

THEMATIC SERIES
**No matter of choice:
Displacement in a changing climate**

This thematic series explores the scale, patterns, drivers and impacts of internal displacement associated with slow-onset environmental change and disasters to inform policies and practices for managing and reducing displacement risk



WHEN CANALS RUN DRY

Displacement triggered by water stress in the south of Iraq

FEBRUARY 2020

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Cover photo: Habib works in a small carpentry by a polluted water canal in Basra, Iraq. "Somedays it's difficult to work because of the smell. It really stinks and gives us headaches and nausea." Credit: NRC/Tom Peyre-Costa, October 2018

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About 350 farmers get targeted technical agricultural training on modern agricultural production techniques. Photo: NRC/Tom Peyre-Costa, May 2019

EXECUTIVE SUMMARY

The Internal Displacement Monitoring Centre (IDMC) embarked on a new research programme in December 2018 to investigate internal displacement associated with slow-onset environmental change.¹ This report explores the displacement triggered by water scarcity in the south of Iraq. Findings are based on quantitative and qualitative data collected between June and July 2019 among both displaced and non-displaced people from Basra, Missan, and Thi-Qar governorates.

GOVERNANCE GAPS AND ENVIRONMENTAL CHANGE THREATEN RURAL LIVELIHOODS

The convergence of governance gaps and environmental change is undermining the ability of families in southern Iraq to sustain themselves from agriculture and livestock production, forcing many to move. This area lies at the lowest reaches of the Tigris-Euphrates river basin, where water flow is most limited and heavily polluted by upstream run-offs or seawater intrusion. Factors contributing to this situation include the indirect impact of climate change on the region in addition to the loss of arable land; the increase of urban water demand paired with an outdated and neglected infrastructure prone to leakages; and, finally, the absence of a transboundary governance agreement for the Tigris-Euphrates river system between Iraq, Syria and Turkey.

ABANDONMENT OF AGRICULTURE STEMS FROM LACK OF ADAPTATION

As a consequence of these slow-onset environmental changes, arable and livestock farmers are less able to draw water, either because of scarcity or poor water quality. The individual capacity to adapt is, however, limited. The vast majority are unable to afford the invest-

ments needed to modernise their farming methods. Many respondents also point to the absence of a functional policy or system to support the agricultural sector in the face of these challenges. The long-standing consequence of these dynamics is a gradual abandonment of agriculture.

APPETITE FOR RETURN MAY BE UNREALISTIC GIVEN THE MAGNITUDE OF THE CHALLENGE

After years of decreasing agricultural yields, crop failures and livestock deaths, ever more families feel forced to move. Most of the displacement is rural to rural in nature. In such a context, social and tribal connections are particularly important and act as a conduit for and safety net in displacement. Respondents indicated that displaced people would return permanently if they felt they could sustain their agricultural livelihoods with sufficient water resources, but the question is whether these communities have already crossed a point of no return given the magnitude of the environmental challenges.

Pending potential return, those displaced will need to be supported through vocational training and access to services. At the same time, the resilience of farmers needs to be strengthened to prevent further displacement, both through the development of rural areas and support for adaptation of agricultural practices. Mitigating environmental degradation in Iraq will also require more equitable distribution of water resources in the region, and better water management at country-level.

INTRODUCTION

Basim's home in rural Thi-Qar governorate, on the edge the Iraqi marshes, lies abandoned and empty. He moved out recently to look for work as a farmhand in neighbouring Basra governorate, taking his family with him. Also left behind were their crops, the watermelons and sunflowers they realised would wither and die before harvest. Basim's neighbour pointed to a dried-up canal dotted with pools of stagnating water. He was sad to be the last one left in the village, he said, but Basim and his family had been right to leave. "Even the animals refuse to drink that water," he said.

A few kilometres away, Khaled and his sons also recently left the village of Dawaya to join the seasonal agricul-

tural workforce in Kerbala governorate. His wife and daughters stayed behind, planning to sell what was left of their livestock before joining the rest of the family. In nearby al-Aghrad village, nearly half of the mud houses have been abandoned over the last decade. Thaer, however, still lives there. His extended family have left, but he would rather stay and try to work his land whatever it takes. "I have no hope of doing anything positive here, but I have no other choice," he said. "Why would I leave to work as a scarecrow on someone else's farm?"

Basra, Missan and Thi-Qar, the three southernmost governorates of Iraq, share an emerging problem of environmental degradation coupled with governance issues that hampers people's immediate and long-term socioeconomic prospects. The governance challenges, which exist at both the local and national level and have driven instability in southern Iraq for years, make the area a fragility hotspot. Structural issues in southern Iraq include widespread poverty, low levels of human capital and lack of infrastructure development.² In urban areas such as Basra city, people have been protesting against their deteriorating living conditions since 2015. The protests came to a head in 2019. Hundreds of protesters have been killed, including many in the south.³

Southern Iraq is also prone to water scarcity and pollution, which have increased significantly since at least 2007, with spikes in 2015 and 2016.⁴ Traditional rural livelihoods have become ever less sustainable due to asset depletion. Irrigation canals have begun to run dry and water quality has plummeted, but the response has been piecemeal at best, leading increasing numbers of farmers to stop working their land and move away in search of alternative sources of income. Livestock owners sell their animals as means of being able to afford to leave. These population movements should be considered forced displacement.



The youth enjoy swimming and fishing in Basra's main river. Khalid says, "We all know someone who is sick because of the water, but what can we do? There is no clean water in the city, we have no options."
Photo: NRC/Tom Peyre-Costa, October 2018

Water shortages were estimated to have triggered almost 15,000 new displacements in Thi-Qar, Missan and Basra as of January 2019, the three governorates accounting for 60, 27 and eight per cent of the total respectively.⁵ Most people move from one rural area to another, whether to nearby small towns such as district capitals or to other villages in neighbouring governorates where there is better access to water. Factors such as soil water holding capacity determine levels of mobility. Relatively little is known, however, about how and when people decide to leave, or how those who stay behind adapt to their changing environment.

This report aims to establish a better understanding of these factors in rural areas of the three governorates. It focuses on communities living in areas where water shortages have recently triggered people's displacement, examining the situations both of those who have left and those who have stayed behind. It also explores how environmental degradation and governance gaps disrupt people's livelihoods, and how this forces them to either adapt or leave. The study was

undertaken by Social Inquiry in coordination with IDMC and the Norwegian Refugee Council (NRC). It forms part of IDMC's thematic series on displacement in a changing climate, which explores the scale, patterns, drivers and impacts of internal displacement associated with slow-onset environmental change and disasters to inform policies and practices for managing and reducing displacement risk.⁶

Recent studies of population movement and fragility in Iraq have tended to focus on the north of the country as it emerges from conflict with Islamic State in Iraq and the Levant (ISIL). Any focused on the south have looked mainly at the public health impacts of the recent water crisis in Basra city and small, relatively isolated and vulnerable marshland communities. This study seeks to redress the balance by examining the socioeconomic, institutional and environmental realities facing the broader rural population in southern Iraq, which for too long have been overlooked.

