WFP World Food Programme

DROUGHT IN IRAQ

PART 2
IMPACT OF THE CURRENT DROUGHT ON LIVELIHOODS AND FOOD SECURITY

JULY 2024

OVERVIEW

Iraq's climate is continental, subtropical, and semi-arid in the central and southern parts of the country as shown in Figure 1. In the north, the climate is Mediterranean: the summer season is dry and varies between hot and extremely hot temperatures, while the wet season corresponds to winter in most of Iraq, with rainfall between December–February. In the north and northeast, rainfall is usually between November–April[1].

Figure 1. Climate classification of Iraq

Source: ACAPS using data from WB (accessed 20/03/2023)

Disclaimer: the boundaries and names depicted, as well as the data used on this map, do not represent ACAPS' sponsorship or acceptance. ACAPS is not liable for any map misuse or misinterpretation.

Iraq has experienced various episodes of both metrological and hydrological droughts throughout history, such as the droughts of 1983, 1992, and 2008[2]. The most recent episode of drought is the one that started in 2021, with record low precipitation and water supply from both Euphrates and Tigris Rivers[3].

Meteorological and hydrological droughts have an adverse effect on Iraq's economy. They affect people's livelihoods and food security, mainly because of their impact on labour demands and income generation in the agriculture sector. The droughts also reduce domestic agricultural production and increase government spending, especially for social programmes[4].

Climate change is increasing the incidence of natural hazards, such as droughts, floods, earthquakes, and dust storms, as well as epidemics, such as cholera, which the country is already prone to[5]. Iraq is

1 (WB accessed 28/02/2023; IOM 09/08/2022)

2 (REACH 07/11/2022; USDA/GAIN 15/04/2022; FAO et al. 03/10/2021)

3 (WFP 05/12/2022; Al Arabiya News 24/10/2022; NRC 10/2022 and 23/08/2021; REACH 07/11/2022; VOA 29/05/2022; WVI et al. 31/03/2022; WB 09/11/2022)

4 (WB 28/09/2020 and 09/11/2022; WFP 31/03/2021; UNDRR 2021; CEIP 04/06/2020; FAO et al. 05/01/2021)

5 (WB accessed 28/02/2023)

one of the countries most vulnerable to climate change globally[6]. Some model projections expect a mean annual temperature increase of 2° C before 2050 and an increase in the occurrence of extreme temperatures above 50° C[7].

Besides natural hazards, consecutive human-driven crises, the recent COVID-19 outbreak, and the subsequent economic slowdown have also affected Iraq. Over the past decades, Iraq has experienced multiple wars, authoritarian rule, the US-led invasion in 2003, incidents of sectarian violence, and conflict with the Islamic State[8]. Years of conflict have resulted in high levels of internal displacement, the destruction of critical infrastructure, and social and political destabilisation. The effects of these consecutive crises have also limited financial and livelihood resources and hindered Iraq's human, social, and economic development[9].

6 (EC accessed DD/MM/2023)

7 (IOM 09/08/2022; WB 09/11/2022; WVI et al. 31/03/2022; UNEP 21/09/2020; The Guardian 07/09/2022; Al-Ansari 26/07/2022)

8 (OCHA 27/03/2022; Adelphi 26/07/2022; ICRC 12/2007)

9 (WB 09/11/2022; 3RP 02/02/2023; Adelphi 26/07/2022)

ABOUT THIS REPORT

Aim

In early 2023, ACAPS conducted a secondary data review and analysis to unpack the drivers and impact of drought in Iraq, with a focus on the humanitarian needs resulting from its effects on the country's economy and people's livelihoods. The output of the research is a series of reports comprising:

1. an overview that provides an executive summary of the key findings of each of the three reports composing this series, as well as key messages
2. a report on the drivers and aggravating factors of recurring droughts in Iraq
3. a report detailing the impact on food security and livelihoods of droughts, especially the drought of 2021-2022
4. a report providing a situation outlook and review of economic projections to look at the future evolution and impact of the current drought.

This is the second part of the series, and it discusses the impact on Iraq's agriculture, economy, food security and people's livelihoods of the drought of 2021- 2022.

The report was commissioned and supported by WFP Iraq. The aim of this series if to support WFP Iraq's work in promoting an improved understanding of the climatic and economic costs of inaction to recurrent droughts in Iraq.

Disclaimer

The boundaries and names depicted, as well as the data used on this map, do not represent ACAPS' sponsorship or acceptance. In this ACAPS analysis commissioned by WFP Iraq, names of places are written following WFP's spelling used for the IRAQ Market Monitor Reports. ACAPS is not liable for any map misuse or misinterpretation.

Methodology

the reports of this thematic series are based on the secondary data review of publicly available sources on Iraq's drought situation. The report builds on qualitative and quantitative data in a mixed-method approach. Five key informants with local thematic expertise in agriculture, humanitarian operations, and advocacy provided a more comprehensive understanding of the situation.

Limitations

- There is limited geographic and historical coverage of the consequences of successive droughts in the country, making it difficult for ACAPS to analyse the evolving impact of droughts in Iraq.
- Updated socioeconomic indicators for Iraq, including Iraqi Kurdistan, although existing, are not always publicly available. For the socioeconomic sections of this report, ACAPS relied on less up-to-date available information.
- Iraq faces the effects of multiple, consecutive, and intertwined crises, making it hard to isolate drought impacts from other crises. This report only explores some of the most significant and direct effects of Iraq's different types of droughts on humanitarian needs and living conditions. It was sometimes challenging to differentiate the needs resulting from the current droughts from those resulting from other hazards or humanitarian crisis drivers, including conflict.

TABLE OF CONTENTS

I. DROUGHT IMPACT ON STRATEGIC CROP PRODUCTION

20% of all employment in Iraq in 2021[1]. In rural areas, agriculture is the largest source of employment[2]. Despite only accounting for 3.9% of Iraq's gross domestic product (GDP) in 2021, agriculture is still the second-largest sector after oil production[3].

Small-scale farming systems dominate the agriculture sector, and traditional methods typically characterise these low input-low output systems. There is also limited social capital, and farmers have reduced access to financial credit and the necessary knowledge to adopt modern agricultural practices, including mechanisation, irrigation, and fertilisation, or apply improved pest management systems. Crop yields are low by any comparative standards[4].

Almost one in five Iraqis is a farmer. Desertification, drought, and the lack of rainfall directly affect many Iraqis by reducing crops and income and increasing food prices. The World Bank estimated that a 20% fall in Iraq's water supply and climate change-induced crop yield decline could reduce Iraq's real GDP by up to 4% or USD 6.6 billion[5].

A severe water shortage is affecting irrigated agriculture. In 2022, Iraq's water reserves dropped to 60% of 2021 levels[6]. Available water before the 2021–2022 cropping season was only enough for 250,000 hectares of land, according to the Iraqi Ministry of Agriculture (MOA)[7]. This drop led the MOA to cut irrigated areas for crops by 50%, causing an almost 25% further reduction in wheat production[8].

Irrigated agriculture occurs in most governorates but is particularly predominant in central and southern Iraq, especially in Wasit and Qadisya governorates. In 2022, even with the 50% cut in irrigated cropping, central and southern irrigated areas contributed to most of Iraq's wheat production as the meteorological drought caused low production in northern Iraq[9].

Wheat production

Wheat accounts for 70% of cereal production, followed by barley[10]. In Iraq, 70% of the wheat cultivation area is irrigated, and its yield represents 75% of all national production. 25% of wheat production occurs in rain-fed systems, making it susceptible to meteorological and hydrological drought[11].

Before the 2021 meteorological drought, wheat production increased almost threefold, from almost 2,000,000 tonnes in 2018 to 6,000,000 tonnes in 2020, as shown in Figure 2[12]. This increase is linked to the rehabilitation of relevant infrastructure after the retreat of the Islamic State of Iraq and the Levant and to favourable weather conditions providing sufficient rainfall despite above-average temperatures[13].

