

WEATHERING THE STORM REDUCING THE IMPACT OF CLIMATE RISKS AND ENVIRONMENTAL DEGRADATION ON PEOPLE ENDURING ARMED CONFLICTS



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About this report

Countries enduring armed conflict and violence are particularly vulnerable to growing climate and environmental risks because the adaptive capacity of people, systems and institutions already coping with the consequences of conflict tends to be limited. Based on case studies conducted in the Gaza Strip, northern Mozambique and eastern Niger, 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 avenues to strengthen the resilience to growing climate risks and environmental degradation for people living in places affected by conflict and violence.

The report was written by Catherine–Lune Grayson, head of the ICRC's Policy Team, and Amir Khouzam, policy adviser at the ICRC, both of whom co–led the research. This work could not have been conducted without the support provided by the ICRC's delegations in Israel and the occupied territories, Mozambique and Niger. Chandni Dhingra and Begum Simsir, policy adviser and associate, respectively, also provided valuable help.

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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 (IPCC 2014).

Adaptive capacity: The ability of systems, institutions, humans and other organisms to adjust to potential damage, take advantage of opportunities, or respond to the consequences of climate impacts (IPCC 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 (WMO 2022).

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 2018).

Climate finance: Local, national or transnational financing – drawn from public, private or 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; and economic, social and cultural assets, services and infrastructure. Risk results from the interaction of vulnerability, exposure and hazard (IPCC 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 (IPCC 2014).

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 2022).

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).

Loss and Damage: A general term used in UN climate negotiations to refer to the consequences of climate change that go beyond what people can adapt to, or to a situation in which options exist but a community doesn't have the resources to access them. Loss and damage will continue to harm vulnerable communities the most, making addressing the issue a matter of climate justice (WRI 2022).

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).

Maladaptation: Actions that may lead to an increased risk of adverse climate-related outcomes, including via increased greenhouse gas emissions, increased or shifted vulnerability to climate change, more inequitable outcomes, or diminished welfare, now or in the future. Most often, maladaptation is an unintended consequence (IPCC 2022).

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.

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.

EXECUTIVE SUMMARY

Countries in conflict are particularly vulnerable to the impacts of the climate and environmental crises because the adaptive capacity of people, systems and institutions already coping with the consequences of conflict are limited. Despite a growing recognition of the importance of ensuring that all communities are adequately supported to cope with and adapt to erratic weather and increasingly frequent and severe shocks, people enduring conflict remain neglected by climate action and finance. This is largely because of the inherent challenges and risks attached to implementing longer-term responses in such settings. Although these risks are real, the status quo is untenable. As conflicts and instability are often long-lasting, waiting for peace before addressing climate risks is not a viable option, and understanding pathways to climate change adaptation in conflict settings is critical.

Based on case studies conducted in the Gaza Strip, northern Mozambique and eastern Niger between October 2022 and July 2023, and drawing on both the ICRC's experience and the scientific literature, this policy report argues that it is possible to strengthen the resilience of communities to growing climate risks and environmental degradation in unstable settings, and that this will require a concerted effort by climate, development and humanitarian bodies.

ADAPTING TO A CHANGING CLIMATE IN CONFLICT SETTINGS

Even in stable environments, pathways to effective and long-term climate adaptation are often unclear, and adaptation initiatives may yield unintended maladaptive outcomes, especially for already marginalized people.¹ While challenges in identifying effective adaptation pathways and acting accordingly are particularly acute in conflict-affected settings, some observations can inform the design and implementation of initiatives to strengthen resilience and adaptation in these situations: responses need to be informed by an in-depth understanding of the context and the historical and socio-political realities that led to the marginalization of certain groups; they also need to be conflict-sensitive. Otherwise, responses run the risk of being ill-suited to the fluid reality of conflict settings, fuelling tensions, exacerbating the vulnerability of certain segments of communities and maintaining the current state of affairs, without enabling adequate adaptation for all members of a society.²

THE ROLE OF HUMANITARIAN ACTION

Through their proximity to communities, understanding of how people manage in the hardest situations, and ability to test and identify promising practices, humanitarian organizations can help respond to climate risks in conflict settings. Their learning can inform a broader response that builds the foundations for greater climate resilience.

In Gaza, Mozambique and Niger, the ICRC contributes to strengthening people's resilience to all types of shocks in specific locations and on a small scale, in partnership with communities, National Red Cross and Red Crescent Societies, civil-society organizations, authorities and service providers. ICRC activities are, in part, supported by development funding, in recognition of their role in limiting development reversals and of the ability of humanitarian organizations to deliver a sustainable humanitarian impact in environments where traditional development approaches are ill-adapted.

² Cao et al. 2021; Eriksen et al. 2021; Ribot 2013.

Humanitarian activities often help people survive in the short term through incremental adaptations of their livelihoods and by improving the sustainability and reliability of their access to essential services, including in places where the presence of government institutions is limited. This is important, but it is not sufficient to adequately help communities adapt to current and future climate impacts.

BEYOND HUMANITARIAN ACTION

In all three locations – the Gaza Strip, northern Mozambique and eastern Niger – major gaps exist. At the scale of the current response, not all communities can be supported even though the needs are clear, and humanitarian efforts by themselves do not provide the necessary depth or breadth and are too short in time. In Gaza, for instance, reinforcing key infrastructure can make people safer during conflict escalation and severe weather, but the deterioration of, and technical weaknesses in, water and power systems prevent comprehensive adaptation over the long term.

To address these gaps and provide a more comprehensive and long-term climate-resilient response, the authorities must be involved and supported by development organizations and climate experts. Development organizations have recognized the need to invest in conflict and fragile settings, but, despite some progress, their efforts continue to collide with their ways of operating, financing mechanisms, and restrictions on where they can work. By strengthening the development response in fragile and conflict-affected environments, climate and conflict expertise are essential to ensure that development efforts take sufficient account of current and future climate risks, are conflict-sensitive and address the vulnerability of marginalized communities in setting a course for the future.

OUR CALL

Our call echoes the one we made three years ago, as we still need to urgently scale up efforts to reduce the impacts of the climate and environmental crises on communities that are already coping with the consequences of armed conflict.³

To do so, we need to:

LEARN by documenting and analysing actions aimed at strengthening the resilience of people and systems to climate risks in the most unstable environments that are climate- and conflict-sensitive, and adequately address vulnerabilities.

COLLABORATE to connect the dots at the local level and build on the respective capacity, expertise and strengths of humanitarian, development and climate organizations in order to work at different scales (from households to communities and systems) and timescales (short-, medium- and long-term) while preserving the space for principled humanitarian action.

PREVENT harm by strengthening systemic and residual measures to manage current and future risks, strengthen the resilience of essential services, livelihoods and shelters, and ensure respect for the environment during conflict, so every shock does not become a disaster.

ACT.

FACTS AND FIGURES





\$2.1 VS \$161.7 PER CAPITA

was received by extremely fragile states from four vertical funds between 2014 and May 2021. Fragile states received US dollars 10.8 per capita. Non fragile states received US dollars 161.7 per capita.

(Source: UNDP 2021: 28)



190 MILLION CHILDREN

across ten countries in Africa are at the highest risk from the convergence of three water-related threats: reduced access to water, sanitation and hygiene; related diseases; and climate hazards. Of these countries, six are also affected by protracted conflict.

(Source: UNICEF 2023)

* The ND-GAIN Index does not have data for a few states affected by conflict and fragility, including the West Bank, Gaza and South Sudan. A country identified by the World Bank as being in "conflict" may not necessarily be in a situation of "armed conflict" as defined under international humanitarian law (IHL). Similarly, a country considered fragile by the World Bank may be in a situation of "armed conflict" as defined under IHL.





37 VS 347

The number of radar facilities for tracking weather in Africa, compared to 347 in Europe. Half of the 37 are unable to provide data that is accurate enough to predict weather patterns.

(Source: Tzachor et al. 2023)



9 OF THE 10

countries with the highest numbers of people newly internally displaced by conflict in 2022 also experience disaster-induced internal displacement.

(Source: IDMC 2023)



6 OUT OF 7

countries at risk of famine (IPC phase 5) in 2022 were affected by conflict. All six are also among the most vulnerable and least ready to adapt to climate change.

(Source: FSIN and GNAFC 2023)

INTRODUCTION

The impacts of climate change are already widely felt, and they are particularly acute for the world's most marginalized people. The urgent and ambitious reduction of greenhouse gas emissions is key to limiting the crisis. Finding ways to ensure that all communities are adequately supported so they can cope with and adapt to erratic weather and increasingly frequent and severe shocks now and in the future is equally critical in order to limit losses, damage and human suffering – in every scenario, the world will keep warming in the near future, and climate risks will intensify.⁴

Countries in conflict are at the top of climate vulnerability charts. That is because conflicts harm the foundations of societies, which in turn limits people's capacity to adapt to a changing climate: conflicts weaken institutions and essential services, disrupt the economy, undermine social cohesion and damage the environment on which people rely to survive. This hinders climate adaptation and makes people extremely vulnerable to all types of risks, including climate ones.

