

Centre



Central Africa Republic

This climate fact sheet summarizes the available information on the climate of the Central African Republic (CAR) and the impact of climate change on humanitarian activities in-country. Each fact sheet in the series was written using information from peer-reviewed academic papers, government publications, and other documentation from international non-governmental organizations.

Climate overview 1

Average annual temperature: There is small spatial variation in temperature across the country with high temperatures experienced in the centre and north of CAR.

Average annual rainfall: A majority of the southern region experiences a total annual rainfall greater than 1,600mm, while the north experiences rainfall of around 800mm.

Short overview

The Central African Republic is characterized by a humid equatorial climate in the south and a Sahelo-Sudanian climate in the north. The country receives rainfall throughout the year of up to 240mm a month. The average temperature on any given day of the year is around 25°C; but the days with the greatest day-night difference tend to be in December to February. Coldest nights tend to occur in December (when temperatures drop to 15°C) and warmest days in February (when temperatures reach up to 35°C).



Figure 1: Observed climatology of (left to right) mean temperature and annual mean total precipitation 1991–2020. (Adapted from World Bank, 2021).

verage Minimum Surface Air Temperature Average Miran Surface Air Temperature Avarage Maximum Surface Air Temperature

Figure 2: Observed average monthly climatology from 1991-2020 (adapted from World Bank).

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The diverse and varied geography of the CAR means that it is exposed to a broad array of environmental hazards (hydrometeorological as well as geophysical) which are directly impacted and exacerbated by the impacts of climate change across the country. The CAR is one of the most vulnerable countries to humanitarian crises and disasters, ranked sixth out of 191 countries by the 2022 Inform Risk Index (DRMKC, 2022).

1.1 Climate change in the CAR

istorical climate change	Projected climate change
emperature	
Since the 1970s temperature has increased at a rate of 0.35°C per decade (World Bank, 2021). The frequency and intensity of hot extremes have increased, and cold extremes have decreased (Seneviratne <i>et al.</i> , 2021).	 Mean temperatures over the region are projected to rise until 2050 by at least 2.5–3°C for a high greenhouse gas concentration scenario (SSP5–8.5) and 2–2.5°C for a low greenhouse gas concentration scenario (SSP2–4.5) (Gutiérrez <i>et al.</i>, 2021). Maximum and minimum temperature will increase, and heatwaves will intensify in duration and peak temperatures for every increase in global warming levels above the pre-industrial values. In line with rising mean annual temperatures, the annual number of very hot days (days with daily maximum temperature above 35°C) is projected to rise and wit high certainty (Gutiérrez <i>et al.</i>, 2021; Ranasinghe <i>et a</i> 2021; Seneviratne <i>et al.</i>, 2021).
• Overall, there is no clear trend in rainfall over the last century due to high year-to-year natural	 An increased frequency of intense rainfall events are expected throughout the end of the century (USAID.

al., 2021).

variability. However, during the last 30 years, precipitation has increased by about 8 per cent.
Rainfall variability has increased, with a reduction in the number of days with 1mm nd an increase in the number of days with precipitation of 10mm

(World Bank, 2021).

2018, World Bank, 2021)
The frequency and intensity of heavy precipitation events are projected to increase with the potential impacts of flooding and soil erosion (Seneviratne *et*)

2. Priorities of the Red Cross Red Crescent Movement under climate change

2.1 Scale up climate-smart disaster risk reduction (DRR), early action and preparedness

Existing hydrometeorological hazard	Projected risks
Floods	
Flood risk, especially riverine flooding, is a risk across the whole country, with ThinkHazard! (2022) assessments showing the risk to be between medium and high. Recent disasters from floods in south-west CAR, in areas surrounding its capital city Bangui, left over 14,500 people homeless in 2009 and is estimated to have cost 6 million US dollars, with losses estimated at 2.6 million US dollars (World Bank, 2021).	The World Bank (2021) predicts a likely increase in the intensity of heavy rainfall events, which are also likely to lead to increased flood events across the country over the next decades.
Droughts	
Droughts are common within the Central African	Ahmadalipour <i>et al.</i> (2019) project that the drought risk

Droughts are common within the Central African Republic and have serious consequences on the availability of water resources across the country. The northern part of CAR is most vulnerable to droughts and its vulnerability to these natural disasters has increased in recent years, accentuating the susceptibilities of the population residing in this region (World Bank, 2022). Ahmadalipour *et al.* (2019) project that the drought risk for the CAR may decrease with increasing climate change. This is due to the increased rainfall that is projected for the country over the coming decades.

