



# WHEN RAIN TURNS TO DUST

UNDERSTANDING AND RESPONDING  
TO THE COMBINED IMPACT OF ARMED  
CONFLICTS AND THE CLIMATE  
AND ENVIRONMENT CRISIS  
ON PEOPLE'S LIVES



# **WHEN RAIN TURNS TO DUST**

**UNDERSTANDING AND RESPONDING  
TO THE COMBINED IMPACT OF ARMED  
CONFLICTS AND THE CLIMATE  
AND ENVIRONMENT CRISIS  
ON PEOPLE'S LIVES**



## **About this report**

Countries enduring armed conflict are disproportionately vulnerable to climate variability and change, because the adaptive capacity of people, systems and institutions already coping with the consequences of conflict tends to be limited. Based on research conducted in southern Iraq, northern Mali, and the interior of the Central African Republic (CAR), and drawing on the expertise of the International Committee of the Red Cross (ICRC) and the scientific literature on the subject, this policy report explores how people deal with the combination of conflict and climate risks, and how they cope and adapt. It discusses how the ICRC, and the humanitarian sector in general, will have to adjust and adapt to address these risks and makes an urgent call for strengthening climate action and finance in countries affected by conflict.

The research presented in this report was undertaken by the ICRC's Division of Policy and Humanitarian Diplomacy. It could not have been conducted without the support provided by the ICRC's Economic Security and Water and Habitat units and by the ICRC's delegations in the CAR, Iraq and Mali. A literature review for this project was carried out by Yvonne Su and Karine Gagné, graduate student and assistant professor, respectively, at the University of Guelph. The report was written by Catherine-Lune Grayson, based on research led jointly with Pierrick Devidal, policy advisers at the ICRC. Vanessa Murphy, a legal adviser at the ICRC, provided the text box on international humanitarian law, climate change, and the natural environment. Amir Khouzam and Digvijay Rewatkar, both ICRC associates, provided invaluable help for the project.

We are immensely grateful to the people we met during the case studies for their trust in us and for sharing their experiences with us, and to the representatives of authorities and other organizations for sharing their perspectives. We would also like to express our gratitude to our colleagues, who shared their insights during the research and provided feedback on the report.

The report was reviewed by an external advisory committee composed of professionals and experts. We would like to extend our appreciation to Prof. Maarten van Aalst, Director of the International Red Cross and Red Crescent Climate Centre, and Julie Arrighi, Urban Manager and ICRC Partnership Lead at the Centre; Katie Peters, Senior Research Fellow at the Overseas Development Institute; Dr Edmon Totin, lecturer at the Agricultural University of Benin and a Coordinating Lead Author at the IPCC-Africa Chapter (AR6); and Dr Maria Guevara, Senior Operational Positioning and Advocacy Advisor at Médecins Sans Frontières.

## **About the photographs**

The photographs of the CAR in this report were taken by Florent Vergnes, photographer and videographer at Agence France-Presse. He has been working and living in the CAR for the last three years and focuses on the social and political dimensions of the armed conflict, notably its impact on transhumance.

The photographs of southern Iraq were taken in early 2020 by Mike Mustafa Khalaf, who is a photographer, videographer and digital officer at the ICRC.

Samuel Turpin, a journalist and photographer (Gamma) who has worked in situations of conflict and humanitarian crisis since 1998, took the Mali photographs. In 2017, he embarked on a multimedia project to document the impact of the climate crisis on twelve families over a decade: [Humans & Climate Change Stories](#). The project received the UN Sustainable Development Goals Award in 2019.

Special thanks go to Aurélie Lachant, public relations officer at the ICRC, for her assistance.

# TABLE OF CONTENTS

<b>Foreword</b> .....	<b>5</b>
<b>Glossary</b> .....	<b>6</b>
<b>Executive summary</b> .....	<b>8</b>
<b>Some facts and figures</b> .....	<b>10</b>
<b>Introduction</b> .....	<b>12</b>
<b>I. Experiencing armed conflict, climate risks and environmental degradation</b> .....	<b>14</b>
The direct and indirect consequences of armed conflict for people’s resilience.....	16
When armed conflict and climate risks collide.....	18
Coping with the cumulative impact of conflict and the climate crisis.....	20
<b>II. Facing conflict and a changing climate, from the Central African Republic to Iraq and Mali</b> .....	<b>22</b>
<b>Central African Republic</b> - The local consequences of regional insecurity, climate change, and environmental degradation .....	25
<b>Southern Iraq</b> - The adverse impact of repeated and protracted conflict on water security .....	29
<b>Northern Mali</b> - The cumulative effects of desertification, underdevelopment and conflict .....	35
<b>III. Adapting our response to ensure a more sustainable humanitarian impact</b> .....	<b>38</b>
Current approaches to building resilience to shocks .....	39
Furthering our understanding of the consequences of intersecting risks.....	40
Translating our analysis into anticipatory and reactive action.....	42
Joining forces to strengthen climate action and finance .....	43
<b>Our call</b> .....	<b>46</b>
<b>References</b> .....	<b>48</b>
<b>Annex: Methodology</b> .....	<b>58</b>

# FOREWORD

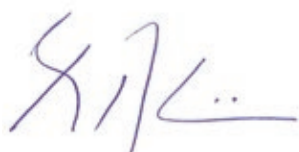
Over the years I have witnessed how the daily lives of people enduring situations of armed conflict are made difficult not only by the violence they experience, but also by climate risks and environmental degradation. In Somalia and Afghanistan, for instance – places that have been damaged by decades of conflict and fragility – droughts and floods have repeatedly threatened people’s food security and forced many to move. In the Sahel, an unpredictable climate and a degraded environment are, increasingly, endangering the lives of people in remote and impoverished communities, whose coping mechanisms are being radically eroded by violence and instability. In Yemen and Iraq, water insecurity – a threat to public health, and to food and economic security – is exacerbated by the weakness of institutions. In many cases, conflict also directly harms the very ecosystems on which people rely for their survival.

These communities live under extreme stress. They are ill-equipped to absorb any new shocks. The fact that people affected by armed conflict should not put them on the frontlines of climate change, but it does – sixty per cent of the twenty countries considered to be most vulnerable to climate change, by the ND-Gain Index, are sites of armed conflict. This is partly because of their geographical location, but mostly because conflicts sharply increase the fragility of the institutions, essential services, infrastructure and governance that are critical for strengthening people’s resilience to a changing climate and environment.

This year, we are releasing two complementary publications that focus on climate risks, environmental degradation and armed conflict. The policy report that you are about to read explores the grave humanitarian consequences that arise when the climate crisis, environmental degradation, and armed conflict converge. It also discusses our role in addressing them and calls for scaling up our collective efforts to strengthen climate action and comprehensively address people’s needs and vulnerabilities in conflict settings.

We have also updated our Guidelines for the Protection of the Natural Environment in Situations of Armed Conflict – first submitted to the United Nations in 1994 – as part of our efforts to continue raising awareness of the ways in which the law protects the environment from the effects of conflict. Damage caused to the environment during conflict can have a lasting impact on people’s lives and limit their resilience to climate change.

At the ICRC, we are committed to responding adequately to the needs of communities facing the cumulative impact of armed conflict, climate risks and environmental degradation. But we cannot do this alone. We need to join forces across the humanitarian sector and beyond – from other components of the International Red Cross and Red Crescent Movement to authorities, development actors, communities, academia and the private sector – to mitigate climate change and ensure that people are given the support they need to adapt to the climate crisis now and in the future. Inaction is not an option.



**Robert Mardini**  
**Director General, ICRC**

# GLOSSARY

**Adaptation:** The process of adjustment in natural or human systems in response to actual or expected climate change and its effects, which seeks to moderate or avoid harm or exploit beneficial opportunities (Field et al. 2014).

**Adaptive capacity:** The ability of systems, institutions and humans to adjust to potential damage, take advantage of opportunities, or respond to the consequences of climate impacts (Field et al. 2014).

**Climate:** The long-term and average weather conditions in a given area over a period of time, ranging from months to thousands or millions of years (Field et al. 2014; WMO 2019).

**Climate action:** Urgent action to combat climate change and its impact, as well as steps taken to strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries. Climate action is the subject of Goal 13 of the UN Sustainable Development Goals (ECOSOC 2019).

**Climate change:** A change in the state of the climate that persists for an extended period: typically, for decades or longer. It refers to any change in climate over time, whether owing to natural variability or as a result of human activity (IPCC 2007; IPCC 2018b).

**Climate crisis:** The enhanced vulnerability of people due to the increasing severity of the effects of climate change.

**Climate finance:** Local, national or transnational financing – drawn from public, private and alternative sources of financing – that seeks to support mitigation and adaptation actions that will address climate change (UNFCCC 2020).

**Climate risks:** The adverse consequences that climate variability and change – or adaptation or mitigation responses to such a change – might have for lives, livelihoods, health and well-being, ecosystems and species, economic, social and cultural assets, services, and infrastructure. Risk results from the interaction of vulnerability, exposure, and hazard (Field 2014).

**Climate shocks:** The realization of climate risks, which fundamentally affects peoples' lives, livelihoods, health and well-being; ecosystems and species; economic, social and cultural assets; services; and infrastructure (Field 2014; Sinha 1999).

**Climate variability:** Fluctuations in climatic conditions on all scales beyond individual weather events. The term is often used to denote deviations of climatic statistics over a given period of time. Variability may be due to natural internal processes within the climate system, or to variations in natural or anthropogenic external factors (WMO 2019).

**Desertification:** Land degradation in arid, semi-arid, and dry sub-humid areas caused by human activities and other factors such as physical, biological, political, social, cultural, economic and climatic variations (Ambalam 2012).

**Environmental degradation:** A process through which the natural environment is compromised in some way, reducing biological diversity and the general health of the environment. This process can be entirely natural in origin, or it can be accelerated or caused by human activities (GEMET).

**Mitigation (of climate change):** Human efforts to reduce or prevent emission of greenhouse gases and to reduce their concentration by enhancing carbon sinks (UNFCCC 2020).



**Resilience:** The ability of individuals, communities, institutions and systems to anticipate, absorb, adapt, respond to and/or recover from shocks and stressors caused by conflict, violence and hazards of various kinds without compromising their long-term prospects.

**Sustainability:** The reconciliation of environmental, social, and economic demands. Sustainable development is development that meets the needs of the present generation without compromising the ability of future generations to meet their needs (World Commission on Environment and Development, 1987).

**Vulnerability:** Condition brought about by physical, social, economic, environmental, and political factors or processes that increase the susceptibility of a community or individuals to a specific shock or hazard. The term describes a person or group's inability to anticipate, cope with, resist and/or recover from the impact of natural or man-made shocks or hazards without compromising their long-term prospects.

# EXECUTIVE SUMMARY

Climate disruption affects populations across the globe and will do so increasingly. Growing climate risks threaten lives, physical and mental health, and food and economic security. They also exacerbate existing vulnerabilities and inequalities. Countries in situations of armed conflict are disproportionately affected by climate variability and extremes. This is in part because of their geographical location, but mostly because conflicts and their consequences limit the adaptive capacity of people, systems and institutions.<sup>1</sup>

Based on research conducted in the interior of the Central African Republic (CAR), southern Iraq and northern Mali, and drawing on the expertise of the International Committee of the Red Cross (ICRC) and the scientific literature on the topic, this policy report explores how people experience the combined consequences of armed conflict and climate risks, and how they cope and adapt. It also discusses how the ICRC, and the humanitarian sector in general, must adjust and adapt to address these risks, and calls for strengthening climate action in conflict settings.

## WHEN ARMED CONFLICT COLLIDES WITH CLIMATE RISKS AND ENVIRONMENTAL DEGRADATION

Conflicts cause deaths and injuries. They also disrupt the social, political and economic organization of societies, aggravate disparities and erode development. In protracted conflicts, the persistence of such disruption often leaves indelible marks on people and societies.<sup>2</sup> Climate risks and environmental degradation only make matters worse. The convergence of climate risks and conflict further worsens food and economic insecurity and health disparities, limits access to essential services, while weakening the capacity of governments, institutions and societies to provide support. The impact of this overlap is not only wide-ranging; it is also far-reaching. Ripple effects can shape mobility, patterns of transhumance or access to resources on a continental scale.

The consequences of collapsing governance are just as wide-ranging and far-reaching, from a breakdown in territorial control to an inability to maintain essential infrastructure, protect ecosystems, manage resources, resolve tensions, implement long-term plans, mobilize international support or engage in regional diplomacy. Systemic limitations are felt even more acutely when insecurity limits humanitarian access and the support provided by development organizations.

Adapting to a changing climate can require major social, cultural or economic transformation. But ambitious, concerted and long-term efforts tend to be limited in times of war, not only because authorities are weakened, but because they tend to concentrate on restoring national security and, eventually, on revitalizing the economy and on repairing or building infrastructure. In the absence of adequate institutional support, individuals and communities try to cope by changing or diversifying their livelihoods, adapting their way of life or moving away from their homes. Although mobility tends not to be people's primary means of adaptation, in the absence of viable options many end up moving, usually within their own country. They often lack institutional support to make such moves permanent – and the poorest and most vulnerable are sometimes trapped in place. Some move preventively as they witness a gradual deterioration of their situation. Others react to a direct threat to their safety caused by conflict or extreme weather, or a combination of both. People often end up in poor urban areas where they continue to be exposed to other hazards and may be forced to move again.<sup>3</sup>

---

1 Adger 2014; IPCC 2018.

2 Akresh 2012; Collier 2003; Corral 2020; Gates 2012.

3 Cardona 2012; ICRC 2018; Hastrup 2012; Rigaud 2018.

## ADAPTING HUMANITARIAN RESPONSES TO PEOPLE'S NEEDS

As climate change alters the nature and severity of humanitarian crises, including in conflict situations, humanitarian action needs to adapt. The ICRC is committed not only to responding to life-threatening emergencies, but also to ensuring that its work has a more sustainable humanitarian impact by helping conflict-affected communities become more resilient to shocks, including those resulting from a changing climate and environment.<sup>4</sup> Reducing the short- and long-term risks that people face requires early action and the implementation of measures to strengthen the resilience of people, communities, and basic services.

The ICRC already conducts a broad range of activities to reinforce the resilience of communities, but its efforts need to be strengthened and refined, and systematically shaped by a contextualized understanding of short- and long-term climate risks. A deeper understanding needs to be developed, of how the transformation of the environment and competition for scarce resources in conflict situations fuel intercommunal tensions and violence. Grasping the regional implications of a changing climate is equally important and requires coordinating analyses and actions across several sectors and many different countries.

This understanding needs to be translated into programmatic orientations that can have a positive impact on people's lives, and that can be incorporated in the ICRC's protection activities, and in its economic security, water-and-habitat or health programmes. It is also important to consider the incremental steps that can be taken to reduce people's vulnerability in settings where instability and fragility have long deterred development efforts, and where the scope of what is required to facilitate people's adaptation is beyond the mandate and capacity of the ICRC.

## OUR CALL

Major global efforts must be made to limit climate change. They are an absolute necessity for averting the most disastrous consequences for people and their environment. But such efforts will only limit, not halt, the climate crisis. They must be complemented by measures to help people and communities adapt to a changing climate and environment. People affected by conflict are among those most vulnerable to the climate crisis, but they are also among those most neglected by climate action. We must work together across the International Red Cross and Red Crescent Movement, the humanitarian sector and beyond to reverse this trend.

Humanitarian organizations must commit sufficient resources and expertise, and provide the leadership necessary, to:

**SKILL UP** to respond adequately to the vulnerabilities and needs resulting from the intersection of conflict and climate risks.

**TEAM UP** across the International Red Cross and Red Crescent Movement, the humanitarian sector and beyond to strengthen climate action during armed conflict and to ensure that people already suffering the consequences of war are not left out.

**ANTICIPATE RISKS AND STRENGTHEN RESILIENCE**, in order to protect communities by promoting respect for the environment during armed conflict and by designing programmes that help people develop resilient livelihoods and shelters, reinforce access to hazard-resilient essential services, and ensure that populations are adequately informed of risks and adaptation pathways.

**MOBILIZE FOR IMPROVED CLIMATE ACTION AND FINANCE** so that climate action reaches places in crisis and funding is more equitably balanced between mitigation and adaptation efforts.

**LEAD BY EXAMPLE**, by limiting the damage we cause to the environment and the climate and by ensuring the resilience of our operations to extreme weather events.

---

<sup>4</sup> ICRC 2018b.