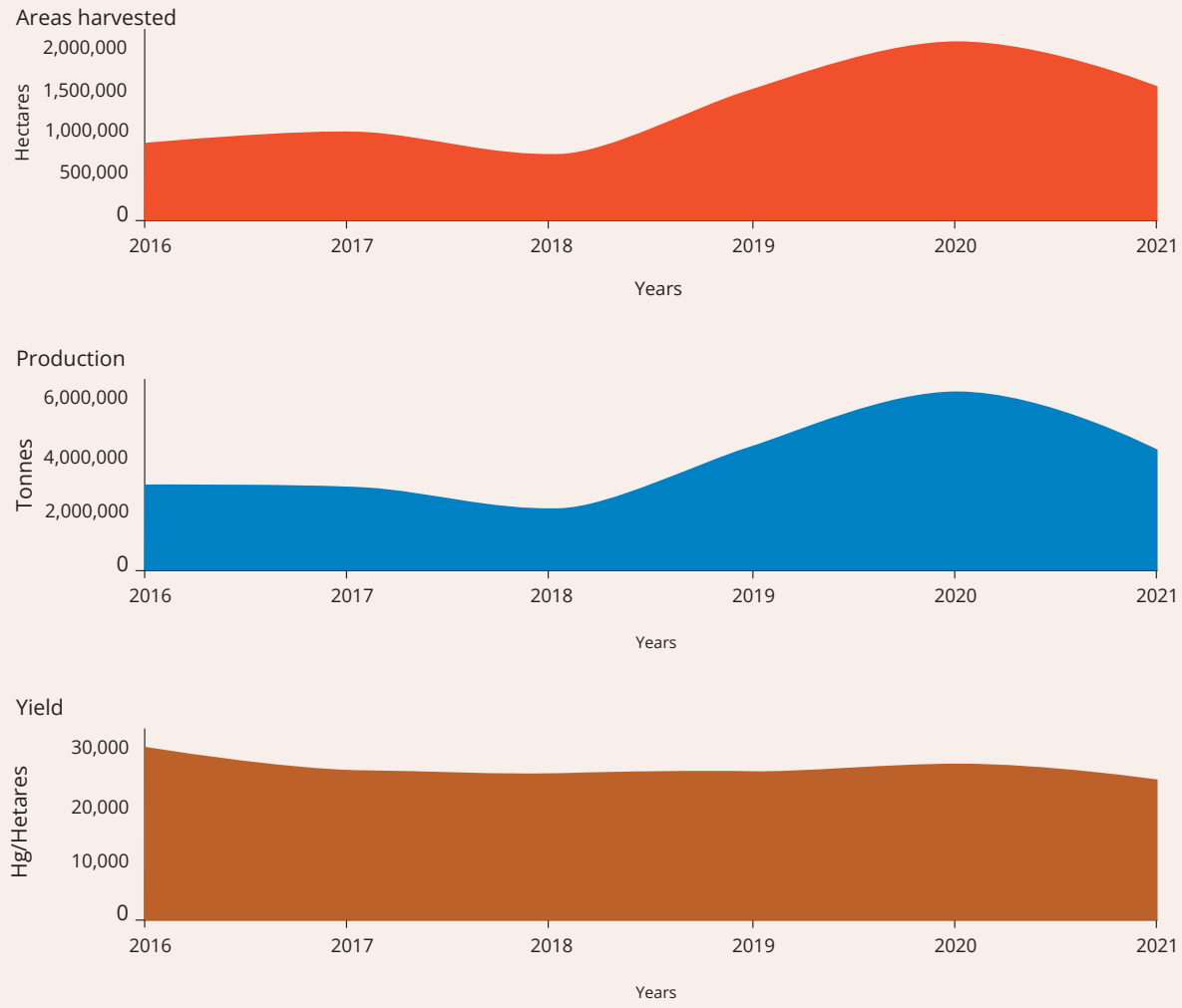
In 2021, insignificant rainfall and unfavourable weather, especially in northern Iraq, caused crop failure and low yields, resulting in a 25% reduction in wheat production[14]. In both northern Iraq and the Kurdistan region of Iraq, crop production suffered significantly. In Iraqi Kurdistan, wheat production was

1 (WB accessed 26/02/2023; WB 28/09/2020; WFP 31/03/2021; UNDRR 2021)
2 (WFP 31/03/2021)
3 (WB accessed 20/02/2023)
4 (WFP 31/03/2021)
5 (WB 2021)
6 (Daily Sabah 16/07/2022; Yale 10/01/2023; Phys.org 20/05/2022)
7 (Reuters 17/10/2021)
8 (WB 09/11/2022; USDA/GAIN 15/04/2022)
9 (USDA/GAIN 15/04/2022)
10 (WVI et al. 31/03/2022; VOA 29/05/2022)
11 (WFP 31/03/2021; FAO 11/06/2021)
12 (FAO accessed 30/04/2023)
13 (KII 11/01/2023; WFP 31/03/2021; USDA/GAIN 15/04/2022; FAO 11/06/2021)
14 (KII 11/01/2023; KII 12/01/2023; USDA/GAIN 15/04/2022; FAO et al. 03/10/2021)

50% less than in 2020. In 2021, Nainawa governorate in northern Iraq experienced crop failure, with 70% less crop production than in 2020. A 2021 survey of Iraqi farming communities found that around one-third of wheat and barley farmers reported crop failure[15].

Overall, from 2021–2022, meteorological drought affected mostly areas in northern Iraq. More than any other area, northern Iraq highly depended on rain-fed agriculture and witnessed the highest

Figure 2. Wheat harvested areas, production, and yield from 2016–2021



Source: ACAPS using data from FAO (accessed 30/04/2023)

precipitation deficit. Nainawa and Kirkuk were the most affected areas, where low rainfall meant that in 2022, farmers could only harvest 25% and 65% of the planted areas in each respective governorate. In 2022, Nainawa and Kirkuk respectively accounted for 30% and 5% of all wheat-planted areas in Iraq[16]. As shown in Figure 3, the yields of harvested areas in northern governorates were almost half of those in central and southern Iraq[17]. This difference is because most wheat crops in northern Iraq are rain-fed. In Nainawa governorate, 85% of the wheat areas are rain-fed, and in Iraqi Kurdistan, 80% are rain-fed[18].

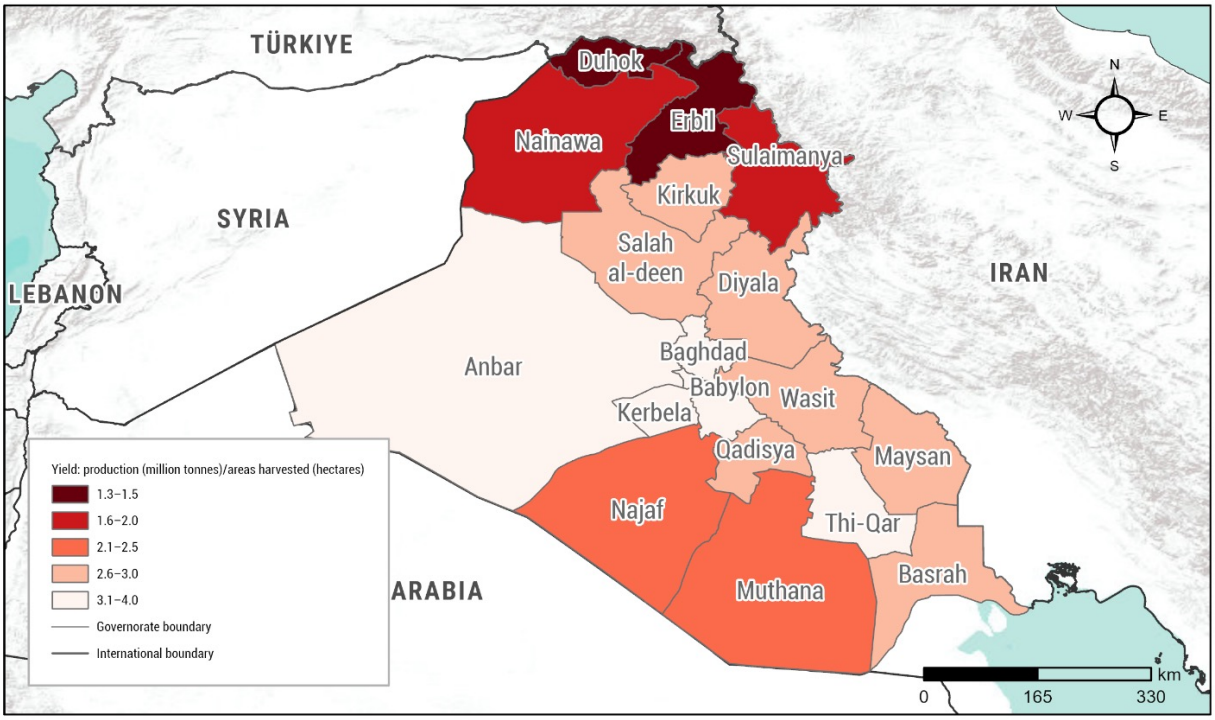
15 (NRC 15/12/2021; IFRC 27/12/2021)

16 (USDA/GAIN 15/04/2022; REACH 07/11/2022)

17 (USDA/GAIN 15/04/2022)

18 (FAO 11/06/2021)

Figure 3. Wheat yields in Iraq



Source: USDA/GAIN (15/04/2022)

Disclaimer: the boundaries and names depicted, as well as the data used on this map, do not represent ACAPS' sponsorship or acceptance. ACAPS is not liable for any map misuse or misinterpretation.