This is a reality we know all too well. The ICRC is present in seven of the ten countries listed in the ND-GAIN Index as the most climate-vulnerable and least ready to adapt to climate change.⁵ In 2019, we started analysing how converging climate risks, environmental degradation and armed conflict are reshaping the lives of communities, and we looked at the implications for our humanitarian response. For this, we listened to people in the interior of the Central African Republic, northern Mali and southern Iraq.⁶ We met with farmers who could no longer trust the weather and who described a deep sense of loss, as they saw their environment changing. We met pastoralists who, in the face of a bad season, could no longer travel within and across borders in search of grazing land and water because of a lack of security. Communities reported rising tensions around access to water and land. We saw that all dimensions of people's lives were impacted – from their safety and health to their access to food, water and economic security. Despite all this, they were direly neglected by climate action and climate finance.

In recent years, there has been a growing recognition of the need to address this gap.⁷ Yet climate research, action and financing remain limited in places affected by conflict. Doubts also endure about the feasibility of moving beyond emergency responses and supporting climate adaptation in such environments. Perhaps governments, humanitarian organizations and development organizations should first focus on addressing the conflict in question and its direct consequences, with climate action and development only able to be scaled up once stability has been restored? While the reluctance to move beyond humanitarian and security responses is understandable in conflict settings given that conflicts cause real operational and continuity challenges, a humanitarian response cannot compensate for the lack of longer-term climate adaptation measures. Waiting for conflicts to end before addressing climate risks is not a viable option: conflicts and instability are often long-lasting, and climate risks compound conflict-related risks, further exacerbating people's vulnerability.⁸ It is therefore critical to understand pathways to climate change adaptation in situations of conflict settings.

⁴ UNEP 2022; WMO 2023.

⁵ The <u>ND-Gain Index</u> summarizes a country's vulnerability to climate change and other global challenges in combination with its readiness to improve resilience.

⁶ ICRC 2020; Peters et al. 2019.

⁷ Recent examples of this recognition include conversations convened around this topic (for instance, by the COP28 Presidency at UN General Assembly (UNGA), UK Foreign, Commonwealth and Development Office (FCDO) at Wilton Park and by groups of humanitarian and multilateral development banks; see UAE 2023, ICRC 2021 and FCDO 2023), the World Bank's acknowledgement of the need to do more in such environments (Van Bronkhorst 2021; World Bank 2019), and several institutional reports on this topic (e.g. Alcayna/Mercy Corps 2022, ICRC *et al.* 2022, IFRC 2022 and UNDP 2021).

⁸ In 2023, the average length of time that the ICRC has been present in each of its ten largest operations (Afghanistan, Democratic Republic of the Congo, Ethiopia, Iraq, Nigeria, Somalia, South Sudan, Syria, Ukraine and Yemen) is 43 years. This does not mean that countries have been in conflict the entire time, but that an ICRC presence continued to be needed.

In late 2022, we set out to document some of our efforts aimed at strengthening people's resilience to growing climate risks in protracted conflicts, in order to complement our earlier analysis on how to unlock access to climate finance in conflict settings.⁹ We also aimed to clarify the extent to which global efforts to strengthen climate action were reflected in the lives of the people we work with. The findings presented in this report explore humanitarian solutions implemented in the Gaza Strip, northern Mozambique and eastern Niger, and their impact on people's daily lives. They are based on interviews with communities, ICRC and International Red Cross and Red Crescent Movement colleagues, authorities, civil-society organizations, donors, humanitarian and development organizations as well as on a review of the existing literature. Data collection took place between October 2022 and July 2023, before violence in Israel and the occupied territories escalated to a level that had not been seen in many years, in October 2023.

By focusing on locations facing different risks – both in relation to conflict and to climate hazards – we tried to identify what factors may be specific to given locations. For instance, we considered the extent to which the intensity of violence, the level of development and the types of risks shape avenues for a response. We also looked at what held true in all locations.

In each location, we saw development sliding backwards. We met people who, in the absence of safety nets and support to adapt to erratic weather, were spiralling into greater destitution as they sought to rethink their livelihoods and how to maintain their way of life with their limited means. Some of the activities that the ICRC implements show that, at the scale of a humanitarian response, it is possible to strengthen the resilience of households, communities and systems in highly unstable settings. But this alone is not enough for communities to adapt to current and future risks. In each location, we were reminded that comprehensive climate adaptation is inseparable from inclusive development. In so many of the places where we work, there is a staggering gap between the commitment to leave no one behind and the reality of the situation – a dearth of infrastructure, an extreme reliance on rainfed (and therefore increasingly unreliable) agriculture, and a lack of preparedness for shocks, even when they are predictable.

The goal of this report is to show that it is possible to strengthen the resilience of communities to growing climate risk in conflict settings, and that this requires a concerted effort by climate-related, development and humanitarian bodies. The first part of the report consists of a brief review of what we know about climate adaptation in situations of conflict. The second part presents observations from the Gaza Strip, northern Mozambique and eastern Niger. The last part highlights the need for climate-resilient development in such environments and ends with a call to make it work. For now, progress is slow and the toll on communities desperately high. This needs to change.



I. ADAPTING TO A CHANGING CLIMATE

Even in stable environments, adapting to a changing climate is a challenging and long-term process that will often require a large-scale social, cultural, political and economic transformation. In 2022, although the *Intergovernmental Panel on Climate Change (IPCC)* reported progress in adaptation efforts across all sectors and regions, it also noted that the current rate of planning and implementation was too low and that adaptation tends to be "fragmented, small in scale, incremental, sector-specific, designed to respond to current impacts or near-term risks, and focused more on planning rather than implementation".¹⁰

The report also notes growing evidence of negative and unintended maladaptive outcomes of poorly planned climate adaptation initiatives. Examples include sea walls that increase flood risks for people living beyond the boundaries of the wall or that cut off fishermen from their livelihoods; irrigation that overly depletes groundwater reserves; support to landowners that reinforces their wealth status over non-landowners; and a focus on more accessible parts of a country at the expense of less-connected groups or areas that are more at risk. Such impacts are often disproportionately felt by already marginalized people and can reinforce, redistribute or create inequities and sources of vulnerability, while adding to the financial and socio-political power of others.¹¹

To avoid maladaptation, measures that enable flexible, multisectoral, inclusive and long-term planning and implementation that are in sync with inclusive development approaches appear key, as are efforts to address the root causes of vulnerability.¹² Rather than building seawalls, for example, this could mean supporting villagers so they can move to higher ground and restoring marshlands that can buffer the coast from storm surges.

IN CONFLICT SETTINGS

Challenges to identifying adaptation pathways and acting accordingly are particularly acute in conflictaffected settings, where the capacity for long-term planning and adaptation is low, and where soft limits to adaptation are quickly met.¹³ There is also limited research into climate adaptation in conflict-affected countries.¹⁴ This heightens the challenge of identifying promising approaches, as there is a limited body of evidence to inform action, and reflects the scarcity of formal adaptation efforts in such environments, as shown by the remarkably low provision of climate finance in conflict-affected settings.¹⁵ There are therefore limitations to our understanding of effective approaches to climate adaptation for communities enduring conflict, which makes it particularly necessary to document experiences.

Challenges to identifying adaptation pathways and acting accordingly are particularly acute in conflict–affected settings.

¹⁰ IPCC 2022a: 20.

¹¹ Bertana 2022; Eriksen et al. 2021: 3-5.

¹² IPCC 2022a: 27; Eriksen et al. 2021: 10; Magnan et al. 2016.

¹³ Adger et al. 2014. Limits to adaptation can be hard or soft. Soft ones often result from financial, governance, institutional and policy constraints that could eventually be addressed (IPCC 2022: 26). Such constraints tend to be high in conflict settings because of the fragility of institutions and governance.

¹⁴ Sitati et al. 2021.

¹⁵ It is difficult to precisely measure climate finance flows, but research consistently shows that the more fragile a country is, the less finance for climate change adaptation it receives (Cao *et al.* 2021: 22). According to the UNDP (2021: 3), from 2014 to May 2021, climate finance from four dedicated funds averaged USD 2.1 per capita in extremely fragile states, compared to USD 10.8 in fragile states in general and USD 161.7 in states that are not fragile.

Several observations can however be made.

First, for responses to be effective they must be adapted to local circumstances. Approaches developed in stable environments tend to be ill-suited for unpredictable ones. Adaptation pathways can also differ between and within countries in conflict themselves: what can be achieved in a place where some infrastructure and basic services are available is different from what might be possible in places where they are lacking or have been damaged or where conflict is more intense.

Second, climate adaptation in all settings, especially those affected by conflict, needs to be sensitive to social and political dynamics. Blindness to the fact that support to certain groups or locations might not yield the same results for all – and may affect existing dynamics of power and vulnerability – could fuel tensions and conflict and result in maladaptation for parts of the community.¹⁶ An analysis of adaptation programmes in places such as Mali, Somalia and Sudan highlight important gaps in their conflict risk analysis.¹⁷ It also shows that a common way to address conflict sensitivity is by avoiding areas of a country that are affected by conflict or not under the control of the government, yet that *de facto* excludes groups that may be particularly vulnerable from adaptation programmes.

