and wildfires occurring more frequently in the summer months. Moreover, lower and unpredictable rainfall has led to water scarcity issues as it has sent the water table levels in underground wells tumbling. In the past wells would be established by drilling down 50 metres, but today a well has to be at least 150 metres deep to hit water.[37] The Zab River, which passes through the sub-district of Gwer, has also reportedly decreased to astonishing levels. In the past, it was between 9 and 5 metres deep but today it is possible to walk across the river.[38] Water quality has also been adulterated, with higher levels of sulfur being reported.[39] Such changes have inimically impacted the agricultural sector, one of the main economies in the district.

28 FGD, Kurdish Community, February 2023.
29 IDI, Administrative Actor, February 2023.
30 FGDs, Women and Kurdish Community, February 2023.
31 IDI, Civic Actor, February 2023; FGD, Kurdish Community, February 2023.
32 IDI, Administrative Actor, February 2023.
33 IDI, Administrative Actor, February 2023.
34 FGD, Kurdish Community, February 2023.
35 FGD, Kurdish Community, February 2023.
36 IDIs and FGDs, All, February 2023.
37 IDI, Tribal Actor, February 2023; FGD, Women, February 2023.
38 FGD, Women, February 2023.
39 IDI, Tribal Actor, February 2023.

This consequence and others are explored more in the following Climate Pathways section.

Climate pathways

Access to natural resources. Climate change has led to problems and tensions related to water access and grazing lands in the district. On the former, tensions among farmers and between farmers and governmental authorities are rising due to the inability to irrigate agricultural land. Though government actors have tried to help farmers overcome this challenge, the effects of climate change have prevented this assistance, as evidenced by a water project funded by GoI for the southern areas of the district. Here, 30 farmers were selected to receive continuous full irrigation of their farmlands through a new irrigation scheme utilising public wells. Yet because of the drought and the shortage of rainfall, not all farmers in the project have been able to access the water. As a result, tensions have emerged between those farmers with access and those without, with some well violations being reported.[40] This case shows, that conflict sensitivity aspects need to be considered to avoid unintended consequences through governmental responses that are not conflict-sensitive. In another case from KRG administrated areas, water scarcity led to one farmer sabotaging the irrigation network of another, claiming the network illegally encroached on his well.[41] One administrative actor noted that those areas closer to natural water ways, such as the Zab river, are better able to access water than other areas that rely primarily on underground wells, though this has been disputed by others in focus group discussions who say the river was depleted due to the shortage of rainfall.[42]

The amount of natural grazing land is also being reduced due to climate change. This has particularly impacted the areas of Kharberdan, Qudaylah, and the areas at the foot of Mount Qarachogh, which are key pastural areas.[43]

Livelihood and food insecurity. Climate change has had a negative impact on livelihood and food security in several ways as drought and desertification have decimated the agricultural sector, the main sector of employment in the district, and has impacted the financial security of those reliant on the sector. Specifically, harvests have become less productive, while at the same time, the costs associated with farming and animal husbandry have increased. Farmers have therefore had to invest savings into alternative irrigation practices that no longer rely just on rainfall, such as setting up expensive irrigation networks linked to underground wells. As one interviewee mentioned, "Drilling wells is expensive [in the district]. A permit or approval has to be obtained from the government and after that the costs of drilling can reach up to USD 40,000."[44] Yet even here, the return on investment is very poor as water well levels are shrinking and electricity provision, which is needed to activate the water well pumps, is reported to be intermittent at best.[45] Moreover, unusually high temperatures in the spring and summer months are an impediment to farmers tending to their land.[46]

For their part, livestock owners have had to purchase feed for their animals instead of utilising natural pastures, thus increasing their costs. All of this has in turn led to a decrease in income, causing many farmers and livestock owners to abandon their professions and migrate to other areas – Erbil, Kirkuk and Nineveh – in search of new job opportunities. The decline of traditional livelihoods has also contributed to tensions and

40 FGD, Arab Community, February 2023.

41 FGD, Kurdish Community, February 2023.

42 IDI, Administrative Actor, February 2023; FGD, Women, February 2023.

43 IDI, Tribal Actor, February 2023.

44 IDI, Administrative Actor, February 2023.

45 IDIs, Tribal and Administrative Actors, February 2023; FGDs, Arab and Kurdish Communities, February 2023.

46 FGD, Arab Community, February 2023.

conflicts between different ethnic and religious groups, further exacerbated by the competition for resources and the influence of different traditions.

Food prices have also reportedly increased, with wheat now selling at over 800,000 Iraqi dinar per ton, up from 500,000 in 2019.[47] The price of barley, flour, and other key staples has also reportedly increased.[48] The rise is attributed directly to climate change. Not only have harvests become less productive while demand has stayed the same, but the production costs have increased, leading to higher prices for consumers.

Weak governance. Governmental actors – both those aligned with the GoI and those with the KRG – are generally seen as ineffective and unable to tackle the challenges brought about and exacerbated by the effects of climate change. Public services, especially the provision of electricity and water, are below public expectations in both GoI and KRG administered areas. For example, water is reported as being available to households in Mala Qara sub-district only once every three days, meaning households and farmers have to dig their own private wells.[49]

The lack of electricity provision, a point of contention even without the effects of climate change, is especially problematic, given the lack of water, as farmers require electricity to power their water well pumps. Yet because electricity is not being provided at the rate that is required – one interviewee notes that it is only provided for one hour at 6 p.m. – tensions have emerged between farmers and governmental actors as the former are not able to irrigate their lands.[50] There have been no reports so far of tensions turning violent but the lack of services in general continues to drive a wedge between citizens and state institutions.

The complex regional governance structure contributes to uncertainty about responsible authorities for service provision. Distinct administrative boundaries and systems between the two different administrations lead to confusion and service overlap.
Additionally, allegations of corruption in both governments have eroded citizen trust and fostered feelings of exclusion.