Hydrological drought has also severely affected irrigated wheat agriculture, which accounts for 70% of cultivated areas and yields 75% of total production[19]. In 2022, water scarcity cut irrigated wheat areas by 50%. The hydrological drought affects the governorates in central and southern Iraq, which depend highly on irrigation[20]. The hydrological drought has led the MOA to exclude central Iraq's Diyala governorate from its National Annual Agricultural Plan, which determines wheat production areas. This movement excludes wheat-growing farmers in Diyala from subsidies and makes them ineligible to sell their products for higher prices to the Ministry of Trade's silos[21].

The hydrological drought has affected central and southern Iraq more than the meteorological drought, compared to northern Iraq, mainly because the south relies more on irrigated agriculture. Even though rain-fed areas comprised around one-third of central and southern Iraq's planted areas, low rainfall meant they contributed less than 3% of Iraq's wheat production[22].

Barley production

Barley is another strategic crop in Iraq. Its main use is in Iraq is as animal feed for cows, sheep, and goats[23].

From 2021–2022, barley production showed similar crop failure trends as wheat but with more severe failed outputs. This failure is because Iraq's entire barley-planted area is rain-fed. Figure 4 shows the barley outputs between 2016–2022. Barley production was around 172,822 tonnes in 2021, significantly lower than the 2020 production of 1,123,712 tonnes[24].

19 (WFP 31/03/2021; FAO 11/06/2021)

20 (USDA/GAIN 15/04/2022)

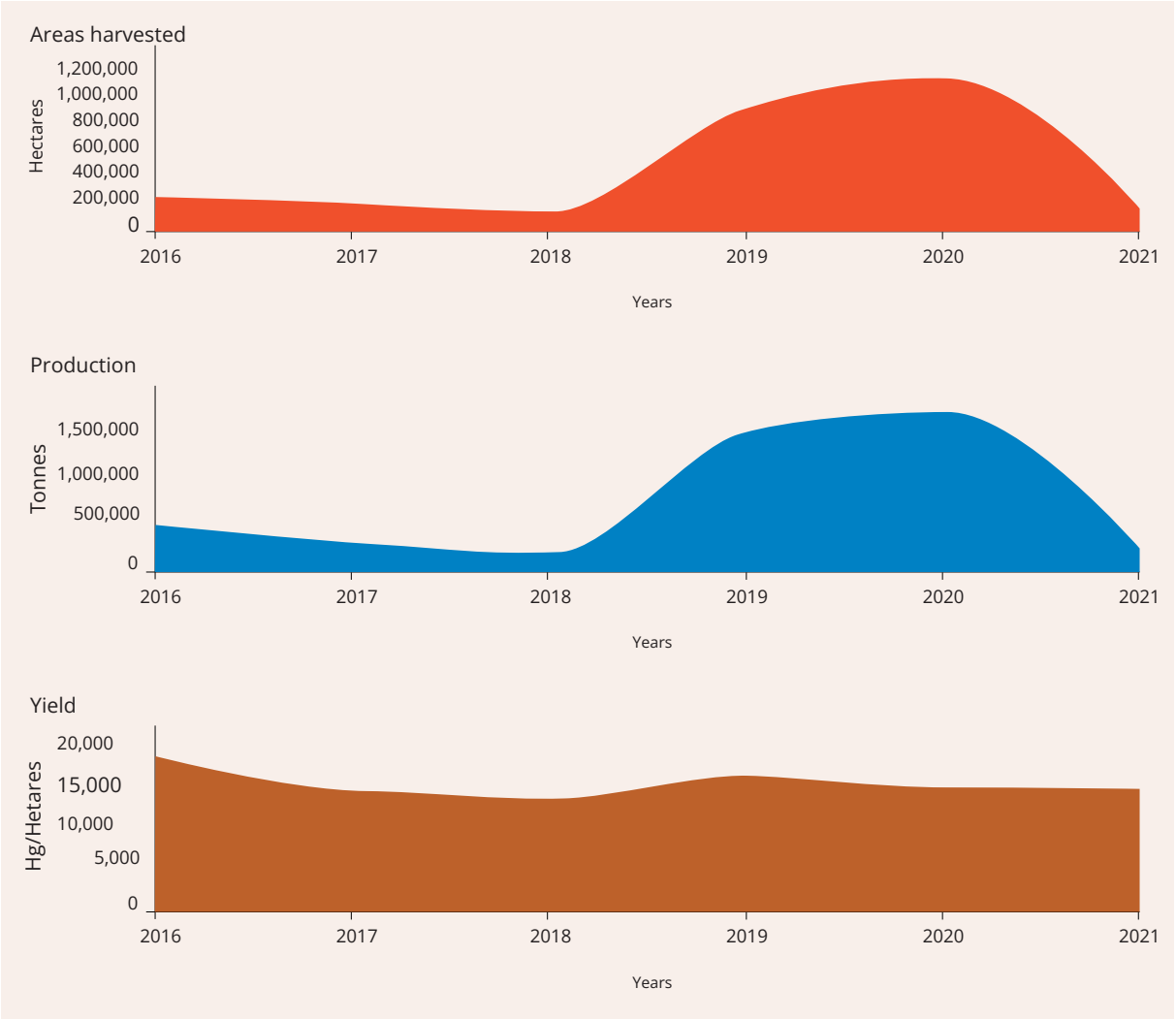
21 (Rudaw 18/10/2021; USDA/GAIN 15/04/2022)

22 (USDA/GAIN 15/04/2022; REACH 07/11/2022)

23 (USDA/GAIN 15/04/2022; WVI et al. 31/03/2022; FAO 11/06/2021; Thomas Reuters Foundation 11/04/2022)

24 (FAO accessed 30/04/2023)

Figure 4. Barley harvested areas, production, and yield from 2016–2021



Source: ACAPS using data from FAO (accessed 30/04/2023)

II. DROUGHT IMPACT ON LIVELIHOODS

Several groups are vulnerable to the impact of drought on livelihoods because of the nature of their jobs (farmers, livestock herders, fishermen) or because they account for a high percentage of the labour force in the most drought-affected sector (women employed in agriculture).

Most people working in the agriculture sector depend on crop production as their main source of income, particularly as around 75% of them are farmers. Other people working in agriculture depend on livestock or mixed crop and livestock production[25]. Wheat and barley are considered strategic crops as they form an essential part of Iraq's food basket and provide material in the value chain of other parts of the food basket, such as livestock[26]. Water scarcity, hydrological drought, and water and soil contamination also affect the livelihoods of fishermen.

Livelihoods generated from crop production

People working in rain-fed agriculture in Nainawa governorate, northern Iraq, are particularly feeling the drought's impact, as agricultural activities account for 70% of household income in this area. To compensate for livelihood losses, farmers are abandoning agriculture in favour of day and wage labour opportunities in the urban centres' informal sector[27].

Some farmers have resorted to cultivating less profitable crops, such as lentils and chickpeas, because of their tolerance to drought compared to wheat and barley. That said, these farmers who have switched crops are still experiencing an overall reduction in income as they are less profitable crops than wheat and barley[28]. A 2020–2021 FAO survey on the most used livelihood coping strategies for farmers in response to decreased income found that 55% of farming households decreased expenditure on agriculture inputs (seeds, fodder, etc.), 54% purchased food on credit, 54% spent their savings, and 40% sold productive assets[29].

In 2022, almost all barley production failed, causing many farmers to leave rain-fed planted areas for livestock pasture[30].

In 2022, water scarcity reduced irrigated crops by 50%, affecting governorates highly dependent on irrigated agriculture. These areas were mainly in the central and southern governorates, where the Government excluded governorates like Diyala from the 2022 cultivation plan[31].

Livelihoods generated from livestock production

Crop failure has severely affected livestock producers in Iraq. This failure has meant that they either do not have sufficient feed or cannot generate enough income to purchase feed for their livestock[32]. A spring 2022 survey of livestock producers indicated that livestock fodder was the most common need[33]. To afford feed for the rest of the livestock and increase cash flow, farmers are selling off some livestock, although the resulting supply increase means they are only able to sell at low prices[34].