Third, a nuanced understanding of historical and socio-political realities that have, for instance, pushed certain people to settle in flood zones or to farm unfertile land, is critical for understanding and addressing sources of vulnerability, which "does not just fall from the sky".¹⁸ Such an understanding is necessary in all settings, and it is particularly vital in places affected by armed conflict. Vulnerability differs within and between communities over time and is not simply the result of exposure to climate risks. The same climate event will have a different impact on different segments of society – urban dwellers, farmers, women, displaced people and the elderly. Responses that overlook why certain groups are marginalized in the first place and how their marginalization is shaped by the resilience, income and power of others may ultimately help maintain the current state of affairs. Such responses will not lead to adaptations that will be appropriate for all members of society and, again, are likely to be maladaptive.¹⁹ Despite this understanding, adaptation programming sometimes assumes that certain communities are necessarily less vulnerable than others. For instance, in the Sahel, the focus tends to be on communities living in visibly arid areas, yet this overlooks the potential vulnerability of people living in greener areas.²⁰

Fourth, in conflict settings, humanitarian organizations have been responding to the impacts of the climate crisis by helping people survive and recover from climate shocks, by placing an increasing emphasis on building resilience ahead of shocks and by taking measures to address residual risks through anticipatory action.²¹ This builds on the understanding that in long-lasting crises, short-term emergency relief should ideally be paired with actions aimed at achieving a sustainable humanitarian impact by reducing vulnerabilities and exposure.²² The role and responsibility of the humanitarian sector in implementing climate-smart responses and preserving the environment, which people rely on to survive, are reflected in the widely embraced Climate and Environment Charter for Humanitarian Organizations, although more needs to be done to turn ambitions into practice.²³

Fifth, helping societies cope with current and future climate risks in conflict settings requires more than a humanitarian response. Even though humanitarian action can form a valuable foundation for climate adaptation through incremental measures, it lacks the scale and capacity to help communities adapt effectively to current and future climate impacts. Humanitarian action cannot, for instance, support transformative adaptation to make agriculture and food systems climate-resilient or guarantee sustainable access to water

21 Knox Clarke 2021; De Geoffroy et al. 2021.

23 Levine 2022: 1–2.

¹⁶ Eriksen et al. 2021: 4; Peters et al. 2020.

¹⁷ Cao et al. 2021.

¹⁸ Ribot 2013: 175.

¹⁹ Eriksen et al. 2021: 6; Taylor 2015: 79-80.

²⁰ Levine 2022: 1-2.

²² Schmitz Guinote 2020: 1055–56.

for the foreseeable future. Because it is not the role of humanitarian organizations to define the long-term desired future for a society to adapt in an inclusive manner, humanitarian responses naturally tend to protect and preserve existing systems and practices rather than reconfigure systems and practices under threat from a changing climate.²⁴

Finally, in some cases, preserving existing arrangements can have negative impacts for communities. For example, helping communities remain in place by providing livelihood support can end up keeping people in environments that are becoming unliveable. Yet predicting maladaptation can be challenging, as the long-term impact of an action on people's lives and livelihoods, and on the dynamics of power and vulnerability, is not always obvious.²⁵ This is likely to be particularly acute in conflict settings, where data to assess long-term climate and environmental trends are often scarce – and where social and political dynamics are fluid and complex.

Climate, conflict and collaboration

It is generally agreed that climate change does not directly cause armed conflict, even though it can have a highly disruptive impact on societies. Evidence suggests that cooperation – rather than conflict – within and among communities is the most frequent response to resource scarcity.²⁶ Within certain socio-economic and political contexts, climate-related hazards may exacerbate tensions or increase the likelihood of disputes over resources. Economic and political factors, such as a history of social exclusion, existing conflict and grievances, economic risks, environmental degradation and tensions over resource management, are more important in determining whether armed conflict or violence occurs.²⁷

Where climate-related hazards contribute to tensions and violence, even indirectly, the relationship is non-linear and situation-specific. For example, in different settings links have been drawn between high levels of rain, low levels of rain, intense rains and dry spells to both a lull and a surge in intercommunal tensions. In other settings, similar conditions have had neither effect.²⁸

Strong governance capacity and inclusive institutions can help countries mediate potential disputes and avoid violence.²⁹ Countries affected by armed conflict, other situations of violence and fragility tend to lack these capacities. In these environments, climate change can exacerbate tensions and affect conflict dynamics through its impact on people's livelihoods, patterns of migration and displacement, competition over scarce resources and the strategies of armed groups.³⁰ Climate variability and extremes may contribute to or prolong armed conflict by weakening communities, institutions, systems and other coping mechanisms.³¹ Extreme events can aggravate interpersonal and communal violence, and climateinduced fluctuations in access to resources can enhance the risk of localized tensions, such as between farmers and herders.³²

- 26 Dinar et al. 2015; Theisen 2012.
- 27 Hendrix et al. 2023; Ide et al. 2023.
- 28 Selby 2014.
- **29** Hegre *et al.* 2016.
- 30 SIPRI 2020.
- **31** Koubi 2019: 348.
- 32 Hendrix et al. 2023.

²⁴ ICRC 2020.

²⁵ For instance, Jones (2015: 3) ask: "Take the introduction of an irrigation system in central Mali that has resulted in a significant and prolonged reduction in farmers' vulnerability to changing rainfall patterns over a 20-year period, with a relatively small increase in risk towards the very end of its lifecycle (perhaps owing to groundwater depletion). Should this be classified as maladaptation?"





The Gaza Strip, northern Mozambique and eastern Niger are all experiencing protracted conflict, instability and a highly precarious security situation. In all three places, people's safety and dignity are jeopardized by repeated climate shocks and weather variations that destroy homes and infrastructure, reduce agricultural productivity, limit access to water and create fertile ground for health problems. In each location, the ICRC aims not only to respond to emergency needs, but also to strengthen people's resilience to all types of shocks and to learn from its experience to improve current and future responses. It carries out its activities in partnership with National Red Cross and Red Crescent Societies, civil society organizations, public authorities and service providers.

In each location, the ICRC aims not only to respond to emergency needs, but also to strengthen people's resilience to all types of shocks and to learn from its experience to improve current and future responses.

These efforts are informed by local knowledge and ICRC experience, and supported by operational guidance developed jointly with the Red Cross Red Crescent Climate Centre, to ensure that climate and environmental risks are consistently incorporated into the ICRC's response.³³ In some cases, development organizations have provided financial support for these activities. This reflects a recognition of ways in which humanitarian programming can help limit development reversals, and ideally, to lay some of the groundwork for further efforts towards sustainable development. It is also an acknowledgement that humanitarian organizations can have a sustainable impact in environments where traditional development approaches encounter limits.

Conflict dynamics, climate risks and development levels are different in each of these locations. In Gaza, a relatively high level of development has been compromised by decades of conflict and restrictions on the movement of people and goods, while hot and cold spells and environmental degradation are putting communities and systems under increasing stress. In Cabo Delgado, Mozambique, a history of low investment and marginalization, combined with repeated tropical storms characterized by flooding and strong winds, has resulted in wide development gaps in basic infrastructure and service provision. In rural areas of Niger, the development deficit is also blatant: there is little infrastructure outside urban centres, and people's reliance on rainfed agriculture and pastoralism is increasingly threatened by erratic rainfall and extreme weather events.

The scope and nature of the response is tailored to each situation. Our work in Gaza is geared towards supporting communities and reinforcing critical infrastructure. In Cabo Delgado, the ICRC has been responding to urgent needs resulting from violence and large-scale internal displacement; it has also sought to maintain and expand basic infrastructure in view of severe problems among rural and urban communities stemming from unreliable access to water. In Niger, the ICRC makes a conscious effort to integrate longer-term environmental and climate risks into the design of long-lasting livelihood and water activities so as to avoid doing harm, reduce tensions and provide quality humanitarian support, in line with the organization's approach in other countries of the Sahel.

In all three locations, it was clear that it is possible to reduce the vulnerability of people and systems to shocks, and that there is space for collaborating with others to respond on a larger scale and to longer-term risks.

³³ As part of its plan of action to implement the Climate and Environment Charter for Humanitarian Organizations, the ICRC has committed to integrating climate risks across all its programmes by 2025 (ICRC 2021); see also Schmitz Guinote 2019 and ICRC 2021a.

Freshly picked olives in a basket, Gaza Strip.

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8

A. GAZA STRIP



* Human Development Index (HDI)

Note: Data collection for this case study took place in October 2022. In October 2023, violence escalated to a level that had not been seen in many years in Israel and the occupied territories. At the time of writing, the residents and critical infrastructure have been severely impacted.