Certain demographic groups, particularly minorities and remote residents, feel marginalised by both the GoI and KRG and accuse these administrations of neglecting necessities like electricity and water.

Addressing these concerns necessitates clear accountability for service provision, enhanced transparency, and responsibility. Efforts should also target the root causes of marginalisation and ensure equitable access to resources for all citizens. These measures could mitigate climate change impact and reduce tensions between citizens and governments in the region.

"We as farmers are facing immense challenges due to the limited electricity provision. We only receive one hour of electricity per day, which makes it impossible for us to irrigate our lands properly. This has resulted in significant crop failures and financial losses for us."

(Farmer in Makhmur, February 2023)

In general, governmental authorities, whether from GoI or the KRG, are not seen as having a concerted, citizen-informed strategy to help offset the negative impacts of climate change. Indeed, residents generally agree that clientelism and patronage benefiting a narrow support base is the mode of

47 IDIs, Administrative Actors, February 2023.

48 FGD, Women, February 2023.

49 IDI, Administrative Actors, February 2023.

50 IDI, Administrative Actor, February 2023; FGDs Women and Kurdish Community, February 2023.

governance within the district, something that only leads to exclusion and an increase in frustration among citizens. As one focus group member mentions, "government resources are shared on the basis of familial and tribal connections, and the excluded group is usually the one that has no connections to power."[51]

Mapping of key actors

The study has identified several key actors with a role to play in addressing social tensions and conflicts, including those driven or exacerbated by the implications of climate change in the district. This section identifies each of the key stakeholder groups, with a brief description of their background and roles. Note that the actors listed below do not constitute an exhaustive list of actors influential in the province or district but instead are those that have been specifically identified in relation to addressing social tensions related to the implications of climate change.

Tribal leaders. Tribal leaders have significant sway in the district. In March 2022, a tribal council, called the Makhmur Tribal Council, was formed to help leaders cooperate and coordinate problem-solving and conflict mediation efforts within the district, including issues related to dual administrations. Given the saliency of tribal dynamics, tribal authorities are regarded as having influence over farmers and public sector officials who share the same tribal affiliation.[52]

Administrative and security actors. The district mayor, sub-district mayors, and service directorates, especially those linked to water and agriculture, and security actors are identified as having a key role to play in allaying climate related tensions and challenges. There is a specific agricultural dispute committee active in the district that is linked to the agricultural service directorate. It is worth noting that the main political party in the district is the KDP and most of the key administrative actors are associated with the party. One administrative actor interviewed regarded administrative and tribal actors as having complementary roles, saying: "There are issues we deal with as local administrators and there are issues the tribal leaders deal with."[53] There is also an emergency disaster committee that is activated in the event of emergencies, comprising the district mayor, sub-district mayors, the head of the district's health directorate, and the police chief.[54]

According to interviewees and focus group members, security actors from GoI and the KRG are also seen as critical in resolving climate change related tensions. The creation and activation of a Joint Command Force/Council that coordinates security roles between the two sides has made this easier.

Al-Rifai district

Background

Al-Rifai district is one of nine districts that comprise Dhi Qar province. The district is home to a population of approximately 200,000, the majority of whom are from the Shia Arab community. Tribal dynamics are salient, with the Bani Rikab and al-Shuwaylat tribes the most prominent. The district's major town is the administrative centre, also called Rifai, which is surrounded by more rural villages. The district is intersected by the al-Gharraf river, which links the Tigris and Euphrates rivers and acts as a key water source for the district's residents. Economically, the district has relied on the public sector, oil (the Gharraf oil field lies within the district), agriculture, and small industries, though the latter two sectors are increasingly shrinking due to the effects of climate change and lack of investment.

51 FGD, Arab Community, February 2023.

52 IDI, Administrative Actor, February 2023.

53 IDI, Administrative Actor, February 2023.

54 IDI, Administrative Actor, February 2023.

Conflict dynamics

The conflict in Dhi Qar governorate, like much of Iraq, has been shaped by a complex array of factors, including political, economic, and social issues. The province has historically been a focal point for rivalries between different ethnic and religious groups, and the current conflict environment is no exception. In recent years, the province has seen mild tensions between some sub-tribes that are part of Bani Rikab and al-Shuwaylat tribes, who have competing interests and claims to the governance of the district, and resources, particularly water. This has led to clashes and skirmishes between the two groups, and has previously created an atmosphere of instability and mistrust. Furthermore, the province has been experiencing severe droughts, which have added to the already strained resource situation and have had negative impacts on the local economy and society. The lack of effective governance and corruption have also contributed to the worsening of the conflict situation. Against this backdrop, the provincial council, which was established in 2013, has struggled to assert its authority and address the underlying causes of the conflict. The council has been hampered by internal divisions and a lack of resources, which has limited its ability to effectively address the needs of the local population. In conclusion, the conflict in Dhi Qar is a complex issue with deep roots in historical, political, economic, and social factors. Addressing the current situation will require a comprehensive approach that considers the perspectives and needs of all stakeholders, including the Bani Rikab and al-Shuwaylat tribes, and prioritises sustainable development, good governance, and the rule of law.

Climate change implications on Al-Rifai

The effects of climate change are being felt in the district. Residents are witnessing higher temperatures and more sustained periods of drought.[55] This in turn has led to an increase in desertification across the district, with sand dunes overtaking once fertile land and encroaching on urban areas. Dust storms are reportedly on the rise as well, and the water level of the al-Gharraf river has decreased, impacting access to water for many in the district. Water quality has also been impacted as the salinity levels have reportedly increased. These effects have had a deleterious impact on the agricultural sector, one of the main economic activities in the district, as the sector has not witnessed a normal harvest in three years.[56]

This consequence and others are explored more in the following climate pathways section.

It is worth noting that those interviewed believe that providing modern irrigation networks, planting trees and shrubs to increase green spaces in the district, and support for better fertilisers and crops that are resistant to extreme weather would help offset some of the negative outcomes of climate change in the district.