Insufficient water and feed and diseases associated with water scarcity and drought mean that farmers are losing livestock, leading some to abandon farming[35]. Others are selling sections of farmland to generate

25 (WFP 31/03/2021)

26 (WVI et al. 31/03/2022; VOA 29/05/2022)

27 (KII 11/01/2023; KII 12/01/2023; KII 13/01/2023; KII 16/01/2023; SIPRI 23/11/2022)

28 (SIPRI 23/11/2022)

29 (FAO et al. 03/10/2021)

30 (USDA/GAIN 15/04/2022; WVI et al. 31/03/2022; FAO 11/06/2021; Thomas Reuters Foundation 11/04/2022)

31 (Rudaw 18/10/2021; WB 09/11/2022; USDA/GAIN 15/04/2022)

32 (KII 13/01/2023; USDA/GAIN 15/04/2022; WVI et al. 31/03/2022; UN 26/06/2022)

33 (FAO 04/10/2022)

34 (KII 13/01/2023; WVI et al. 31/03/2022; FAO 11/06/2021)

35 (NRC 15/12/2021; IFRC 27/12/2021; IOM et al. 13/06/2022)

income[36]. The impact of water scarcity on livestock is being more strongly felt by the marshlands and the buffalo population. The impact of the drought and water scarcity on the buffalo population severely affects the livelihoods of more than 6,000 rural families who depend highly on buffalo[37]. Buffalos are a main asset, especially for marsh dwellers, but many are dying because of water scarcity. The impact of water scarcity on the marshlands and the buffalo population have driven buffalo herders into poverty[38].

Livelihoods generated by the fishing industry

The Tigris and Euphrates Rivers dominate Iraq's southern regions, where most fisheries are concentrated. The decrease in river levels resulting from drought has also affected fish production and availability and, consequently, the livelihoods of fishermen and the economy. Drought and reduced river levels increase water salinity, making it more difficult for fish to survive. The decrease in freshwater inflows also reduces the water's nutrients and organic matter, which can further affect fish growth and reproduction[39].

Iraqi fishermen faced a decline in fish production from 2021–2022. For example, dozens of small fisheries shut down in Najaf governorate, reducing people's income and livelihoods. In the marshlands, income from agricultural production, including fisheries, has declined since 2018. A lack of freshwater and increased seed prices, both needed for growing fish, have driven this decline. People dispose of rubbish and sewage water in the rivers, leading to increased contamination and higher disease exposure and mortality for the fish. Fish farmers need vaccinations to maintain a healthy harvest. Power outages also affect fisheries, as oxygen and water pumps can stop working for a prolonged period, leading to more fish dying and fisheries closing[40]. Other small businesses that depend on fisheries, such as fishing supply shops and some small restaurants, are also experiencing reduced income[41].

Female labour

Iraq has the second-lowest level of female participation in the labour force at 13%, and the negative impacts of drought on the agriculture sector significantly affect this employment. Agriculture accounts for 30% of female employment nationally and 40% in rural areas. In contrast, agriculture accounts for only 8% of male employment nationally and 5% in rural areas[42]. This impact is particularly concerning for women-headed households, as prevailing social norms restrict their agency to negotiate resources and access services, making them vulnerable to the effects of environmental change[43].

Women employed in the rural sector struggle to find new job opportunities, as they often do not have a high level of education that would allow them to access other forms of employment. The social perception that some jobs are not suitable for women and gender-based discrimination also limit the ability of women overall to search for or obtain new job opportunities[44].

In rural areas, young girls and women are responsible for water collection. The reduction in water availability and quality has translated into an increase in the workload needed to obtain water for the household. Water scarcity also increases the protection risks associated with long-distance water collection and the health risks triggered when dealing with contaminated water bodies[45].

36 (KII 13/01/2023; SIPRI 23/11/2022)

37 (UNAMI 14/07/2022)

38 (FAO 14/07/2022; UN 08/01/2023; AP 23/11/2022; Orient XXI 11/11/2021)

39 (Pledge Times 19/12/2022; Abdullah et al. 16/06/2022; AP 02/08/2018)

40 (IBN 26/12/2022; Context 22/11/2022; ACF/REACH 13/07/2022)

41 (Context 22/11/2022)

42 (WB 09/11/2022; IOM 09/08/2022)

43 (KII 13/01/2023; WB 09/11/2022; IOM 09/08/2022)

44 (REACH 30/11/2019)

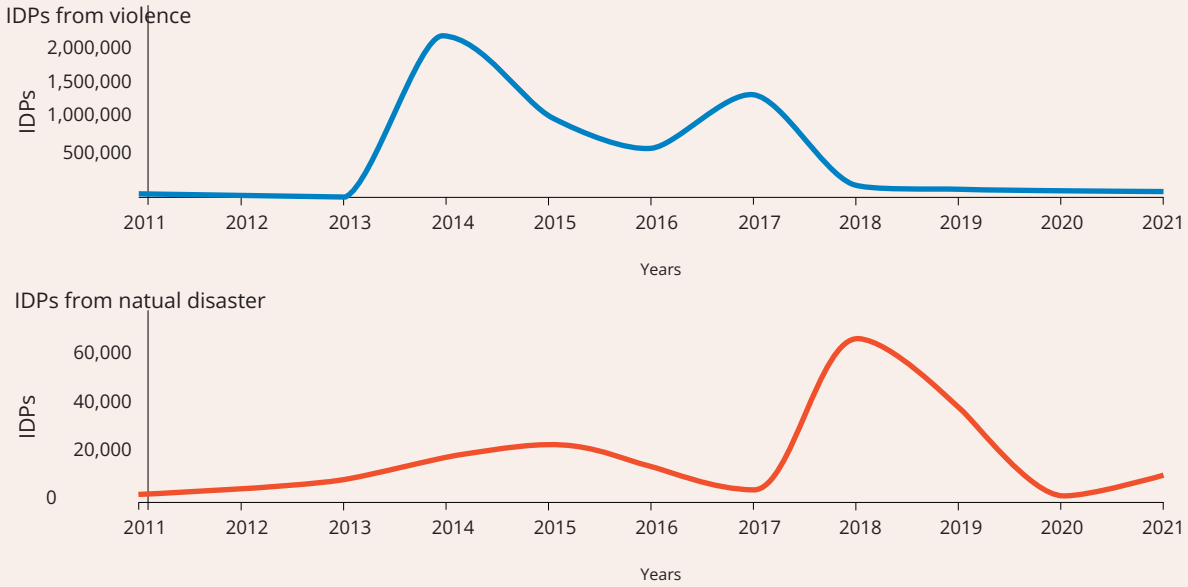
45 (Amin 13/02/2022)

Loss of livelihoods and climate-induced migration

Displacement is one of the most apparent consequences of livelihood and food security losses. Security and economic vulnerabilities compound climate and environmental insecurity, leading rural populations to migrate to cities. By the end of 2021, water scarcity and drought effects had displaced an estimated 20,000 people[46]. Climate migration often results in exclusion from public services and institutions and the loss of social network at the new location, leading to insecure tenure arrangements and challenges in obtaining livelihood means or opportunities[47]. Iraq has a long history of internal displacement, but only a fraction has resulted from natural disasters, such as floods, earthquakes, and drought; violence has triggered most displacements[48].

Since 2011, the conflict with the Islamic State of Iraq and Syria (or Daesh) has been the main driver of the high IDP numbers in the country, with an estimated 5.7 million people displaced as a result, as shown in Figure 5[49]. Since 2008, natural disasters have displaced over 150,300 people, among whom 23,300 (roughly 0.4%) were drought-displaced[50].

Figure 5. Conflict-induced and natural hazard-induced displacement between 2008–2021



Source: ACAPS using data from IDMC (accessed 15/03/2023)

Drought drives displacement in Iraq mainly through livelihood loss[51]. The combined pressures of water scarcity and drought, livelihood loss, and increasing living costs increase migration[52]. In 2021, 1 in 15 households in drought-affected areas had a family member internally migrating to find work[53]. Iraq's drought-induced migration occurs mostly from rural to urban areas. This movement is because of the challenges drought poses for the agriculture sector, which rural areas highly depend on for livelihoods. Jobs in urban areas, on the other hand, are mostly within construction, public administration and defence, and retail sectors, representing safer livelihood opportunities for displaced farmers or herders. The construction sector benefits from the rising population, and government plans to address

46 (NRC 10/2022)
47 (IOM 09/08/2022)
48 (IDMC accessed 15/15/2023)
49 (IDMC/NRC 20/02/2022)
50 (IDMC accessed 15/03/2023)
51 (KII 11/01/2023; KII 12/01/2023; KII 13/01/2023; KII 16/01/2023; IOM 09/08/2022)
52 (KII 11/01/2023; KII 12/01/2023; KII 13/01/2023; KII 16/01/2023; WVI et al. 31/03/2022)
53 (NRC 15/12/2021)

the housing crisis attract more people to urban areas[54]. Even though most drought-related migrations appear to be permanent, many believe that northern farmers will return to their lands if promising rainfall occurs in 2023, and these farmers will need support to restart working on their farms[55]. Most other IDPs gained their primary income from agriculture before displacement and cannot sustainably return without considerable assistance and technical drought-avoidance solutions[56].