Gaza's exposure to climate risks is similar to that of its neighbours. By 2050, Gaza is predicted to see up to 20 per cent less rainfall than today, with rain coming less frequently and in more extreme and unpredictable patterns. Temperatures are expected to continue to rise, by up to 2.5 degrees by 2055, accompanied by increasing dry spells, droughts and heatwaves. In winter months, cold snaps will become more frequent. A rise in sea level poses the threat of coastal erosion and saltwater intrusion into Gaza's already depleted, contaminated and over-extracted aquifer, while groundwater and soil pollution and waste disposal problems are exacerbating environmental degradation.³⁵

We are suffering from climate change. We lost half of our harvests, and the olive oil yield is low. We are impacted by something we didn't cause.

This quote comes from a mukhtar from Qarara, in south Gaza, who describes how erratic weather, water scarcity, soil salinity and new and persistent pests have made farming unreliable in the last three years. "I used to plant okra and watermelon in February. Now I do it in mid-March, and I end up losing all of my plants."

Farmers remember a time when they grew zucchinis, watermelon, okra, tomatoes, peas, dates and olives. Productivity was high, even though the fields in the sensitive security zone near the barrier separating Gaza from Israel are small, and despite restrictive rules on construction and development. In the past, dependable yields fed the community and sustained the economy. This is no longer the case. Planting calendars have become less reliable, and yields are smaller. The risk of losing full harvests looms constantly. In a place like Qarara, where 70 per cent of the 35,000 residents rely directly on agriculture, farming woes jeopardize the entire community's economic security.

³⁵ UNEP 2020: 90.

All of this takes place in an environment shaped by the long-running conflict in Israel and the occupied territories and the 16-year blockade of the Gaza Strip, which hampers people's ability to move around, adapt their livelihoods and absorb losses. The conflict and blockade prevent people from seeking more productive land, and the decimated economy presents few alternative for making a living. Limitations on the equipment and supplies allowed into the territory mean that potential transformational and coping capacities – the ability to store, preserve and export surplus crops, or to turn a poor harvest into a marketable, albeit inferior, product – are limited.³⁶ Farmers report that they rely increasingly on pesticides to maintain yields (which increases environmental pollution), and on irrigation to make up for what the Ministry of Agriculture calls "unsustainable" rainfed watering (which further strains the already over-depleted and saline aquifer).³⁷

These compounding impacts are glaring in Gaza's agricultural sector, but they are also felt across the territory. Throughout Gaza, access to water and energy are unreliable and dependent on external suppliers, in particular Israel.³⁸ Growing population density is pushing people to live in flood-prone areas and putting increasing pressure on already strained resources. Palestine Red Crescent Society volunteers, who help respond to flooding and cold snaps each winter, describe increasing damage to their own homes from flooding, particularly in exposed and vulnerable areas including settlements near seasonal rivers and refugee camps along the coast. As in many countries, the National Society is involved in preparing for and responding to disasters, with the support of the International Federation of Red Cross and Red Crescent Societies (IFRC).³⁹

Professor Husam al-Najar, who teaches environmental engineering at the Islamic University of Gaza, explains that the flooding, which is a result of more intense rains as well as weaknesses in the areas of urban planning and water management, also presents a longer-term threat: as the overflow follows paved paths of least resistance towards the sea, valuable fresh water that could be retained and treated or absorbed naturally to replenish the aquifer disappears. "Nearly half of the rainwater Gaza used to retain each year is now lost."⁴⁰

STRENGTHENING PEOPLE'S RESILIENCE IN AN OVERBURDENED ECOSYSTEM

Gazans have long been adapting to and hedging against shocks. The ICRC is supporting their efforts by building on its long-standing presence in Israel and the occupied territories and on its relationships with communities and service providers across Gaza's fractured governance. This work is informed by the growing recognition that people and systems need to be resilient not only to the shocks resulting from the conflict but also from a more extreme and erratic climate. The ICRC's Gaza Resilience Programme aims to analyse and learn from the effect these compounding shocks have on communities in Gaza, to address multifaceted risks to people's health, access to services, livelihoods and security due to escalations in the conflict, limited economic opportunity and climate and environmental risks.⁴¹

A lack of access to electricity is one such multifaceted risk. Gaza's power grid has historically been highly susceptible to escalations in violence, with most supply dependent on Israel and subject to suspensions, and with local production vulnerable to damage resulting from escalating violence.⁴² To prevent the failure of essential services during periods of heightened violence, the ICRC has, during periods of relative calm, installed backup power lines for critical infrastructure and solar-power facilities that water utilities depend on, along with

42 UNEP 2020: 51.

³⁶ Casas 2020: 24.

³⁷ Al Abadla 2021; RCRC Climate Centre 2021a.

³⁸ MFA Netherlands 2018; UNCTAD 2017.

³⁹ National Red Cross and Red Crescent Societies are at the forefront of the Movement's ambitions to address the climate crisis. The IFRC supports their work, leading and coordinating efforts to scale up the humanitarian response, disaster risk reduction and climate resilience, while the Red Cross Red Crescent Climate Centre provides technical and scientific analysis and guidance on climate science and the humanitarian consequences of climate change. The ICRC, working closely with other Movement components, communities, states, academics and the private sector, aims to strengthen peoples' resilience to the risks that arise when climate change and armed conflict or other violence converge. For more see IFRC 2020.

⁴⁰ Aish 2021.

⁴¹ For more on the Gaza Resilience Programme, see Hafiz 2022, ICRC 2022b.

net-metering systems, in collaboration with local authorities and service providers. This results in more reliable electricity access for hospitals and water utilities when violence ramps up and extreme weather events occur. It also allows these installations to feed power back into the grid when any surplus is generated.

This work is informed by the growing recognition that people and systems need to be resilient not only to the shocks resulting from the conflict but also from a more extreme and erratic climate.

This work is also an investment in Gaza's capacity to adapt to climate risks: it enhances access to electricity during heatwaves and floods, makes access to health care more reliable, protects cold chains and maintains stable water treatment capacity. This is important for preventing health hazards caused by sewage overflows that can mix with floodwater during heavy rains, contaminating water and polluting the coastline. Efforts are ongoing to replicate some of these systems at the household level by installing solar micro-grids in specific neighbourhoods and remote communities.

In a similar vein, as a lack of access to water also creates significant risks for communities, the ICRC is also helping service providers and local authorities maintain the water system. It facilitates the purchase and import of spare parts for the system and contributes a substantial portion of the water utility's maintenance budget to keep reservoirs, pumps and pipes in working order. It has installed remote management infrastructure to ensure that the system continues to run during periods of violence. This helps respond to the demand for water and the strain the conflict places on Gaza's people, systems and infrastructure.

As one of the few humanitarian organizations operating close to the barrier separating Gaza from Israel, the ICRC has been working with farmers who have to adapt to the impacts of climate change and environmental degradation. Over 30 per cent of Gaza's arable land lies in a restricted zone close to the barrier, where people face heightened risks from the conflict and where there are limits on what can be built and grown and on who can access land and resources. This has become more of a concern as Gaza's population grows and its urban settlements expand towards the barrier and encroach on farms and plantations.⁴³

In places such as Qarara, farmers have been given support to build ponds to conserve water, install black mesh over greenhouses to reduce heat, and retrofit poultry farms with raised floors to reduce heat stress on the animals and guard against micro-bacterial resistance. Bio-traps, produced locally from recycled plastic, counter pests and reduce reliance on pesticides; since they are passive and do not require maintenance, they also help protect crops during periods of violence when it becomes too dangerous for farmers to go to their fields. Insulated beehives have led to higher honey yields that are resilient to cold spells and heatwaves, and this has diversified people's revenue streams.

SUPPORT FOR A DECAYING SYSTEM OF ESSENTIAL INFRASTRUCTURE

Activities are being carried out to support people in the border areas and strengthen the resilience of systems and infrastructure to conflict- and climate-related shocks by building redundancy into energy and water supplies and increasing the resilience and reliability of essential services. These efforts are critical but far from sufficient.

Improvements to the power grid have had positive impacts, but without the necessary investments Gaza will continue to rely on local diesel generators and external power suppliers. Financing is needed to strengthen the grid across the territory, build power-generation capacity and feed solar electricity back into the system (rather than earmark it for specific buildings or users). The aquifer will continue to be over-extracted unless large-scale improvements are made to desalination capacities or until water-sharing arrangements with

authorities in the West Bank, in Israel, and across the region improves. Owing to the transborder nature of many climate and environmental risks, solutions are likely to require cooperation and coordination across conflict lines.

Similarly, while there is some focus on decreasing Gaza's overreliance on its natural aquifer, the very health of the aquifer is at risk due to many factors other than climate change. These include over-extraction and contamination from upstream sources – two trends amplified by climate change.⁴⁴ Higher temperatures and longer dry spells lead to additional extraction, and more intense flash flooding means rainwater that would otherwise fill the reservoir is lost to sea. In addition, a rise in sea level threatens to exacerbate saline infil-tration. While solutions to these issues theoretically exist, the conflict and blockade mean that many of them – large-scale desalination, regional cooperation to conserve and rehabilitate the aquifer, and cross-border water management – are difficult to put in place.

Higher temperatures and longer dry spells lead to additional extraction, and more intense flash flooding means rainwater that would otherwise fill the reservoir is lost to sea.