Climate pathways

Access to natural resources. Interviewees and focus group members all note that access to water is driving the increase in conflict. The lack of rainfall over the past three years has led to an increased demand for water from the al-Gharraf river and underwater wells. In order to manage this access and limit over consumption and usage, the district has water allocation quotas in place for each village. Yet interviewees state that such quotas have been below the required levels needed for daily use. This has led to violations and overconsumption, which in turn has led to an increase in tribal conflicts over water access.[57] However, residents note that these conflicts have subsided this year due to an abundance of rainfall compared to the last three years, where drought was the norm.[58] Moreover,

55 IDIs and FGDs, all.

56 IDI Administrative Actor, January 2023.

57 FGD, Community Representatives, January 2023; IDIs Administrative Actors, January 2023.

58 FGD, Youth, January2023; IDI Security Actor, January 2023.

there is a consensus among interviewees and focus group members that when such conflicts occur, they tend to be effectively and quickly resolved by tribal authorities, or security and administrative actors.

"I am a farmer from Al-Rifai, and I have witnessed first-hand the devastating effects of water scarcity on our community. The water levels have dropped significantly, forcing me and many others to migrate to other areas in search of better living conditions. It's heart-breaking to leave behind the only life we knew, but we have no choice. I urge the authorities to take action and address this critical issue before it's too late."

(Farmer in Al-Rifai, January 2023)

Livelihood and food insecurity. Drought and desertification have had a massive impact on Rifai's agricultural sector, a main sector of employment. Farmers have not had a normal harvest in years due to water scarcity and many livestock owners have not been able to keep up with the costs of feeding their herds. Significantly less pasture for grazing has meant more money needs to be spent on animal feed. Consequently, many in the agricultural sector, including fishermen, have abandoned their professions and migrated to other areas in search of new job opportunities. As one interview notes, "The lower levels of the al-Gharraf River, which is the main water source in the district, has caused many farmers, fishermen, and animal herders to migrate as they are not able to keep their crops and animals alive."[59] Though the professions being sought are mainly in the formal sector – many have gained employment at the Gharraf oil refinery or as taxi drivers – some residents have cited an increase in those seeking to sustain their livelihoods through illicit activities, such as drug trafficking.[60]

It was also noted that many residents have left the district for other districts within the province or other governorates in search of economic opportunities. Young people have also been impacted by this as many have reportedly dropped out of school and university so that they can seek employment to support their families financially.[61] In addition, residents report an increase in food prices as a result of both the effects of climate change – such as lower harvests have meant crops have had to be imported into the district – and the fluctuation of the national currency. Furthermore, the effects of climate change have exacerbated existing tensions and conflicts in the district, stemming from competition and different cultural and religious traditions. Overall, the combined impacts of climate change, economic instability, and conflict have severely affected the economic security of the district.

Weak governance. The effects of climate change are deemed to be exacerbated by already weak and exclusive governing institutions and arrangements within the district. Public services (i.e., water, electricity, access to health care etc.), to the extent they are functioning, are regarded as being unequally distributed throughout the district, with some neighbourhoods perceived to be benefiting more than others due to political affiliation and biases.[62]

Moreover, government institutions are seen as lacking the resources and capacity to tackle the challenges arising from climate change, which have only worsened existing governance challenges around service delivery, including water. On this, residents in the focus groups note that, while

59 IDI Administrative Actor, January 2023.

60 FGD, Community Representatives, January 2023.

61 FGD, Youth, January 2023.

62 IDIs, Administrative Actors, January 2023.

water access disputes are often resolved quickly, a more sustainable approach is needed in order to ensure that water resources are provided equally to all residents. Here, interviewees noted that tribal and government actors are more effective at solving simple disputes but struggle to address more complex problems and those requiring a combination of technical and political solutions, such as those brought about by climate change, due to capacity constraints, including know-how, and the lack of resources. In addition, there is a need for more sustainable water- and resource-sharing and management systems to ensure equitable access to these resources in the face of increasing pressure from population growth and climate change.

In addition, many residents do not believe the whole community is included in decision-making processes which are essentially controlled by tribal and political authorities.[63] As a result, solutions do not take community needs and inputs into account and those that are enacted are deemed to be short-sighted in nature. It is worth noting that tribal and administrative actors interviewed have an opposite opinion to the focus groups. They state that even though decision-making processes are dominated by tribal, security and administrative actors, community members do have an input because tribal and administrative actors represent community members. Women were also not seen as playing any key role in decision-making process by community members: Oftentimes, women are excluded from decision-making per se and, if included, their voices are not listened to within the decision-making processes.[64] This highlights a disconnect between individual members of the community and district leaders when it comes to the issue of representation. In general, ineffective governance and service provision are seen as key grievances which not only make climate-induced conflict more likely but also widen the gap between citizens and the state.

It is interesting to note that water flow into southern Iraq is influenced by the policies of neighbouring countries, namely Turkey, Iran, and Syria. The recent construction of dams and water management practices along the Tigris and Euphrates rivers has led to fluctuations in water availability downstream, impacting Iraq's southern regions. These complex interdependencies between neighbouring countries' water policies have implications for the water security of southern Iraq.

"The traditional top-down approach to decision-making has failed us. We need to involve local communities and indigenous peoples in the decision-making process to ensure that their needs and perspectives are taken into account. Climate change affects everyone, regardless of their background or location. By working together and listening to each other's experiences, we can create more inclusive and effective solutions."

(Activist from Al-Rifai, February 2023)

Mapping of key actors

The study has identified several key actors that have a role to play in addressing social tensions and conflicts, including those driven or exacerbated by the implications of climate change in the district. This section will identify each of these key actors, with a brief description of their background and roles. Note that the actors listed below do not constitute an exhaustive list of actors influential in the province or district, but instead are those that have been identified specifically in relation to addressing social tensions related to the implications of climate change.