54 (KII 13/01/2023; WB 17/11/2022)

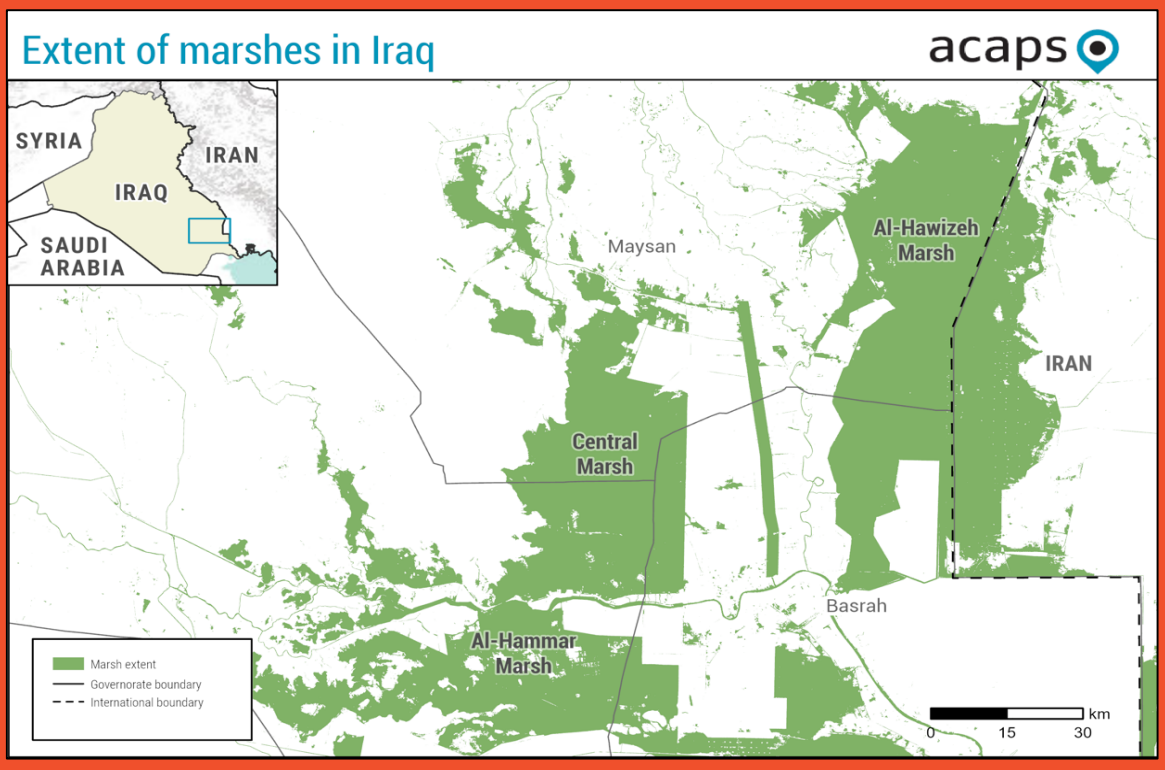
55 (IOM 09/08/2022; KII 13/01/2023; KII 16/01/2023)

56 (IOM 02/10/2022)

AZOOMINTOIRAQ'S MARSHLANDS

The marshlands are a collection of alluvial salt marshes, swamps, and freshwater lakes that, together with their surrounding areas (buffer zones), currently cover 4,000km^2 of the surface of Iraq[57]. Figure 6 shows the areas the marshlands covered in 1979 compared to the areas in covered in 2019. The marshlands play a big role in reducing dust storm severity and moderating temperatures in surrounding areas[58]. It also acts as a major global carbon sink[59]. Iraq's marshlands cover three governorates: Basra, Dhi Qar, and Maysan[60].

Figure 6. Map showing the extend of the marshland as at 2019



Source: ACAPS using data from Living Atlas (accessed 30/04/2023)

Disclaimer: the boundaries and names depicted, as well as the data used on this map, do not represent ACAPS' sponsorship or acceptance. ACAPS is not liable for any map misuse or misinterpretation.

In the 1990s, after the Iraq-Iran war, under the rule of Saddam Hussein, the Iraqi Government started draining the marshlands to push a government-opposing community to leave[61]. By the 2000s, the

57 (Yale 10/01/2023)

58 (Wetlands International 25/07/2016)

59 (NOEMA 19/10/2021; Positive News 11/08/2020)

60 (ACF/REACH 30/03/2022)

61 (Reuters 17/07/2016)

Government had drained and destroyed around 90% of the marshes' 9,000 km2 surface area. Following the US invasion of Iraq and the fall of Saddam Hussein's Government, Iraqis began demolishing the systems draining the marshlands. This action led to the reflooding of much of the marshlands[62]. By 2006, reflooding had restored roughly 58% of the marshlands present before the 1990s. By the late 2000s, the marshlands faced new threats, mainly cycles of drought and the building of new dams upstream[63]. Water levels have fallen by more than 90cm since 2018, after an extremely hot summer, low precipitation, and dam building upstream reduced river flow[64]. This fall has created water scarcity in the marshlands and increased salination[65].

The marshes are one of the poorest regions of Iraq, and water scarcity affects this region the most. Around 400,000 people lived in the area before the 1990s, when Saddam Hussein's Government targeted Marsh Arabs, causing forced displacements[66]. Estimations suggest that in the 1990s, the Government displaced around 100,000 people internally, while 40,000 fled to Iran. Current estimations suggest that 20,000–40,000 people live in the marshlands[67].

Most people in the marshlands are buffalo breeders who rely heavily on water buffalo trading, farming, and fishing[68]. The drought-caused degradation of the marshlands has decreased the amount of economically valuable fish species. Livestock-rearing as a livelihood has become unsustainable and expensive. Water scarcity and salinisation also affect agricultural activities for local communities[69]. The drought's impact on livelihoods has caused many living in Iraq's southern marshes to relocate to other marshland areas for better water resources for their buffalos. These relocations increase tensions over limited water resources. Others have abandoned the marshlands and moved to cities like Basra or Baghdad[70].

62 (Wetlands International 25/07/2016)

63 (Wetlands International 25/07/2016; Earth Observatory accessed 13/03/2023)

64 (NYT 12/04/2021; Al-Monitor 16/02/2022)

65 (REACH et al. 22/09/2020)

66 (Reuters 17/07/2016; AMAR 30/11/2001)

67 (UNEP 23/11/2016; RI 13/06/2003)

68 (REACH et al. 22/09/2020; NYT 12/04/2021)

69 (REACH et al. 22/09/2020)

70 (Yale 10/01/2023)

III. DROUGHT IMPACT ON FOOD SECURITY

The drought that started in 2021 has worsened Iraq's food crisis[71]. The State of Food Insecurity Report indicates that the prevalence of undernourishment in the total population was 13.9% in 2021[72]. Acute malnutrition, which is the rapid deterioration in nutrition over a short time among children under five years old, stood at 2.5% in 2023. Chronic malnutrition, which is a form of growth failure developing over a long time given inadequate nutrition for children under five years old, stood at 9.9%. There were 1.4 million people with insufficient food consumption in Iraq in 2013; Kerbela and Najaf governorates suffered the most, with 17.5% and 10.8% of the residents respectively having insufficient food consumption compared to 3.5% in Baghdad governorate[73].

A survey using the Food Insecurity Experience Scale estimated that the prevalence of moderate or severe food insecurity was around 37% in 2022. The report found the highest level of moderate and severe food insecurity in the country's northern half in Anbar, Nainawa, and Sulaimaniya[74]. Climate change shocks, such as drought and other factors, cause food insecurity, a secondary effect of population displacement and inadequate access to basic services and livelihood opportunities[75].