In the absence of these changes, there are instances where effective and feasible responses could be implemented at scale and make a difference. One such case is support for farmers: better coordination between humanitarian organizations working in different areas of Gaza could lead to improvements in animal health across most of the territory.

Environmental degradation, armed conflict and international humanitarian law (IHL)

The natural and human environment in Gaza is under enormous pressure from climate change, humanmade pollution and armed conflict. Conflict has repeatedly damaged homes, farms and critical systems that provide access to electricity, sanitation and water. In Qarara, a farmer for over 30 years described how climate change was amplifying the risks caused by the conflict and occupation, and the impact this has had on her life and both her and her family's mental health.

The impact of environmental degradation on conflict-affected people can be severe, potentially affecting their well-being, health and very survival. Environmental degradation also combines with climate risks to make people's daily survival even harder. For instance, damage to the electricity infrastructure in Gaza when hostilities escalate has caused sewage infrastructure to fail, leading to environmental contamination.⁴⁵

While a certain amount of environmental damage may be inherent to armed conflict, IHL contains rules that protect the natural environment and seek to limit the damage caused to it by conflict. For example, rules governing the conduct of hostilities protect civilian objects, including all parts of the natural environment and civilian infrastructure. In 2020, the ICRC released its updated Guidelines on the Protection of the Natural Environment in Armed Conflict, drawing attention to IHL rules and recommendations aimed at protecting the natural environment in armed conflict. Greater respect for these IHL rules can limit environmental degradation and reduce the harm and risks – including those related to climate change – that conflict-affected communities are exposed to.

Children play near a puddle in Gaza.

B. MOZAMBIQUE



Mozambique's high vulnerability to climate risks results from its exposure to extreme weather, but also from low levels of development – most apparent in the dearth of infrastructure beyond the main urban areas, limited access to education and few livelihood opportunities – and a highly unequal distribution of wealth. The country averages one major cyclone every two years, but that is expected to increase, with more years like 2019, when Cyclones Kenneth and Idai brought devastation, and 2022, when three cyclones hit over a three-month span.⁴⁶ By 2050, mean temperatures are projected to increase by at least 1.7°C with rainfall throughout the year decreasing by up to 12 per cent.⁴⁷ These changes are likely to be accompanied by less predictable planting seasons, decreasing yields, new agricultural pests and changes in regional productivity.⁴⁸ Frequent and intense tropical storms already wreak significant damage on people's lives and livelihoods, the national economy and critical infrastructure. One donor, for example, estimates that the number of new schools built in the country every year is equal to the number destroyed by tropical storms.

There used to be food all year round. Now there is only food for four months, because of the heavy rains. We have no way to protect the crops.

A group of women in Upaju, a village on the outskirts of Montepuez, the second biggest city in Mozambique's northern Cabo Delgado province, describes how changing weather patterns are threatening the community's food security (the quote above comes from one of them). Montepuez District, an inland region, has received more than 80,000 people who have been internally displaced by the conflict since 2017 and have settled in and around urban areas.⁴⁹ In total, over one million people across northern Mozambique have had to leave their homes.⁵⁰

49 IOM 2023.

⁴⁶ Sturridge 2022: 16.

⁴⁷ Hunter *et al.* 2020: 7.

⁴⁸ NDC Mozambique 2021, World Bank 2023.

⁵⁰ UNHCR 2023.

Displaced people have been struggling to access essential services and meet their basic needs. Even before the armed conflict resumed in 2017, Montepuez suffered from years of under-investment in essential services. Cabo Delgado's residents rank below the national average in access to safe sanitation and safe water sources, and the province has the second-lowest rate of access to electricity nationally.⁵¹

In the area surrounding the city of Montepuez, many displaced people have been trying to farm, with varying degrees of success and access to land. Some, who came from coastal communities where they relied on fishing, had to change their profession entirely.⁵² As they lack farming skills, their struggle to survive has been even more acute.

Host communities are also under pressure and are having to rethink their members' livelihoods because of unpredictable weather and the increasing strain on local resources owing to greater population density.⁵³ Insufficient investment in the agricultural sector meant that, in some cases, communities in search of fertile soil and water chose to farm along the banks of semi-permanent streams, taking a calculated risk that their harvest would not be destroyed by a sudden surge.

But people increasingly need to reassess their practices, as less predictable and more intense weather increases their risk exposure and decreases their productivity. Although inland areas are relatively spared from the worst impacts of the severe tropical storms that Mozambique is known for, growing climate variations and unreliability in weather patterns are affecting communities throughout the country.⁵⁴ More frequent floods threaten croplands, especially those close to seasonal streams. They contribute to water contamination and increase the prevalence of diseases such as cholera, malaria and measles – all of which are sensitive to climate change – while an unreliable power supply to health-care facilities limits the provision of care.⁵⁵

Shorter rainy seasons and hotter temperatures also affect the agriculture sector, on which 80 per cent of the country's people rely for income.⁵⁶ Alternative livelihood options are scarce – charcoal production and forestry are often tenuous sources of income and further damage the environment.⁵⁷

THE NEED TO SCALE UP EARLY WARNING AND EARLY ACTION

Just as climate shocks compound the risks that communities experience because of conflict – people reported that some of the routes they could have taken to flee from attacks in coastal cities were damaged by Cyclone Kenneth – the conflict has complicated efforts to prepare for and warn communities about climate risks and impending shocks. Disaster risk reduction experts who previously worked in local government facilities have left because of the violence. A system of local risk reduction committees once existed in Cabo Delgado, as in other parts of the country, but since 2017 most of them have been inactive, despite various efforts by local authorities and humanitarian organizations to support or re-create some of them.

As a result, early warnings are not systematically provided to all communities or do not reach all segments of communities. In Upaju, people said they received no warning ahead of severe storms (see text box). In another village, Campona, people reported receiving early warnings from schoolteachers, through their children. Volunteers with the Mozambique Red Cross Society in Montepuez, the closest urban centre, describe receiving early warnings did not come with instructions clarifying where to find dedicated shelters or the best routes to safety, or how to reinforce homes and protect fields

⁵¹ UNICEF 2022; World Bank 2023.

⁵² IOM 2023.

⁵³ Sturridge 2022: 6.

⁵⁴ The north of the country has been relatively spared by extreme storms – Cyclone Kenneth's landfall near Pemba, Cabo Delgado, in 2019 was unusual (Mawren 2020). Yet since 2020, Northern Mozambique has been hit by two cyclones, three tropical storms, and regular flooding (OCHA 2023).

⁵⁵ USAID 2018: 18.

⁵⁶ The government estimates that yields could decline by up to 25 per cent in some regions in the coming years if there is no shift in agricultural approaches (NDC Mozambique 2021: 35).

⁵⁷ Global Forest Watch 2023.

to minimize damage from flooding, heavy rains and strong winds. One of the volunteers describes having to deal with these problems alone: "When there are big storms, there's a risk of trees falling on your house. You then depend on yourself to fix the damage. You cannot rely on a system or the authorities to help you."

Early warnings are not systematically provided to all communities or do not reach all segments of communities.

In Campona, community members described how they developed their own preventive measures to protect their homes and fields from storms. Before a storm hits, they fill sandbags to weigh down roofs and reinforce structures with branches; after a storm, they use sticks to prop up corn stalks.

Reality check: The challenges of early warning and early action for all

As we tried to understand if people received a warning ahead of a shock and knew how to react, it became clear that there was a plethora of obstacles – such as limited access to radios and telephones, illiteracy, a lack of community preparedness and the absence of safe spaces. In the village of Upaju, where heavy rains regularly damage homes and harvests, a group of 19 women – 12 of them displaced since 2020 – said that they received no warning ahead of storms. We asked if they owned radios. No one did, as they are too expensive and all available money goes towards food. Five of the women owned cell phones from before they were displaced, when they had good harvests in their home region. Still, they noted that receiving a warning on their phone ahead of a storm was virtually impossible, for two reasons: even though they had phones, they could not pay to charge them; and even if they could charge them, reading a message would be complicated, as only one person in the group could read.

BUILDING FOR NOW, PLANNING FOR THE FUTURE

The ICRC began working in Cabo Delgado in 2017 in response to the armed conflict. The organization has focused on providing support to people internally displaced by the violence, reuniting families separated because of displacement, and on strengthening essential services for those who have been displaced and their hosts.

The demand for water in the city of Montepuez and its surroundings grew with the arrival of displaced people, as existing sources of water were unsafe and insufficient. The ICRC teamed up with local authorities to improve access to safe water by rehabilitating and expanding the city's urban water system and installing ten autonomous solar-powered wells at sites housing displaced people. Doing this sustainably required intensive upgrades to the whole system: new pumps at the water source, upgraded storage facilities and underground pipes to transport water to communal taps. As a result, there are more water points and they are located in well-lit public areas, thus reducing the risks associated with collecting water. They are also public – open to both displaced people and their hosts – in an effort to reduce potential tensions over access.