# SOME FACTS AND FIGURES



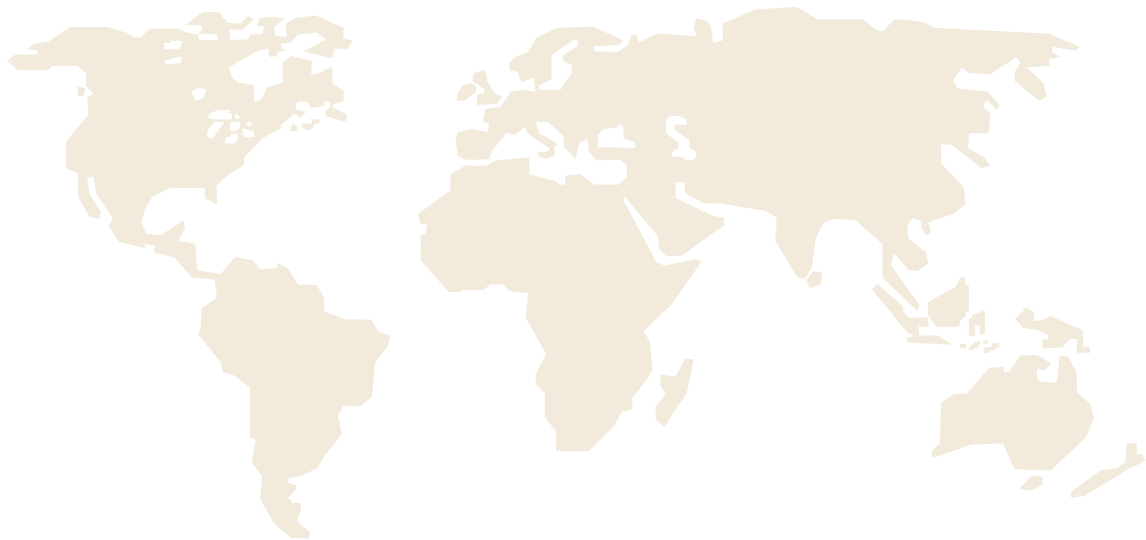
## 200 MILLION

people every year could need international humanitarian aid from 2050, a doubling compared to 2018 partly due to climate change (IFRC 2019).



## 20 BILLION \$

of international funding a year may be required to respond to humanitarian needs by 2030 (IFRC 2019).



## 60% OF THE 20

countries considered to be most vulnerable to climate change by the ND-Gain Index are affected by armed conflict.

## 14 OF THE 34

countries in food crisis experienced the double burden of conflict and climate shocks in 2017 (FAO 2018).

\* A country identified by the FAO as being in "conflict" may not necessarily be in a "situation of armed conflict" as defined under international humanitarian law.



Areas where climate shocks and conflict\* interact to drive food crises have high to very high prevalence rates of **acute malnutrition in children under the age of five**: these areas include Darfur in Sudan (28 per cent), South Sudan (23 per cent) and the Lake Region of Chad (18 per cent) (FAO 2018).



## 37 PER CENT OF GDP

The hunger problem is significantly worse in countries with agricultural systems that are highly weather-dependent, and where livelihoods are largely agricultural. In 2018, on average, agriculture accounted for **37 per cent of GDP** in conflict-affected\* countries, which is between two and four times higher than in developing contexts not affected by conflict or fragility (FAO 2018; IFPRI 2000).



## 1/3

of the world's cropland has been abandoned in the past 40 years because of erosion. Each year an additional 20 million hectares of agricultural land either becomes too degraded for crop production or is lost to urban sprawl (UN Water 2020).



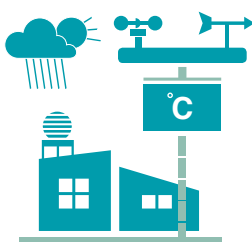
## OVER 50%

of the world's population is expected to be living in water-stressed regions by 2050 (UN Water 2020).



## UP TO 94%

The proportion of displaced people in Iraq's southern governorates who cited water scarcity as the main reason for their displacement – ahead of conflict, discrimination, or unemployment in 2010 (World Bank 2017).



Fragile States often host fewer reporting weather stations from which climate data can be gathered and climate-change scenarios modelled.

**GERMANY** has

## 166

reporting stations, or **3.5 per 10,000 square kilometres**.

**THE CAR** a country twice the size of Germany has only

## 14

reporting stations, or **0.2 per 10,000 square kilometres** (IISD 2015).

# INTRODUCTION

The consequences of a warmer climate, and increasingly intense, frequent and unpredictable weather extremes, are bleak. Higher temperatures and heatwaves, erratic rainfall and violent storms that wash away soil, harvests, and infrastructure, extended droughts, desertification, rising sea levels and ocean acidification, soil salinization, and disrupted seasons endanger people's lives. They threaten access to food, water, and essential services, put physical and mental health at risk and jeopardize arduously achieved development milestones. The World Health Organization has warned that fifty years of progress in public health are under threat, and along with several other UN agencies, it has raised the alarm that after decades of decline in levels of hunger, food insecurity is on the rise.<sup>5</sup> The International Federation of Red Cross and Red Crescent Societies has cautioned that the number of people in need of humanitarian assistance could double by 2050, partly owing to the climate crisis.<sup>6</sup>

Climate change is unfair. It further weakens those who are already struggling and have limited means and social capital to overcome the consequences of extreme-weather events, and whose livelihoods are weather-dependent. Poor and marginalized populations in developing countries are hit especially hard.<sup>7</sup> Climate shocks can impose drastic changes on people's way of life and on their livelihoods, and compel people to move from their homes, often contributing to urbanization in poor and overcrowded neighbourhoods that are more likely to be disaster-prone.<sup>8</sup> The consequences of climate change can be far-reaching, as they can shape people's daily lives across countries and continents by influencing mobility, patterns of transhumance or the availability of resources.

For people enduring the hardship caused by armed conflict, characterized not only by violence but also by weak institutions and essential services, economic downturns, and the marginalization of certain communities, climate change only makes matters worse. Conflict may hinder people's usual coping mechanisms, while the actual conduct of hostilities may cause lasting damage to the environment on which people rely to survive, further limiting their adaptive capacity.

We explored how people living in conflict-affected countries – from the interior of the Central African Republic (CAR) to southern Iraq and northern Mali – experience and cope with climate risks and the degradation of their environment. The CAR, Iraq and Mali are all enduring protracted conflict or in a state of fragility. They are especially vulnerable to climate change, in part because of their geographical location but more importantly, because of the lasting consequences of conflicts for communities, systems, institutions and authorities.<sup>9</sup> These are also countries with large ICRC operations.

This report is based primarily on three case studies conducted in 2019 and 2020, during which we met with communities, authorities, civil-society organizations, humanitarian and development organizations, and donors. The case studies are complemented with a review of the scientific literature. The report aims to contribute to unpacking how the combined impact of climate risks and conflict makes people more vulnerable and thus affects their resilience. It also seeks to stimulate reflection on the implications for the ICRC's response in situations of conflict, keeping in mind that many observations are also applicable to other humanitarian organizations.<sup>10</sup>

---

<sup>5</sup> WHO 2018; FAO 2019.

<sup>6</sup> IFRC 2019.

<sup>7</sup> Cardona 2012; IPCC 2018; Mearns 2010; Norwegian Red Cross 2019; UN HRC 2019.

<sup>8</sup> Revi 2014; Watts 2019.

<sup>9</sup> Based on the [ND-Gain Index](#) which summarizes a country's vulnerability to climate change and other global challenges in combination with its readiness to improve resilience.

<sup>10</sup> See [Annex](#) for details on the methodology.

We are far from having all the answers. We need to continue analyzing the humanitarian consequences of conflicts and climate risks occurring in tandem – notably in urban settings – and their influence on displacement dynamics, and to deepen our understanding of how these consequences vary according to people’s individual characteristics, including their gender, age, capacity or occupation. We are however convinced that we must urgently join forces within and beyond the humanitarian sector to limit climate change and strengthen people’s resilience to climate variability and shocks, so that populations already suffering from the consequences of conflict and other situations of violence do not remain on the front lines of the climate crisis.

#### **Climate variability, climate change and environmental degradation**

Climate change refers to any change in the climate that persists for an extended period – typically, decades or longer. Climate variability refers to fluctuations in climatic conditions within a smaller time frame, such as a month, a season or a year. Variations (in the frequency of intensity of rainfall, tropical cyclones, temperatures, etc.) can be exceptional and part of natural climate variability. Only persistent variations may suggest a potential change in the climate.<sup>11</sup>

Environmental degradation is a process through which the natural environment is compromised. This can be an entirely natural process, or it can be accelerated or caused by human activities.<sup>12</sup> Several climatic and non-climatic drivers cause environmental degradation, and it is not always possible to apportion the share of climate change and climate variability in the process. In situations where the primary driver is non-climatic, climatic factors may accelerate environmental degradation. For example, the rise in agro-pastoralism in the Sahel is a non-climatic driver for environmental degradation. However, this rise is in part induced by the long-term effects of higher temperatures and repeated droughts that have forced people to adapt their way of life. The relationship between environmental degradation and climate change goes both ways, as large-scale environmental degradation can also accelerate climate change. For instance, widespread land degradation can contribute to climate change, as the loss of topsoil releases carbon dioxide into the atmosphere and affects the soil’s ability to sequester carbon dioxide.<sup>13</sup>

---

<sup>11</sup> WMO 2019.

<sup>12</sup> GEMET.

<sup>13</sup> IUCN 2015.





# I. EXPERIENCING ARMED CONFLICT, CLIMATE RISKS AND ENVIRONMENTAL DEGRADATION



“Since 2012, insecurity is making the situation even harder than in the 1970s [when West Africa was hit by a long drought leading to famine that killed an estimated 100,000 people and decimated livestock.<sup>14</sup>] At that time, we only had to search for food. We could move freely with our animals. Now, we can’t even search for food. We are forced to stay in place or move to cities because of the insecurity.”

Issa,<sup>15</sup> a 61-year-old community leader from northern Mali, describes how during a drought, herders normally travel longer distances with their animals to find grazing land and water. Some family members may move to neighbouring countries for work, following a long-established tradition. When the situation is dire, the State may be able to provide some food or water. But the armed conflict that has profoundly disrupted the lives of Malians, especially in the north of the country, since 2012, and has caused deaths, displacement and economic instability, also hinders the ability of communities to adapt to a changing climate.

In early 2019, when grazing land became scarce around Ansongo, south of Gao – this time not because of a drought, but because of heavy rains in 2018 that flooded fields and destroyed crops and homes – pastoralists were deterred from travelling with their livestock by the fear of being attacked on the road by armed groups or bandits. Instead, they gathered in certain areas – most often, close to water sources. The added pressure on already scarce resources created tensions over water with farmers and fishermen who were also trying to cope. As their animals became weaker, herders were forced to sell them at steeply discounted prices. Insecurity prevented them from reaching livestock markets far away, where they could have hoped for better prices. And State officials – and potential State support – were long gone because of the violence. In short, impoverished herders were watching their only assets wither, and were left struggling to feed their families. Some of those who had lost everything moved into makeshift settlements in urban centres, but job opportunities were few. Insecurity prevented some from travelling to other parts of Mali or to neighbouring countries to find work, as it no longer felt safe to go on the road and leave their families behind. In fact, several people who were working or studying in southern Mali headed back north to be with their families during hard times.<sup>16</sup>

Living conditions in northern Mali are unforgiving. Desertification has been accelerating for decades, rains are rare and increasingly unpredictable, and infrastructure is minimal.<sup>17</sup> Long-lasting conflict and insecurity make matters noticeably worse and threaten people’s ability to cope. This may have been the most obvious illustration of the way armed conflict directly harms people’s adaptive capacity that we encountered. In other places, the repercussions were less immediately visible. Still, we consistently found that conflicts weaken societies and their ability to engage in concerted long-term efforts to help people adapt to the consequences of the climate and environment crisis.

<sup>14</sup> United States Department of State 1974: 3–5.

<sup>15</sup> The names of individuals quoted in the report have been changed to protect their anonymity.

<sup>16</sup> Examples and observations from Mali, the Central African Republic and Iraq are drawn from interviews with communities, local associations, central and local authorities, humanitarian and development organizations and donors carried out in each of these countries, complemented and triangulated with relevant literature.

<sup>17</sup> Holthuijzen 2011; World Bank 2019a.

## THE DIRECT AND INDIRECT CONSEQUENCES OF ARMED CONFLICT FOR PEOPLE'S RESILIENCE

In addition to killing civilians, wars leave lasting scars on individuals and societies. They profoundly disrupt social, political, and economic arrangements, causing “development in reverse” and exacerbating poverty and inequalities.<sup>18</sup> In situations of conflict, insecurity is only one of the many menaces people face. They may lose their homes and their livelihoods. Their access to food and water may be compromised, and (where they exist) essential services and systems that play a critical role in people’s resilience to shocks may be badly damaged or overwhelmed. The economy may be depressed, social networks disrupted, social cohesion eroded, and some parts of the country’s territory neglected or inaccessible to public officials. Conflicts can also cause long-term damage to the environment, harming people’s physical and mental health, livelihoods, and resilience – notably to climate shocks – for decades.<sup>19</sup>

Research shows that most deaths during conflict are not directly caused by the violence, but indirectly by the breakdown of systems, the spread of disease and the lack of management of treatable conditions.<sup>20</sup> Conflicts exacerbate people’s health needs at a time when medical care and public-health activities are often backsliding. Infrastructure and systems used to provide health care, water and sanitation, or food may be severely compromised. Health staff may be targeted, displaced or killed. As public finances contract and funds are reallocated for military purposes, the ability of the State to operate, maintain, or repair infrastructure and systems declines, and so does the capacity of health systems to detect and manage diseases.<sup>21</sup>

*Like climate change, conflicts are unfair. They increase the vulnerability of those who are already vulnerable.*

In situations of protracted conflict, this multiplicity of challenges persists for an extended period. The effects can be indelible. Undernourishment, and lack of access to health care, clean water, or education hamper human development, especially that of children, and limits people’s potential to make meaningful contributions to their communities.<sup>22</sup>

Like climate change, conflicts are unfair. Their impact is unevenly distributed. They increase the vulnerability of those who are already vulnerable and create new vulnerabilities. Marginalized people with a lower socio-economic status, particularly women, are often more vulnerable to shock, as they tend to lack financial and social assets to cope with change.<sup>23</sup> They also tend to be hit hardest by climate shocks.<sup>24</sup>

<sup>18</sup> Collier 2003; Gates 2012.

<sup>19</sup> Austin 2000: 5–6; ICRC 2019; Jha 2015: 8–17; Kiernan 2013.

<sup>20</sup> Gates et al. (2012) have found that a conflict of a medium-size with 2500 battle death reduces life expectancy by about 1 year, it increases infant mortality by 10 per cent and deprives an additional 1.8 per cent of the population from access to potable water.

<sup>21</sup> Degomme 2010; Ghobarah 2003 and 2004; ICRC 2015.

<sup>22</sup> Akresh 2012; Collier 2003; Corral 2020.

<sup>23</sup> Buvinic 2013; Corral 2020; GDIM 2018.

<sup>24</sup> Chandra 2017; Mason 2011.

**Climate change, the natural environment and international humanitarian law**

The natural environment is frequently a silent casualty of armed conflict. Too often, it is directly attacked or incidentally damaged by the use of certain means or methods of warfare. It is also impacted by damage and destruction caused to the built environment. The resultant environmental consequences are manifold. Attacks can lead to water, soil and land contamination, or release pollutants into the air. Explosive remnants of war can contaminate soil and water sources, and harm wildlife. The indirect effects of conflicts result in further environmental degradation. These can include a reduced institutional capacity to manage and protect the environment, large-scale displacement, and the exploitation of natural resources to sustain war economies. In certain circumstances, the environmental consequences of armed conflict can also contribute to climate change. For example, the destruction of large areas of forest, or damage to infrastructure such as oil installations or big industrial facilities, can have detrimental climate consequences, including the release of large volumes of greenhouse gases into the air.

International humanitarian law (IHL) contains rules that provide specific protection to the natural environment as well as general rules that protect it by virtue of its civilian character. As early as 1977, States afforded the natural environment protection against widespread, long-term and severe damage in Additional Protocol I to the Geneva Conventions. IHL also protects certain parts of the natural environment as objects indispensable to the survival of the civilian population, such as agricultural areas and drinking water. Rules governing the conduct of hostilities – including those of distinction, precautions, and proportionality – set further limits on wartime environmental damage and destruction; they do so by protecting civilian infrastructure and other civilian objects, including all parts of the natural environment.

Greater respect for IHL rules can limit environmental degradation, and thus reduce the harm and the risks that conflict-affected communities are exposed to as a result of climate change. For example, climate change can drive water scarcity and reduce the availability of arable land, and both water and cultivable land are critical to civilian survival in many conflict-affected contexts. By prohibiting attacks on objects indispensable to the survival of the civilian population, such as agricultural areas and drinking water, IHL protects these resources from additional conflict-related violence. Climate change can also accelerate biodiversity loss, with attendant consequences for the health and economies of local communities. IHL can provide a framework for designating areas of particular biological diversity as demilitarized zones during armed conflict, thereby protecting these fragile hotspots from additional degradation.

Respect for IHL rules can also limit certain environmental consequences of armed conflict that can directly contribute to climate change. For instance, IHL rules set limits on the damage and destruction that can be inflicted on infrastructure such as oil installations, and on parts of the natural environment such as forests, thereby limiting the detrimental climate impact of such damage or destruction.