In Iraq, nearly one-third of the population in rural areas relies on agriculture for food and income[76]. Drought-induced livelihood loss affect people's ability to maintain adequate food consumption. As a result, people resort to using negative coping mechanisms, mainly including decreasing expenditures on agricultural inputs (seeds, fodder, etc.), purchasing food on credit or borrowing food, and spending their savings[77]. In 2021, losses in crops, livestock, and daily work opportunities caused the average monthly income for most governorates' farming communities to drop below the monthly Survival Minimum Expenditure Basket (SMEB). The SMEB is an estimate of the price of basic items necessary for an average six-person household, which is used as a threshold for cash transfer assistance[78].

Estimates indicate that in 2021, one in two families in drought-affected areas (Anbar, Basrah, Thi-Qar, Duhok, Kirkuk, Nainawa, and Salah al-deen governorates) required food assistance, and one in five did not have sufficient food for every member in the family as a result of the drought[79].

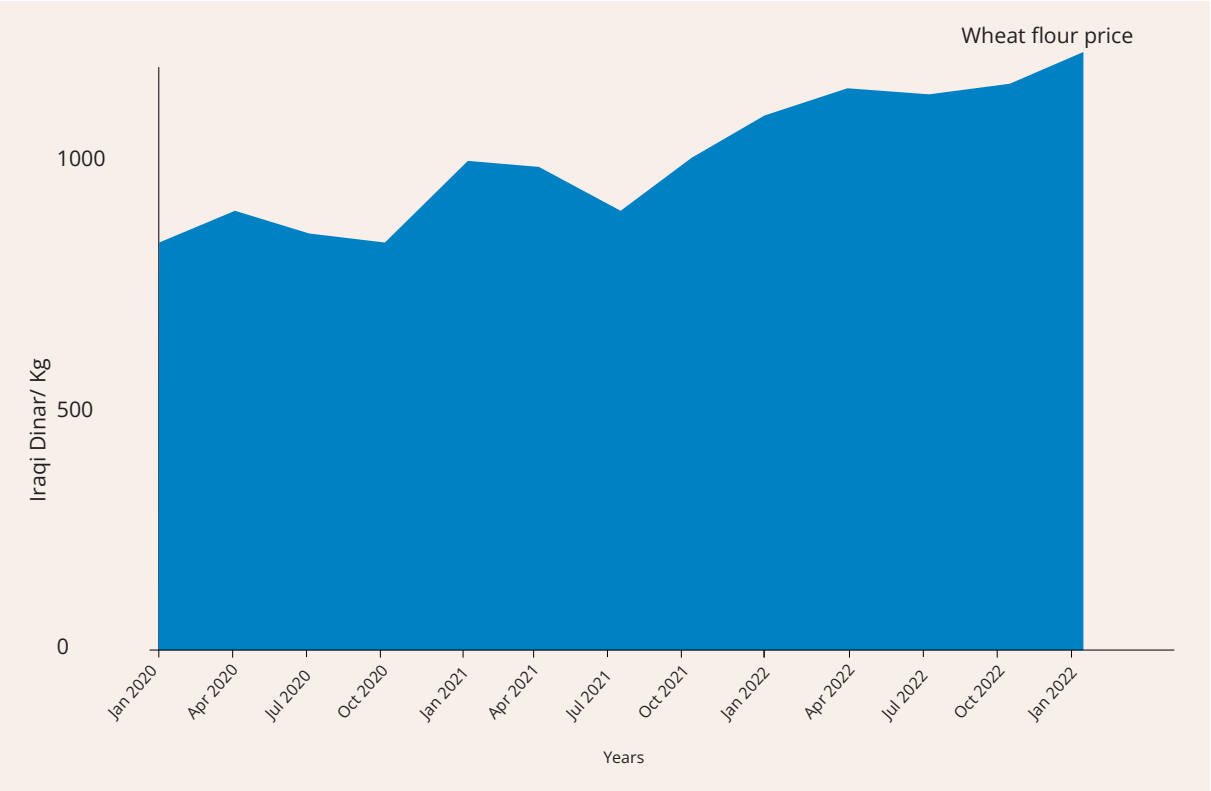
Food prices and inflation

Drought and water scarcity have led to lower crop yields, causing higher food prices, raising poverty levels, and reducing food security. Figure 7 shows the increase of wheat flour prices, which was partly caused by the effects of drought[80]. The devaluation of the Iraqi dinar has also affected many sectors, especially agriculture, as agricultural inputs depend highly on imports purchased in foreign currency[81]. In 2020, the Iraqi dinar experienced a decline in value against other currencies, most notably the US dollar. Several factors, such as the adverse economic consequences of the COVID-19 pandemic, the oil price downturn, and persistent internal political instability, led to this depreciation. In 2020, the Central Bank of Iraq lowered the dinar's value by over 18% to reduce the difference between official and black market exchange rates[82]. After the 2020 dinar devaluation, headline and core inflation rose, respectively peaking at 8.4% and 8.6% year-to-year in November 2021. In 2022, food and fuel subsidies muted high global commodity prices, helping contain inflation[83].

71 (FAO 2022 a)
72 (FAO et al. 06/07/2022)
73 (WFP accessed 24/04/2023)
74 (FAO 10/10/2022)
75 (WFP 21/04/2022; Sida 13/04/2022)
76 (FAO 2022 b)
77 (FAO 28/01/2022; KII 01/05/2023; WVI et al. 31/03/2022; KII 05/01/2023; KII 16/01/2023; FAO et al. 16/10/2021)
78 (WFP 01/06/2022; NORCAP 15/12/2021)
79 (NRC 15/12/2021)
80 (IOM 09/08/2022; WVI et al. 31/03/2022)
81 (FAO 2022 a)
82 (WFP 03/03/2021)
83 (IMF 07/12/2022)

The global rise in food prices has also affected people's purchasing power. The Public Distribution System (PDS), which balances the supply and demand for essential food items, has helped ensure the general stability of essential food prices[84].

Figure 7. Wheat flour prices in Iraq between 2020–2023



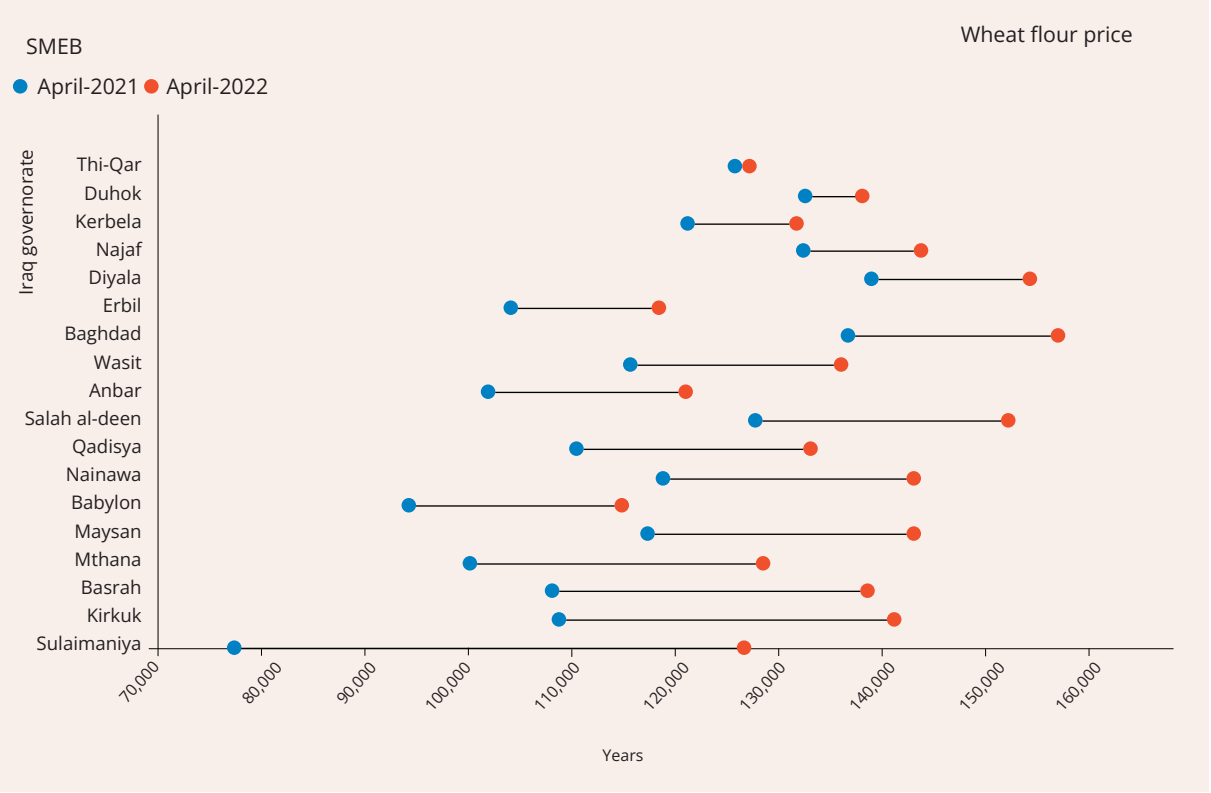
Source: ACAPS using data from WFP (accessed 05/01/2023)

The devaluation of the Iraqi dinar has also lowered purchasing power[85]. The drop in purchasing power can be seen in the increase of the SMEB price. The SMEB increased by as much as 39% in some areas from April 2021 to April 2022, as shown in Figure 8.