KEY CONCEPTS AND TERMINOLOGY

| **Slow-onset events** refer to cumulative changes in the environment that occur gradually over a relatively long period of time and which can lead to the disruption of livelihoods. Such changes include temperature rise, salinisation, deforestation, desertification, land degradation, sea level rise and biodiversity loss.⁷

| **Displacement associated with slow-onset events** occurs when affected people are exposed to environmental change "in a situation where they are too vulnerable, lack the resilience to withstand the impacts of that

hazard, and are forced to flee for their survival".⁸ People may move seasonally or permanently. If they do so because they are no longer able to sustain their livelihoods and do not receive support that enables them to stay put, their movement is considered forced displacement.⁹ Unlike displacement associated with sudden-onset events such as floods, when people flee a rapidly emerging threat to their lives, that associated with slow-events is hard to identify, categorise and track, let alone address. This is, in large part, because of the complexity involved in identifying a tipping point for people's decisions to move.¹⁰ Environmental degradation and the gradual depletion of natural resources play a role, but "it is underlying socioeconomic,

cultural and political processes that either enable or constrain people's ability to cope where they are or force them to move because support is lacking".¹¹

| **"Displaced people"** in this report are people who left their homes due to water stress and the consequent inability to sustain their livelihoods, taking into consideration that the forced nature of their movement is not always clear. The lack of viable alternatives suggests that the movement is a form of distress migration. Rather than referring to them as migrants, they are therefore referred to as displaced people throughout the report. Conversely, "stayees" are people who remain in these water stress-affected locations.

METHODOLOGY

| Approach and target locations

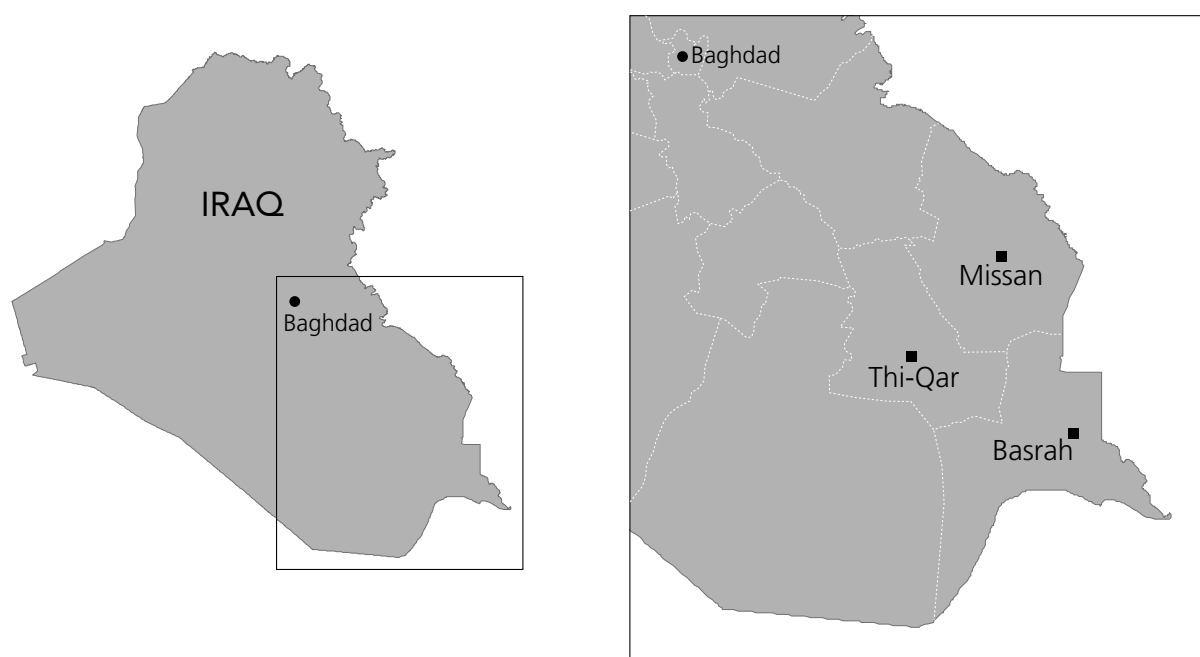
The research for this report was conducted using a mixed-methods approach that combined quantitative data collection with semi-structured qualitative interviews. A household survey was carried out in Basra, Missan and Thi-Qar governorates between June and July 2019, and the qualitative interviews were held in Basra and Thi-Qar in July. The overall aim of the exercise was to gather information on the experiences and views of families who had left their homes and those who had remained in their areas of origin, as well as community leaders and local authorities.

The three governorates were chosen based on the latest tracking data available from the International Organization for Migration (IOM), which showed that they had recorded the vast majority of population movements associated with water shortages. IOM's dataset was also used to identify the specific districts and subdistricts from where most people had left, and those to which they had moved.

| Quantitative component

The sample size for the household survey was 385, with respondents distributed as shown in table 1. Field-work locations in the subdistricts were chosen based on accessibility and potential risks to researchers and participants. Surveys among stayees were carried out in several villages across the subdistricts most affected by water scarcity subdistricts in Basra, Missan and Thi-Qar, while surveys among displaced people were only carried out within the capital of Dawaya subdistrict in Thi-Qar. Respondents were selected through random sampling within the locations, with the aim of interviewing a similar number of households in each one. All names in the report have been changed.

FIGURE 1: Map of target Governorates





*Access to clean water and handwashing has become a luxury in Basra schools. The water runs for only 2 hours a day and is not suitable for consumption.
Photo: NRC/Tom Peyre-Costa, September 2018*

TABLE 1: Household survey respondents by geographical and population group

Population group	Governorate	Subdistrict	Number of interviews
Stayees	Basra	Al-Dair and al-Midaina Centre	82
	Thi-Qar	Dawaya	99
	Missan	Al-Maimouna Centre	101
Displaced people	Thi-Qar	Dawaya	103
Total			385

Enumerators conducted the survey interviews face to face. They also helped to provide background information before data collection, including the identification of areas within each subdistrict most affected by water shortages. The survey data was recorded on tablets using KoBoToolbox.

The survey questionnaire was organised into five sections common to both respondent groups, with the specific questions adapted to each. Those who had moved were asked about both their place of origin and current location. The survey covered demographics; personal and family experiences of displacement; housing and services; income sources, coping strategies and assets; perceptions of environmental changes; security; and future plans.

TABLE 2: Qualitative interviewees by geographical and population group

Governorate	Population group	Interviews	
		Displaced people	Stayees
Basra: Al-Dair, al-Seeba and al-Zubair subdistricts	Community residents		5
	Community leaders	1	1
	Local authorities		2
Thi-Qar: Dawaya subdistrict	Community residents	2	3
	Community leaders	1	1
	Local authorities		2
Kerbala and Najaf: phone interviews	Community residents	4	

Qualitative component

Two Social Inquiry researchers conducted 18 semi-structured interviews face to face, nine each in Basra and Thi-Qar. The two governorates were chosen because they had higher influxes of people whose movement was triggered by drought. Missan was excluded from the qualitative component because it had recently been affected by flooding. Interviewees included members of the target communities who had left, those who had stayed put, community leaders and local authority officials. A further four interviews were held by phone with people who had moved from Thi-Qar to Najaf and Kerbala governorates (see table 2).

The topics discussed in the interviews reflected the structure of the household survey, examining migration dynamics, the impacts of environmental degradation including water shortages and livelihood strategies. The organisation and composition of local agricultural value chains were also explored.

The local enumerators who conducted the household survey helped to identify the interviewees in Thi-Qar, and NRC provided the necessary support in Basra. The researchers also undertook field visits to the affected areas with the facilitators and local leaders to complement the information gathered.