Now more than ever, we must move towards better respect for the environment during armed conflict. The ICRC's *Guidelines for the Protection of the Natural Environment in Situations of Armed Conflict*, due to be published in 2020, seek to improve respect for and implementation of the IHL rules protecting the natural environment. The ICRC stands ready to support States and parties to armed conflict to integrate the relevant rules of IHL into national law, policy and practice.

## WHEN ARMED CONFLICT AND CLIMATE RISKS COLLIDE

Conflict limits the adaptive capacity of communities, which makes them particularly vulnerable to shocks. The convergence of conflict and climate risks can increase needs and vulnerabilities – by exacerbating food and economic insecurity and health disparities, and by limiting access to services – when the capacity or will of governments and institutions to provide emergency support, and implement longer-term measures to strengthen resilience, is weakened.

The consequences on health and health care of conflict and climate risks working together illustrate how needs are likely to grow and shift at a time when the health sector is weakened and less capable of adapting to a changing environment. As noted above, conflicts can impede the work of health personnel, and compromise health structures and supply chains for medicines and equipment, precisely when health needs are increasing. The effects of climate change worsen the situation by driving food insecurity further to the brink, destroying health centres and supply chains in extreme weather events, and creating fertile breeding grounds for certain infectious diseases and their rapid spread.<sup>25</sup> All of these factors combined heighten risks for individuals and communities.

Adapting to climate change can be relatively simple. In certain circumstances, a change in the crops being cultivated might be sufficient. But it may also require major social, cultural or economic changes. A whole agricultural system might need to change, or diseases new to a geographical area might need to be dealt with. But ambitious, concerted efforts tend to be limited in times of war. In a conflict situation, authorities and institutions are not only weak but also preoccupied with other priorities than dealing with immediate and longer-term climate risks and ensuring inclusive development, all of which are essential to climate adaptation. They usually focus on restoring national security – and are under significant international and local pressure to do so – and eventually on revitalizing the economy and rebuilding critical infrastructure and services (which can contribute to making people more resilient to extreme-weather events). Efforts to protect fragile ecosystems, ensure that resources are used sustainably within and across borders, and design and implement long-term plans tend to be limited. Similarly, capacity to mobilize international support, or engage in regional diplomacy, is reduced, as is the capacity to manage intercommunal tensions or to support existing community structures to do so. Potential efforts are often hampered by a lack of resources and intragovernmental cooperation, bad governance, uneven development or underdevelopment, and limited technical capacity and knowledge to guide action.<sup>26</sup> The impact of such shortcomings on people's ability to adapt becomes even more acute when insecurity reduces the scale of humanitarian responses and deters development actors from designing and implementing comprehensive programmes.

*Ambitious, concerted efforts tend to be limited in times of war.*

Protracted conflicts can also force people and authorities to concentrate on their immediate survival, limiting their ability to plan for a deeply uncertain future. In circumstances where people struggle to feed themselves and survival seems dependent solely on the exploitation of natural resources, promoting respect for the environment and for a sustainable exploitation of resources may be an irrelevance. The capacity to change livelihoods and ways of life may also be very limited. This results in part from socio-cultural factors – in people's minds, their dignity and their identities are closely linked to the way they live and earn their living – but

---

<sup>25</sup> For instance, malaria and dengue are spreading to areas previously unaffected and the disappearance of habitats may force animal species to move, which can increase the chances of transmission of pathogens (Vidal 2020; Watts 2019; Woolhouse 2008).

<sup>26</sup> On the intersection between fragility and climate risks, see the recent address from the International Crisis Group to the Security Council available at: <https://www.crisisgroup.org/global/climate-change-shaping-future-conflict>.

also from the few livelihood opportunities that exist in a depressed economy. Even moving to areas more conducive to certain activities, such as farming, requires financial means or institutional support. In some cases, such moves are deterred by the State for strategic reasons: Iraqi authorities insist on the importance of keeping the south of the country populated for geopolitical reasons, even if living conditions there are dire.

The lack of focus on adapting to a changing climate also stems from people's limited awareness of climate change and its short- and longer-term consequences. Many people who live in rural areas have noticed that seasonal patterns and rain patterns have become erratic and that this is impacting harvests and water reserves, but they are often unaware of the sources of these changes or that they are there to stay. People hope for a return to normal. Few recognize that their children might be forced to adopt new ways of life – although several Iraqi mothers stressed that they pushed their children to study so they could find a more reliable livelihood than farming. In disaster-prone areas, such as flood zones in the CAR, populations are ill-informed of the risks they face, and solutions to reduce their vulnerability have not been forthcoming.

### **Does climate change cause conflict?**

In recent years, concern has been growing about security risks resulting from climate change, as have warnings that a changing climate could provoke a succession of wars. Scientists generally agree that climate change does not directly cause armed conflict, but that it may indirectly increase the risk of conflict by exacerbating factors that can, in a complex interplay, ultimately lead to conflict.<sup>27</sup> Such factors include social exclusion, a history of conflict and grievances, economic risks, environmental degradation, and tensions over the management of resources.<sup>28</sup> In peaceful environments with solid institutions that provide social protection, resolve tensions, manage the use and allocation of resources in a sustainable and equitable manner, and ensure inclusive development, climate change does not cause violent conflicts.<sup>29</sup> Such institutions are critical to climate-change adaptation.<sup>30</sup>

Countries affected by conflict, other violence or fragility tend to suffer from the absence of strong governance and inclusive institutions. In such places, while climate change may not cause conflict, it may contribute to exacerbating and prolonging conflict and instability by further weakening institutions, systems, and people's coping mechanisms. It may also aggravate communal violence.<sup>31</sup> Research examining the connection between climate variability and violence shows that an increase or decrease in rainfall in resource-dependent economies enhances the risk of localized violence, particularly in communities where resources are already overstretched and where the State may not be able to resolve tensions.<sup>32</sup> Shifts in pastoral routes and agricultural practices in response to a changing climate may also stir tensions when communities that lack established relationships, and conflict-resolution mechanisms in common, must share land and other resources.<sup>33</sup>

<sup>27</sup> Brown 2009; Peters 2020; Selby 2017; Theisen 2017; Buhaug 2015.

<sup>28</sup> Adger 2014; Peters 2019.

<sup>29</sup> Benjaminsen 2012; Bernauer 2012.

<sup>30</sup> Barnett 2007, 2018.

<sup>31</sup> Ghimire 2015; Raleigh 2012; Uexkull 2016.

<sup>32</sup> Adger 2014.

<sup>33</sup> De Juan 2015; Linke 2015.

## COPING WITH THE CUMULATIVE IMPACT OF CONFLICT AND THE CLIMATE CRISIS

In the absence of adequate institutional support, impoverished people and communities whose food, water, and economic security is threatened often try to adjust by changing or diversifying livelihoods and ways of life. Farmers may change the type of seed they use or their irrigation methods. Herders may start farming a small plot of land or fishing. Some family members may move seasonally to find work within their country or in neighbouring ones, often following long-established traditions. In northern Mali, southern Iraq and the CAR, people mentioned that in the absence of opportunities and adequate protection from the State, some young men joined armed groups, raising questions about their social and economic reintegration once the conflicts in their countries end.

Mobility tends not to be the primary adaptive response of entire households, but in the absence of other viable options, many people end up moving – although the poorest and most vulnerable may be trapped in place, just like those experiencing restrictions on freedom of movement sometimes imposed by a party to armed conflict.<sup>34</sup> In some cases, such movement is a preventive measure taken in response to insecurity, slow-onset disasters, climate change and environmental degradation. In southern Iraq, for instance, large numbers of farmers of a lower socio-economic status decided to relocate because their livelihoods had become increasingly precarious. However, even after having lived in other parts of the country for years, they often took the first opportunity to return home. This was driven in part by a genuine attachment to their land, but also by a lack of institutional support that made permanent moves close to impossible for people with limited means.

Others are displaced by a direct threat to their safety, be it violence or a slow or rapid-onset disaster. In northern Mali, the vulnerability of people who were initially displaced within the country by the conflict was exacerbated by the harsh climate. Some who progressively lost their assets ended up moving again, this time to neighbouring towns where they hoped to find some work and support. In the interior of the Central African Republic, people who had fled the violence and settled in temporary settlements on the outskirts of urban areas endured heavy rains. Others, who had managed to stay home despite the violence or had returned from displacement, saw their shelters washed away by the floods and ended up being displaced. Displacement can save people's lives. But it also tends to make them less safe and to undermine stability, as they lose their assets, their homes, their livelihoods and social networks and must learn to live in new environments with limited support for their recovery.

*In the interior of the Central African Republic, people who had fled the violence and settled in temporary settlements on the outskirts of urban areas endured heavy rains.*

Most people who leave their homes remain within their own country.<sup>35</sup> They often end up living in precarious conditions in shanty towns, where they remain exposed to all types of hazards and may be forced to move again. Such movements contribute to reshaping the landscape of cities and countries, as urban areas grow and rural areas become less populated.<sup>36</sup>

---

<sup>34</sup> Black 2014; Hastrup 2012; Rigaud 2018.

<sup>35</sup> Foresight 2011; IDMC 2017; Rigaud 2018.

<sup>36</sup> Cardona 2012; ICRC 2018; Sanderson 2016.





In Zemio, in south-eastern CAR, herders who have lost their livestock wait to receive food.





## **II. FACING CONFLICT AND A CHANGING CLIMATE, FROM THE CENTRAL AFRICAN REPUBLIC TO IRAQ AND MALI**



When asked about the impact of the climate crisis on their lives, people in the CAR, Iraq and Mali often said that they had barely heard of climate change and knew very little about current and future risks. But they had no trouble in describing such things as the changes in their environment, the unreliability of the weather, and the unpredictable nature of droughts and floods, all of which dramatically affected their health, and physical and economic security.

In the CAR, people focused on the tensions between farmers and herders that resulted from changing patterns of transhumance and the limited capacity of authorities to regulate internal and cross-border movements. Iraqis talked of poor water availability and quality, and of the lasting effects of conflicts that have weakened institutions, including their capacity to maintain essential infrastructure and carry out much needed regional water diplomacy.<sup>37</sup> In northern Mali, pastoralists and farmers described how their ways of coping with repeated droughts and, occasionally, heavy rains have been disrupted by the conflict, and how that is accelerating changes to their way of life, forcing some to move south or to cities.

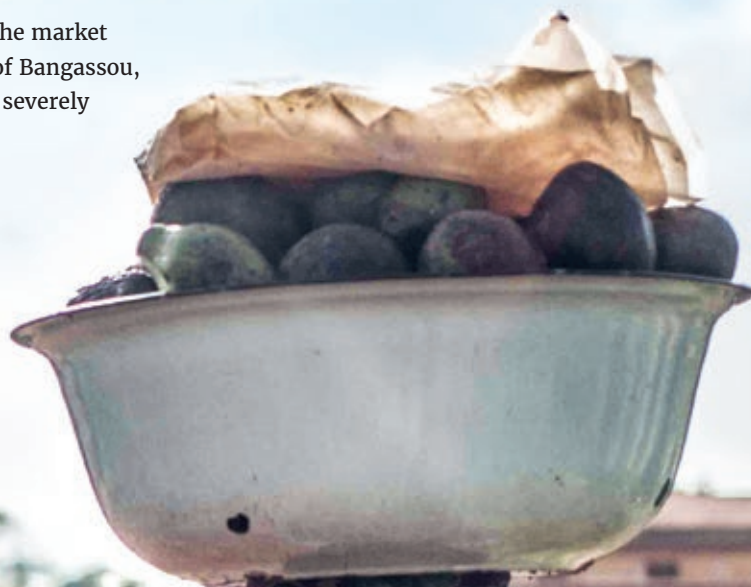
*They had no trouble in describing such things  
as the changes in their environment, the unreliability  
of the weather, and the unpredictable nature  
of droughts and floods.*

Examples drawn from the case studies show how the intertwined consequences of armed conflict and climate risks contribute to weakening people's ability to cope. These examples do not give a complete picture of the consequences of climate change in the CAR, Iraq and Mali. They focus on and magnify specific, vitally important aspects of people's experience and illustrate the collision between local and regional dynamics, the enduring impact of conflicts on people's lives and environments, and the bleakness of adaptation prospects when conflict flares up in communities already living in severely degraded environments. In all cases, other interconnected mega trends – such as demographic growth, rapid and unplanned urbanization, and epidemics – contribute to shaping people's experience.

---

<sup>37</sup> We use water diplomacy refers to the bilateral and multilateral cooperation and negotiations on the governance of transboundary water across national borders.

An avocado seller leaves for the market in a Muslim neighbourhood of Bangassou, south-eastern CAR, that was severely affected by the conflict.





# CENTRAL AFRICAN REPUBLIC

## THE LOCAL CONSEQUENCES OF REGIONAL INSECURITY, CLIMATE CHANGE, AND ENVIRONMENTAL DEGRADATION



### CLIMATE VULNERABILITY

(ND-GAIN):  
178 out of 181



### HUMAN DEVELOPMENT INDEX

(UNDP 2019):  
0.381 (188 out of 189)



### FOOD INSECURITY

(IPC, MAY 2020):  
during the post-harvest period,  
some 35 per cent of the country's  
4.6 million residents was severely  
acutely food insecure, a figure that  
is expected to rise to 47 per cent  
during the lean season



### PROPORTION OF THE WORKFORCE EMPLOYED IN AGRICULTURE

(WORLD BANK 2019):  
72.5 per cent

### Climate trends and impacts in the CAR

There are only fourteen meteorological stations in the CAR. Most of them are disused or do not meet international standards. This makes the country's climate one of the least documented in the world. The temperature is expected to rise, and the intensity and duration of rainfall are likely to change, with more violent and heavy rains, and a less predictable distribution across the territory and across time. Climate change may lead to more frequent floods – the most common extreme-weather events in the country, which are already causing considerable human and material damage. Climate change may also lead to droughts, heatwaves, increased erosion, landslides, stronger winds, disruption of seasonal cycles, and reduced soil fertility. Regional scientific evidence largely corroborates the first-hand observations of communities and authorities.<sup>38</sup>

The armed conflict that has been destabilizing the CAR since 2013 is part of a larger pattern of chronic conflict, violence and fragility that has been damaging the country for decades. It has resulted in increased insecurity and vulnerability, particularly in rural areas where people's survival depends on their safe access to fields and pastureland. Since large parts of its territory remain green and fertile, the country tends not to be thought of as particularly vulnerable to climate change in the same way as Iraq or Mali.<sup>39</sup> But weak institutions, extreme poverty, and limited essential services and infrastructure make it vulnerable to climate variations and shocks. The displacement of nearly 100,000 people and the destruction of more than 10,000 homes by floods in late 2019 illustrated once more this heightened vulnerability and the lack of effective measures to reduce risks.<sup>40</sup> Importantly, desertification in the Sahel and in the Lake Chad region, combined with armed conflict and insecurity, is having a very localized impact in the CAR by altering patterns of transhumance. This is shedding light on how the consequences of climate change and insecurity in one place can shape the reality of people living hundreds of kilometres away.

<sup>38</sup> Diedhiou 2018; Gariano 2016; IISD 2015; Niang 2014; Soulé Baoro 2017; Sultan 2012; USAID 2018.

<sup>39</sup> Climate change in CAR is considered a secondary issue by the majority of the staff from international organizations that we interviewed. Research on the consequences of climate change are also more limited than in places such as the Sahel. Central authorities in the country do fully acknowledge the importance of strengthening the resilience of the country to a changing climate, as well as their limited capacity to do so.

<sup>40</sup> Despite regular floods in the country, short and long-term preventive measures are limited and no early warning system is in place to alert people of imminent flooding; flood-related figures from OCHA 2019.

To summarize, slow and sometimes imperceptible changes caused by climate change and environmental degradation, particularly in the Sahel, intersect with the much more visible impact of the conflict. The former pushes people to move towards greener areas for their survival. The latter increases insecurity and contributes to further destabilizing community cohesion and an already weak State apparatus, limiting the State's capacity to control its territory and manage intercommunal tensions. The convergence of these dynamics has led to upheavals in patterns of transhumance, increased violence, and a deterioration in the economic and food security of the population.

*The consequences of climate change  
and insecurity in one place can shape the reality  
of people living hundreds of kilometres away.*

**The changing dynamics of transhumance**

Patterns of transhumance in the CAR have always been dynamic and shaped by the socio-economic, political, environmental, climatic and security situation within and beyond the country's borders. For decades, herders from Chad have crossed the CAR border during the dry season to access fertile pastures. Herders from Sudan and Cameroon followed suit, and so did herders from West Africa, particularly Nigeria, at a later stage. Until the recent political crisis, pastoralists would gather mostly in uncultivated areas in the dryer north.<sup>41</sup> Over time, local and foreign herders pushed towards the greener centre and south, in some cases travelling across the country to the Democratic Republic of the Congo. Representatives of the National Herders' Federation (FNEC) and other community voices attribute this shift to the drying up of rivers and streams, particularly in northern CAR, since the 1983 drought, and to regional insecurity. The livestock ministry adds that demographic growth combined with larger herds have also resulted in a greater demand for water, fields, and pastures.

Itineraries followed by herders were notably shaped by their search for grazing land, but also by their resolve to keep their livestock safe from widespread conflict and criminality, including in the Lake Chad region and the Sahel.