84 (KII 13/01/2023; WFP 05/12/2022 and 09/01/2019; CEIP 04/06/2020)

85 (IOM 09/08/2022; WVI et al. 31/03/2022)

Figure 8. Changes in the SMEB percentage between April 2021 to April 2022 by governorate



Source: ACAPS using data from WFP (31/05/2022)

Public Distribution System

Drought and its impact on crop yield reduce domestic production and increase government spending. This impact reduces the Government's fiscal space to subsidise food through programmes such as the PDS, which could affect poverty and food security[86]. The PDS is one of the largest food distribution programmes in the world. Following UN-imposed sanctions, the Government started the programme in 1990 in response to food shortages. In 2018, PDS spending approximated USD 1.4 billion, roughly 2.3% of Iraq's 2018 total expenditure[87].

Drought has slightly increased food prices in Iraq, but essential food prices have remained generally stable compared to global prices[88]. This is mainly because of the PDS, which provides a food assistance safety net for almost the entire population[89]. For example, in 2022, worldwide wheat prices rose by 89%, but within Iraq, the PDS helped stabilise local wheat prices, which only rose by 26% [90].

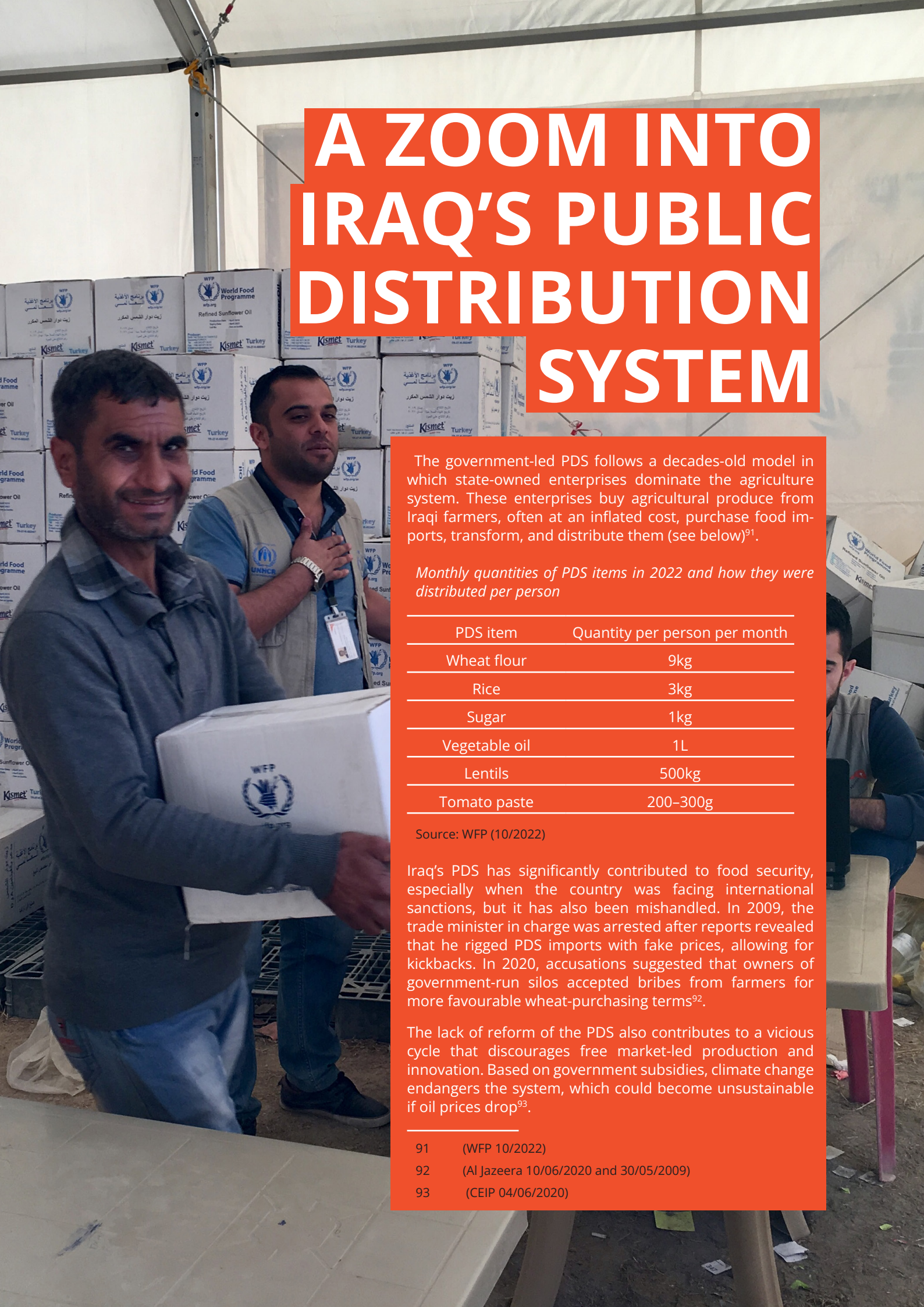
86 (WB 09/11/2022)

87 (WB 02/2020)

88 (KII 13/01/2023; WFP 05/12/2022)

89 (CEIP 04/06/2020; WFP 09/01/2019)

90 (IOM 13/06/2022)



A ZOOM INTO IRAQ'S PUBLIC DISTRIBUTION SYSTEM

The government-led PDS follows a decades-old model in which state-owned enterprises dominate the agriculture system. These enterprises buy agricultural produce from Iraqi farmers, often at an inflated cost, purchase food imports, transform, and distribute them (see below)[91].

Monthly quantities of PDS items in 2022 and how they were distributed per person

PDS item	Quantity per person per month
Wheat flour	9kg
Rice	3kg
Sugar	1kg
Vegetable oil	1L
Lentils	500kg
Tomato paste	200–300g

Source: WFP (10/2022)

Iraq's PDS has significantly contributed to food security, especially when the country was facing international sanctions, but it has also been mishandled. In 2009, the trade minister in charge was arrested after reports revealed that he rigged PDS imports with fake prices, allowing for kickbacks. In 2020, accusations suggested that owners of government-run silos accepted bribes from farmers for more favourable wheat-purchasing terms[92].

The lack of reform of the PDS also contributes to a vicious cycle that discourages free market-led production and innovation. Based on government subsidies, climate change endangers the system, which could become unsustainable if oil prices drop[93].

91 (WFP 10/2022)

92 (Al Jazeera 10/06/2020 and 30/05/2009)

93 (CEIP 04/06/2020)

Iraq's PDS fulfils the basic calorie and food requirements for displaced and non-displaced households, playing a vital role in household food security. The current programme covers ten commodities, including rice, sugar, oil, flour, beans, and some cleaning materials, such as soap[94]. The programme also plays a significant role in reducing the reliance on negative coping mechanisms and food deprivation. Estimates indicate that having access to the PDS lowers a person's probability of falling into poverty by 10%[95].

Wheat and Barley Purchase programme

Drought is also straining government spending, as it has to pay more for wheat through the Wheat and Barley Purchase programme, which cost USD 1.25 billion in 2019[96]. Drought and water shortages in Iraq severely affect wheat yield, and wheat production is increasingly falling short of fulfilling domestic demand as a result. In 2022, the domestic production capacity were about two-thirds of the annual domestic demand, which is six million tonnes[97]. The Government purchases domestic wheat and then redistributes it through the PDS[98]. In 2021, the government budget for the Wheat and Barley Purchase programme was USD 2.3 billion, a more than 80% increase since 2019[99].