Limitations

The data collected is representative of the rural populations in the target subdistricts, but it cannot be extrapolated to apply to wider population groups. Nor can the information from the four sample groups be aggregated into one dataset for analysis purposes.

Some areas of the three governorates where significant population movements have been triggered by water shortages could not be accessed because of security constraints. Subdistricts such as al-Thagar in Basra governorate, for example, are relatively isolated and potentially unsafe to reach by road because of checkpoints and the presence of gunmen. The logistics of collecting data among households who had moved also proved complicated, because they were scattered across different governorates not easily accessible from Basra or Thi-Qar.

As such, the quantitative data collected on those who have moved is limited in terms of geographical representation because it only covers one subdistrict in Thi-Qar. It was not possible to survey those who had moved in Basra and Missan. As a result, more interviews were conducted with stayees than with displaced people. Further research would benefit from additional interviews with those displaced.

RURAL LIVELIHOODS, GOVERNANCE AND ENVIRONMENTAL STRESSORS

The landscape of Basra, Missan and Thi-Qar is criss-crossed with canals that divert water from the Tigris and Euphrates rivers to remote agricultural land, allowing people to farm what would otherwise be arid fields. Livestock ownership is widespread, and water buffaloes are common in the three governorates. The canals used to feed a healthy freshwater ecosystem that enabled the vast majority of the population to rely on agriculture for their livelihoods. Hussein, a tribal leader who recently moved to urban Thi-Qar, said: “We are originally from Um al-Ghazan, where we used to grow cereals and tend livestock. Our produce was abundant, and we used to sell it in the rest of the governorate. It provided my whole tribe with secure livelihoods, food and safety ... All that was in the 1990s though.”

Much has changed over the last two decades. Local policymakers interviewed in Basra and Thi-Qar said that since the fall of Saddam Hussein in 2003 there had been no effective government plan to resolve the south’s pressing structural issues, particularly those related to agriculture, which is the cornerstone of rural livelihoods. Little is thought to have been done to address the impact of years of conflict and neglect on aging hydrological infrastructure.¹²

This has left farmers ill-equipped to compete with foreign food imports, despite a state purchasing programme that pays for locally produced wheat and barley at above-market prices. The agricultural sector is also dominated by small-scale farmers who tend to invest little in their means of production, which results in relatively low yields.¹³ The lack of appropriate water

management strategies with neighbouring countries upstream aggravates the situation still further as water resources are depleted elsewhere.

The convergence of governance gaps and environmental change is now putting pressure on the agricultural sector as a whole. Some of those affected have been able to mitigate the impacts by joining the state’s payroll. More public sector jobs have become available since 2003 as oil revenues have increased.¹⁴ Many others, however, have left their homes in search of alternative income as living off the land has become increasingly precarious.

The local irrigation director for Dawaya subdistrict in Thi-Qar put the situation in sharp focus. “The water share for Dawaya by law is 25 cubic metres a second, but we have only received an average of seven for the last five years,” he said. “The irrigation system was designed and built in 1969 to feed all of the agricultural land here. Now it only provides enough water for less than a quarter of the land.”

Put more succinctly, the changing dynamics in Iraq’s rural livelihoods are aggravated by three interlinked stressors: climate change, gaps in regional water governance and unbridled demand.

| *Climate change:* Iraq’s water resources per capita are likely to reduce significantly this century, in part because of the indirect impact of climate change on the region. Simulations for the Middle East do not suggest a particularly large decrease in rainfall in the country itself, except perhaps for the



There are more than 40 canals in Basra. Every single one is highly concentrated with bacteria, chemicals, and salt. Most of them are littered with trash, plastic and debris. These canals flow into Basra's main river Shat al Arab, where the water is pumped for its residents. This hazardous sanitary situation resulted in more than 100,000 cases of waterborne diseases in three months, fueling public anger and protests. Photo: NRC/Tom Peyre-Costa, October 2018

most northern parts.¹⁵ They do, however, point to significant change upstream on the Euphrates and Tigris rivers in Turkey and Syria. Precipitation there is expected to fall by up to 16 per cent by the middle of the century, and the two countries are likely to increase their water storage capacity in response, reducing flows downstream into Iraq. Rising temperatures in the Middle East are also already leading to more extremely hot days, longer and more frequent heatwaves and a growing risk of desertification.¹⁶ Estimates suggest that Iraq will lose about 250 square kilometres of arable land a year as it becomes barren, with obvious knock-on effects on rural livelihoods.¹⁷

Gaps in regional water governance: Transboundary governance of the Tigris and Euphrates river system between Iraq, Syria and Turkey does not form part of multilateral or regional treaties, and the three

countries do not participate together in a management committee.¹⁸ Iraq does have bilateral riparian agreements with its neighbours, but these are not implemented.¹⁹

Turkey and Iran, which is the source of many Tigris tributaries, have also built dams and irrigation infrastructure over the past decade, which have reduced downstream flows significantly. Dozens of projects have been completed and others are under construction.²⁰ The Iraqi government predicts a 35 per cent reduction in the amount of water flowing into the country by 2035 compared with 2015 levels as a result.²¹

Unbridled demand: Iraq is increasingly struggling to balance the competing needs of farmers, domestic users and industry for water. The country's daily domestic water consumption is not among the

highest in the world, but it is at the higher end of the spectrum at 392 litres a day per capita.²² Domestic mains supply is free across the country, but those who rely on trucked water - generally the most vulnerable or isolated populations - have to pay. This is a growing concern given that Iraq's population has increased steadily over the last decade. Nor is much wastewater treated before it reaches the river again, the lack of sewage and treatment infrastructure creating a public health concern.²³

Eighty-five per cent of Iraq's water resources are destined to satisfy agricultural demand, but leakage and infiltration means that only between 30 and 40 per cent reaches farmland. The country's irrigation infrastructure is in disrepair after years of conflict and neglect, and irrigation practices are inefficient. Most consists of water-intensive surface flooding.²⁴

Basra, Misan and Thi-Qar governorates lie at the lowest reaches of the Tigris-Euphrates basin, where water flow is most limited. It is also heavily polluted by upstream run-offs that contain pesticides and other contaminants from intensive farming practices and untreated wastewater, as well as from the oil industry. Low water levels also mean the rivers have less natural capacity to dilute

particulate matter, including salt and other pollutants. Salinity is a particular problem in Basra governorate, where reduced freshwater flows allow greater seawater intrusion to the extent that saltwater reaches irrigation canals.²⁵

Participants in the research for this study seemed well aware of how their immediate environment and the resources available in southern Iraq have changed, particularly in the last decade, and how this affects their prospects of continuing to live there. "We farm, we need water for that. There's no other way," said Mehdi, who recently moved from Thi-Qar to work on farms in Kerbala.