**When regulatory mechanisms fail...**

The crisis has further reduced the degree of control of the government over much of the country and its borders, permitting greater and unregulated circulation of people and animals, and disrupting tax collection and animal-health screening and services. In parallel, the legitimacy of traditional regulatory mechanisms that could push pastoralists towards certain routes, and contribute to solving conflicts, has dwindled, as many pastoralists and armed groups no longer – or never did – recognize the authority of these mechanisms.

This has greatly destabilized herding and farming by disordering the geography of pastoralism. Growing numbers of pastoralists have arrived from distant countries, while others have been travelling further south with their animals. Many have circumvented traditional routes, in part to avoid coming face to face with armed groups or bandits in remote areas, but also to keep away from ground where sick livestock might have grazed. Herders suffered terrible losses at the beginning of the crisis and, in the absence of animal-health services, livestock mortality rates rose by 20 to 50 per cent.<sup>42</sup> Many local herders lost their livestock to other herders and armed groups. Some took revenge, unleashing cycles of retribution and vengeance. Local herders who managed to keep their animals were often pushed away from their traditional pastures by armed groups, particularly in the north, and found refuge in the east and south-east. Others sought safety by moving closer to villages, which sometimes disrupted farming activities. Some herders protected by armed groups were able to bring their animals to graze in attractive farmed fields and vegetable gardens that were normally out of bounds. Communities could not protest, fearing violent repercussions.

<sup>41</sup> Carré 2018; Marchal 2015.

<sup>42</sup> FAO 2014; 2018b.

At the same time, farmers have sometimes taken over pastureland. This is in part because traditional slash-and-burn agriculture requires large tracts of land, and so does the poor quality of seed that forces farmers to plant larger fields to produce enough crops, but also because of demographic growth.<sup>43</sup>

### **... and insecurity grows**

Tensions around transhumance existed before the 2013 crisis but have worsened over the last few years. Communities and authorities describe a sharp rise in confrontations related to access to fields and water, in part because of the inability of local authorities to enforce land-use regulations. The visible presence of armed herders near farming villages was cited as an important source of tensions in the areas surrounding Kaga Bandoro and Bouar, in the interior of the country. Inhabitants described having their crops destroyed and stolen, and being beaten by herders and members of armed groups when tending their fields or foraging in the forest. Women reported being subjected to sexual violence. Farming communities also stressed their inability to negotiate with herders who might speak a foreign language, may not recognize traditional authority, often carry weapons and sometimes impose their will through violence.

Tensions are often described schematically, as occurring between farmers and herders, local and foreign herders, northern and southern populations, Christians and Muslims. Interactions between these groups – and their role in the violence – are in fact intricate and nuanced. It is however clear that levels of violence are high, and that communities live in fear and struggle to meet their basic needs.

### **Food and economic security in unstable times**

Any disruption to farming and herding has a profound impact on food security in the CAR, as over 70 per cent of the population depend on those activities for subsistence.<sup>44</sup> Conflict, insecurity and tensions around transhumance have weakened the food and economic security of a rural population that was already struggling to meet its basic needs. They have limited access to fields, food-gathering sites, and sources of firewood. Fields have been trampled by cattle. Some herders have lost their livestock or their access to water and pastureland. Trade in animals and farm products has been cut off, and markets destabilized. “Farmers can no longer farm and local herders (who still had some cattle) had to leave with their livestock. Many have lost everything and now live on the displacement site”, summed up the local representative of the FNEC, a herder who lost all his cattle to the crisis.

Before the crisis, farmers in the areas surrounding Kaga Bandoro worked large enough tracts of land to reap surplus crop and sell parts of their harvests. The small areas they are now able to farm are insufficient for meeting their own needs. Women report that, on the rare occasions when they manage to harvest, insecurity on the roads threatens their ability to bring their crops to market. The cost of food has risen considerably, while yields have decreased and incomes have shrunk. Production has fallen to the point where people have had to buy food from Bangui instead of selling their surplus there. The impoverished population has resorted to harmful coping strategies, including increasingly intensive deforestation, with trees felled not just for cooking fires but also to make up for lost income or to feed the foliage to cattle.

The disruption of agriculture can be largely attributed to the conflict and its consequences. But the pressure on resources and the changes in pastoral dynamics are amplified by a changing climate and environment, and by demographic trends that are set to continue even when peace, security, and good governance are restored. The country will remain attractive to transhumant herders as the Sahel continues to dry up and insecurity and fragility persist in the region.

---

<sup>43</sup> Dufumier 2016.

<sup>44</sup> UNDP 2019.





The land in Fao is so dry  
that it is cracking.



## SOUTHERN IRAQ

### THE ADVERSE IMPACT OF REPEATED AND PROTRACTED CONFLICT ON WATER SECURITY



**CLIMATE VULNERABILITY**  
(ND-GAIN):  
133 out of 181



**HUMAN DEVELOPMENT INDEX**  
(UNDP 2019):  
0.689 (120 out of 189)



**FOOD INSECURITY**  
(FAO 2020):  
2.4 per cent of the population was  
severely food insecure in February



**PROPORTION OF EMPLOYMENT  
IN AGRICULTURE**  
(WORLD BANK 2019):  
18.5 per cent

#### Climate trends and impacts in Iraq

Precipitation in Iraq is on a slightly downward trend, while temperatures and the risk of heatwaves and droughts are on the rise. The country is water-stressed, with average annual rainfall expected to be well below the 300 millimetres required to maintain rain-fed crop growth in the long term. In southern Iraq, annual rainfall has long been below that level. The decrease in precipitation is coupled with a decline in the water discharge of the Euphrates-Tigris basin since the 1970s due to higher temperatures, reduced rainfall, and the building of dams in the riparian States of Iran, Syria and Turkey, and in Iraq itself. In addition, the drying up of marshland in the early 1990s has contributed to sea intrusion, causing increased salinization and making parts of the land unfarmable. This has resulted in an overall reduction in vegetation cover and an increase in the frequency and intensity of dust storms. These conditions could turn the entire Fertile Crescent region into an infertile area by the end of the century. Iraq is already experiencing frequent droughts that have had severe socio-economic and health consequences.<sup>45</sup>

“ The land is becoming desert. There are more snakes. We lose animals and our land, and we become poor people. This year, we had rain. The season is good. ... If there is no water, we will die. When I was a boy, when I walked this land, it was green, with a lot of water. At that time, a *dunam* [2,500 square metres] would grow one tonne [of wheat] ... When there was a lot of water, it was fine. Now, there are tensions.”

<sup>45</sup> Akhzari 2014; Al-Ansari 2014; Al-Sudani 2019; Christensen et al. 2013; Kelley 2015; von Lossow 2018; WRI 2015.

Akli grew up in the small and remote community of Saed Dakhil, which is in the Thi Qar governorate in southern Iraq. Here, unrestricted access to water and soil fertility are at the root of people's identity. But water insecurity has become acute and is exacerbated by poor resource and infrastructure management, climate change, and the lasting impact of repeated bouts of conflict.

Iraq lies in a water stressed-region, with few water resources of its own. Its water security depends on efficient management of water resources and systems and, importantly, on effective water diplomacy with the country's neighbours and with Iraqi Kurdistan – Iraq's water supplies largely depend on the Tigris and Euphrates rivers, which originate in Turkey, and to a lesser extent in Iran, and on water flowing south from Iraqi Kurdistan.<sup>46</sup> Over the last decades, the construction of dams and infrastructure upstream has substantially reduced the quantity and quality of water flowing into Iraq, at a time when the country had a weak capacity to negotiate water sharing with its neighbors. Projections for water imports forecast further major declines by 2025. Water scarcity is worsened by outdated and neglected water and sewage infrastructure and irrigation systems, lack of adequate water-management policies and practices, and desertification.<sup>47</sup>

Higher temperatures and reduced – but more intense – precipitation have negative consequences for water resources, agriculture, health, infrastructure and the environment.<sup>48</sup> Despite reduced water flows, few measures have been taken to adapt water usage and consumption, leading to an over-exploitation of limited groundwater.<sup>49</sup> As agriculture continues to use the largest share of the country's water, pressure on water resources and urban systems keep increasing, thanks to population growth and urbanization.<sup>50</sup> Access to clear water in Iraq is not only uneven and sometimes insufficient, water is also of poor quality, with high levels of salt in some areas and contamination from sewage and agriculture.<sup>51</sup> In parts of the country, water-related health problems such as diarrhoea and skin diseases are endemic.

### **When conflict exacerbates water scarcity**

Iraq's water stress – and broader environmental problems such as weapon contamination, hazardous waste, air pollution, and ecosystem destruction – has been fed by the direct and indirect consequences of repeated conflicts that have severely damaged the environment, destroyed infrastructure, and eroded the resilience of communities and institutions.<sup>52</sup> In places like Fao, south of Basra, people attribute their water and farming problems to the cutting of emblematic date palms for military purposes during the Iran-Iraq war. Such events had immediate consequences for their lives and environment, and these consequences continue to be felt, through all the bouts of conflict that have come and gone since then. They also tore apart the social fabric, wore down national cohesion and aggravated the resentment and distrust of the population towards the State.

*In places like Fao, people attribute their water and farming problems to the cutting of emblematic date palms for military purposes during the Iran-Iraq war.*

By increasing the fragility of institutions at all levels, armed conflict has limited Iraq's capacity to ensure the sustainable management of water resources and systems, and to guard against environmental degradation

<sup>46</sup> Fawzi 2014; Murthy 2011.

<sup>47</sup> HRW 2019; MFA Netherlands 2018.

<sup>48</sup> MFA Netherlands 2018; World Bank 2017a.

<sup>49</sup> The daily consumption of water per capita is well beyond the international standards of 200 liters (UN Iraq 2013).

<sup>50</sup> Agriculture represents some 85 to 90 per cent of water consumption in Iraq. Industrial use and domestic use respectively consume some 6 and 4 per cent (Al-Ansari 2013).

<sup>51</sup> When the Tigris and Euphrates flows are not enough to drain a sufficient quantity of water into the sea, seawater migrates further upriver, reducing water quality (both surface and groundwater), salinizing soils and reversing efforts to restore the marshlands.

<sup>52</sup> UNEP 2007; HRW 2003; Zwijnenburg 2017.



and climate risks at the local, national and regional levels. The deep, visible and lasting damage to the environment reflects not only the severity of the degradation, but also the inability of institutions to protect the environment and ensure its restoration.

Institutional challenges to planning and coordinating adequate responses are many, ranging from insecurity, weak institutions, aging infrastructure, and a mindset that encourages consumption rather than environmental preservation. The country's economic reliance on oil exploitation also makes it hard for the society to grasp and embrace the profound implications of a shift towards renewable energies at a national and global level. Obstacles to a comprehensive response to climate and environmental risks include limited technical expertise insufficient knowledge of climate risks and their consequences at the local level, lack of authoritative data on water quantity and quality, lack of capacity, or unwillingness, to implement existing laws, and inadequate investment in the water sector. Prolonged instability has also impaired Iraq's capacity to engage in regional water cooperation and diplomacy with Iran and Turkey, and with Kurdish authorities.



In southern Iraq, the quality of available water is poor, with high levels of salt and contamination from sewage and agriculture.

### **When rain turns to dust, food stops growing**

Beyond having dramatic and direct health impacts, water scarcity and environmental problems have pushed agricultural productivity down, and along with macroeconomic and political factors, have resulted in food and economic insecurity for large numbers of Iraqis. Agriculture contributes to about 5 per cent of the country's GDP, but is the source of livelihood for a fifth of the population, mostly through a mix of rain-fed and irrigated crop production.<sup>53</sup> It also consumes a large share of the available water, in part because of inefficient agricultural practices. Attempts to develop alternative irrigation systems such as drip irrigation or artificial water canals have been inadequate and unsustainable, in part because the authorities have neglected agriculture for decades. The sector was also damaged by the intentional drying up of marshlands in the 1990s,

<sup>53</sup> World Bank 2019; FAO 2012.

which was undertaken to weaken a population considered rebellious.<sup>54</sup> This damage was compounded by rising temperatures, droughts, desertification and soil salinization.<sup>55</sup> The marked increase in dust events and sand and dust storms – from fewer than 25 days of local dust storms a year between 1951 and 1990 to some 300 in 2013 – has also contributed to transforming fertile soil into desert areas.<sup>56</sup> “Before, rain was falling. Now, dust is falling,” summarized one of our Iraqi colleagues.

Over time, agricultural land has shrunk. In the south, in historically fertile Fao and Thi Qar, local authorities assess that arable land has diminished from 3,000 to 1,500 *dunams*, and from some 40,000 to 5,000 *dunams*, respectively. Such environmental degradation has impoverished communities and forced many people to change their way of life. Livelihood options for farmers are limited, as there are few jobs available for people without specialized skills and networks. For many, the only way to cope has been to move temporarily or permanently. In Fao, where the population traditionally relied on growing dates and henna, some farmers turned to fishing when salty soil became unfarmable, contributing to an overexploitation of fish resources. Others, with greater financial and technical means, managed to adapt by changing irrigation methods and crops. Many left for cities such as Basra and Najaf to work as day labourers. As the Iraqi population was growing over the last four decades, the population of Fao shrank from 400,000 to 50,000 people.<sup>57</sup> Similarly, in Saed Dakhil, local authorities say, the population has fallen by half since 2008. In 2019, generous rains motivated many to return to their land and resume farming. This testifies to people’s attachment to their land, but also to the challenges of sustainably settling elsewhere without adequate support.

*For many, the only way to cope has been  
to move temporarily or permanently.*

A significant number of Iraqis living in rural areas, particularly smallholder farmers, depend on fragile water resources. It is the view of the deputy minister for health and environment that the number of people left with no option but to move will keep growing, as environmental degradation continues and is accelerated by rising temperatures and increasingly scarce and unpredictable rains. But there is no national plan to facilitate people’s relocation from places where environmental deterioration has reached a critical point. Authorities focus on helping people stay in these place, as they fear that large-scale movements could threaten short-term stability, especially in areas that are already unstable.

---

<sup>54</sup> The Iraqi marshlands are a wetland with a unique ecosystem at the junction of the Euphrates and Tigris rivers, and are home to thousands of Iraqis. Measures to dry them were taken by Saddam Hussein in the early 1990s, primarily with the aim to retaliate against the Shiite population in Southern Iraq for their role in the uprising against his government. By 2001, UNEP estimated that 90 per cent of the marshlands had disappeared, leading to a loss of biodiversity, the displacement of up to 190,000 people, and dramatic forced changes to the way of life and livelihood for thousands more (MFA Netherlands, 2018; UNEP 2007: 43; HRW 2003).

<sup>55</sup> IFAD 2017; MFA Netherlands 2018.

<sup>56</sup> Al-Ansari 2014; Attiya 2020; FAO 2012; Sissakian 2013.

<sup>57</sup> ICRC 2017, internal ECOSEC report: 24–25.



Mike Mustara Khala/CRIC

In Fao, palm trees damaged during the Iran–Iraq war in the 1980s have not grown back.







# NORTHERN MALI

## THE CUMULATIVE EFFECTS OF DESERTIFICATION, UNDERDEVELOPMENT AND CONFLICT



### CLIMATE VULNERABILITY

(ND-GAIN):  
166 out of 181



### HUMAN DEVELOPMENT INDEX

(UNDP 2019):  
0.427 (184 out of 189)



### FOOD INSECURITY

(WFP 2020):  
From March to May 2020 some 3.8 per cent of the population was food insecure. Nearly a third of children under the age of five suffer from chronic malnutrition.



### PROPORTION OF EMPLOYMENT IN AGRICULTURE

(WORLD BANK 2019):  
65 per cent

### Climate trends and impacts in Mali

Two-thirds of Mali's territory is desert or semi-desert. The country is exposed to several climate-related hazards, and is particularly vulnerable to droughts, floods, and locust invasions. From 1980 to 2014, more than seven million people were affected by 28 major droughts and floods. Annual precipitation ranges from over 1,000 millimetres a year in the south to less than 200 millimetres in the north, with high interannual variability. Dry years have become more frequent since 1968, as Mali has become hotter and drier. Since 1960, temperatures have increased by 0.7°C across most of the country. This warming trend is bound to continue apace, along with an increase in climate variability and extremes.<sup>58</sup>

Just as in the CAR, life in northern Mali, even in the absence of armed conflict, is challenging. The country is one of the poorest in the world with an undiversified agriculture-based economy. Underdevelopment is acute in the historically dry and scarcely populated north, where basic services and infrastructure have always been deficient.<sup>59</sup> Demographic growth, poor governance, and unsustainable resource management all put great pressure on the environment. A large part of the population are pastoralists or farmers whose food and economic security are at the mercy of rain patterns. Over time the climate has noticeably changed, as observed by 61-year-old Issa: "The rains of my childhood were different. They came at the right moment and pasture was of good quality. Nowadays, water sources are filled with sand. Rain never comes at the right time and grass is scarce."