Tribal leaders. Tribal authorities are seen as playing a prominent and influential role in conflict

63 FGD, Youth and Community Representatives, January 2023.

64 FGD Youth, January 2023.

resolution mechanisms together with the security forces in the district. As mentioned, the two strongest tribes in Al-Rifai are the Bani Rikab and al-Shuwaylat tribes. Other tribes in the district include the Bani Hajim, Jabbour, al-Atab, Fayad, Bani al-Ajeel, al-Hubail, and the al-Sawaed.

Governmental and security actors. The district mayor (qa'em makam) was noted as playing a key role in addressing challenges facing the district. The public service directorates – water and agriculture, in particular – are also seen has playing a key role in allaying climate-related conflict drivers. In terms of security actors, the main security forces in the district include those under the auspices of the Ministry of Interior, i.e., the district's local police force, the federal police, and the Fourth Emergency Regiment.

Religious and civic actors. Religious and civic actors were also identified for the constructive role they can play in mitigating conflict in the district. The religious authority and the Rifai Youth Forum, an NGO, were specifically mentioned as being well positioned to help advance social cohesion in the district.

Tal Afar district

District background

Located in the north-west of Nineveh province, Tal Afar is strategically situated between Mosul and the Syrian border. It is comprised of the administrative centre, called Tal Afar centre, and the sub-districts of Ayadhiyah, Rabia, and Zummar. Prior to the conflict with ISIS, the total population was estimated to be around 500,000. The main communities in the district include the Turkmen, split between Shia and Sunni, Sunni Arabs and Kurds, with the Turkmen believed to constitute a majority of all residents. These communities are spread out across the sub-districts, with Tal Afar centre largely home to Shia and Sunni Turkmen; Ayadhiyah to Sunni Arabs, Turkmen and Kurds; Rabia to Sunni Arabs and a small Sunni Turkmen community; and Zummar to Sunni Arabs and Kurds. Parts of the district fall under the disputed territories file. Zummar is contested between GoI and KRG, with parts of the sub-district directly under the control of KRG entities.

Economically, the district relies on the oil sector, government employment and the agriculture. Two oil refineries are located in the district, one in Zummar and the other in Rabia. Government employment is mainly in the public sector and security forces while the agricultural sector – farming and animal husbandry – is prevalent in Rabia, Ayadhiyah, and Zummar. Crops grown include wheat, barley, and various fruits and vegetables. The agricultural sector is heavily reliant on rain-fed irrigation, though the Tigris river and smaller tributaries, such as the Khasa River and Wadi al-Aysh, also flow through the district.

Conflict dynamics

Tal Afar has witnessed a series of conflicts since 2003, with the main conflict drivers being political exclusion, ineffective and exclusive governance, and the issue of the disputed status of parts of the district. Political exclusion stems from the district's main governance and security arrangements becoming dominated by members of the Shia Turkmen community since 2003. As a result, those from the Sunni Arab, Sunni Turkmen, and Kurdish communities have not felt properly included or represented in district governing processes.[65] This grievance, though not as acute in the post-ISIS period, continues today. Moreover, the grievance extends to other sub-districts and communities. In

65 Van Zoonen, Dave and Wirya, Khogir: Turkmen in Tal Afar: Perceptions of Reconciliation and Conflict. In: Middle East Research Institute, 2017; Derszi-Horvath, András and Erica Gaston, Erica: Iraq After ISIL: Sub-State Actors, Local Forces, and the Micro-Politics of Control. In: Global Public Policy Institute, 2017; Maas, Frauke and Gaston, Erica: Iraq After ISIL: Tal Afar City. In: Global Public Policy Institute, 2017. Link: https://www.gppi.net/2017/08/21/iraq-after-isil-tal-afar-city; and USIP: Conflict and Monitoring Framework for Nineveh, Waves 4 – 6. Link: https://www.usip.org/programs/conflict-and-stabilization-monitoring-framework.

Zummar, which is a part of the disputed territories file, Sunni Arabs feel excluded from the sub-district's governing arrangements, which are mainly controlled by members of the Kurdish community close to the Kurdistan Democratic Party (KDP).[66] At the same time, Sunni Turkmen in Rabia feel excluded by the Sunni Arab community in the sub-district. The former are considered incomers from Tal Afar centre and are seen to be more religiously ideological than residents from the Sunni Arab community.[67]

Poor services and ineffective governance are also key drivers of tension in the district. Services are reported to be functioning inadequately (i.e., intermittent electricity, poor roads, sewage, and water systems), with capacity constraints, the lack of budgetary resources, and corruption cited as key factors for ineffective governance.[68] Some, particularly those from the Shia Turkmen community, blame provincial leaders for Tal Afar's poor governance, believing that the province's leaders have deliberately marginalised the district due to is majority Shia community.[69]

The disputed status of Zummar sub-district is also a prime motivator of tensions in the district.70 Currently, parts of the sub-district are under the direct control of the KRG while others fall under the authority of the GoI. The uncertainty over the final status of the sub-district is a key source of conflict as GoI-aligned actors compete with those affiliated with the KRG to entrench their positions in and claims over the sub-district.

Climate change implications on Tal Afar

Residents note that the amount of rainfall for the district has changed considerably over the last few decades. From the 1970s until the early 2000s, the rainy season would start in September or early October and end in April. However, in the early 2000s, this began to change with the start of the rainy season becoming more unpredictable. In addition, the duration of the rainy season also shortened to such an extent that it would end during the agricultural season, meaning crops were being deprived of water at a vital period of the harvest. Today, residents note that since 2020, drought has predominated in the district with rainfall levels well short of previous levels.

Residents also note an increase in more extreme weather events. Rainfall is no longer falling consistently but instead comes in more intense storms and particularly only at the beginning of the rainy season. This in turn has caused an increase in floods and hailstorms in the district. Such changes in the environment and extreme weather events have negatively impacted the agricultural sector as crops have been damaged during their growing season. The shortened rainy season has given way to more periods of drought, especially since 2020, according to focus group members and interviewees. As a result, soil fertility has reportedly decreased as lands have become harder and brittle, making cultivation a more onerous process than before. This consequence and others are explored in the following section.