FLOODS IN 2019

Unusually heavy rainfall in 2019 brought a brief respite from water shortages. The relief was welcomed by farmers and policy-makers, but the rains also caused extensive flooding in central and southern Iraq, and Misan and Basra governorates in particular. Torrential downpours and floods damaged and destroyed homes, triggering the displacement of 2,500 families Misan and 480 in Basra.²⁶ Another 7,600 families living in lowland areas of Misan were at risk of displacement because of rising river levels, and there were concerns that the

al-Suwaib dam in Basra would collapse.²⁷

Authorities activated governorate-level crisis cells, and the response was led by civil defence forces and NGOs. Local authorities established temporary camps for the displaced and coordinated with civil defence to evacuate people, many of whom are slowly returning to their places of origin. UN agencies coordinated with the authorities to provide assessments and humanitarian supplies, but international response efforts were hampered by the small UN presence in the south, a lack of humanitarian partners and

a shortage of pre-positioned supplies.²⁸ The Iraqi government agreed in April to compensate farmers and property owners for the losses and damage they incurred.²⁹

The 2019 rains also affected the dynamics and responses captured by this study, in that respondents recognised that the rainfall had ameliorated conditions and allowed them to return to relative normality in terms of their farming. They also understood, however, that the situation was temporary and that the underlying links between water scarcity and livelihoods remained.

FROM ENVIRONMENTAL DEGRADATION TO LOSS OF LIVELIHOODS

WATER SCARCITY AND SLOW-ONSET CHANGE

Environmental degradation has severely disrupted rural livelihoods in Iraq's southern governorates. The situation has been particularly acute over the last decade, when it has coincided with a period of low rainfall and drought that only ended temporarily in 2019. Farmland only exists near rivers or irrigation canals, on which cultivation is completely dependent. Arable and livestock farmers, however, are becoming ever less able to draw water, either because of scarcity or because it is of such poor quality that it is unfit for irrigation or animal consumption.

"This is the first time in four years that I planted cereals on our land, only thanks to the rain. There is not really an alternative to rain, such as water from the canals or wells, right now. The infrastructure is there, but everything is dry. The rivers run low."

JAFAR, A DISPLACED FARMER AND CURRENT HEADTEACHER IN DAWAYA SUBDISTRICT, THI-QAR

"When it rained, there was water for a month or two. When there was no rain in summer, nor was there any water in the canals ... We survived by buying drinking water and waiting for rain so we could use it to farm and make a living. We waited in 2013, 2014, 2015, 2016 ... particularly 2015 and 2016, when there was no water at all. Two years without water made us think there was no life here anymore."

TALEB, A DISPLACED SEASONAL FARMER IN AL-HAYDARIA, NAJAF

Communities that rely on livestock, mainly water buffalo and goats and dairy products made from their milk, have also suffered as their environment changes. Respondents said their local aquatic ecosystem of marshes and ponds no longer provided their animals with the food and water they needed. As the marshes dry up and water bodies drain, livestock deaths have been a recurrent economic loss in all three governorates. Sixty-seven per cent of the stayee livestock owners surveyed in Missan, 65 per cent in Thi-Qar and 27 per cent in Basra said they had suffered such losses. The majority pointed to lack of food and poor water quality as the reason for their animals' demise. A minority identified disease as the cause.

Gradual environmental degradation can also trigger sudden changes. There have, for example, been sporadic spikes in hazardous pollution levels in the lower reaches of the Tigris and Euphrates over the past five years. These have occurred without warning and with little margin to mitigate the consequences. Respondents in Basra spoke of their shock when their date palms died within days of irrigating them from the Shatt al-Arab waterway, into which the two rivers converge before discharging into the sea. The diversion of water from the Karun river in Iran has aggravated the situation.

"Since Iran built the dam, there is less freshwater flow in this part of Shatt al-Arab and the seawater is coming in instead ... Now when the dam closes in the summer and stops any flow, we know the first thing to do is to prevent water from reaching our farms because the salt will kill everything."

SHAKR, A FARMER AND GOVERNMENT EMPLOYEE FROM AL-SEEBA IN BASRA



Girls from Faihaa school queue to go to the latrines in Basra old city. Many students bring their own water bottles to drink from, but those from poorer families cannot afford it, drinking from the tap instead. Some students have already fallen ill and have to stay home or at the hospital. Photo: NRC/Tom Peyre-Costa, October 2018

Environmental degradation in southern Iraq has also become a public health concern. Around 118,000 Basra city residents were admitted to hospital in mid-2018 after drinking contaminated tap water.³⁰ The situation was the result of a number of factors, including lack of water treatment and monitoring of quality, poor regulatory oversight and a pollution and salinity spike.

In rural areas, many used to draw their water directly from local streams via small-scale treatment plants.³¹ Yet some respondents said this system no longer worked either because of lack of water to pump or because the equipment had broken down and the authorities had failed to repair it. Most rural families who can afford to now rely on trucked or bottled water, at an average cost per household of between \$120 and \$140 a month on water.³² Given that the average salary of a rural teacher is \$330, this constitutes a very significant outlay.

PEOPLE'S LIMITED CAPACITY TO ADAPT

Some farmers have taken measures to adapt to their changing environment and sustain their livelihoods. Some in Basra, for example, have abandoned planting summer crops to avoid losses incurred because of heat-waves, despite the fact that they lose income as a result. Farmers in Thi-Qar and Missan have dug wells to substitute freshwater, but groundwater quality is also far from optimal and there is a risk of over-extraction. There has also been an increase, albeit very small, in the use of greenhouses with drip irrigation systems.

Livestock owners able to afford the outlay have also incurred extra expense in their efforts to cope, such as buying fodder and purified water for their animals.

Respondents in one area of Basra inhabited by Marsh Arabs said their income has suffered significantly because of the increase in their costs.

Some livestock owners have sought new grazing areas, including in the south of the governorate, but arable farmers in the area who took part in this research said the intrusion of buffalo onto their land had caused significant damage to many crops, creating friction between them and the new arrivals.³³ This is aggravated by a general mistrust among farmers of Marsh Arab tribes, whose livelihoods depend on nomadic water buffalo herding.³⁴

Overall, the individual capacity of people who rely on rural livelihoods to adapt is limited.³⁵ The vast majority are unable to afford the investments needed to modernise their methods. This is in part because most arable and livestock farmers operate on a relatively small scale, which imposes a significant financial limit on their individual response capacities.³⁶

LOCAL PERCEPTIONS OF INSTITUTIONAL CHALLENGES

Farmers and livestock owners who participated in this study identified lack of government support as a recurring challenge, particularly when compared with the situation under the centralised system of the 1980s and 1990s. In that period, the state provided with the necessary inputs to farmers and later purchased all crops produced and marketed them, a system that fell out of use after the US invasion in 2003. Respondents said the absence of a functional policy or system to support the agricultural sector was a significant drag on their livelihoods. This perceived lack of consistency and certainty in policies has created frustration and financial insecurity among farmers. “We don’t even receive support for greenhouses as compensation for not being able to irrigate,” said Shahr from al-Seeba in Basra.

Many respondents thought that local authorities were responsible for guaranteeing that water is available for all, and seemed not to recognise that their communities also needed to adapt to dwindling water supplies. This puts local authorities in a difficult position. As the mayor of Dawaya put it: “The local authorities here can do little. This is a national level issue that needs legislation and proper implementation. We need agreements

with neighbouring districts and governorates about the distribution of water. The national government lacks planning to resolve these issues.”

A group of interviewed technical experts in Basra’s farming union said there were plenty of potential solutions at hand to deal with water scarcity, but that policymakers were unable to agree on which constituted the best way forward. This apparent paralysis in the face of a such a large and pressing challenge means there is little capacity on the ground for authorities and communities to adapt and respond.