Desertification and a succession of severe droughts have long forced profound socio-economic transformation on northern Mali. In the absence of institutional support and infrastructure to facilitate livelihood diversification, people have been pushed south towards cities and greener areas.<sup>60</sup> Some herders turned to

<sup>58</sup> GoM 2008; Salack 2018; World Bank 2019a.

<sup>59</sup> Ten per cent of the country's population lives in the northern regions of Gao, Kidal, and Timbuktu that represent two-thirds of the country's territory (WB 2019).

<sup>60</sup> Moving away from purely weather-dependent livelihoods commonly entails better access to reliable infrastructure, such as roads that are essential for transportation, and electricity grids and water systems that allow the transformation and conservation of products and the development of industry.

farming, leading to a concentration of people and animals in relatively fertile areas, and putting greater pressure on the environment.<sup>61</sup> Labourers, most often young men, have, for a long time now, been leaving Mali to find seasonal work in neighboring countries, notably Algeria; and patterns of transhumance are changing.<sup>62</sup>

### **When conflict erupts in neglected communities**

When the violence flared up in 2012, the already fragile State apparatus vanished from the north. Elected representatives and local officials targeted by armed groups either fled their area of responsibility out of fear or stopped venturing out of urban areas. “The State exists in name only. It doesn’t help us. Before 2012, the State would potentially help when we faced a big problem”, recalls Issa. Weak services failed. People fled. Herders who needed to move with their animals were trapped in place. Farmers could no longer reach their fields. Travelling to neighbouring countries to work became extremely dangerous. Humanitarian access shrank. Insecurity ruled, as social tensions and mistrust between communities grew. People who were already extremely vulnerable to climate variations and shocks were even less able to cope, as their usual ways of facing climate hardship were hindered. Conflict disrupted efforts to develop basic infrastructure, and where such infrastructure existed, provoked its collapse. Development gains, minimal to begin with, were undone, worsening already meager adaptation prospects.



Malian fisherman Ba Seydou displays two fishing nets: he used the one in his left hand 25 years ago; in his right hand, he holds the net he has to use now, because the fish are getting smaller and smaller.

<sup>61</sup> Djoudi 2013; Giannini 2016; GoM 2011.

<sup>62</sup> Benjaminsen 2012; Brockhaus 2013.

Once people lost their livelihoods, those who could move to safer and more fertile areas – particularly around the River Niger – or to urban areas with greater economic opportunities, did so. Others were paralyzed by insecurity and limited means. Displacement created more pressure on resources and existing infrastructure. In the absence of functioning institutions, communities ended up having to manage the sharing of resources, access to essential services and land, and the resulting tensions, by themselves. In some cases, this led to violence.

The dynamics of conflict and violence in Mali are complex, manifold, and interdependent. Climate risks and environmental degradation count among the many factors that have long contributed to perpetuating tensions between communities and to people's grievances with local and central authorities. These factors also greatly contribute to exacerbating people's vulnerability to the consequences of the conflict.





### **III. ADAPTING OUR RESPONSE TO ENSURE A MORE SUSTAINABLE HUMANITARIAN IMPACT**



The climate crisis is altering the nature and severity of humanitarian crises, forcing us to adapt humanitarian action. During conflict and other violence, people usually face multiple threats, beyond insecurity. In places like Mali or Iraq, people make it clear that their lives are being made harder by environmental and climate factors that threaten their access to food and water, and their economic security, and that affect their sense of dignity as they struggle to meet the needs of their families. In the CAR, people ask for help in managing tensions arising from changing patterns of transhumance. They also ask for support to chart changes in agricultural calendars because they cannot read the weather anymore and traditional crop calendars are no longer reliable; seed cannot yield good harvests if it is not planted at the right time. In northern Mali and the CAR, people who have recently lost homes, livelihoods, and harvests to floods ask for help to recover and to ensure that the next round of floods does not make them homeless again.

As several other humanitarian organizations have done in recent decades, the ICRC is committed not only to respond to life-threatening emergencies, but also to help communities affected by conflict and other violence become more resilient to shocks, including those caused by a changing climate and environment.<sup>63</sup> This is intrinsic to the ICRC's bid to ensure a more sustainable humanitarian impact through longer-term programming in contexts of protracted conflict where we often have a long-standing operational presence.<sup>64</sup> Simply waiting for conflicts and instability to be over to support people's adaptation is not an option. Such an approach would leave people in limbo for decades, and in deteriorating conditions, as risks keep growing and assets are progressively depleted.<sup>65</sup>

*In northern Mali and the CAR,  
people who have recently lost homes, livelihoods,  
and harvests to floods ask for help to recover.*

In situations other than conflict, ways to help people cope and adapt to a changing climate are relatively clear. They combine efforts to reduce the short- and long-term risks that people face, act early, and take measures to strengthen the resilience of people, communities, and basic services.<sup>66</sup> This is equally true (and even more challenging) in situations of conflict. We need to better understand how to do this consistently and within existing limitations.

## CURRENT APPROACHES TO BUILDING RESILIENCE TO SHOCKS

The ICRC already conducts a broad range of anticipatory and reactive activities to protect people's lives and dignity during conflict and other violence. It promotes respect for legal norms and rules and seeks to make individuals more secure and resilient – and limit the threats they face – by reducing their vulnerability and exposure to risks.<sup>67</sup> In most of our operations, this line of action is intertwined with assistance activities defined through an integrated public health approach that comprises access to safe water and sanitation, food, shelter, and essential health services.<sup>68</sup> Livelihood dimensions are core to this approach, as economic security is crucial if people are to have uninterrupted access to food, and to water, sanitation, shelter, and other essential services, and also if they are to withstand shocks.

<sup>63</sup> ICRC 2018b. For a critical perspective on resilience and humanitarian action, see Hilhorst 2018.

<sup>64</sup> Sustainable humanitarian impact refers not only to life-saving but also to life-sustaining action that supports people's ability to live and (re)build their lives with autonomy, agency and dignity. For more on this, see Schmitz Guinote 2019.

<sup>65</sup> ICRC 2015, 2016.

<sup>66</sup> Marin 2017.

<sup>67</sup> ICRC 2008.

<sup>68</sup> ICRC 2004.

For instance, as water scarcity and rainfall variability can contribute to exacerbating tensions and have severe consequences for health, nutrition, and food and economic security, we aim to strengthen people's resilience through several interconnected ways. Our activities to reduce risks encompass dialogue with parties to conflict and efforts to persuade them not to turn areas of major environmental importance into battlefields, because of the long-term environmental impact that this can have. These also include promotion of respect for IHL provisions protecting not only the natural environment but also essential infrastructure, during the conduct of hostilities.<sup>69</sup>

We also help people maintain reliable access to safe water by ensuring better management of existing resources and infrastructure. When possible, we have rehabilitated and expanded water systems to reduce water losses, provide more equitable access, and contribute to strengthening the resilience of water services so that they continue to function even in times of crisis. These water projects increasingly rely on more durable energy supply solutions. In addition to making more water available to people, we support service providers and communities in devising ways to sustainably manage and use water. These efforts are combined with support for farmers to develop and use more efficient irrigation systems or switch to drought-resistant or short-cycle seed varieties, contributing both to limiting the usage of water for agriculture and to strengthening people's resilience to shocks. As water scarcity can threaten livelihoods, we also help bolster the means of production and increase income diversification. In some cases, we have carried out activities to protect people from water-related disasters.<sup>70</sup>

#### **Ensuring more sustainable access to water in Iraq and the CAR**

In Iraq, we work to alleviate water stress by rehabilitating water pumping and treatment stations, piped networks, and irrigation systems. We seek through these means to provide demand-side solutions that involve reducing water losses rather than utilizing more water (i.e. supply-side solutions), which only exacerbates water stress. In rural areas of the CAR where shallow wells are increasingly drying up during the dry season, we have switched to drilling boreholes into deeper aquifers without exceeding their sustainable yield, rather than digging wells.

## **FURTHERING OUR UNDERSTANDING OF THE CONSEQUENCES OF INTERSECTING RISKS**

These efforts to help people adapt to a changing climate need to be refined and strengthened to ensure that our work is climate-sensitive. Risks faced by communities and the several social determinants of health are all altered by climate risks. The analytical prism that guides our programmes therefore needs to consistently capture not only the direct and indirect impacts of conflict, but also the various immediate and longer-term risks that individuals, communities, and systems face, notably because of a changing climate and environment. This requires that while we continue exploring promising approaches, we deepen our understanding of climate risks and of adapted approaches to address them – by learning from and building on local knowledge and expertise, but also by facilitating discussion of practices that may no longer suffice in light of the ongoing changes.

<sup>69</sup> ICRC 1994, upcoming (2020); see also text box on p. 17.

<sup>70</sup> For instance, in Yemen, where rain is scarce, but also increasingly intense, leading to flash floods, we have constructed a gabion wall to protect village residents from aggressive erosion along the banks of wadis that was encroaching on people's homes and risked forcing people to move.

It is key that we develop a fuller understanding of how, in conflict-affected countries, the transformation of the environment and competition for scarce resources fuel intercommunal tensions and violence, which can result in displacement. We need to think about and define the role that we can play in alleviating the suffering that this can create and in changing the patterns of behaviour that cause this suffering in the first place. We may contribute to easing tensions through community-based mediation, or by helping communities and authorities shape transhumance routes to reduce the risks of intercommunal violence, through locations where we provide immunization services or water points for livestock. Given the centrality of conflict and IHL to our work, a fuller examination of the consequences of armed conflict for the environment – and these, all too often, are long-term – should complement our analysis of the protection of the natural environment under IHL and inform our dialogue with parties to conflict. Whether or not they are caused by the conduct of hostilities, the consequences of environmental damage can devastate conflict-affected communities for decades. In Iraq, for instance, the cutting of date palms in the 1980s during the Iran–Iraq war and weapon contamination continue to significantly affect people’s daily lives.

Having a better grasp of the regional implications of a changing climate, which might require coordinating analysis and actions across several sectors and many different countries, is also critical. For instance, poor water quality and water shortages in Iraq stem not only from resource scarcity and internal factors, but also from water usage and management in neighbouring countries, and climate variability and change. Addressing such problems requires working across borders and with regional or sub-regional entities. Factors shaping patterns of transhumance in the CAR, and some forms of violence as well, extend far beyond the country’s borders. Grasping those dynamics is key to helping people be safe and to alleviating pressure on communities, resources and infrastructure.

*In Iraq, for instance, the cutting of date palms in the 1980s during the Iran–Iraq war and weapon contamination continue to significantly affect people’s daily lives.*

As always, analysis (and responses) must be context-specific and must seek to explore how particular risks are influenced by individual characteristics such as age, gender, capacity, occupation, or health – risks vary from one community to another, and from one individual to another, and manifest themselves differently in urban, peri-urban and rural areas. Analysis should focus not only on places where climate risks are obvious, such as Mali or Iraq, but also on the consequences of climate change in greener countries like the CAR, which often neglected by humanitarian actors, despite their clear vulnerability. It is also important to find ways to effectively anticipate climate trends, and shorter-term shocks and stresses, in places where long-term data are non-existent or unreliable. In such situations, humanitarian organizations could team up with communities and experts to contribute to filling information gaps at the local level – for instance, by developing seasonal calendars and early-warning systems, and combining local data with information from available models. All this information can help to strengthen people’s resilience, anticipate potential shocks, and adapt humanitarian activities to rising climate risks.

This analysis also needs to feed into a discussion on how to ensure that our programmes do no harm and that they do not inadvertently deter people from adapting in the longer term. For instance, expanding irrigation systems in highly water-stressed regions may help in the short term, but that may not be the case in the longer term if it not combined with efforts to improve the efficiency of irrigation systems and better manage the demand for water. Similarly, assisting people may contribute to helping them stay longer in environments that are becoming increasingly inhospitable and uninhabitable because of climate change. In such circumstances, assistance needs to be complemented with up-to-date information on climate trends and adaptation pathways, so people can take informed decisions to leave or stay and are involved in efforts to design and assess adapted solutions. In other cases, assistance needs to be accompanied by efforts to persuade authorities and other relevant actors to reduce environmental degradation through better management

of resources and infrastructure. As the health of people, animals and ecosystems are intrinsically linked and profoundly affected by our changing climate and degraded environment, we must also ensure that the ICRC's action contributes to maintaining and restoring such equilibrium.

## TRANSLATING OUR ANALYSIS INTO ANTICIPATORY AND REACTIVE ACTION

This understanding needs to be translated into programmatic orientations and approaches that can be incorporated in the ICRC's protection activities its water-and-habitat, economic-security and health programmes, and in its legal analyses and humanitarian diplomacy. Programmatic efforts must strike a balance between anticipatory and reactive action, and must further explore how to help people in situations where adaptation pathways are limited.

More can be done to reduce people's exposure to disasters through anticipatory action. For instance, we have not, traditionally, focused on setting up early-warning systems for climate and environment hazards because we count on governments to do this, with the support of others with more expertise, notably partners from the International Red Cross and Red Crescent Movement (Movement). But in conflict settings, capacity to establish such systems can be limited. For instance, in the CAR where floods happen regularly, efforts to ensure that people do not settle in flood zones have been inadequate. When rain poured for days in 2019, flooding fields and swelling rivers, no early warning was given to allow people to preemptively resettle in safer locations. Many ended up rushing out of their collapsing homes in the middle of the night, leaving behind their meagre assets and settling in crowded temporary settlements at the mercy of other climate shocks, disasters, insecurity and pandemics for indefinite periods of time. While we will not become a primary responder in most of these situations, we need to be better at identifying potential risks and mobilizing relevant actors to address them. Where insecurity significantly hampers access, we must also consider working to reduce exposure to hazards and improving preparedness for dealing with current and future risks.

Responses that help people adapt to a changing climate vary, because they are based not only on the trends and hazards in a given country, but also on existing infrastructure, institutions and support networks, and people's safety, capacities, livelihoods, assets and lifestyles. In Iraqi cities, we can help people access essential services, for instance by rehabilitating infrastructure to reduce water losses and make more water available to users, while also seeking ways to ensure more durable electricity supply for critical water, wastewater and health installations – but fixing the entire aging water or electricity infrastructure of the country lies well beyond the mandate or capacity of the ICRC. In parts of northern Mali, such systems simply do not exist, and insecurity significantly limits the presence and the scope of engagement of development actors, donors, or the private sector.<sup>71</sup> If ambitious efforts to ensure access to water and limit environmental degradation are not made, parts of northern Mali could become uninhabitable, compelling people to move.

*In the CAR where floods happen regularly, efforts to ensure that people do not settle in flood zones have been inadequate.*

Contexts such as northern Mali raise challenging questions about the role the ICRC (and humanitarian actors in general) can and should play in places where instability and fragility have long deterred inclusive development efforts, which limits the potential for local adaptation. In such settings, we work to help communities improve their access to water and sanitation, and their economic security, by reinforcing their existing livelihoods. But livelihoods tend to be weather-dependent and vulnerable to climate variability and change.

---

<sup>71</sup> In bigger cities such as Gao, Kidal or Timbuktu where water and electricity systems do exist, the ICRC stepped in to provide consumables and support service providers in maintaining these systems with spare parts, in order to ensure the continuity in service delivery, when authorities stopped being able to do so during the conflict.



Livelihood diversification that could provide greater economic security to people is restricted by lack of industrial development, economic growth and skills development, all of which require reliable access to electricity, piped water, safe sanitation, transport, telecommunications, and education. In such settings, the activities necessary to facilitate people's adaptation are beyond the scope of our capacities and expertise, but there are steps that we can take to help gradually reduce people's vulnerability. We must also continue to encourage those who can work on the required scale to find ways to do so and, when appropriate, forge partnerships to advance efforts with them.

In an ideal world, the combined efforts of humanitarian, development and peace actors, including governments, in any given location would result in a comprehensive response that meets the immediate and long-term needs of individuals, communities and societies and strengthens their resilience through individualized, systemic and structural measures, while also addressing long-term instability and fragility. This nexus sometimes entails direct collaboration between these actors, within the boundaries of their respective mandates and expertise. In other cases, and particularly in polarized environments, efforts may be distinct, but built on shared analysis and knowledge. In all cases, to be effective, climate risks must be factored into plans and analysis. In practice, the limited tolerance for risk of development actors and donors often prevents them from fully engaging in areas most affected by armed conflict, especially when these areas are not under the control of that country's government. This gap has led organizations like the ICRC, to engage in longer-term programming to strengthen resilience and prevent development reversals, notably through livelihood support, water and sanitation activities and strengthening of essential services through capacity building and systemic support.<sup>72</sup> But there are limits to our ability and fitness to compensate for the comprehensive development that provides solid avenues for climate adaptation.

#### **Strengthening the resilience of people's livelihoods to climate variability in the Sahel**

In several countries in the Sahel, including Mali, we help farmers and herders cope with increasing variability in rainfall and periods of water scarcity, by supporting the rehabilitation of irrigation schemes, and the production of animal feed or seed and its storage in community-managed silos.

## **JOINING FORCES TO STRENGTHEN CLIMATE ACTION AND FINANCE**

Comprehensively addressing climate and environmental risks requires significant systemic and structural changes, political will, good governance, substantial investment and technical knowledge, as well as a shift in mindsets. Strengthening climate action in conflict situations is critical to people's well-being and survival, and we cannot do it alone. Responding on the required scale is beyond the ICRC's expertise and mandate.