Those interviewed for this report believe that better water management and agricultural practices, which require improved coordination between the Ministry of Water Resources and Ministry of

66 USIP: Conflict and Monitoring Framework for Nineveh, Waves 4-6. Link: https://www.usip.org/programs/conflict-and-stabilization-monitoring-framework.

67 Author and PPO interviews and discussions with local leaders outside this report.

68 USIP: Conflict and Monitoring Framework for Nineveh, Waves 4-6. Link: https://www.usip.org/programs/conflict-and-stabilization-monitoring-framework.

69 Van Zoonen, Dave and Wirya, Khogir: Turkmen in Tal Afar: Perceptions of Reconciliation and Conflict. In: Middle East Research Institute, 2017.

70 For more, see Kane, Sean: Iraq's Disputed Territories: A View of the Political Horizon and Implications for U.S. Policy. In: USIP. Peaceworks, 2011.

Agriculture, can help prevent some of the negative consequences of climate change being felt in the district.

Climate pathways

Access to natural resources. The impact of climate change in the form of drought has affected the availability of water and led to the degradation of fertile lands used for both farming and livestock herding. Residents report that the drought of the past three years has negatively impacted agricultural lands, as harvests have been affected by the lack of irrigation. Some farmers have responded to the water shortage by installing irrigation systems that utilise wells and underground aquifers, though these methods can be expensive. It is estimated that the construction of a well is around 20 million Iraqi dinar and an irrigation system around 70 million.[71] As a result, it is reported that only 10-15 % of farmers – mainly those with the financial means – have so installed an irrigation system.[72] Yet even those who have face ongoing challenges due to the shortage of rainfall. Water levels are depleting, meaning wells are running low and are not a sustainable source of water.

Competition over water wells is increasing between farmers, leading in some cases to conflict. For example, in the al-Abtakh and Abu Kalla areas, a violent conflict arose due to a dispute over the proximity of two wells dug in the same area, as each well was depleting the water level of the other when used. Indeed, conflict over access to arable lands and water resources does seem to be increasing according to focus group members and interviewees. As one focus group member mentions, "there are disputes over irrigation for orchards south of the district, where water from the Tal Afar spring is used. Similarly, there are areas where the landowner excessively uses water from the spring, which prevents it from reaching other areas."[73] Additionally, the lack of rainfall has caused naturally verdant areas to decrease considerably in the district. These green spaces were previously used by animal herders without fear of overconsumption. But today, competition over existing areas has increased, something spurred on by the fact that alternative feeding sources – namely, grain and feed – have increased in price.

Weak governance. Residents note that the lack of governmental regulation and enforcement has contributed to climate change related tensions, especially around water access. As one focus group member mentioned,

> *"There is no regulation regarding the exploitation of water resources and wells are dug at random in the district. They are only about 100 metres apart whereas the legal distance is 500 metres."*[74]
>
> (Community representative in Tal Afar, January 2023)

The blame here is primarily placed on the Ministry of Water Resources and the Ministry of Agriculture. Indeed, in the past, the latter had offered low-interest loans to farmers for the purpose of digging wells in Tal Afar, Rabia, and Al-Ayadhiyah sub-districts, which helped spur an increase in the number of wells in the district, but with little enforcement of the legal regulations. Similarly, the government is being blamed for not protecting a key water pipeline into the district: there are reports of water from the pipeline being illegally utilised by residents in the al-Ashiq area of the district.[75]

The Ministry of Agriculture is also blamed by some

71 FGD, Community Leaders, January/February 2023.
72 FGD, Community Leaders, January/February 2023.
73 FGD, Community Leaders, January/February 2023.
74 FGD, Community Representatives, January/February 2023.
75 IDI, Administrative Actor, January/February 2023.

residents for outdated policies that do not take into account the effects of climate change. In particular, the allocation process used by the ministry to determine which farming areas are granted government-funded fertilisers. This process, which puts the areas into three different categories of guaranteed, semi-guaranteed and non-guaranteed regions, is regarded by residents as being based on land estimates that are no longer applicable due to the ongoing drought.[76] The government has also been criticised for not providing compensation to farmers who have had their lands severely impacted by extreme weather events dating back to 2014, when hailstorms and floods destroyed a great deal of land and many harvests in Zummar, and 2018, which witnessed a series of fires in the district. Despite these farmers submitting their claims, which total over 200, residents note that none has received compensation as yet.[77]

Furthermore, the perception is that governmental actors and institutions are not responding effectively to the consequences of climate change. For example, focus group members mention that electricity provision is erratic due to a faulty electricity grid, which impacts the pumping of water into and across the district, and that there is not enough water to irrigate the 17,000 hectares of agricultural land in Rabia, let alone the district as a whole.[78] Moreover, despite there being service directorates from the Ministry of Water Resources and Ministry of Agriculture that deal with water regulation, irrigation and desertification, these departments are viewed as ineffective due to governmental bureaucracy, corruption, and the capture of state institutions by certain political actors. As one focus group member mentions, the Jazeera Irrigation Project, which is a water management project for the Nineveh province that aimed to improve agricultural production and water access to communities across the governorate[79], "was supposed to be supervised by agricultural and technical experts, but most projects are approved [in the district] only through nepotism and the intervention of influential people in Tal Afar."[80]

The impact of climate change and weak governance are combining to produce violent conflict in the district. One specific example relates to corruption and how water projects are under-funded in the district. Given that water is scarcer, there is increased competition for irrigation projects in the district. One interviewee notes that one such project intended for farmers in Rabia was suspended and the funds ultimately diverted to the sub-district of Ayadhiyah due to political pressure from influential national political parties. This in turn caused one aggrieved farmer in Rabia to attack the project's owner in Ayadhiyah, leading to violent altercations that were ultimately settled through tribal dispute practices.[81]