Respondents blame institutions at all levels for failing to adopt an integrated strategy for sustainable solutions. One of the outcomes has been competition for water between different areas. As the local irrigation director in Dawaya explained: “Much of our water is diverted to the south just to help dilute the salt in Basra’s canals so they then can use it ... This is a waste. They should have a system in place there to solve their seawater issue.”

As the gravity of southern Iraq’s water issues becomes more apparent, pressure has mounted on authorities to provide solutions for rural livelihoods and address perceived institutional neglect. Mirroring the large protests in Basra city, residents in rural towns and villages have also held peaceful demonstrations to demand more water and better services and living standards.³⁷ The local council in Dawaya sacked the subdistrict’s mayor in August 2019 over his failure to act to quell the persistent protests. One community leader summed the situation up as follows:

The reason nothing is done is corruption and a lack of vision about what to do with the situation ... People in this area have never been represented in government, either in the province or nationally ... Dawaya is quite isolated from the rest of the governorate. All other districts are connected by main road and they have a voice. Our voice is not heard, and this has perpetuated our problems and made them more acute.

HUSSEIN, A DISPLACED COMMUNITY LEADER IN DAWAYA SUBDISTRICT, THI-QAR

THE ABANDONMENT OF AGRICULTURE

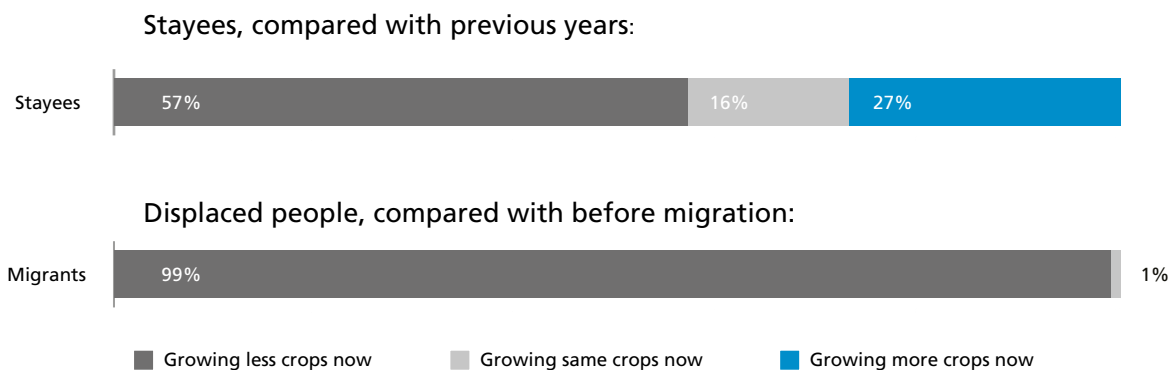
After Riadh lost his investment five years ago when his date palms in al-Dair, Basra, died because they had been irrigated with salty and polluted water, he expected to receive financial compensation that would allow him to bounce back. Nothing, however, was forthcoming and he eventually decided to abandon his agricultural livelihood. Other farmers said that of nearly two million date palms cultivated in the past only a few thousand were still productive.

"It's almost as if the government wants us to give up," RIADH SAID.

Data from Iraq's agriculture ministry show farmers have been abandoning the cultivation of other crops too. The amount of land dedicated to growing wheat and barley across the three southern governorates fell by around 12 per cent between 2016 and 2017 to 919,000 dunums (91,900 hectares).³⁸ Agricultural activity had all but come to a halt in most districts of Basra in 2018, where land is increasingly being turned over informally to residential use.³⁹

The survey results for this study suggest a similar scenario. Fifty-seven per cent of stayees surveyed across the three governorates for whom farming has traditionally been their main source of income said they now cultivated fewer crops than in the past, mainly because of lack of water and salinisation. Among those who had moved, 99 per cent said they were cultivating fewer crops than before their displacement.

FIGURE 2: Changes in the quantity of crops cultivated among survey respondents



FROM LOSS OF LIVELIHOOD TO DISPLACEMENT

LIMITED OPTIONS

The deterioration of rural livelihoods in recent years has forced many to choose between investing in adaptation in the hope that at least some water will be available for farming in the future, and abandoning their land as a coping strategy. Given the limited options, ever more families each year feel forced to seek alternative livelihoods, in most cases away from their place of residence.

The severe living conditions are an important factor in people's decisions to leave, and they make calculations. How much do I gain if I can produce a full harvest here? How much if I work on a farm elsewhere?

THAER, A STAYEE FARMER IN DAWAYA SUBDISTRICT, THI-QAR

I would love to have livestock again and try to replant my trees, but I can't afford any more losses. Not only have I given up farming, I've also ended up in significant debt. Luckily I have a job in the public sector now.

RIADH, A STAYEE GOVERNMENT EMPLOYEE IN AL-DAIR SUBDISTRICT, BASRA

Many participants in this study said state employment, including in the security forces, had saved them from having to leave over the past decade. Iraq's public sector has been a relatively stable source of income for a large proportion of families no longer able to make a living from agriculture in recent years. Opportunities have blossomed since 2003 and particularly at the beginning of this decade as the country emerged from civil war and oil prices leapt.

WEATHERING THE WATER CRISIS WITHOUT FOOD INSECURITY

Despite environmental degradation and the loss of agricultural livelihoods, food insecurity and hunger have not been an issue or a driver of displacement in southern Iraq. Markets have remained well stocked, and even families with limited financial resources have recourse to formal and informal safety nets that provide sufficient

access to food. As local production has dropped as a result of water shortages, imports from Iran, Jordan and Turkey have made up for the shortfall, ensuring food security. Imported food is also cheaper than local produce.

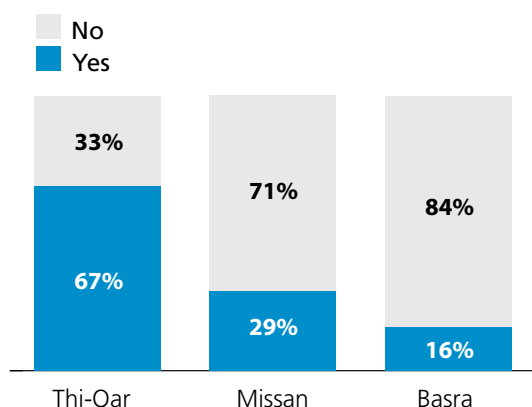
Data on food security and vulnerability in Iraq from 2017 shows that food consumption was acceptable among 98.7 per cent of the population in Thi-Qar, 99.9 per cent in Basra and 98.2 per cent

in Missan.⁴⁰ Even measured using an expanded food security index that incorporates additional indicators such as affordability and coping strategies, the food insecure proportion of the population does not exceed five per cent in any of the three governorates. The same assessment, however, warns that half of Iraq's population and particularly IDPs may become food insecure in the near future if socio-economic indicators deteriorate.

The number of public sector jobs available has fallen off since the economic crisis of 2014-2015, however, and many young men have secured employment in new armed groups that have emerged since the defeat of ISIL, potentially laying the ground for a new set of challenges.⁴¹

The public sector may have provided an escape route from unemployment for some, but it is clearly not a panacea for the loss of rural livelihoods. Nor can it be assumed that it will continue to be a viable option as the country faces new threats to its stability, as seen in recent years. In all of the locations visited for this study, many families had left, and those who remained constantly pointed out empty homes. A significant proportion also said that at least one close family member, most often a sibling or son, had moved away, the vast majority to escape the combination of water shortages and lack of economic opportunities (see figure 3).