We must team up with others to develop our expertise, obtain authoritative data and advice, and find solutions to difficult issues. We must also revisit some of our assumptions, in order to deliver broader and more holistic programmes that contribute to addressing underlying vulnerabilities and that strengthen systems in insecure places with weak institutions.

We also need to mobilize others and help orient local, regional and international efforts towards the communities most at risk, and continue to explore possibilities for strengthening the resilience of conflict-affected communities through our programmes and projects. We are already joining forces with communities themselves, climate and development experts, social scientists, and Movement partners with well-established expertise or practices, including the International Red Cross and Red Crescent Climate Centre. We need to

---

<sup>72</sup> ICRC 2015 and 2016; Schmitz Guinote 2019.

expand and strengthen these efforts and ensure that climate adaptation is part of some of our emerging partnerships with international financial institutions and other development organizations, including through innovative finance mechanisms.

#### **Forging climate modeling partnerships to inform our activities in Yemen**

In Yemen, we have worked with the International Fund for Agricultural Development and used their climate-hazard maps for flash flooding, soil erosion, water harvesting, and cropping potential. This information has helped us identify optimal locations for climate-risk-reduction initiatives. For instance, we have supported the construction of cisterns, the rehabilitation of stone terraces, and the installation of spate irrigation systems – all of which enable better use of scarce water resources – to enhance crop production. We have also built Gambion walls to protect human settlements from flash flooding and soil erosion. Mapping the impact of climate change has enabled identification of hotspots of social vulnerability and assisted the ICRC's adaptation planning.

We also need to join forces within and beyond the humanitarian sector to address critical gaps in international climate finance. First, a greater share of climate finance needs to be allocated to climate adaptation. At present, the bulk of climate finance is used to support efforts to reduce carbon emissions, which are essential, but must be complemented by activities to help communities adapt to a changing climate.<sup>73</sup> For many countries particularly vulnerable to climate change, including conflict-affected countries, the priority is to help their populations adapt to a climate that has already changed and not to reduce their already limited carbon emissions.


*People in fragile and conflict-affected countries  
may be among those most requiring support for climate action  
but are often left out.*

Second, people in fragile and conflict-affected countries may be among those most requiring support for climate action but are often left out, as governments in these countries often have only a limited capacity to comply with climate finance requirements. Governments often lack functioning structures to develop comprehensive responses and channel financial resources to the local level because of institutional weaknesses. In addition, accredited development actors and intermediaries may not be present.<sup>74</sup> There is already a noticeable financing gap between stable countries and those that are affected by conflict or other violence, or in a state of fragility. Unless strong efforts are made to address this disparity, the gap will only continue to grow, exacerbating people's vulnerability and humanitarian needs.

<sup>73</sup> The share of climate funding dedicated to adaptation is growing, but remains significantly less than the share allocated to mitigation. For instance, in 2017, 27 per cent of multilateral climate finance supported climate adaptation and 69 per cent, mitigation (OECD 2018).

<sup>74</sup> OECD 2018; Peters 2016.





*“If you haven’t finished school and you can’t continue with your studies because your parents can’t afford it, you have no option but to leave. Here, you can’t make a living anymore.”*

*- 16-year-old Arkietou*



# OUR CALL

The survival and identity of people across the world is intrinsically connected to their environment and a predictable climate. Conflict-affected communities are already disproportionately affected by the consequences of the climate crisis, through loss of life, disease, economic setbacks, deteriorating living conditions and erosion of livelihoods. The impact on people's health and well-being is severe. Many people convey a deep sense of loss and disorientation, as they feel that they can no longer recognize their environment or read the weather, and are simply not equipped to deal with the climate hazards that are an unending threat.

Humanitarian organizations have a role and a responsibility to help people strengthen their resilience to climate risks, including in situations of conflict. We must collectively overcome obstacles and find ways to help them, in a consistent and predictable manner, to adapt to a changing and increasingly volatile climate. Urgent and ambitious measures to mitigate the climate crisis by reducing carbon emissions are essential, as adaptation alone will not be sufficient to avert the most disastrous consequences for people and their environment.

We must work together within and beyond the humanitarian sector with adequate resources, expertise and leadership to rapidly strengthen our support along five lines of action.

**SKILL UP** – To respond adequately to the vulnerabilities and needs resulting from the intersection of conflict and climate risks, we must reinforce our capacity to develop programmes that factor in short- and longer-term risks for people's life and dignity, and for their environment. This requires strengthening our use of data and climate modelling, evidence and analysis across timescales and sectors. We must expand our understanding of the dynamics of violence within and across borders and of how networks of power and authority can help change negative behaviors. We also need to further examine the long-term consequences of hostilities for the environment, and take them into account when we analyse the protection that must be granted to the environment during the conduct of hostilities and when we conduct our dialogue with parties to conflict. These efforts may call for new skills and methodological tools, and require us to learn from people themselves, the experience of others, and science and technology.

**TEAM UP** – We must work together across the Movement, the humanitarian sector and beyond to strengthen climate action and ensure that steps are taken to gradually help conflict-affected people adapt. We need to partner with communities themselves, ensure that they have access to relevant information, and fully involve them in designing, managing and implementing programmes. Building on our respective mandates and expertise, we also need to team up with development organizations, international financial institutions, regional organizations, urban actors, environmental authorities, universities and research institutes, and the private sector to develop and implement comprehensive and complementary activities that help reduce risks and strengthen the resilience of conflict-affected people and communities to a changing climate – through initiatives such as micro-grids, treatment and reuse of wastewater, provision of adapted seed, and promotion of more effective or efficient agricultural practices.

**ANTICIPATE RISKS AND STRENGTHEN RESILIENCE** – We must collectively enhance our efforts to limit people’s exposure by reducing risks and strengthening their resilience to shocks. Once people, systems and their environment are hit and have experienced major losses, recovery is harder. We need to invest in disaster prevention as much as we can, and when a shock hits, we need to respond to emergency needs rapidly – and we need to learn from these events. This requires us – in addition to being ready to respond to emergencies – to design programmes that help people to anticipate short and longer-term shocks, act early and build resilient livelihoods and shelters, and that contribute to ensuring access to hazard-resilient essential services. We must also document risks and ensure that populations are adequately informed of these risks and of adaptation pathways. Finally, we must work together to promote the importance of respecting the environment during armed conflict, and to ensure that parties to conflict improve implementation of the IHL provisions protecting the environment. This can contribute to limiting harm and exposure to risks arising from environmental degradation and a changing climate.

**MOBILIZE FOR IMPROVED CLIMATE ACTION AND FINANCE** – We must collectively seek to influence and mobilize those who are best placed to mitigate climate change and facilitate climate adaptation, from State governments to local authorities, international financial institutions, and the private sector. In particular, we must address gaps in access to financing for climate adaptation, which is key to achieving the United Nations Sustainable Development Goals. Unlike stable countries, fragile ones often lack the necessary structures to access and manage financing and the technical capacity to design adapted programmes. To close this gap and ensure that funding from major climate funds and bilateral donors reaches countries in crisis, and the most vulnerable and remote communities within those countries, a certain level of risk needs to be accepted. In addition, international climate finance needs to be more equitably balanced between mitigation and adaptation, to ensure that populations receive the support necessary to strengthen their resilience to a changing climate.

**REDUCE OUR OWN CLIMATE AND ENVIRONMENT FOOTPRINT AND UP OUR INSTITUTIONAL READINESS** – Although this report has not touched upon our own footprint and the importance of embedding environmental management in our operations, we must lead by example and limit the damage we cause to the environment and the climate. To that end, we must reduce our greenhouse gas emissions, employ renewable sources of energy whenever possible, and better manage our use of water and the generation of waste on our premises and in our programmes. We must do this while maintaining our ability to provide timely life-saving assistance. The environmental and social risks embedded in our procurement processes and logistical procedures will also influence our choices. In parallel, as our operations are not immune from growing climate risks, we need to properly incorporate forecasting in our logistical procedures and ensure that our operations are resilient to extreme-weather events and heatwaves.

# REFERENCES

- Adger, W.N., Pulhin, J.M., Pulhin, J., Barnett, G.D., Dabelko, G.K., Hovelsrud, M., Levy, Ú., Spring, O., and Vogel, C.H., 2014. "Human security." In: Field, C.B. et al. (eds.) *Climate Change 2014: Impacts, Adaptation, and Vulnerability. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*, pp. 755–791. Cambridge University Press, Cambridge, UK.
- Akresh, R., Lucchetti, L., and Thirumurthy, H. 2012. "Wars and child health: Evidence from the Eritrean–Ethiopian conflict." Available at: <https://www.sciencedirect.com/science/article/abs/pii/S0304387812000223>.
- Akhzari, D., Attaeian, B., Gonbad, M.B., and Shayesteh, K. 2014. "Impact of source area desertification on dust storm emission in the western parts of Iran." *Current World Environment* 9: 3, pp. 632–638.
- Al-Ansari, N., Abdellatif, M., Ali, S.S., and Knutsson, S. 2014. "Long term effect of climate change on rainfall in northwest Iraq." *Central European Journal of Engineering* 4: 3, pp. 250–263.
- Al-Ansari, N. 2013. "Management of water resources in Iraq: Perspectives and prognoses." *Engineering* 5: 8, pp. 667–684. Available at: <https://www.scirp.org/journal/paperinformation.aspx?paperid=35541>.
- Al-Sudani, H.I.Z. 2019. "Rainfall returns periods in Iraq." *Journal of University of Babylon for Engineering Sciences* 27: 2, pp. 2–3. Available at: <https://www.iasj.net/iasj?func=fulltext&aId=174244>.
- Attiya, A.A. and Jones, B.G. 2020. "Climatology of Iraqi dust events during 1980–2015." *SN Applied Science* 2(845). Available at: <https://doi.org/10.1007/s42452-020-2669-4>.
- Austin, J. and Bruch, C. 2000. *The Environmental Consequences of War; Legal, Economic and Scientific Perspectives*. Cambridge University Press, Cambridge, UK.
- Barnett, J. and Adger, N. 2007. "Climate change, human security and violent conflict." *Political Geography* 26: 6, pp. 639–655.
- Barnett, J. 2018. "Global environmental change I: Climate resilient peace?" *Progress in Human Geography* 43: 5, pp. 927–936.
- Benjaminsen, T.A., Alinon, K., Buhaug, H., and Buseeth, J.T. 2012. "Does climate change drive land-use conflicts in the Sahel?" *Journal of Peace Research* 49: 1, pp. 97–111. Available at: <https://doi.org/10.1177/02F0022343311427343>.
- Bernauer, T., Böhmelt, T., and Koubi, V. 2012. "Environmental changes and violent conflict." *Environmental Research Letters* 7: 1, 015601. Available at: <https://iopscience.iop.org/article/10.1088/1748-9326/7/1/015601>.
- Black, R. and Collyer, M. 2014. "Populations 'trapped' at times of crisis." *Forced Migration Review* 45, pp. 52–56. Available at: <https://www.fmreview.org/crisis/black-collyer>.
- Brockhaus, M., Djoudi, H., and Locatelli, B. 2013. "Envisioning the future and learning from the past: Adapting to a changing environment in northern Mali." *Environmental Science & Policy* 25, pp. 94–106. Available at: <https://www.sciencedirect.com/science/article/pii/S1462901112001414>.
- Brown, O. and Crawford, A. 2009. *Climate Change and Security in Africa: A Study for the Nordic-African Foreign Ministers Meeting*. Winnipeg: International Institute for Sustainable Development. Available at: [https://www.iisd.org/pdf/2009/climate\\_change\\_security\\_africa.pdf](https://www.iisd.org/pdf/2009/climate_change_security_africa.pdf).



- Buhaug, H. 2015. "Climate–conflict research: some reflections on the way forward." *Wiley Interdisciplinary Reviews: Climate Change* 6: 3, pp. 269–275. Available at: <https://onlinelibrary.wiley.com/doi/full/10.1002/wcc.336>.
- Buvinic, M., Das Gupta, M., Casabonne, U., and Verwimp, P. 2012. *Violent Conflict and Gender Inequality: An Overview*. Washington, DC: World Bank. Available at: [https://openknowledge.worldbank.org/bitstream/handle/10986/19494/wbro\\_28\\_1\\_110.pdf%3Bjsessionid%3DA916F2C9090561E4260D6A1847708295?sequence%3D1](https://openknowledge.worldbank.org/bitstream/handle/10986/19494/wbro_28_1_110.pdf%3Bjsessionid%3DA916F2C9090561E4260D6A1847708295?sequence%3D1).
- Cardona, O.D., Van Aalst, M.K., Birkmann, J., Fordham, M., McGregor, G., Rosa, P., Pulwarty, R.S., Schipper, E.L.F., and Sinh, B.T. 2012. "Determinants of risk: exposure and vulnerability." In: Field, C.B. et al. (eds.) *Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation: A Special Report of Working Groups I and II of the Intergovernmental Panel on Climate Change (IPCC)*. Cambridge University Press, Cambridge, UK, and New York, NY, USA, pp. 65–108. Available at: [https://www.ipcc.ch/site/assets/uploads/2018/03/SREX-Chap2\\_FINAL-1.pdf](https://www.ipcc.ch/site/assets/uploads/2018/03/SREX-Chap2_FINAL-1.pdf).
- Carré, C. and Radosta, M. 2018. *Mettre fin au cercle vicieux entre faim & conflit en République Centrafricaine; Étude de cas d'Action contre la Faim*. Action contre la faim: Paris. Available at: [https://www.actioncontrelafaim.org/wp-content/uploads/2018/09/CASE-STUDY\\_RCA-HD-VO4072018.pdf](https://www.actioncontrelafaim.org/wp-content/uploads/2018/09/CASE-STUDY_RCA-HD-VO4072018.pdf).
- Chandra, A., McNamara, K., Dargusch, P., Caspe, A., and Dalabajan, D. 2017. "Gendered vulnerabilities of smallholder farmers to climate change in conflict-prone areas: A case study from Mindanao, Philippines." *Journal of Rural Studies*, 50, pp. 45–59.
- Christensen, J.H., Krishna Kumar, J.H., Aldrian, K. E., An, S.-I., Cavalcanti, I.F.A., de Castro, M., Dong, W., Goswami, P., Hall, A., Kanyanga, J.K., Kitoh, A., Kossin, J., Lau, N.-C., Renwick, J., Stephenson, D.B., Xie, S.-P. and Zhou, T. 2013. "Climate Phenomena and their Relevance for Future Regional Climate Change." In: Stocker, T.F., Qin, D., Plattner, -K., Tignor, M., Allen, S.K., Boschung, J., Nauels, A., Xia, Y., Bex, V., and Midgley, P.M. (eds.) *Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge University Press, Cambridge, UK and New York, NY, USA. Available at: <https://www.ipcc.ch/report/ar5/wg1/>.
- Collier, P., Elliot, L., Hegre, H., Hoeffler, A., Reynal-Querol, M., and Sambanis, N. 2003. *Breaking the conflict trap: Civil war and development policy. A World Bank policy research report*. Washington, DC: World Bank and Oxford University Press. Available at: <https://openknowledge.worldbank.org/handle/10986/13938>.
- Corral, P., Irwin, A., Krishnan, N., Mahler, D.G., and Vishwanath, T. 2020. *Fragility and Conflict: On the Front Lines of the Fight against Poverty*. Washington, DC: World Bank. Available at: <https://openknowledge.worldbank.org/handle/10986/33324>.
- Degomme, O. and Guha-Sapir, D. 2010. "Patterns of mortality rates in Darfur conflict." *The Lancet* 375: 9711, pp. 294–300.
- De Juan, A. 2015. "Long-term environmental change and geographical patterns of violence in Darfur, 2003–2005," *Political Geography* 45: March, pp. 22–33.
- Diedhiou, A., Bichet, A., Wartenburger, R., Seneviratne, S.I., Rowell, D.P., Sylla, M.B., Diallo, I., and Todzo, S. 2018. "Changes in climate extremes over West and Central Africa at 1.5 °C and 2 °C global warming." *Environmental Research Letters* 13: 6, p. 9. Available at: <https://iopscience.iop.org/article/10.1088/1748-9326/aac3e5/pdf>.
- Djoudi H., Brockhaus M., and Locatelli, B. 2013. "Once there was a lake: Vulnerability to environmental changes in northern Mali." *Regional Environmental Change* 13, pp. 493–508.
- Dufumier, M. and Lallau, B. 2016. *Vers quel développement agricole en République Centrafricaine? Réflexions et proposition*. Document de travail 1. Lille: Université de Lille et partenaires.

ECOSOC. 2019. *Special edition: progress towards the Sustainable Development Goals. Report of the Secretary-General*. United Nations Economic and Social Council. Available at: <https://undocs.org/E/2019/68>.