To support these investments, the ICRC, in collaboration with the water authorities, commissioned a citywide water master plan with future growth estimates. The master plan can be implemented, without the ICRC's involvement, in support of Montepuez's further development. It identifies additional potential sources of water to meet increasing demand, and pipes and pumps were installed so that, in the future, feeder lines can be put in place to directly connect homes, businesses and health centres with the main supply. Access to water is a key component of adaptation, especially when other sources – rainfall, surface water and local-ized wells – depend on weather conditions. The system itself was also designed to be resilient to storms and floods, with major pipes buried underground and above-ground components built to withstand extreme weather.

Other activities also support communities in anticipating climate risks. Drought-resistant seeds are distributed to farmers at several displacement sites. In both inland and coastal areas, the ICRC has helped local health authorities by renovating and building health-care centres with sustainable access to water and reliable energy. The facilities contribute to people's resilience by ensuring they can get the health care that they need, including for the treatment of climate-sensitive diseases.

The ICRC, in collaboration with the water authorities, commissioned a city-wide water master plan with future growth estimates.

STRUCTURAL WEAKNESSES AND REGIONAL GAPS

While the ICRC's support for the water system in Montepuez helps ensure people have reliable access to water, there are limits to the scope of this contribution. The system depends on a constant flow of electricity to feed a series of pumps and boreholes. If that flow is interrupted, so does the water. Most power outages are caused by storms, when electricity lines are downed by wind or falling trees. As the climate changes, such weather events are expected to be more frequent and more severe. To mitigate this risk and ensure the water system runs reliably, redundancy will need to be built into the electricity grid – perhaps province– or nation–wide.

The low level of investment in preventive infrastructure exacerbates the consequences of climate extremes. At the same time, the absence of early warning systems means communities are at greater risk from these events. Municipal, provincial and national authorities in the province and in Maputo are well aware of local climate risks and have strategies to help people safeguard their livelihoods, yet extreme resource constraints mean they are limited in what they can do with this information. Weather forecasts need to be translated into tailored warnings that can be understood by communities with low literacy rates; early action and early warning protocols need to be developed; and communities need help adapting their crop rotations in response to erratic weather – yet all these things take time, training, transportation and facilities.⁵⁸ These resources are not available at the needed scale from local chapters of the National Society, community extension services or the national disaster management agency. According to one technician with the Ministry of Agriculture's extension service in Montepuez, "Of the 35 officers we have, only 11 or 12 have a means of transport to visit communities." The regional tropical cyclone centre in La Réunion provides reliable forecasts, yet gaps in the last mile of early warnings prevent this information from getting through to communities in the grip of conflict and violence.

More broadly, Cabo Delgado is not currently prioritized in the substantial disaster risk reduction and climate adaptation efforts being made across Mozambique. The country's high vulnerability to major, sudden-onset climate events such as cyclones has generated interest and support for this work. Yet initiatives are often driven by an assessment of pure exposure to climate risk, meaning that areas of the country that are vulner-able owing to underlying conditions are not prioritized.⁵⁹ This, and the risk of operating in places affected by conflict, have left Cabo Delgado excluded and underserved.⁶⁰

⁵⁸ In 2020, the illiteracy rate for Cabo Delgado was over 12 percentage points above Mozambique's national average (52.4 per cent in Cabo Delgado compared to 39.9 per cent nationally). Cabo Delgado also performed worse than the national average in terms of child poverty, school completion rate, and access to basic social services (UNICEF 2022). In a country that has some of the highest wealth inequality in the world (ranked eighth on the 2023 GINI Index), Cabo Delgado province ranked second in the country in terms of the proportion of the population living below the poverty line (World Bank 2023: 10).

⁵⁹ IIED 2022: 13.

⁶⁰ Among many climate adaptation initiatives in Mozambique, the United Nations Capital Development Fund's Local Climate Adaptive Living Facility (LoCAL) has been significantly scaled up across the country with 20 local action plans developed with provincial governments. While there are currently plans to expand the programme to Cabo Delgado, none of the initial municipalities to receive support were in the province (UNCDF 2022).



Fatima Nvita draws water from a new water point in Montepuez.

A woman with her child in Diffa region.

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C. NIGER



Droughts, agricultural productivity challenges, food crises and desert encroachment are not new to Niger and, since the great drought of the 1970s, have been on the top of the country's political agenda.⁶¹ Farmers and herders are highly vulnerable to growing climate risks. Climate impacts are expected to become more severe as temperatures rise (+2.1°C by 2030 and between +2.5°C and +2.7°C by 2050, depending on the emission scenario), and the irregularity and intensity of rainfall cause flooding, droughts, increasingly intense sandstorms, locust invasions, infectious disease outbreaks, pond and lake depletion, and the sedimentation of surface water sources. These changes are expected to result in a shift in agroecological zones, which, in turn, will have significant impacts across sectors, including in the areas of food availability, health, access to clean water, the economy and livelihoods.⁶²

Herders are encroaching on cultivation areas, while farmers are encroaching on grazing areas and transhumance corridors. The Sahelian ecosystem is in disarray.

The above comment is part of the description offered by an ICRC colleague in Niger of how the historical equilibrium between pastoralism and agriculture has been jeopardized by environmental degradation and erratic rains, instability, conflict, population growth, and governments' limited ability to implement and enforce the law and ensure the sustainable and equitable management of increasingly scarce resources.⁶³ Ways of life and livelihoods that have long been understood as complementary – animals provide milk, labour and manure to fertilize soils, while crop farmers provide food for humans and animals – are in competition, which can trigger intercommunal tensions.⁶⁴ With some 80 per cent of the population relying on rainfed subsistence farming and livestock breeding, this is a further burden for communities that are already stretched.⁶⁵

⁶¹ Daouda 2015; the government has adopted a series of plans and policies on sustainable development and mitigation and adaptation to climate change. Recent frameworks include the initiative Les Nigériens Nourrissent les Nigériens, Niger's National Adaptation Plan (2022) and the updated Nationally Determined Contribution (2021).

⁶² AfDB 2018; Potsdam Institute 2021; RCRC Climate Centre 2021.

⁶³ Key decrees adopted in 1993 and 2010 regulate the use of the land by herders and farmers, defining areas that are protected for pastoralism and farming (see FAO 2021).

⁶⁴ FAO 2021; Shettima 2008; World Bank 2018: 79.

⁶⁵ FAO 2023; some 74 per cent of Niger's population lives in multidimensional poverty (UNDP 2021).

Shifts in rainfall and water flows have led to changes and growing unpredictability in farming. These effects are clear in the eastern part of the country, where community members were interviewed for the purposes of this case study. For instance, over the last decade, farmers in Chetimari, in eastern Niger, who repeatedly lost their harvests because of increasingly frequent flooding from the Komadougou river, modified their farming calendar. They stopped sowing during the rainy season and started planting in the flood plains once the rains were over – they did this by trial and error, without any institutional support. Even with such adjustments, the mayor of Chetimari reports that harvests do not meet the community's needs and that the failure to properly manage water resources leads to severe losses in workable land – he notes that the community lost an estimated 9,000 hectares of paddy fields in 2022.

While erratic weather is further threatening already deficient agricultural productivity in eastern Niger, security problems, no-go areas and restrictions on people's movement are further reducing areas accessible for farming and livestock breeding.⁶⁶ Harouna⁶⁷ used to keep his 100-strong herd in the vicinity of Lake Chad where he had access to water and could move between Niger, Nigeria and Chad to find grazing land. He was forced to leave eight years ago and ended up settling near the rural village of Kablewa, north-west of Diffa. "When we arrived here, we were given some land to farm, but the yields are meagre and unpredictable. Without access to the lake, it has become difficult to keep animals." He has managed to hold on to some 20 small animals, but this is not enough to feed his family. He now cuts wood – further contributing to deforestation, which exacerbates desertification, soil erosion and water run-off – and seeks menial employment in Kablewa.

As villages along the lake were deserted, Kablewa's agropastoral population nearly doubled, leading to increased pressure on the land for farming and grazing needs, competition around water points and greater deforestation. The growing population density and limited access to some parts of the region have led to a further decline in food production and a concomitant rise in food prices (of 10 to 30 per cent, depending on the type of food, according to ICRC estimates). At the same time, livestock selling prices have plummeted, as herders can no longer reach faraway markets to sell their animals. Alternative livelihood options are few. In the past, men would work seasonally in Libya and Algeria, to the north, but such movements have become too unsafe. And jobs in urban centres are not readily available for people with a limited education or none at all.

LEARNING TO IMPROVE RESPONSES

In Niger, as in many other conflict areas, the ICRC has long been implementing a combination of programmes to protect the physical integrity and safety of people enduring conflict and to strengthen their food and economic security and access to water and health care. The organization's activities include, for example, bilateral dialogues with belligerent parties, emergency food distributions, livelihood support for farmers and herders, well-digging, support for the development of urban water infrastructure, and the construction of health facilities. These activities are often undertaken in partnership with the Red Cross Society of Niger and local authorities.

In the absence of social safety nets, the poor are becoming poorer and more vulnerable.

But year after year, ICRC teams in Niger witness the same problems. With the lean season comes food insecurity. Yields are becoming less reliable, and herders are losing animals and having to sell at discounted prices. In the absence of social safety nets, the poor are becoming poorer and more vulnerable.