FIGURE 3: Percentage of stayee respondents with a close family member living away from their current location



PRESSURES AND OPPORTUNITIES

In some villages, particularly in Thi-Qar, as many as half of the homes are abandoned. Some were also damaged in the 2019 rains and floods. The tipping point for people to leave is often reached after years of decreasing agricultural yields and losses in terms of crop failures and livestock deaths, and after money borrowed from extended family to support their livelihoods becomes too difficult to pay back.

“What is the tipping point? When you spend money preparing the land and planting but then the crop fails, or you have to sell your animals because you can’t maintain them. It is then when you are forced to leave. Everyone keeps an eye out for opportunities through their wider family and tribal connections. Many people work as labourers for other farmers they have connections with.”

JAFAR, A DISPLACED FARMER AND CURRENT HEADTEACHER IN DAWAYA SUBDISTRICT, THI-QAR

“My whole family, they have all have been moving away since 2011. The latest was one of my cousins who left this year. They lost livestock because of the lack of water, and found it was more profitable to be elsewhere.”

THAER, A STAYEE FARMER IN DAWAYA SUBDISTRICT, THI-QAR

These houses belong to my cousins, who decided to migrate last year before the start of the agricultural cycle. They gave up trying to farm. Their plot was relatively small and as their yields fell they couldn’t generate enough income.

DHIAB, A STAYEE FARMER IN DAWAYA SUBDISTRICT, THI-QAR

Many had no choice but to leave. They went to Basra to work in anything they could find. Those who left were able to network in the city to help them in their search for a job and they have been able to adapt. Those who have stayed here either have other income to get by on or have no option but to stay because they do not know anyone in the city.

SHAKR, A STAYEE FARMER AND GOVERNMENT EMPLOYEE IN AL-SEEBA SUBDISTRICT, BASRA

Many people seem to decide that leaving is inevitable, but only do so once they have secured an economic alternative elsewhere.⁴² Others may not be able to afford to leave even if they want to. For many, livestock is the only asset they have to sell to obtain liquidity, given that the value of their land is virtually zero because of the water shortages and lack of buyers. This represents a net loss of wealth. In other cases, the extended family may help to fund a member’s departure.

Many families from the areas affected by slow-onset changes have gone to do seasonal work or to rent land to farm in other agricultural areas, such as Kerbala and

Najaf governorates to the north or al-Zubair in Basra to the south. Many respondents said this was a common option given that those affected only have agricultural skills, although some have moved to urban areas to work as day labourers.

Fifty-nine per cent of the displaced people surveyed said that their whole family had moved, which suggests a long-term rather than seasonal move. Forty-one per cent said a number of family members had left together, and none had moved on their own. Some of the stayee respondents’ narratives also point in a similar direction. The head of household and other male members tend to move first, leaving the women behind to sell any family assets before joining them.

RURAL TO RURAL MIGRATION AND THE ROLE OF NETWORKS

Disaggregation of IOM data suggests that most families displaced by Iraq’s water crisis in 2019 moved from one rural area to another. Nearly a quarter moved to other villages, and almost half to subdistrict capitals where agriculture is still an important livelihood (see table 3).

Social networks are a significant factor in shaping people’s movement. Taleb, who moved from the village of al-Aghrad in Thi-Qar to work on a farm in Najaf, said: “We called friends of friends where farming is abundant. There was a farmer that knew another farmer in Najaf and he called him to recommend us. He then called us back and told us that we would get work there.” Mehdi, from the same village, took advantage of family connections to move to central Iraq. “Thanks to my father, who was displaced in the 1990s and built a network, it was easier for me when I decided to move.”

The research for this study shows that tribal connections are particularly important and act as a type of safety net. Tribal leaders and farm owners in destination governorates often have social and family ties with the communities in the districts assessed. There has been significant recent movement from Thi-Qar to al-Zubair district in Basra thanks to the presence of tribes from Thi-Qar who have been in the area since the 1980s when they fled persecution. They recruit agricultural workers among their extensive networks and reach agreements with families willing to move. They also provide housing and other support, often in exchange for about a quarter of the produce. Such networks also tend to encourage longer-term movements.

RURAL TO URBAN MIGRATION AND LIVELIHOOD IMPACTS

Many other families have moved to urban areas, and the scale of these movements has shaped the landscape of some mid-size towns and cities. Survey responses among displaced people in Dawaya Centre, a small town in Thi-Qar, show that lack of water and economic opportunities compel many to leave, and search better living conditions and work prospects in urban areas (see figure 4).

In Dawaya Centre, two new neighbourhoods have sprung up over the last decade. One tribal leader from a village in the subdistrict moved to the centre of town in search of better opportunities, but many other families have built homes in the outskirts, on land officially registered as agricultural. Local authorities have so far allowed these families to stay given their tribal connections, but the situation is legally precarious. Nor do many basic services extend to the newly urbanised areas. The

TABLE 3: Places of displacement in 2019 by location type

Governorate capitals such as Basra, Kerbala and Najaf	20%
District capitals such as Shatra, Maimouna and Zubair	11%
Subdistrict capitals (rural towns of ~15,000 inhabitants)	46%
Rural villages	23%

Source: IOM Iraq’s drought crisis tracking list, July 2019

FIGURE 4: Push and pull factors for people's movement to urban areas

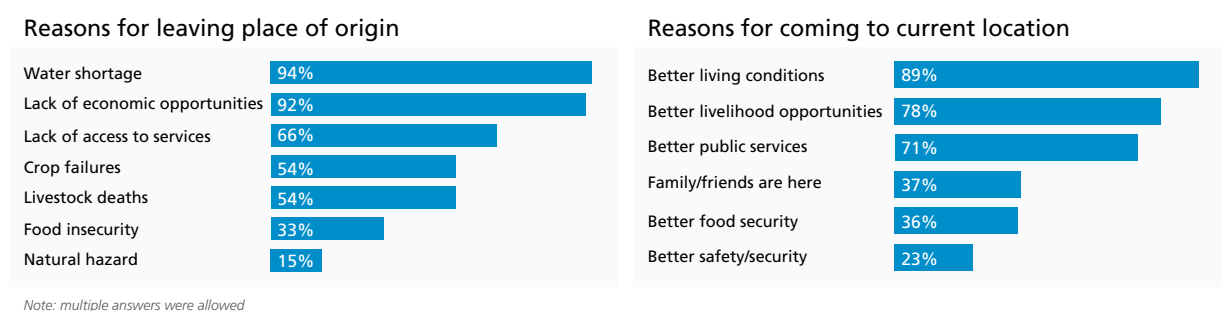
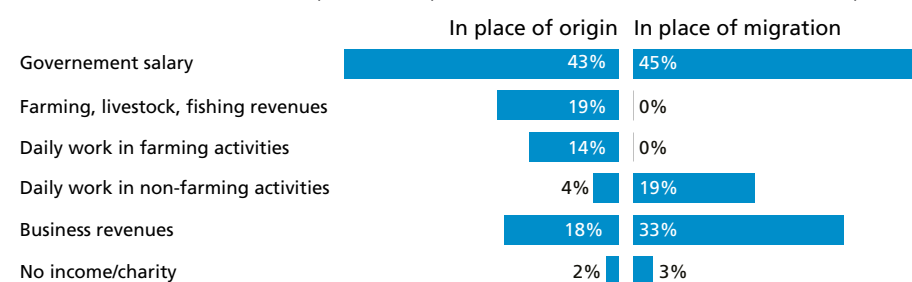


FIGURE 5: Percentage of displaced respondents by main source of income in place of origin and destination



majority of displaced people surveyed, however, still felt their living conditions were better than in their villages of origin.