Fawzi, N.A. and Mahdi, B.A. 2014. "Iraq's inland water quality and their impact on the North-Western Arabian Gulf." *Marsh Bulletin* 9: 1, pp. 1-22. Available at: [https://www.researchgate.net/publication/315654944\\_Iraq%27s\\_inland\\_water\\_quality\\_and\\_their\\_impact\\_on\\_the\\_North-Western\\_Arabian\\_Gulf\\_Introduction](https://www.researchgate.net/publication/315654944_Iraq%27s_inland_water_quality_and_their_impact_on_the_North-Western_Arabian_Gulf_Introduction).

FAO, IFAD, UNICEF, WFP and WHO. 2019. *The State of Food Security and Nutrition in the World 2019. Safeguarding against economic slowdowns and downturns*. Rome: Food and Agriculture Organization of the United Nations. Available at: [www.fao.org/3/ca5162en/ca5162en.pdf](http://www.fao.org/3/ca5162en/ca5162en.pdf).

FAO. 2020. *FAO in Emergencies: helping to build a world without hunger. Country page: Iraq*. Rome: Food and Agriculture Organization of the United Nations. Available at: [www.fao.org/emergencies/countries/detail/en/c/161511](http://www.fao.org/emergencies/countries/detail/en/c/161511).

-- 2018. *The State of Food Security and Nutrition in the World: Building Climate Resilience for Food Security and Nutrition*. Rome: Food and Agriculture Organization of the United Nations. Available at: [www.fao.org/3/i9553en/i9553en.pdf](http://www.fao.org/3/i9553en/i9553en.pdf).

-- 2018b. *Stratégie d'appui à la résilience 2018-2023*. Food and Agriculture Organization of the United Nations. Available at: [www.fao.org/3/I9314FR/i9314fr.pdf](http://www.fao.org/3/I9314FR/i9314fr.pdf).

-- 2014. *Special Report: FAO/WFP Crop and Food Security Assessment Mission to Central African Republic*. Food and Agriculture Organization of the United Nations. Available at: [www.fao.org/3/a-I4159E.pdf](http://www.fao.org/3/a-I4159E.pdf).

-- 2012. *Iraq Agricultural Sector Note*. Food and Agriculture Organization of the United Nations. Available at: <http://www.fao.org/3/i2877e/i2877e.pdf>.

Field, C.B., Barros, V.R., Mach, K.J., Mastrandrea, M.D., van Aalst, M., Adger, W.N., Arent, D.J., Barnett, J., Betts, R., Bilir, T.E., Birkmann, J., Carmin, J., Chadee, D.D., Chaliner, A.J., Chatterjee, M., Cramer, W., Davidson, D.J., Estrada, Y.O., Gattuso, J.-P., Hijoioka, Y., Hoegh-Guldberg, O., Huang, H.Q., Insarov, G.E., Jones, R.N., Kovats, R.S., Romero-Lankao, P., Larsen, J.N., Losada, I.J., Marengo, J.A., Mclean, R.F., Mearns, L.O., Mechler, R., Morton, J.F., Niang, I., Oki, T., Olwoch, J.M., Opondo, M., Poloczanska, E.S., Pörtner, H.-O., Redsteer, M.H., Reisinger, A., Revi, A., Schmidt, D.N., Shaw, M.R., Solecki, W., Stone, D.A., Stone, J.M.R., Strzepek, K.M., Suarez, A.G., Tschakert, P., Valenti, R., Vicuña, S., Villamizar, A., Vincent, K.E., Warren, R., White, L.L., Wilbanks, T.J., Wong, P.P., and Yohe, G.W. 2014. "Technical summary." In: Field, C.B et al. (eds.) *Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge University Press, Cambridge, United Kingdom and New York, NY, pp. 35-94. Available at: [https://www.ipcc.ch/site/assets/uploads/2018/02/WGIIAR5-TS\\_FINAL.pdf](https://www.ipcc.ch/site/assets/uploads/2018/02/WGIIAR5-TS_FINAL.pdf).

Foresight. 2011. *Migration and Global Environmental Change: Final Project Report*. London: The Government Office for Science. Available at: [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/287717/11-1116-migration-and-global-environmental-change.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/287717/11-1116-migration-and-global-environmental-change.pdf).

Gariano, S.L. and Guzzetti, F. 2016. "Landslides in a changing climate." *Earth-Science Reviews* 162: November, pp. 227-252. Available at: <https://www.sciencedirect.com/science/article/pii/S0012825216302458?via%3Dihub>.

Gates, S., Hegre, H., Nygard, H.M., and Strand, H. 2012. "Development consequences of armed conflict." *World Development* 40: 9, pp. 1713-1722.

GDIM. 2018. *Global Database on Intergenerational Mobility*. Development Research Group, World Bank. Washington, DC: World Bank Group. Available at: <https://www.worldbank.org/en/topic/poverty/brief/what-is-the-global-database-on-intergenerational-mobility-gdim>.

Ghimire, R., Ferreira, S., and Dorfman, J. 2015. "Flood-induced displacement and civil conflict." *World Development* 66: February, pp. 614–628.

Ghobarah, H.A., Huth, P.K., and Russett, B.M. 2003. "Civil wars kill and maim people—long after the shooting stops." *American Political Science Review* 97: 2, pp. 189–202.

-- 2004. "The post-war public health effects of civil conflict." *Social Science and Medicine* 59: 4, pp. 869–884.

Giannini, A., Krishnamurthy, P.K., Cousin, R., Labidi, N., and Choularton, R.J. 2016. "Climate risk and food security in Mali: A historical perspective on adaptation." *Earth's Future* 5: 2, pp. 144–157. Available at: <https://agupubs.onlinelibrary.wiley.com/doi/full/10.1002/2016EF000404>.

GEMET. "Environmental Degradation." *General Multilingual Environmental Thesaurus*. Available at: <https://www.eionet.europa.eu/gemet/en/concept/15154>.

Government of Mali, Ministry of the Environment and Sanitation. 2011. *Seconde communication nationale du Mali sur les changements climatiques*. Republic of Mali. 14. Available at: <https://unfccc.int/resource/docs/natc/mlinc2.pdf>.

-- 2008. *Elements of National Policy of Adaptation to Climate Change*. Republic of Mali. Available at: [https://www.adaptation-undp.org/sites/default/files/downloads/mali\\_-\\_national\\_policy\\_2008.pdf](https://www.adaptation-undp.org/sites/default/files/downloads/mali_-_national_policy_2008.pdf).

Hastrup, K., and Fog Olwig, K. (eds.). 2012. *Climate Change and Human Mobility: Global Challenges to the Social Sciences*. Cambridge University Press, Cambridge, UK.

Hilhorst, D. 2018. "Classical humanitarianism and resilience humanitarianism: making sense of the two brands of humanitarian action." *Journal of International Humanitarian Action* 3: 15. Available at: <https://jihumanitarianaction.springeropen.com/articles/10.1186/s41018-018-0043-6>.

Holthuijzen, W. and Maximillian, J. 2011. "Dry, hot, and brutal: Climate change and desertification in the Sahel of Mali." *Journal of Sustainable Development in Africa* 13: 7, pp. 245–268. Available at: [www.jsd-africa.com/jsda/Vol13No7-Winter2011A/PDF/Dry%20Hot%20and%20Brutal.Wieteke%20Holthuijzen.pdf](http://www.jsd-africa.com/jsda/Vol13No7-Winter2011A/PDF/Dry%20Hot%20and%20Brutal.Wieteke%20Holthuijzen.pdf).

HRW. 2019. *Basra is Thirsty; Iraq's Failure to Manage the Water Crisis*. Washington, DC: Human Rights Watch. Available at: <https://www.hrw.org/report/2019/07/22/basra-thirsty/iraqs-failure-manage-water-crisis>.

-- 2003. *The Iraqi Government Assault on the Marsh Arabs. Briefing Paper*. Washington, DC: Human Rights Watch. Available at: <https://www.hrw.org/report/2003/01/25/iraqi-government-assault-marsh-arabs>.

ICRC. Upcoming (2020). *ICRC Guidelines for the Protection of the Natural Environment in Situations of Armed Conflict: A Commentary on IHL Rules and Recommendations Relating to the Protection of the Natural Environment*. Geneva: International Committee of the Red Cross.

-- 2019. *International Humanitarian Law and the Challenges of Contemporary Armed Conflicts; Recommitting to Protection in Armed Conflict on the 70<sup>th</sup> Anniversary of the Geneva Convention*. Geneva: International Committee of the Red Cross. Available at: <https://www.icrc.org/en/publication/4427-international-humanitarian-law-and-challenges-contemporary-armed-conflicts>.

-- 2018. *Displaced in Cities; Experiencing and Responding to Urban Internal Displacement Outside Camps*. Geneva: International Committee of the Red Cross. Available at: <https://www.icrc.org/en/publication/4344-displaced-cities-experiencing-and-responding-urban-internal-displacement-outside>.

-- 2018b. *ICRC Strategy 2019–22*. Geneva: International Committee of the Red Cross. Available at: <https://www.icrc.org/en/publication/4354-icrc-strategy-2019-2022>.



-- 2015. *Urban services during protracted armed conflict: a call for a better approach to assisting affected people*. Geneva: International Committee of the Red Cross. Available at: <https://www.icrc.org/en/document/urban-services-protracted-conflict-report>.

-- 2016. *Protracted conflict and humanitarian action: some recent ICRC experiences*. Geneva: International Committee of the Red Cross. Available at: <https://www.icrc.org/en/publication/4265-protracted-conflict-and-humanitarian-action-some-recent-icrc-experiences>.

-- 2004. "ICRC Assistance Policy; Institutional Policy." *International Review of the Red Cross* 86: 855, pp. 677–691. Available at: <https://www.icrc.org/en/doc/resources/documents/article/other/66dez7.htm>.

-- 2008. "ICRC Protection Policy; Institutional Policy." *International Review of the Red Cross* 90: 871, pp. 751–75. Available at: <https://international-review.icrc.org/articles/icrc-protection-policy>.

-- 1994. "Guidelines for Military Manuals and Instructions on the Protection of the Environment in Armed Conflict." Geneva: International Committee of the Red Cross. Available at: <https://www.icrc.org/en/doc/resources/documents/article/other/57jn38.htm>.

IDMC. 2017. *The Invisible Majority: The Displacement Continuum*. Geneva: Internal Displacement Monitoring Centre. Available at: <https://www.internal-displacement.org/publications/thematic-series-the-invisible-majority>.

IFAD. 2017. *Smallholder Agriculture Revitalization Project: Final Project Design Report*. Rome: International Fund for Agricultural Development. Available at: <https://operations.ifad.org/documents/654016/33570e04-9429-4eac-abb2-137fde84a8bf>.

IFRC. 2019. *The Cost of Doing Nothing: The humanitarian price of climate change and how it can be avoided*. Geneva: International Federation of the Red Cross Red Crescent. Available at: <https://media.ifrc.org/ifrc/the-cost-of-doing-nothing/>.

IFPRI. 2020. *Global Food Policy Report, Chapter 5: Refugees and conflict-affected people: Integrating displaced communities into food systems*. Washington, DC: International Food Policy Research Institute. Available at: <http://ebrary.ifpri.org/cdm/ref/collection/p15738coll2/id/133648>.

IPCC. 2018. *Summary for Policymakers*. In: Masson-Delmotte, V., Zhai, P., Pörtner, H.-O., Roberts, D., Skea, J., Shukla, P.R., Pirani, A., Moufouma-Okia, W., Péan, C., Pidcock, R., Connors, S., Matthews, J.B.R., Chen, Y., Zhou, X., Gomis, M.I., Lonnoy, E., Maycock, T., Tignor, M., and Waterfield, T. (eds.) *Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty*. In Press. Available at: [https://www.ipcc.ch/site/assets/uploads/sites/2/2019/06/SR15\\_Full\\_Report\\_High\\_Res.pdf](https://www.ipcc.ch/site/assets/uploads/sites/2/2019/06/SR15_Full_Report_High_Res.pdf).

-- 2018b: Matthews, J.B.R. (eds.) "Annex I: Glossary." In: Masson-Delmotte, V., Zhai, P., Pörtner, H.-O., Roberts, D., Skea, J., Shukla, P.R., Pirani, A., Moufouma-Okia, W., Péan, C., Pidcock, R., Connors, S., Matthews, J.B.R., Chen, Y., Zhou, X., Gomis, M.I., Lonnoy, E., Maycock, T., Tignor, M., and Waterfield, T. (eds.) *Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty*. In Press. Available at: [https://www.ipcc.ch/site/assets/uploads/sites/2/2019/06/SR15\\_AnnexI\\_Glossary.pdf](https://www.ipcc.ch/site/assets/uploads/sites/2/2019/06/SR15_AnnexI_Glossary.pdf).

-- 2007. Solomon, S., Qin, D., Manning, M., Chen, Z., Marquis, M., Averyt, K.B., Tignor, M., and Miller, H.L. (eds.) *Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA. Available at: [https://www.ipcc.ch/site/assets/uploads/2018/05/ar4\\_wg1\\_full\\_report-1.pdf](https://www.ipcc.ch/site/assets/uploads/2018/05/ar4_wg1_full_report-1.pdf).

IISD. 2015. *Accessing and Using Climate Data and Information in Fragile, Data-poor states*. Winnipeg: International Institute for Sustainable Development. Available at: <https://www.iisd.org/sites/default/files/publications/accessing-climate-data-information-fragile-data-poor-states.pdf>.

IPC. 2020. *République Centrafricaine; Analyse IPC de l'insécurité alimentaire aiguë; Mise à jour de l'analyse de septembre 2019; mai-août 2019 (projection)*. Cadre intégré de classification de la sécurité alimentaire.

IUCN. 2015. *Issue Brief on Climate Change and Environmental Degradation*. Gland: International Union for Conservation of Nature. Available at: <https://www.iucn.org/resources/issues-briefs/land-degradation-and-climate-change>.

Jha, U. C. 2015. *Armed Conflict and Environmental Damage*. Vij Books, New Dehli, India.

Ambalam, K. 2012. *Global Environmental Governance and Desertification: a study of Gulf Cooperation Council countries*. Concept Publishing Company, New Dehli, India.

Kelley, C.P., Mohtadi, S., Cane, M.A., Seager, R., and Kushnir, Y. 2015. "Climate change in the Fertile Crescent and implications of the recent Syrian drought." *Proceedings of the National Academy of Sciences of the United States of America* 112, pp. 3241-3246. Available at: <https://www.pnas.org/content/112/11/3241>.

Kiernan, K. 2013. "Nature, severity and persistence of geomorphological damage caused by armed conflict." *Land Degradation & Development* 26: 4, pp. 380-396.

Linke, A.M., O'Loughlin, J., McCabe, J.T., Tir, J., and Witmer, F.D.W. 2015. "Rainfall variability and violence in rural Kenya: Investigating the effects of drought and the role of local institutions with survey data." *Global Environmental Change* 34: September, pp. 35-47.

Marchal, R. 2015. "Premières leçons d'une « drôle » de transition en République centrafricaine." *Politique africaine* 3: 139, pp. 123-146. Available at: <https://www.cairn.info/revue-politique-africaine-2015-3-page-123.htm#>.

Marin, A., and Otto Naess, L.O. 2017. "Climate change adaptation through humanitarian aid? Promises, perils and potentials of the 'New Humanitarianism.'" *IDS Bulletin* 48: 4. Available at: <https://bulletin.ids.ac.uk/index.php/idsbo/article/view/2884/ONLINE%20ARTICLE>.

Mason, M., Zeitoun, M., and El Sheikh, R. 2011. "Conflict and social vulnerability to climate change: Lessons from Gaza." *Climate and Development* 3: 4, pp. 285-297.

Mearns, R., and Norton, A. (eds.) 2010. *Social Dimensions of Climate Change: Equity and Vulnerability in a Warming World*. Washington, DC: The World Bank.

MFA Netherlands. 2018. "Climate Change Profile; Iraq." Ministry of Foreign Affairs of the Netherlands. Available at: <https://www.government.nl/ministries/ministry-of-foreign-affairs/documents/publications/2019/02/05/climate-change-profiles>.

Murthy, S. 2011. "Iraq's constitutional mandate to justly distribute water: The implications of federalism, Islam, International Law and Human Rights." *George Washington International Law Review* 42, pp. 749-85.

Niang, I., Ruppel, O.C., Abdrabo, M.A., Essel, A., Lennard, C., Padgham, J., and Urquhart, P. 2014. "Africa." In: Barros, V.R., Field, C.B., Dokken, D.J., Mastrandrea, M.D., Mach, K.J., Bilir, T.E., Chatterjee, M., Ebi, K.L., Estrada, Y.O., Genova R.C., Girma, B., Kissel, E.S., Levy, A.N., MacCracken, S., Mastrandrea, P.R., and White, L.L. (eds.) *Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part B: Regional Aspects. Contribution of*

Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change, pp. 1199–1265. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA. Available at: <https://www.ipcc.ch/report/ar5/wg2/>.

Norwegian Red Cross. 2019. *Overlapping vulnerabilities: the impacts of climate change on humanitarian needs*. Oslo: Norwegian Red Cross. Available at: [https://reliefweb.int/sites/reliefweb.int/files/resources/rk\\_overlapping-vulnerabilities\\_digital\\_singles.pdf](https://reliefweb.int/sites/reliefweb.int/files/resources/rk_overlapping-vulnerabilities_digital_singles.pdf).