In the absence of effective governmental institutions, tribal authorities and practices have stepped in to fill gaps in governance, particularly around water access. According to one interviewee from Ayadhiyah, a water distribution schedule was produced by tribal authorities to manage the 100 donums of vineyards, pomegranates, and vegetables grown in the sub-district which depend on a natural spring for irrigation.[82]

Livelihood insecurity. The effects of climate change have had a negative influence on livelihood security. Specifically, residents state that those working in the agricultural sector, namely farmers and livestock breeders, have been most impacted as the shortage of rainfall has led to much lower harvests than in previous years and has increased

76 FGD, Community Representatives, January/February 2023.

77 FGD, Community Leaders, January/February 2023.

78 FGD, Leaders, Representatives and Activists, January/February 2023.

79 The project was completed in 2001. It entailed the construction of Mosul Dam and new irrigation channels, in addition to the rehabilitation of existing irrigations networks.

80 FGD, Community Representatives, January/February 2023.

81 IDI, Tribal Leader, January/February 2023.

82 IDI, Security Actor, January/February 2023.

costs linked to the professions related to irrigation and food for livestock.83 On the latter, it was reported that eight poultry farms in Ayadhiyah sub-district have had to close down due to increased costs associated with securing feed.[84]

In general, rural areas are perceived to be more susceptible to the effects of climate change on livelihoods than urban ones given that these areas are more agrarian. The villages of Ain Helwa, al-Jahishiya, al-Warda, al-Wajnah, Kakhreta, Sahl al-Malih, and al-Salhiyah were identified by focus group members and interviewees as the most vulnerable to having their livelihood disrupted, as the residents of these villages rely largely on the agricultural sector for income. The drought has led many of the residents to abandon their lands and herds due to high production costs and dwindling profits, with many migrating into urban areas, particularly Tal Afar Center, in order to seek alternative employment opportunities. This has put added pressure on an already tight labor market, as competition has increased for jobs in construction, which is one of the few private sector areas active in the district, and in government. Others have reportedly joined one of the many formal security groups in the district.[85] In general, climate change's impact is estimated to have contributed to an unemployment rate in the district that currently stands at approximately 60 %.[86]

Economic livelihoods have been further impacted by two other factors. The first is related to the effects of climate change. As crop yields have been lower due to the ongoing drought (focus group respondents and interviewees note that there has not been a successful growing season for at least three years), residents have had to import crops that were previously produced within the district, leading to higher prices.87 The second relates to the country's currency, the Iraqi Dinar, which has lost value, leading to a general rise in cost of living for residents, something exacerbated by climate change's related effects. As a result, the price of fuel, fertilisers, seeds, and transportation costs for crops have all reportedly increased.

"As a farmer in Tal Afar, I can attest that the recent drought has had a devastating impact on our ability to grow crops. We haven't had a successful growing season in three years, forcing us to import crops and drive up prices. This has not only affected our livelihoods but also the overall food security of our community. It is crucial that we take into consideration the long-term effects of climate change when making decisions about our future."

(Farmer in Tal Afar, February 2023)

Mapping of key actors

This study has identified several key actors who have a role to play in addressing social tensions and conflicts, including those driven or exacerbated by the implications of climate change in the district. This section will identify each of the key actors, with a brief description of their background and roles. Note that the actors listed below do not constitute an exhaustive list of actors influential in the province or district but instead are those that have been identified specifically in relation to addressing social tensions related to the implications of climate change.

83 FGD (all) and IDI (all), January/February 2023.

84 IDI, Security Actor, January/February 2023.

85 These groups range from the Iraqi military to the Tribal Mobilisation Forces to local police forces. IDI, Security Actor, February 2023.

86 FGD, Community Representatives, January/February 2023.

87 FGD (all) and IDI (all), January/February 2023.

Administrative actors. The district mayor was on good terms with all communities and as someone active in helping improve the situation in the district. It is worth noting that the qa'em makam has helped lead a participatory budgeting process that allows citizens to play a key role in determining which food security projects are put into the draft budget that goes to the governor and Ministry of Planning and Ministry of Finance for review and approval. The sub-district mayors are also viewed as having a role to play. In addition, service directorates linked to the Ministry of Water Resources and Ministry of Agriculture were identified as having a critical role in allaying climate related challenges.

Tribal leaders. The tribal leaders of the main tribes in the district are considered to have a vital role to play. The leading tribes in the district include the following, per community:

- Turkmen: Julaj and Murad tribes.
- Sunni Arab: The tribes that comprise the Shammar tribal confederation, which includes the tribes of al-Rakan, al-Faisal, Sinjara, Zawba'a, and Abda, are perceived to be the most influential in the district. Along with these tribes, the Johesh, Janour, Sharbi, and Lineb are present in the district.
- Kurdish: Miran, Hissniyani, Mousa Rashi and Jarjari tribes.

Civic actors. Three civic entities were mentioned as having a key role to play in mitigating conflict in the district. The first is the Agricultural Association Union. The union plays a key role in organising farmers and acting as a liaison between them and governmental actors. However, it is seen by some actors as lacking the needed capacity and resources to fulfil its role effectively. The second is the District Working Group (DWG). The DWG, formed in collaboration between GIZ and PPO, was identified as a key entity working in easing conflict across the district. The DWG is comprised of leading local leaders, ranging from administrative to tribal and civic. The third is the Zummar Peaceful Coexistence Committee, a committee comprised of sub-district leaders who work collectively via the committee to respond to challenges in the district. The committee was also formed through support from PPO and GIZ.

Recommendations

The following recommendations are drawn from the findings of this report and are further informed by separate research conducted by Berghof and PPO that looks at climate pathways in nine additional districts[88] throughout the country. The findings of those nine district reports are similar to those of the three covered in this report. As such, these recommendations should be seen to be responding not only to the dynamics in Makhmur, Al-Rifai and Tal Afar but also the nine additional districts facing similar challenges.