Many of those who have moved to Dawaya Centre have also had to switch livelihoods. Arable or livestock farming was the main source of income for more than a third of the families surveyed in their areas of origin and a secondary source for some of those working in the public sector. None, however, were able to rely on agriculture once they had moved and only six per cent said it provided a secondary source of income (see figure 5).

New arrivals from rural areas have also fuelled rapid population growth and urbanisation in Basra city over the last decade as agricultural livelihoods have dwindled. Its water and sanitation infrastructure, however, has struggled to cope.⁴³ More than 300,000 people, or about 15 per cent of the city's population, are thought to live in informal neighbourhoods in its expanding outskirts.⁴⁴

RURAL DEPOPULATION

As increasing numbers of people who used to depend on agriculture move away, rural areas are becoming depopulated, isolating those left behind. According to

the mayor of Dawaya subdistrict, only people with a more stable source of income such as a public sector job tend to stay. His view was backed up by Jafar, who now works as a headteacher in the subdistrict: "There were 100 families in our village, but all but 15 have ended up moving here. The area was severely affected by drought and water scarcity, and those who stayed were the ones in government employment who didn't need to move."

Rural depopulation and the loss of social capital involved is an emerging issue of concern for policymakers on displacement and migration worldwide.⁴⁵ Hussein, a tribal leader who moved to urban Thi-Qar, also said that community cohesion had suffered.

"People who have moved to cities are developing new norms and losing traditions. In villages, everyone remains the same because people respect traditions ... It's extremely important to have people back on the land, because otherwise it creates insecurity and abandonment."

Those left behind also lose some of their agency because their voice is less audible to authorities. According to Abbas, a public sector employee in rural Thi-Qar, the government "doesn't seem to care about the votes it could get from us if it actually resolved anything". This

perceived neglect and the lack of development in rural areas is a factor in pushing people to leave as well. Among people surveyed in their areas of origin, only around half were sure they would stay put even in the short term. Many of those who said they planned to move at some point cited lack of access to livelihoods and services, and environmental factors (see figures 6 and 7).

There is also a psychological element, known as the “cumulative causation of migration”, at play. This holds that as more people leave, it becomes harder to justify staying put.⁴⁶ As Kadham, a displaced person from rural Thi-Qar in Najaf put it:

“In our village, people started leaving gradually, family by family, and this made us think that we should leave as well.”

Beyond depopulation as a push factor in and of itself, the wellbeing of those who have left, real or perceived, also influences people’s decisions to move:

My neighbours moved to Zubair three or four months before we did and started to work on farms or in construction. They told us their decision had brought good benefits, more than staying in our home village ... so we also decided to leave to look for work as day labourers.

QASSIM, WHO LEFT THI-QAR FOR BASRA GOVERNORATE

Despite these factors, some of those interviewed felt strong cultural reasons to stay put. Dhiab, a farmer in a village in Dawaya, said: “I am not thinking of moving from here ... I am responsible for taking care of the tribe’s *mudhif* and this responsibility is sacred. I can’t abandon it even if I have nothing else to live on.” The *mudhif* is a traditional ceremonial building made of reeds where community members gather to organise, settle disputes and receive visitors. It is a centerpiece of a tribe’s life.

A REALISTIC WAY BACK?

Following the rains of 2019, which temporarily restored water to Thi-Qar’s canals, many of those who had left returned to cultivate their land, often at the behest of their tribal leadership - the tribe again working as

an anchor point. In some cases only the head of the household returned and often only for a few weeks at a time to sow and harvest, but this shows that people are willing to return to work their land if circumstance permit, even if they have been away for a long time.

“This year, many people returned to our villages for the first time in many years, thanks to the abundant rains. Many came back from other governorates. They brought their farming equipment, seeds and work clothes with them ... so you can see the importance of water for us. But after they had harvested and got their money, most of them went back to their place where they were living to support their family there.”

HUSSEIN, A DISPLACED TRIBAL LEADER IN DAWAYA SUBDISTRICT, THI-QAR

“It was the first time in four years that I had gone back to our village and planted cereals on our land. Many others returned to the village to farm as well, but only for the one season. Then they left again because there’s no guarantee they will be able to farm next season.”

JAFAR, A DISPLACED FARMER AND CURRENT HEADTEACHER IN DAWAYA SUBDISTRICT, THI-QAR

This suggests that people would return permanently if they felt they could sustain their agricultural livelihoods, and that was the unanimous view among all those interviewed. Rural residents also remain confident that enough water will be available again in the future, though it may already be too late to fully reverse the situation.

Have these communities already crossed a point of no return given the magnitude of the environmental challenges ahead, or is there a way back for them? There is definitely room for improvement in national and regional water management to increase availability and make usage more efficient, but there is also work to do at the government and community level to help people adapt to their changing environment.

FIGURE 6: Percentage of stayee respondents by future intentions

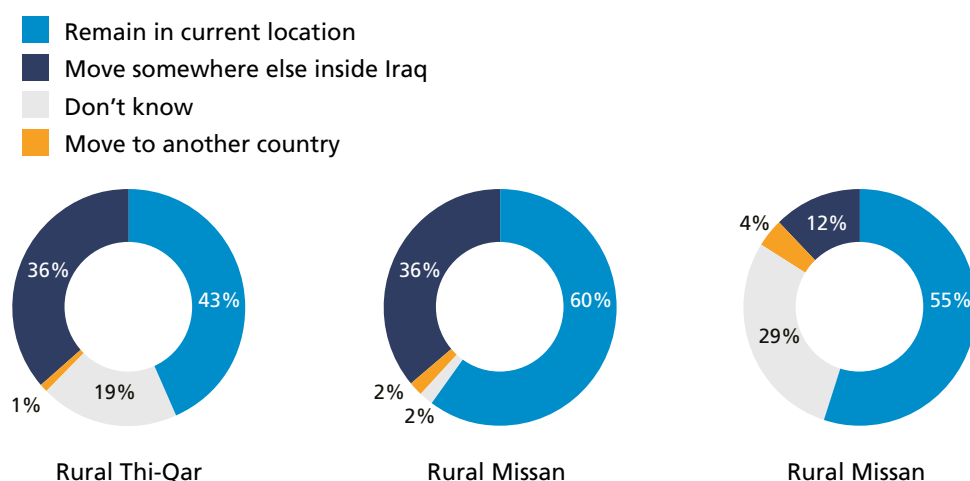
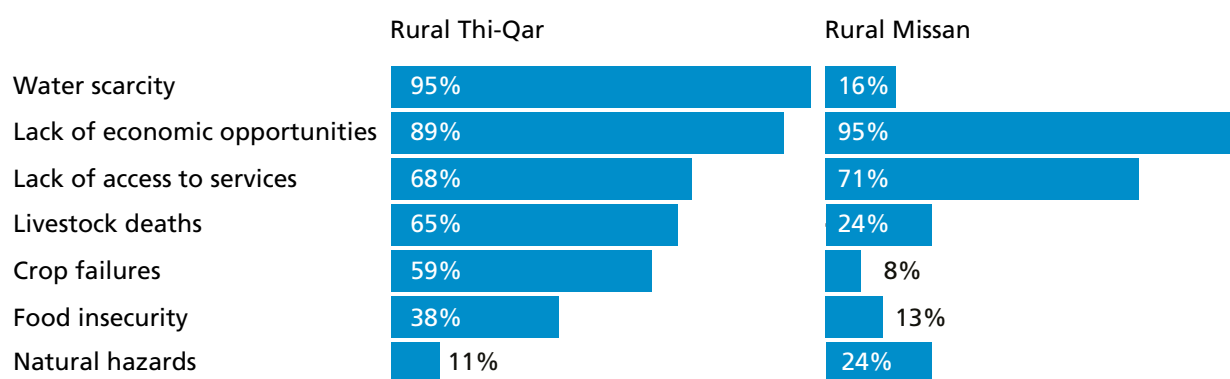