OECD. 2018. *Climate finance from developed to developing countries: 2013–17 public flows*. OECD Publishing. Available at: <http://www.oecd.org/environment/cc/Climate-finance-from-developed-to-developing-countries-Public-flows-in-2013-17.pdf>.

OCHA. 2019. *République Centrafricaine : Aperçu de la situation humanitaire suite aux inondations (03 décembre 2019)*. New York: Office for the Coordination of Humanitarian Affairs. Available at: <https://reliefweb.int/report/central-african-republic/r-publique-centrafricaine-aper-u-de-la-situation-humanitaire-suite-o>.

Peters, K., Dupar, M., Opitz–Stapleton, S., Lovell, E., Budimir, M., Brown, S. and Cao Y. 2020. *Climate change, conflict and fragility: An evidence review and recommendations for research and action*. London: Overseas Development Institute.

Peters, K., Mayhew, L., Slim, H., van Aalst, M., and Arrighi, J. 2019. *Double vulnerability: The humanitarian implications of intersecting climate and conflict risk*. London: ODI, ICRC, Red Cross Red Crescent Climate Centre.

Peters, K. and Budimir, M. 2016. *When Conflicts and Disasters Collide: Facts and Figures*. London: Overseas Development Institute. Available at: <https://www.odi.org/publications/10410-when-disasters-and-conflicts-collide-facts-and-figures>.

Raleigh, C. and Kniveton, D. 2012. “Come rain or shine: An analysis of conflict and climate variability in East Africa.” *Journal of Peace Research* 49: 1, pp. 51–64.

Revi, A., Satterthwaite, D.E., Aragón–Durand, F., Corfee–Morlot, J., Kiunsi, R.B.R., Pelling, M., Roberts, D.C., and Solecki, W. 2014. “Urban areas.” In: Field, C.B., Barros, V.R., Dokken, D.J., Mach, K.J. Mastrandrea, M.D., Bilir, T.E., Chatterjee, M., Ebi, K.L., Estrada, Y.O., Genova R.C., Girma, B., Kissel, E.S., Levy, A.N., MacCracken, S., Mastrandrea, P.R., and White, L.L. (eds.) *Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*, pp. 535–612. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA. Available at: <https://www.ipcc.ch/report/ar5/wg2/>.

Rigaud, K.K., de Sherbinin, A., Jones, B., Bergmann, J., Clement, V., Ober, K., Schewe, J., Adamo, S., McCusker, B., Heuser, S., and Midgley, A. 2018. *Groundswell: Preparing for Internal Climate Migration*. Washington, DC: World Bank. Available at: <https://openknowledge.worldbank.org/handle/10986/29461>.

Salack, S., Saley, I.A., Lawson, N.Z., Zabr’è, I., and Daku, E.K. 2018. “Scales for rating heavy rainfall events in the West African Sahel.” *Weather and Climate Extremes* 21: September, pp. 36–42.

Sanderson, D., Kayden, J.S., and Leis, J. (eds.) 2016. *Urban Disaster Resilience*. New York: Routledge.

Schmitz Guinote, F. 2019. “The ICRC and the “Humanitarian–Development–Peace Nexus” discussion.” *International Review of the Red Cross* 101(913).

Selby, J., Dahi, O.S., Fröhlich, C., and Hulme, M. 2017. “Climate change and the Syrian civil war revisited.” *Political Geography* 60, pp. 232–244.

Sinha, S. and Lipton, M. 1999. *Damaging Fluctuations, Risk and Poverty: A Review*. Poverty Research Unit at Sussex, Brighton, UK.

Sissakian, V., Al-Ansari, N., and Knutsson, S. 2013. "Sand and dust storm events in Iraq." *Natural Science* 5: 10, pp. 1084-1094.

Soulé Baoro, S.K.G., Shaoxian, S., Herve, Edo Ekata Emmanuel Maidou, and Igor, T.K. 2017. "Impacts of Climate Change in Central African Republic." *Journal of Environmental Science and Engineering Technology* 5, pp. 52-63. Available at: <http://savvysciencepublisher.com/downloads/jesetv5n2a3/>.

Sultan, B., Roudier, P., Quirion, P., Alhassane, A., Muler, B., Dingkuhn, M., Ciais, P., Guiberteau, M., Traore, S., and Baron, C. 2013. "Assessing climate change impacts on sorghum and millet yields in the Sudanian and Sahelian savannas of West Africa" *Environmental Research Letters* 8: 1. Available at: <https://iopscience.iop.org/article/10.1088/1748-9326/8/1/014040>.

Theisen, O.M. 2017. "Climate change and violence: Insights from political science." *Current Climate Change Reports* 3: 4, pp. 210-221.

Uexkull, N. von, Croicu, M., Fjelde, H., and Buhaug, H. 2016. "Civil conflict sensitivity to growing-season drought." *Proceedings of the National Academy of Sciences* 113: 44, pp. 12391-12396. Available at: <https://www.pnas.org/content/113/44/12391>.

UNDP. 2019. *Human Development Report 2019: Beyond income, beyond averages, beyond today: Inequalities in human development in the 21st century*. New York: United Nations Development Program. Available at: <http://hdr.undp.org/sites/default/files/hdr2019.pdf>.

UNEP. 2007. *UNEP in Iraq; Post-conflict assessment, clean-up and reconstruction*. United Nations Environment Program. Available at: [https://wedocs.unep.org/bitstream/handle/20.500.11822/17462/UNEP\\_Iraq.pdf?sequence=1&isAllowed=y](https://wedocs.unep.org/bitstream/handle/20.500.11822/17462/UNEP_Iraq.pdf?sequence=1&isAllowed=y).

UNFCCC. 2020. *Introduction to Climate Finance*. United Nations Framework Convention on Climate Change. Available at <https://unfccc.int/topics/climate-finance/the-big-picture/introduction-to-climate-finance>.

UN HRC. 2019. *Report of the Special Rapporteur on extreme poverty and human rights*. United Nations Human Rights Council. A/HRC/41/39. Available at: <https://www.ohchr.org/EN/HRBodies/HRC/RegularSessions/Session41/Pages/ListReports.aspx>.

UN Iraq. 2013. *Water in Iraq Fact Sheet*. United Nations Iraq Joint Analysis and Policy Unit. Available at : <https://reliefweb.int/sites/reliefweb.int/files/resources/Water-Factsheet.pdf>.

United States Department of State. 1974. *Drought and Famine in Sub-Saharan Africa*, Special Report no. 10. Washington, DC.

UN Water. 2020. *The United Nations World Water Development Report 2020: Water and Climate Change*. Paris: United Nations Educational, Scientific and Cultural Organization on behalf of UN Water. Available at: <https://www.un.org/en/events/desertificationday/desertification.shtml>.

USAID. 2018. *Climate Risks in the Central Africa Regional Program for the Environment (CARPE) and Congo Basin*. Available at: <https://www.preventionweb.net/publications/view/58775>.

Vidal, J. 2020. "'Tip of the iceberg': is our destruction of nature responsible for Covid-19?" *The Guardian*, 18 March. Available at: [https://www.theguardian.com/environment/2020/mar/18/tip-of-the-iceberg-is-our-destruction-of-nature-responsible-for-covid-19-aoe?CMP=Share\\_iOSApp\\_Other](https://www.theguardian.com/environment/2020/mar/18/tip-of-the-iceberg-is-our-destruction-of-nature-responsible-for-covid-19-aoe?CMP=Share_iOSApp_Other).



- von Lossow, T. 2018. *More than infrastructures: Water challenges in Iraq. Planetary Security Initiative Policy Brief*. The Hague: Clingendael Netherlands Institute of International Relations. Available at: [https://www.clingendael.org/sites/default/files/2018-07/PB\\_PSI\\_water\\_challenges\\_Iraq.pdf](https://www.clingendael.org/sites/default/files/2018-07/PB_PSI_water_challenges_Iraq.pdf).
- Watts, N., et al. 2019. "The 2019 report of The *Lancet* Countdown on health and climate change: ensuring that the health of a child born today is not defined by a changing climate." *Lancet* 394, pp. 1836-1878. Available at: [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(19\)32596-6/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(19)32596-6/fulltext).
- Watts, N. et al. 2018. "The 2018 report of the *Lancet* Countdown on health and climate change: shaping the health of nations for centuries to come." *Lancet* 392: 10163, pp. 2479-2514. Available at: [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(18\)32594-7/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(18)32594-7/fulltext).
- WHO. 2018. *COP24 Special Report: Health and Climate Change*. Geneva: World Health Organization. Available at: <https://www.who.int/globalchange/publications/COP24-report-health-climate-change/en/>.
- WFP. 2020. *WFP Mali Country Brief March 2020*. Rome: World Food Program. Available at: [https://docs.wfp.org/api/documents/WFP-0000114706/download/?\\_ga=2.81119383.1066780301.1589292721-1559359155.1589292721](https://docs.wfp.org/api/documents/WFP-0000114706/download/?_ga=2.81119383.1066780301.1589292721-1559359155.1589292721).
- WMO. 2019. *Commission for Climatology FAQ*. Geneva: World Meteorological Organization. Available at: <http://www.wmo.int/pages/prog/wcp/ccl/faqs.php>.
- Woolhouse, M. and Gaunt, E. 2007. "Ecological origins of novel human pathogens." *Critical Reviews in Microbiology* 33: 4, pp. 231-242.
- World Bank. 2019. *Employment in Agriculture (% of total employment). Modeled from ILO ILOSTAT Database*. Geneva: International Labor Organization and Washington, DC: World Bank Group. Available at: [https://data.worldbank.org/indicator/SL.AGR.EMPL.ZS?name\\_desc=true](https://data.worldbank.org/indicator/SL.AGR.EMPL.ZS?name_desc=true).
- 2019a. *Mali - Strengthening Climate Resilience Project (English)*. Washington, DC: World Bank Group. Available at: <http://documents.worldbank.org/curated/en/676221558922529960/Mali-Strengthening-Climate-Resilience-Project>.
- 2017. *Turbulent Waters: Pursuing Water Security in Fragile Contexts*. Washington, DC: World Bank Group's Water Global Practice. Available at: <https://openknowledge.worldbank.org/handle/10986/26207>.
- 2017a. *Iraq - Systematic Country Diagnostic (English)*. Washington, DC: World Bank Group. Available at: <http://documents.worldbank.org/curated/en/54281148727729890/Iraq-Systematic-Country-Diagnostic>.
- World Commission on Environment and Development. 1987. *Report of the World Commission on Environment and Development: Our Common Future*. Available at: <https://sustainabledevelopment.un.org/content/documents/5987our-common-future.pdf>.
- WRI. 2015. *Ranking the World's Most Water-Stressed Countries in 2040*. Washington, DC: World Resource Institute. Available at: <https://www.wri.org/blog/2015/08/ranking-world-s-most-water-stressed-countries-2040>.
- Zwijnenburg, W. & Postma, F. 2017. *Living under a black sky: Conflict pollution and environmental health concerns in Iraq*. Utrecht, Netherlands: PAX. Available at <https://ceobs.org/pax-2017-living-under-a-black-sky-conflict-pollution-and-environmental-health-concerns-in-iraq/>.



# ANNEX: METHODOLOGY

The focus of the research presented in this report was on people's lived experience of combined conflict and climate risks and shocks and on the humanitarian response to their short and long-term needs. It did not explore in depth the extent to which climate change can exacerbate conditions leading to conflict or whether climate change will lead to more violence and conflicts. It focused on understanding people's needs, with a view to developing adequate responses to them.

The research followed two lines of inquiry:

1. How do people and communities affected by a combination of armed conflict and climate risks and environmental degradation describe their experience and their coping and adaptation mechanisms?
2. How is this experience captured in the current ICRC response to affected populations?  
How can the response be improved to further support and strengthen people's resilience?

The research was conducted through a desk review and selected case studies. The case studies were carried out in countries affected by situations of protracted conflict and fragility that are particularly vulnerable to climate change, and where the ICRC operates and has an acceptable degree of access. They were selected to reflect different types of situation in terms of hazards faced (droughts and floods) and levels of development.

Visits to the three sites for data collection lasted ten days and took place between April 2019 and January 2020. At each site, focus-group discussions and/or individual interviews (with men and women, including young people, community leaders, and members of professional associations) were organized to gather qualitative data. In northern Mali, we met with community leaders in Gao and with representatives of associations of fishermen, farmers and herders in Timbuktu. Because of security constraints, all the interviews took place on ICRC premises. In the interior of the CAR and Iraq, we could meet people in their homes, neighbourhoods or villages. In southern Iraq – Jazal Al Sharquiya, Saed Jaber, Saed Dakhal and Fao – we held seven focus-group discussions with men and women, including members of associations of farmers and fishermen. In the CAR, we met community leaders and many community members in two neighbourhoods of Kaga Bandoro (Tipoyeur and Abakar). We met the deputy leader and several residents of the displacement site of Lazare. We met farming communities and their leaders in Doukoumbe, on the outskirts of Kaga Bandoro and in Yongoro-Bedimont, outside Bouar. In Bangui, we met several groups of people displaced by floods. We also interviewed several of our own colleagues, as well as people from selected organizations responding to humanitarian needs, and national and local authorities and experts (see tables below).

People quoted in the report were interviewed during the case studies. Observations on the consequences of the combination of climate risks, environmental degradation and armed conflict are drawn from the case studies: the interviews in these studies – with communities and local and national authorities, civil-society organizations, international humanitarian and development organizations, components of the Movement, and donors – were complemented by relevant secondary sources.

The systematic literature review was conducted by Yvonne Su and Karine Gagné, graduate student and assistant professor, respectively, at the University of Guelph. It sought to explore how people and communities affected by conflict, climate risks and environmental degradation cope and adapt; the extent to which experiences in rural and urban areas differ and are influenced by climate extremes that affect them; and whether there are significant regional variations in people's experiences. It also explored how humanitarian responses could be improved to further strengthen people's resilience. Peer-reviewed academic and grey literature that discusses climate risks and conflict was gathered from Google Scholar and Primo – with a focus on research published in English between 2000 and 2019 – and through recommendations from key experts. In all, 96 documents – 69 journal articles, 17 reports and 10 books – were captured. Seven of the documents focused on South-East Asia, 12 on the Middle East, and 35 on countries in the Sahel region and elsewhere in Africa. This regional distribution of the literature reflects where scholarly research efforts have been concentrated thus far.

## Authorities consulted

Mali		
Agency for the Environment and Sustainable Development	Service for Social Development, Gao	Regional Directors for Water and Forests, Tombouctou and Taoudeni
Iraq		
Ministry of Health and Environment	Climate Change Team, Ministry of Agriculture	Policy Department, Ministry of Water Resources
Agriculture Department for Abu Ghraib	Advisory board to Prime Minister	Municipality Councils of Saed Dakhel and Fao
CAR		
Minister for Agriculture	Minister for Development of Energy and Hydraulic Resources	Minister for the Environment
Minister for Livestock and Animal Health	Mayors of Kaga Bandoro and Bouar	National Climate Coordination
Regional Coordinator for Wood and Forests, Bouar	Regional Environment Inspector, Bouar	Sub-prefects of Nana-Grébizi and Bouar

## Organizations and experts consulted

Mali		
Danish Red Cross	Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)	Mali Folke Centre
Mali Red Cross	World Food Programme	
Iraq		
Al Fat (civil-society organization)	Norwegian Refugee Council	Prof. Nadir Fadah, University of Baghdad
CAR		
Agence française de développement	Agence nationale de développemet de l'élevage	Comité pour la promotion et la défense des droits des enfants
Consul of Norway and Sweden	European Union	Fédération nationale des éleveurs centrafricains in Bangui, Kaga Bandoro and Bouar
International Federation of Red Cross and Red Crescent Societies	International Organization for Migration	United Nations Multidimensional Integrated Stabilization Mission in the Central African Republic (MINUSCA), Civil Affairs
United Nations Development Programme	United Nations Office for the Coordination of Humanitarian Affairs	United Nations Working Group on Durable Solutions, Bouar










## MISSION

The International Committee of the Red Cross (ICRC) is an impartial, neutral and independent organization whose exclusively humanitarian mission is to protect the lives and dignity of victims of armed conflict and other situations of violence and to provide them with assistance. The ICRC also endeavours to prevent suffering by promoting and strengthening humanitarian law and universal humanitarian principles. Established in 1863, the ICRC is at the origin of the Geneva Conventions and the International Red Cross and Red Crescent Movement. It directs and coordinates the international activities conducted by the Movement in armed conflicts and other situations of violence.

 [facebook.com/icrc](https://facebook.com/icrc)  
 [twitter.com/icrc](https://twitter.com/icrc)  
 [instagram.com/icrc](https://instagram.com/icrc)



**ICRC**

**International Committee of the Red Cross**  
19, avenue de la Paix  
1202 Geneva, Switzerland  
T +41 22 734 60 01  
[shop.icrc.org](https://shop.icrc.org)  
© ICRC, July 2020