Recommendation 1:
Strengthen inclusive processes

Facilitate inclusive problem-solving dialogue processes that connect key local leaders with the necessary provincial and national actors and which help inform or adapt the national strategies being developed at district level. There is a clear need to formulate a cogent and inclusive approach to tackling the effects of climate change in each of the districts looked at. This stems from the fact that there appears to be a disconnect between communities, local leaders, and governmental actors at the local level, and between sub-national formal authorities and those at the federal and KRG level. One consequence of this disconnect is piecemeal efforts to address the effects of climate change that are largely enacted in the absence of a concerted, top-down/bottom-up and citizen-informed strategy. To overcome this challenge, the international community and national actors should support the implementation of inclusive problem-solving dialogue at the district and sub-district levels that:

1. Bring together all key local stakeholders, e.g., tribal leaders, political party representatives, religious actors, service directorates, district mayors, and sub-district mayors, who are needed to find realistic solutions to challenges brought about by climate change;

2. Connect these stakeholders with critical GoI, KRG, and sub-national governing authorities, such as the GoI's Ministries of Water Resources, Agriculture, and Environment and their respective service directorates at the provincial and district levels; governors' offices; parliamentarians, the National Security Advisory, and the Joint Command Council.

3. Help produce community-level response plans that are linked to the national level strategies being developed. This link can either be in the form of informing national level plans, i.e., the Strategy for Land and Water Resources, the National Adaptation Plan and Green Paper, or adapting them to the district level.

4. Support conflict sensitivity considerations of response mechanisms to avoid unintended consequences from poorly designed policies intended to address climate security risks.

These processes will not only allow the challenges caused by or exacerbated by the effects of climate change to be addressed, but they will also help foster and enhance cohesion and cooperation among and between community and government entities. This in turn could also help improve the lack of representation found in Al-Rifai as this would, for example, result in more direct involvement in key decision-making processes.

88 The districts covered are Afak, Baiji, Chamchamal, Eastern Hamza, Hawija, Kalar, Kifri, Shatt Al-Arab and Al-Zubair.

Key entry points to establishing dialogue processes include governors' offices, district mayors, existing local peace mechanisms, such as local peace committees and district working groups, and tribal and community leaders. Indeed, local peace mechanisms in Tal Afar and Makhmur can act as entry points with minimal barriers to entry. In the sub-district of Zummar in Tal Afar, both a district working group and a local peace committee comprising key district leaders already exist and have been playing a key role allaying conflict in their areas with the support of international and national organisations. The same is true of Makhmur, which has a tribal council actively working on overcoming the impediments created by the disputed territories, such as the two competing administrations and the ineffective governance outcomes this has produced.

International and national organisations that have experience establishing and facilitating local peace and dialogue processes include the Peace Paradigms Organisation (PPO), the United Nations Development Programme (UNDP), the International Organization for Migration (IOM), the United States Institute of Peace (USIP), GIZ, and the Al-Tahreer Association for Development.[89]

Recommendation 2:
Factor budget into climate plans

Advocate for adequate budget allocations from the federal and KRG governments that have a minimum requirement of reflecting the climate response plan's most pressing aspects. District budgets are a key tool to help combat the effects of climate change. Without sufficient resources, no plan or strategy will be effective no matter how inclusive and responsive its contents are. Though it is unlikely that the budgets allocated to district authorities will represent the full amount requested, it is possible to support and engage district, provincial, and national actors in the budgetary development process to ensure that at least some key climate change related issues are funded.

The national budgeting process is led by two key national ministries, the Ministry of Planning and the Ministry of Finance. These two ministries draft budget proposals based on input from other ministries and provincial authorities. As far as the latter is concerned, district mayors (qa'em makam) are tasked with engaging local officials and communities to identify the district's most pressing needs. These items are then sent to the provincial governor who has the mandate to compile a draft budget for the province. This is then sent to the Ministry of Planning and Ministry of Finance for review and to inform the development of the final provincial budgets. Ultimately the latter two ministries decide the final budget allocations based on available resources. Governors have some discretionary authority on allocations once they receive the final budget and district mayors have a key oversight and monitoring role to ensure that district budgets are being implemented according to the approved budgetary plans.

During the budget development process, it is critical that the most pressing items related to combating the effects of climate change in the districts are identified and advocated for during the budgetary process. To help with this, this study has proposed helping district stakeholders develop community-centric climate change response plans for districts (Recommendation 1). Yet to ensure that key projects and initiatives are funded, international and national organisations need to help district leaders follow-up on and advocate for key items with governors, the Ministry of Planning and the Ministry of Finance, and district parliamentarians. Without allocations for the most pressing issues identified in the district climate change response plans, little progress will be made in transforming the plans into actual gains at the district level.

89 For more on local peace and dialogue processes in Iraq and how to design and implement, see IOM/PPO: Local Peace Processes Toolkit for Iraq. October 2022. Link: https://iraq.iom.int/sites/g/files/tmzbdl1316/files/documents/Local%20Peace%20Processes%20Toolkit%20%28final%20version%29.pdf.

Recommendation 3:
Enhance key stakeholder's capacities

Enhance the capacity of governmental actors around the management of natural resources and climate-resilience policy response, something that should be done alongside efforts to tackle administrative corruption. Capacity and technical support should be provided to relevant governmental actors, especially the Ministry of Agriculture, Ministry of Water Resources, and governors' offices, in order increase their ability to effectively fulfil their mandates. In particular, support is needed for these actors to:

- Improve and maintain water infrastructure, which is in desperate need of repair across the country.[90] Poor water infrastructure and mismanagement has contributed to water leakage, exacerbating water scarcity. Helping improve infrastructure and management practices would help lessen the impact water scarcity is having on communities. While this is a problem in all the districts discussed in this report, it is particularly acute in Tal Afar which is facing the consequences of the ineffective Jazeera irrigation network.