Temporary and isolated actions cannot solve such profound problems, however. ICRC teams thus started considering ways to further strengthen the resilience of herders and agropastoral communities, building on existing activities and experience. They recognized from the onset that this would require a long-term invest-ment and an in-depth understanding of local circumstances, as, one ICRC colleague pointed out, "livestock

66 AfDB 2018.

⁶⁷ This name has been changed to protect the person's privacy.

wells can turn into conflict wells". The aim was to take into account all risks that exacerbate communities' vulnerability, from chronic food insecurity and farming problems to conflict-related risks and displacement, all of which lead to higher concentrations of people in certain areas.

As it did in Gaza, the delegation teamed up with local experts and embarked on a learning process to deepen its understanding of people's reality and how they adapt. They also explored low-tech solutions that would be owned by the communities (and therefore sustainable), reinforce people's coping strategies and help mitigate tensions between communities by reducing competition for land and water.

A study on the specific vulnerability of herders and ways to support them was led by local experts. Another study by the Groupe URD, carried out by local and international researchers, looked at the impacts of climate change and environmental degradation on communities and assessed how its programmes could be further tailored to integrate these dimensions in places that had been pre-selected by the ICRC delegation.⁶⁸

This first layer of work reconfirmed the importance of analysing the extent to which livelihoods are interconnected and provided an analysis of the short- and longer-term impact of changes to the climate and the environment on people's lives. It also led to the exclusion of one of the sites that had been pre-selected in Tillaberi, in western Niger, by the ICRC. It was concluded that while a humanitarian response was needed in the peri-urban zone, any support for farming activities could exacerbate already high tensions between the host community and a large population of internally displaced people, notably in connection with unresolved land tenure issues. The fact that the displaced people's presence may have been only temporary – because of the possibility of returning home, but also because they could be resettled to a more suitable location, as local integration was not a desired or viable solution – was also considered inconducive to designing a longer-term action.

In 2022 and 2023, the ICRC began piloting an initial set of activities in Diffa and Tahoua with both humanitarian and development funding. Kablewa is one of the locations where support was provided for the creation of 180 kilometres of firewall strips to protect grazing land from bushfires, for the desilting of vaccination parks and for animal vaccination services. In Chetimari, the community received support to strengthen flood protection and water management for rice cultivation, in part through the construction of flood dikes. These efforts to strengthen both food and economic security were designed with and implemented by the community. This helps ensure that local knowledge is built into the response, and that it is owned by the communties and, therefore, more sustainable.

Complementary activities are being planned with the community to further protect herders' and farmers' livelihoods and reduce tensions. These include the creation of livestock feed banks, training for breeding assistants, technical and financial support to help women's associations market and process milk, the marking of transhumance corridors, and awareness-raising among rural communities in partnership with the Centre for Humanitarian Dialogue. Actions are also planned to help farmers through land reclamation, dune fixation and the provision of locally adapted seeds. The rehabilitation and establishment of water infrastructure and the creation of grain banks will benefit the whole community. Actions aimed at preserving the environment, such as transforming waste into marketable products (like fertilizer), reducing wood cutting through more efficient stoves and turning invasive plants into charcoal, are being explored in partnership with a local waste management and recycling organization. Collaboration with the Luxembourg Red Cross, which has specific shelter expertise, is also being considered.

These programme goals are in line with Niger's adaptation priorities. Some of these actions – such as creating and maintaining firewall strips – would typically be carried out by public agencies, but these have long ceased operating owing to a lack of means and capacity, not to mention the long-standing conflict-related risks that have limited their access to some regions.⁶⁹

⁶⁸ Grünewald *et al.* 2022.69 Niger 2022; World Bank 2018: 63.

MOVING BEYOND A HUMANITARIAN RESPONSE

In certain places, ICRC activities can increase livelihood security and reduce environmental damage and tensions surrounding the use of resources. As elsewhere, the challenge lies in the need for such programmes to cover multiple communities and be bolstered by a longer-term, larger-scale vision of sustainable access to water, sanitation, health care and energy. Achieving that vision will require solutions that are environmentally sustainable and that facilitate economic diversification – in particular towards less climate-vulnerable livelihoods.

The challenge lies in the need for such programmes to cover multiple communities and be bolstered by a longer-term, larger-scale vision of sustainable access to water, sanitation, health care and energy.

For instance, despite having some significant water resources, Niger's water security is highly fragile – just over a third of rural dwellers have access to drinking water – and dependent on neighbouring countries, and its ability to manage its water resources is limited.⁷⁰ While access to water tends to be scarce, periodic floods have also caused damage. Investment is critically needed to improve the country's water-management capacities to ensure that storm water does not destroy fields, homes and infrastructure; that farmers and pastoralists benefit from it; and that people have access to clean water during both dry spells and periods of intense rain. For now, humanitarian organizations in Diffa prepare for the flooding each year; to avoid these annual emergencies, structural water-management measures are required.

When it comes to agriculture, improving access to water, farming services and information is needed.⁷¹ Despite investments in forecasting capacity and anticipatory action, farmers report uneven access to both short- and longer-term weather forecasts and a lack of support in determining what and when to plant in light of the forecasts.⁷² This year, as forecasts indicated that the rains would begin and then be interrupted, some farmers delayed their planting. Others, who did not receive the information, planted their crops and lost their harvests. Such a loss can be devastating, as people tend not to have the means to buy additional seed.

⁷⁰ Niger 2022: 26; Oluwasanya et al. 2022: 18, 40; UNICEF 2019.

⁷¹ World Bank 2018: 9.

⁷² CREWS 2021.





III. UNDERSTANDING GAPS

A common thread across activities implemented in Gaza, Mozambique and Niger is that they were developed to address a specific problem in a specific location, building on the ICRC's long experience in conflict settings working in close proximity with affected people. They often help people survive in the short term through incremental adaptation to their livelihoods and by improving the sustainability and reliability of their access to essential services. The activities are similar to those implemented at a community level in non-conflict settings – such as strengthening systems and infrastructure, and helping communities rethink their livelihoods – but they are developed with particular attention to how they may affect the dynamics of the conflict at hand and the drivers of vulnerability. They also build on the ICRC's long-standing presence and conscious effort to both understand conflict-affected communities in their complexity and gain acceptance. To ensure these activities meet the needs of communities and are sustainable, they are designed at the local level, in collaboration with local authorities and service providers, and with communities. This is important because in unstable settings, where the government may be weak or may not control large portions of the territory – the ICRC assesses that at least 195 million people in the world live in areas that are fully or fluidly controlled by armed groups – it is not always possible to work on a large scale through centralized institutions.⁷³

Despite important differences among these locations, they were all marked by two major types of gaps, concerning the geography of the response and the depth, breadth and timescale of such efforts.

In each location, the type of efforts deemed possible were shaped by the intensity of the conflict, the existence of functioning infrastructure and the climate-related risks faced by communities. In Mozambique and Niger, activities were implemented in areas that received displaced persons and were unstable but were not at the epicentre of the violence. In Gaza, activities are at times interrupted or reversed by hostilities. Given the limits imposed by the political situation and the blockade, it is possible, between escalations, to strengthen and expand existing large-scale but rundown critical infrastructure in order to strengthen people's access to essential services. In Montepuez, Mozambique, the ICRC was able to build on the existing water system, even though it required significant repairs and needed to be expanded. This was not true for rural areas beyond urban centres in Mozambique and Niger, where access to essential services is even more limited and access to electricity nil. In rural areas, the risks faced by farmers and herders gave rise to activities to better manage and protect land and water.

Despite important differences among these locations, they were all marked by two major types of gaps, concerning the geography of the response and the depth, breadth and timescale of such efforts.

In each location, the efforts yielded positive results for some communities but not others. In Mozambique, the focus of disaster risk reduction and climate adaptation tends to be on the most dramatic extreme weather events that pose a particular risk to the coastal areas of the central part of the country.⁷⁴ For this reason, despite the regular occurrence of tropical storms and floods, Cabo Delgado and rural areas are not prioritized in efforts to strengthen disaster preparedness. This reflects a general tendency to prioritize climate-related activities based on the communities' exposure to climate risks, without properly factoring in circumstances that exacerbate people's vulnerability, such as conflict, poverty and displacement. The same goes for Niger and Gaza: not every community receives the same level of support, even when the needs are clear. More broadly, despite efforts to increase the global coverage of early warning and early action systems, countries and communities affected by conflict and fragility are often left out.⁷⁵

⁷³ Bamber-Zryd 2023.

⁷⁴ UNCDF 2022.

⁷⁵ For a historical overview of weather forecast availability in conflict-affected regions and for information on expanding forecast-based action in such environments, see Jaime *et al.* 2020 and Wagner 2020. For global commitments on early warning systems, see WMO 2022.



A woman sits in Diffa region.