FIGURE 7: Percentage of stayee respondents intending to leave by reason



Note: Results only indicative (multiple choice question). Rural Basra not included due to small sample size

THE MARSHLANDS: A PROTECTED ECOSYSTEM IN NEED OF CARE

Iraq southern governorates are home to fragile marshlands, 90 per cent of which were drained in the 1990s. Efforts to restore them after 2003 included reflooding, the designation of the Central Marsh in Thi-Qar as a national park in 2013, and the assignation of Unesco World Heritage status for the marshlands as a whole in 2016. These initia-

tives, however, have fallen short of sustaining the ecosystem and minimum environmental conditions have still not been met. The long-term future of the marshlands depends on the willingness of the government and local people to commit to the minimum freshwater flows necessary to support the ecosystem's flora and fauna.⁴⁷

The marshlands are also home to tribes known collectively as the Marsh Arabs, who have unique

cultural and livelihood traditions. The communities are insular, conservative and centred around a lifestyle in which the marshes play a significant role. Marsh Arabs interviewed for this study said neither they nor any other members of their community had plans to move despite the negative environmental outlook and its potential impact on their livelihoods. It also seems unlikely that they would be easily accepted or trusted if they did move elsewhere.

RECOMMENDATIONS

The most important thing regulating life here is the water. People leave if there is none or they try to find other employment.

**ABBAS, A STAYEE GOVERNMENT EMPLOYEE IN
DAWAYA SUBDISTRICT, THI-QAR**

Improving government responses to environmental degradation and addressing the loss of rural livelihoods and associated forced displacement is a significant challenge that cuts across all levels of society.

MITIGATING ENVIRONMENTAL DEGRADATION

Shifting current approaches to better respond to Iraq's environmental challenges will require progress toward the following policy objectives:

- | The riparian countries on the Tigris and Euphrates should address their shared challenges multilaterally, because Iraq relies largely on downstream flows from neighbouring countries for its water. International stakeholders should support the development of a regional framework for a more equitable distribution of water resources.
- | Water scarcity is emerging as a major challenge to Iraq's long-term stability, but its significance is in danger of being overlooked. The national government should ensure that the impacts of slow-onset environmental change, including displacement, and disaster risk reduction are integrated into post-ISIL recovery and reconstruction plans.
- | Environments such as marshes, wetlands and agroecosystems constitute important natural capital. They serve society in many ways beyond their productive value, and the national government should restore and protect them. Water for human use should not be at the expense of water for the environment.

Mitigating environmental degradation will also require immediate and longer-term action at the operational level:

- | National and international stakeholders should assist the government in establishing integrated national technical plans and strategies to address the country's environmental challenges and improve water management. This should include technical and financial support for line ministries, and particularly for the Ministry of Water Resources' plan to improve the country's water infrastructure.
- | National and international stakeholders should monitor the government's progress toward implementing the objectives of the national development plan for 2018 to 2022 and achieving the relevant Sustainable Development Goals, and advise on possible improvements.
- | Public awareness and education on conservation and sustainable usage have an important role to play in Iraq's adaptation to water scarcity. Authorities and civil society should work together on such campaigns, and not only in the south. Overconsumption is a systemic problem across the country as a whole.

INCREASING RESILIENCE IN RURAL AREAS

The issue of displacement associated with slow-onset events is largely absent from the policies, programmes and priorities of both the government and international stakeholders. A more proactive approach is required:

- | Agencies and line ministries working on displacement should begin consistently and comprehensively tracking population movements associated with economic and environmental factors nationwide, starting with the southern governorates.

Such data would serve not only to understand the location and needs of those affected, but also as an early warning mechanism for policymakers and NGOs alike.

International stakeholders should increase their support for local NGOs and civil society organisations through direct funding partnerships and advocacy. Because few international stakeholders operate in the south, local organisations are bearing the brunt of the water crisis largely alone. With more support, civil society organisations in the region have the capabilities to address the growing needs of vulnerable communities and strengthen their resilience. A greater international presence to meet growing needs may also be warranted.

The national government should make up for the historical neglect of rural areas by improving their electricity and road networks and health and education infrastructure. Communities' advancement in terms of livelihoods, services, wellbeing and agency should be a priority for national and international stakeholders, because development investment has the potential to stem the current flow of people from rural areas.

The national government should ensure that locally produced and imported food are put on an equal footing. Tax policies should not be to the disadvantage of local produce and markets. Given the environmental challenges inherent in expanding agriculture in the south, care should also be taken that any new policies that restrict imports do not harm local food security.

The resilience of rural communities affected by or at risk from slow-onset environmental degradation could also be improved via household-level interventions:

Authorities and their development partners should shore up agricultural livelihoods to reduce rural households' vulnerability to slow-onset events, which otherwise may force them to leave. In the immediate term, this should include financial assistance in purchasing seed, fertilisers and clean water for livestock for those unable to afford such investments.

Farmers should be supported in adapting their practices to the reality of water scarcity. This requires scaling up financial assistance in the form of longer-term investment in greenhouses with water-saving systems such as drip irrigation. Given the existing lack of skills among many farmers, agricultural extension services and knowledge transfer platforms should be provided in tandem.

The government's financial compensation scheme for arable and livestock farmers who incur losses because of environmental hazards such as water contamination or scarcity should be improved. The scheme's limited effectiveness currently contributes to the abandonment of agricultural activities because many farmers are unable to recover from such losses, which in turn harms the resilience of the sector as a whole. Reform should be made a priority with technical input from international stakeholders.

SUPPORTING THOSE DISPLACED

There are a number of key policy areas where initiatives could help displaced families adapt to their plight, including livelihoods, welfare and legal rights:

Development stakeholders should coordinate with the Ministry of Labour and Social Affairs to provide vocational training for people displaced from rural to urban areas. Such initiatives should be informed by labour market assessments and paired with job placement opportunities, which would give the private sector a leading role in integrating displaced people into the workforce.

Because many families displaced to both rural and urban areas set up home on land not officially allocated for residential use, they often lack basic services. The national government should fulfil its responsibility to ensure all citizens have adequate access to such services, including by investing in infrastructure. In the immediate term, humanitarian water, sanitation and hygiene (WASH) programmes also have a vital role to play. Cash-for-work initiatives for any WASH-related construction would also help to provide short-term employment and income.

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