- Reform and enhance oversight and implementation of water access regulations, which are a source of tension among communities, between communities and provincial authorities, and between federal actors and provincial governments.

- Provide assistance to farmers, including for modern irrigation practices and crop seeds that are less water intensive. On the former, southern areas that rely on rivers for irrigation water their crops by means of flood irrigation, a practice which is very water intensive. Barriers to moving away from this practice and towards more modern techniques that waste less water include costs and capacity to implement new practices. These issues should be supported.

- Support land tenure reforms and regulation on grazing practices, both of which can make the agricultural sector more productive and minimise tension between and among landowners and herders in search of ever-shrinking pastures to feed their animals.

- Support urban areas to be better equipped to handle the influx of climate migrants. Such areas are being inundated with new arrivals, which is putting added pressure on already depleted resources and services. When combined with competition over job opportunities, tensions have emerged between new arrivals and existing residents.

In parallel with these efforts, the international community and national organisations need to help tackle administrative corruption within the public sector, especially among those institutions at the forefront of tackling the climate crisis and its inimical effects on the country. Without this, the efforts outlined in this report will most likely fail to be effective as rampant corruption is regarded as the scourge of the public sector and its ability to produce good governance outcomes in general and in relation to water access and provision, as evidenced by the findings from the three districts covered in this report.

90 For more on this, see Mohammed, Shwan: The Importance of Fixing Iraq's Irrigation. In: 1001 Iraqi Thoughts, July 6, 2018. Link: https://1001iraqithoughts.com/2018/07/06/the-importance-of-fixing-iraqs-irrigation; and FAO: Restoration of agriculture and water systems sub-program 2018 – 2020. Link: https://www.fao.org/3/ca1511en/CA1511EN.pdf.

Recommendation 4:
Strengthen synergistic cooperation

Enhance coordination and exchange among the different actors who are aiming to address climate security issues in Iraq to avoid duplication and overlapping at the programming level. While the international organisations and donors have become increasingly interested in addressing climate security issues in the country, it is crucial to establish a coordination and exchange platform that brings together key donors and international organisations as well as UN agencies and government counterparts so that they can discuss strategic priorities and directions at both policy and programming levels. It is also vital to ensure the efforts of different actors are aligned to maximise the impact of these efforts and to strive to make sure the approaches adopted by these actors are context-informed, conflict-sensitive, participatory, and inclusive. This coordination and exchange framework could also be cascaded down to the local and sub-national level to ensure there is coordination all the way from the national to the local level, and the local response speaks to the national level policies and strategic directions and complements it. Coordination between different sectors is also vital in order to combine technical assistance and investments with approaches to peace-building and governance-strengthening. Sustaining effects can therefore be increased and root causes better addressed as, for example, technical assistance in combination with dialogue efforts responds directly to the needs of communities and supports the creation of entry points for interventions.

Recommendation 5:
Promote effective governance

Support mediation efforts to resolve governance bottlenecks caused by the disputed territories issue which are preventing solutions and actions that can help alleviate the effects of the climate crisis. Though ineffective governance driven by state capture, capacity constraints and rampant administrative corruption is characteristic of most government institutions in the country, the phenomenon is magnified in areas that are contested by the GoI and KRG, such as Makhmur and Zummar. Here, decision making at a local level is fragmented, making it extremely difficult for governing authorities to produce sustainable solutions that can resolve or allay climate-induced tensions. The international community should support mediation efforts in these areas that help coordinate and consolidate decision-making processes related to local governance issues, including those issues related to the impact of climate change. This mediation should not address the final status of these territories, i.e. the sensitive issue of Article 140, but rather focus on increasing cooperation and coordination between the two sides over specific issues afflicting communities in the disputed areas.

Recommendation 6:
Strengthen mediation efforts

Support and advocate for GoI mediation with Iran and Turkey given that Iraq is a downstream recipient of water. While drought is a key factor impacting water scarcity tensions, so too is the fact that Iraq depends on the inflow of water from water sources that originate in Turkey and Iran. The fact that both countries have constructed dams and electricity plants on these river sources has limited the amount of water flowing into Iraq. In 2022, water flowing from Turkey into the country decreased by 66%, while water from Iran fell precipitously by 90%.[91] As tensions rise between Iraq and its neighbours, both Turkey and Iran blame climate change for the decreased inflow of water to the country. The tense situation necessitates the formulation of agreements over the fair use of transborder water resources between Iraq, Turkey, and Iran, something the Iraqi government should prioritise in its current term.

Recommendation 7:
Foster comprehensive research

Support additional research to generate data, explore further interconnected areas such as the interplay between climate, conflict, and gender, and supplement the existing analytical approach with further methodologies to ensure a holistic understanding of the subject. Gender considerations have thus far played a peripheral role within climate-conflict nexus research. Yet, adopting a gender perspective is imperative to achieve a comprehensive understanding of climate-related conflict dynamics and (in)security. Moreover, a discerning recognition of gendered power dynamics provides knowledge on how to facilitate, mitigate, or prevent climate-related conflicts, fostering resilience regarding both conflict and climate change. Gender considerations should therefore assume a prominent position in future research and policy formulation around the intersection of climate change and conflicts. Furthermore, the applied methodology has been exhaustive in its endeavour to encompass the diverse spectrum of climate security pathways and associated risks. However, it is crucial to acknowledge that the analytical framework is not without inherent limitations. To effectively address the multifaceted nature of the subject, a strategic diversification of analytical approaches should be considered. Such a methodological expansion bears the promise of delivering an even more comprehensive and finely nuanced perspective.[92]

91 Al-Monitor: Iran, Iraq exchange accusations over water flow, January 25, 2022. Link: https://www.al-monitor.com/originals/2022/01/iran-iraq-exchange-accusations-over-water-flow#ixzz7pVW629GW.

92 The Hague Centre for Strategic Studies: Unpacking the Climate Security. Seven Pathologies Linking Climate to Violent Conflict, March 2022.

Notes

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