Then, humanitarian responses may contribute to incremental adaptation but are unlikely to result in effective and comprehensive long-term adaptation, which requires transformative action.⁷⁶ In Gaza, by reinforcing key infrastructure, the ICRC's actions made people safer during escalations in the conflict and severe weather. That said, technical weaknesses in water and power systems, and their further deterioration, will continue to prevent comprehensive adaptation without major investments over the long term. In Cabo Delgado, support for the Montepuez water system has improved access to water and therefore reduced public health risks for some of the most vulnerable segments of the community. Yet when storms cause power outages the system does not work, and poorer people typically have limited means to store water. This is a structural weakness that cannot be addressed within the scope of a humanitarian response. Similarly in Niger, the development deficit severely hinders investments in adaptation. The recent political upheaval has further shrunk the development footprint, with some organizations suspending their support or freezing their operations in the country.

AND ADDRESSING THEM

Humanitarian organizations have an indisputable role to play in improving the response to climate risks in conflict settings: they work in close contact with communities, see how people manage in the hardest situations, and are able to test and identify promising practices. This role still needs to be strengthened, as the integration of climate risks into humanitarian responses is far from systematic, especially in situations of armed conflict. As humanitarian organizations move in this direction, the lessons they learn can inform a broader response that lays the foundation for greater climate resilience.

To deliver better climate-resilient responses on a larger scale and with sufficient funding, development organizations must be involved in this process. They have recognized the need to invest in fragile and conflict-affected settings and have been doing so in part by funding some humanitarian efforts that have a long-term impact in hard-to-reach locations. But there are important gaps that cannot be filled by humanitarian organizations alone, and development organizations' commitment to strengthen their response in conflict and fragile settings still often collides with limitations on where and how they can operate. In Cabo Delgado, for instance, development organizations were limited in their ability to start new projects because of security restrictions that precluded visits to sites that were marginally affected by the conflict. This pattern is rep-licated in other countries, where projects funded by national or multilateral development banks sometimes exclude the most unstable parts of a country in order to mitigate risk, or where such projects are halted when the security situation deteriorates.

There are important gaps that cannot be filled by humanitarian organizations alone, and development organizations' commitment to strengthen their response in conflict and fragile settings still often collides with limitations on where and how they can operate.⁷⁷

Sustainable development is critical to achieving sufficient, inclusive climate adaptation, yet not all development leads to that goal.⁷⁸ This requires rethinking development so that it takes current and future climate risks into account properly, is conflict-sensitive, and addresses the vulnerability of marginalized communities – to avoid maladaptation in particular – with a view to setting the course for the future.⁷⁹ For this, climate expertise is essential to ensure that both short- and longer-term risks are factored into the analysis, design and implementation of development plans.

⁷⁷ For instance, AfDB 2022, IsDB 2019, World Bank 2020.

⁷⁸ Schipper et al. 2020.

⁷⁹ Eriksen et al. 2021: 8; Werners et al. 2021.



IV. FROM THEORY TO PRACTICE

Our call echoes the one we made three years ago, when we analysed the humanitarian consequences of converging climate risks, armed conflict and environmental degradation.⁸⁰ This is because major gaps remain in climate action in conflict settings, and conflict-affected communities remain disproportionately affected by climate and environmental risks.

The growing commitment to strengthening the response in these environments is reason for hope, as is the greater focus on identifying viable approaches. But changes are still taking place too slowly. We all need to urgently scale up our efforts to learn, collaborate, invest in preventive approaches and act to reduce the impacts of the climate and environmental crises on communities that are already coping with the consequences of armed conflict.

LEARN – Efforts to strengthen the resilience of people and systems and support climate adaptation in the most unstable environments need to be better-documented. And together with communities, they need to be analysed through the right expert lenses in order to capture their climate and conflict sensitivity and the way they address sources of vulnerability, and to identify what has proven effective and what has not. Such assessments need to continue over time, so that we can better understand the future implications of current action on climate adaptation, vulnerability and marginalization, as well as on conflict dynamics.

COLLABORATE – In recent years, the ICRC has worked closely with other humanitarian organizations as well as development organizations and researchers to explore avenues to strengthen climate action in conflict settings. To move forward, we must further connect our efforts. This does not entail moving away from principled humanitarian action – this space needs to be protected to preserve the ability to work with all communities in highly polarized environments. But it does entail finding ways to connect dots at the local level and build on our respective capacity, expertise and strengths to work at different levels (from house-holds to communities and systems) and timescales (short-, medium- and long-term).

PREVENT – Together, we must invest more in preventive approaches. In conflict settings, the modus operandi remains one of responding to emergencies following shocks and, increasingly, addressing residual risks. It is unquestionably important to respond to urgent needs, and early warning and early action are also critical and need to be understood and bolstered. But these cannot replace systemic measures to manage current and future risks and strengthen the resilience of essential services, livelihoods or shelters, or to respect the environment during conflict, so that not every shock becomes a disaster.

ACT – Change is urgently needed. As important as it is to improve policies, perfectionism can become an obstacle to action.⁸¹ So too can a disproportionate focus on barriers rather than on methods to overcome them. Our collective success should be measured by whether the most remote, most vulnerable and least safe communities are supported, wherever they may be.

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ANNEX: METHODOLOGY

This report is based on research aimed at better understanding how humanitarian responses can contribute to strengthening the resilience of communities affected by conflict and violence to growing climate risks and environmental degradation. It was based on the experience of people in the Gaza Strip, northern Mozambique and eastern Niger, and on the programmes delivered by the ICRC in each of those places. The research did not include an in-depth exploration of the extent to which climate change can exacerbate tensions or otherwise contribute to conflict.

The research followed two lines of inquiry:

- 1. Which approaches has the ICRC been testing in selected locations to strengthen the resilience of people and communities affected by a combination of armed conflict/violence, climate risk and environmental degradation?
- 2. How do these approaches complement efforts by other humanitarian organizations and climate and development organizations in selected locations, what are the remaining gaps, and how are these responses perceived by communities? How could the response be improved to further support and strengthen people's coping and adaptation mechanisms?

A desk review of literature on general conditions and specific climate-related risks was conducted for each location. This was followed by case studies, which were carried out between October 2022 and July 2023, in areas where, through its programmes, the ICRC seeks to address the risks resulting from the convergence of armed conflict, climate risks and environmental degradation. The methodology was approved by the ICRC's Ethics Review Board in July 2022.

In each location, focus group discussions and individual interviews were carried out with community members (men, women and youth), community leaders and local and national authorities from affected communities; staff and volunteers from National Societies and the IFRC; and representatives from UN agencies, international financial institutions, specialized organizations and funds, and donor governments. In Gaza, in October 2022, focus group discussions took place in Qarara, in the southern part of the territory, with Palestine Red Crescent Society volunteers in Deir el Balah, in addition to meetings with authorities and experts in Gaza City, Jerusalem and Tel Aviv. In Mozambique, in May 2023, focus group discussions with communities were held in Campona and Upaju, two settlements on the outskirts of the city of Montepuez (Cabo Delgado Province); meetings with authorities, National Society volunteers, components of the Movement, and development and humanitarian organizations took place in Pemba and Maputo. In Niger, in July 2023, meetings with community representatives and local authorities from Chetimari and Kablewa took place on ICRC premises in Diffa due to security constraints; meetings with authorities, civil society organizations and components of the Movement took place in Niamey.

People quoted in this report were interviewed during the case studies. Observations on the combination of conflict, climate risks and environmental degradation, and on the impact of efforts to address them, are drawn from interviews with individuals, authorities and organizations involved in the response, as well as from the literature.

Literature reviews were conducted for each of the three case study locations by the ICRC's policy team, capturing academic and grey literature relevant to climate adaptation, resilience, and the compounding dynamics of climate change and conflict. The literature was gathered from Google Scholar and through recommendations from experts, with a focus on articles published in English or French.

Authorities and service providers consulted

Gaza	Coastal Municipalities Water Utility, Environmental Quality Authority, Ministry of Agriculture, Ministry of Health, Palestinian Energy and Natural Resources Authority, Palestinian Water Authority
Mozambique	Cabo Delgado Provincial Service of Economic Activities, Ministry of Agriculture, National Institute of Disaster Management, Water Supply Investment and Participation Fund
Niger	National Environment Council for Sustainable Development

Organizations, experts and government offices consulted

Gaza	Action contre la Faim, Dr Husam al-Najar (professor of civil and environmental engineering at the Islamic University of Gaza), Gaza Urban and Peri-Urban Agriculture Platform, EcoPeace Middle East, EU Representative Office to the West Bank and Gaza Strip, Institute for National Security Studies, Japan International Cooperation Agency, Office of the Quartet, Oxfam, Palestine Red Crescent Society, United Nations Development Programme, UN Women, World Food Programme
Mozambique	European Union, Food and Agriculture Organization of the United Nations, German Red Cross, International Federation of Red Cross and Red Crescent Societies, Mozambique Red Cross Society, United Nations Development Programme, World Bank, World Food Programme
Niger	GVD Niger, Groupe URD, International Federation of Red Cross and Red Crescent Societies, Luxembourg Red Cross, Red Cross Society of Niger, Prof Laouali Mahaman Sani (teacher and researcher in the Department of Physics and Chemistry, Niamey University)

A woman and a child sit in a courtyard in Diffa region.

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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.





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