In 2022, following a difficult harvest season, the Iraqi Government increased the price it pays farmers for wheat by IQD 290,000 (about USD 140) per tonne, from IQD 560,000 (about USD 270) per tonne to IQD 750,000 (about USD 365) per tonne. In May 2022, the Government further increased the payment to IQD 850,000 (around USD 413) per tonne[100]. In 2022, the Government allocated about USD 3.4 billion to the Ministry of Trade for the Wheat and Barley Purchase programme[101].

Drought impact on food imports

The direct impact of meteorological and hydrological drought and water scarcity on Iraq's fiscal resources is limited, as agriculture represented only 3.9% of the country's GDP in 2021. This number has consistently decreased, from 20% in 1995, 8% in 2003, and 5% in 2010[102].

Meteorological and hydrological drought and water scarcity still directly affect Iraq's public expenditure. Droughts put a strain on the balance of trade and government spending by increasing the import bill; for example, the lack of water forces the Government to buy foreign cereals at a higher cost and support farmers moving to urban centres for work[103]. After Egypt, Iraq is the biggest wheat importer in the Middle East. Cereal imports, which include wheat, cost around USD 0.9 billion in 2021. For 2022, the Government allocated USD 3.4 billion, more than three times the previous years' spending, to purchase wheat alone[104]. In April 2022, the Government allocated two million tonnes of wheat for food reserves to sufficiently cover six months of consumption[105]. In June, the Iraqi Government passed a IQD 25 trillion (USD 17 billion) bill titled 'Emergency Law for Food Security and Development' for food security and public servant salaries[106].

94 (KII 11/01/2023; IOM 13/06/2022; Al-Monitor 27/04/2022; WFP 09/01/2019)
95 (WB 20/02/2020)
96 (CEIP 04/06/2020)
97 (WB 28/09/2020; ERF 08/2022; WFP 31/03/2021; FAO 05/12/2022)
98 (FAO et al. 15/12/2016)
99 (WFP et al. 05/01/2021)
100 (FAO 03/02/2023; The National 19/05/2022)
101 (FAO 03/02/2023)
102 (WB accessed 15/03/2023)
103 (WB 28/09/2020)
104 (The National 25/02/2022; AgFlow 13/09/2022; OEC accessed 04/01/2023)
105 (FAO 2022 c)
106 (Al-Monitor 08/06/2022)

IV. OTHER HUMANITARIAN NEEDS GENERATED BY THE DROUGHT

Humanitarian needs generated from climate-induced migration

Climate and drought-induced migration leads to increased livelihood, health, WASH, and food security needs for those displaced, contributing to the deterioration of their socioeconomic and humanitarian conditions[107].

People who displace from rural to urban areas usually face exclusion from public services and challenges in obtaining livelihood means or opportunities[108]. They also face insecure tenure arrangements and are often excluded from employment support, dispute resolution, and property rights[109]. The informal sector often employs climate migrants in low-wage jobs. For many, their income is insufficient to meet their basic needs. In Basrah in southern Iraq, half of the migrant households reported being unable to afford enough food or basic needs, and almost half reported not having a financial safety net[110]. Displaced women previously employed in household farming struggle to find alternative livelihood options because social norms constrain their participation in the labour force.

An estimated 350,000 individuals in Basrah live in informal neighbourhoods because the Iraqi Government cannot meet their shelter needs. Increased pressure on services and critical infrastructure in the areas of displacement also creates increased competition over access to clean water and electricity. The situation is similar in other cities, such as Baghdad, Kirkuk, and Mosul[111].

The social fragility that climate migrants are facing in urban settings hinders their integration, leading them to live in clustered, less formal, and less safe areas of the city[112]. For example, more than 360 informal settlements have emerged in Baghdad since the 2003 US invasion. Estimates indicate that more than 1,500 informal settlements exist in Iraq. IDPs in informal settlements have no or little access to water, sanitation, education, and health services[113].

Health

Increased water scarcity and reduced water quality worsen the country's public health situation and pose a risk of waterborne disease outbreaks, such as cholera and infections from giardia and E. coli[114]. In 2017, Iraq reported 505 suspected cholera cases. In 2018, poor water quality hospitalised at least 118,000 people, and in 2022, the country reported more than 1,000 suspected cholera cases.

Nearly 60% of children in Iraq do not have safe and reliable access to water for drinking, sanitation, and other purposes. Almost 50% of Iraqi schools do not have the minimum water quantity required to meet basic needs, affecting children's health and cognitive development[115].

Water scarcity in Iraq affects food security, contributing to malnutrition[116]. The prevalence of undernourishment is high in Iraq, reaching around 40% in 2019[117]. Natural hazards associated with drought, such as sandstorms, cause respiratory illnesses. In 2022, a mid-April sandstorm hospitalised more than 10,000 people suffering from respiratory problems[118]. Sandstorms prevent millions from

107 (IFRC 14/07/2022; PAX 15/12/2021; WB 09/11/2022)

108 (IOM 09/08/2022 and 18/12/2022)

109 (IOM 09/08/2022 and 18/12/2022; ILO et al. 26/11/2021)

110 (IOM 18/12/2022)

111 (Georgetown Univ./IOM 31/01/2022; Iraq Durable Solutions 06/2021; UNAMI 01/02/2023; HRW 22/07/2019 a)

112 (IOM 21/10/2021)

113 (UN-Habitat accessed 20/03/2023)

114 (HRW 22/07/2019 b and 22/07/2019 a; NRC 15/12/2021; OCHA 27/03/2022)

115 (UNICEF 29/08/2021)

116 (WHO 24/03/2022; FAO 2022 a)

117 (FAO 2022 c)

118 (The Guardian 24/05/2022)

reaching work, affecting productivity and household incomes. They also affect the economy by forcing airports and schools to close, interrupting supply chains, and overwhelming hospitals[119]. During sandstorms in 2022, Iraq closed public buildings, temporarily shut airports, and ordered all work to cease in state-run institutions, except for those in health and security[120].

WASH

Decreased rainfall since 2020 and the insufficient flow of river water upstream have resulted in water scarcity, decreasing water supply for most Iraqi households to below WASH standards, especially in Basrah, Diyala, Erbil, and Sulaimanya governorates[121].

Bad water quality, a result of low river flow levels, contamination from sewage, and agriculture runoff, has led to a reliance on expensive water trucking and bottled water[122]. Households spend over USD 55 monthly on filtered drinking water from shops or treatment plants. This puts a strain on family expenditure, especially for the most financially vulnerable[123]. The Iraqi bottled water market has boomed over recent years. Revenue from the bottled water market increased steadily from USD 717 million in 2015 to USD 788 million in 2022, and forecasts indicate that the market will reach more than USD 1 billion in 2025[124]. Outside the main urban areas, the population often gains access to drinkable water through tankers. A single tanker serving around ten homes costs up to USD 400 a week, equivalent to one farmer's monthly salary. Both are expensive solutions that weigh heavily on Iraqi families and their budgets. These solutions are inaccessible to most of the 25% of the population living below the poverty rate (about 11 million people)[125].

Water scarcity stresses sanitation facilities and services in a country where water treatment and sanitation services are generally insufficient, particularly in rural areas[126]. The stress water scarcity puts on WASH services deteriorates water quality and increases negative hygiene practices, leading to dehydration, impaired hygiene, and the increased likelihood of waterborne disease outbreaks[127]. The quality of water people use for drinking and agriculture in Iraq is below the Iraqi National Standards and the standards listed in WHO guidelines[128].

Despite several announced deals with foreign companies to build desalinisation plants, Iraqis still rely mostly on international funding and support. The Red Crescent has built more than 69 water purification and desalinisation units across Iraq, while USAID has rehabilitated nine of Basrah's major water treatment plants[129].

119 (WB 19/01/2020)
120 (The Guardian 24/05/2022)
121 (OCHA 27/03/2022; IFRC 14/07/2022)
122 (OCHA 27/03/2022; Reuters 08/07/2020; HRW 22/07/2019 a)
123 (REACH 20/10/2020; Reuters 08/07/2020; HRW 22/07/2019 b)
124 (Market Research 10/2020)
125 (BS 08/01/2023)
126 (OCHA 27/03/2022; WHO 24/03/2022)
127 (OCHA 27/03/2022; NRC 15/12/2021)
128 (IFRC 14/07/2022)
129 (Iraqi Red Crescent 29/03/2022; USAID accessed 15/03/2023)

World Food Programme

SAVING LIVES
CHANGING LIVES

For more information, please contact us at:
ekram.elhuni@wfp.org; lia.pozzi@wfp.org