It is essential to note that many of these hazards are interrelated and produce compound risks to the same areas and communities. In addition, risk must be understood as the interplay between hazard risk, exposure and vulnerability which make certain individuals, communities and sectors more impacted by the hazards. All project design should take such compounding risks into account.

Disaster risk management strategies

As outlined in the <u>Nationally Determined Contribution (NDC) of CAR</u> revised in 2021 (in French), to increase the country's capacity to prepare for and respond to natural disasters a national early warning system will be implemented by 2030 for bush fires, floods and drought along with a multi-sectoral management programmes. The CAR has also outlined three specific adaptation objectives in the NDC document: to guarantee the security of agro-sylvo-pastoral systems and water resources, adapt territory and energy systems, and inform and prepare infrastructure, habitats and health systems. Financial, technological and capacity-building needs have also been specified in this document. The CAR also finalized its <u>National Adaptation Plan (NAP) in 2022</u> that builds on the objectives stated in the NAP while providing a more detailed adaptation pathway.

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2.2 Reduce health impacts of climate change

The Central African Republic continues to grapple with severe malnutrition and illnesses such as diarrhoeal disease, measles, malaria, diabetes and high blood pressure which are coupled with a failing health system hat has a limited supply of medicine, facilities and human resources. Climate change-related temperature and precipitation trends are expected to impact bacteria, disease and virus spread in the country, with concerns of an increase in epidemics because of transference to new areas as warmer temperatures may open new suitable locations for transmission (World Bank, 2021). Additionally, increases in temperature and more intense rainfall are likely to impact the spread of waterborne diseases (World Bank, 2021). The CAR has the worst infant mortality rate in the world, and one of the worst maternal mortality rates, with 890 deaths per 100,000 live births (Concern Worldwide US, 2022). Mortality of children under five years old is 130 per 1,000, meaning that more than one-in-ten children die before their fifth birthday (World Bank, 2021). According to a study conducted in 2020, 64 per cent of deaths of children under five resulted from three treatable diseases: malaria, diarrhoea and respiratory infections. Usually, diseases like diarrhoea are simple to treat, however, in the CAR, inadequate access to healthcare presents barriers (Robinson et al., 2021). In terms of annual hazard statistics, epidemics are second only to floods as the top issue concerning the country (World Bank, 2021). Epidemics, like measles and malaria, have plagued the country and continue to grow, leading to severe illness and deaths (Concern Worldwide US, 2022). Temperature rises and changing precipitation patterns (such as the onset of rains and the duration of rainy seasons) will intensify malaria transmission (USAID, 2018). Furthermore, droughts and floods that impact water quality and quantity will increase the incidence of waterborne diseases, such as diarrhoeal disease (World Bank, 2021).

Several climate change-related factors will contribute to the CAR's existing food insecurity issues including the disruption of agricultural production by floods and prolonged drought. The country currently has the highest food insecurity rate in the world, with 50 per cent of the population described as food insecure (OCHA, 2022). Consequently, over 40 per cent of children under five years old suffer from chronic malnutrition, and more are susceptible to diseases such as pneumonia and measles (UNICEF & WFP, 2021).

The CAR already has an inadequate healthcare infrastructure, due in large part to protracted armed conflicts which have crippled the public health system and led to the destruction of health infrastructure more broadly (Ruckstuhl et al., 2017). Poor governance and the extremely limited supply of medicines, facilities and human resources also limit the effectiveness of the health system. Additionally, food insecurity, under- and malnutrition are of critical concern in the country (World Bank, 2021). In this context, climate change impacts pose additional stress on these already compromised systems and structures.

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2.3 Ensure sustainable water supplies

Water, Sanitation and Hygiene (WASH)

Projected increases in prolonged drought and flood events are expected to stress water resources and lead to the deterioration of water quality in the CAR (USAID, 2018; World Bank, 2021). While the CAR has vast water resources, a lack of clean and sufficient drinking water is a significant challenge due to high levels of water contamination in the country (Meier & Ankeny, 2017), population growth, poverty and lack of adequate infrastructure, poor technology and political instability (Kamba *et al.*, 2016; Kalid, 2017). According to the OCHA, 68 per cent of CAR households do not have access to water and sanitation services (OCHA, 2023). Climate change is expected to worsen safe water access, in part by further reducing the quality of water through recurrent flooding, intensified drought periods and other indirect consequences.

Lastly, temperature rises and prolonged drought will increase the evaporation of surface water and reduce groundwater infiltration rates (World Bank, 2021). The population of the CAR, who are mostly dependent on groundwater, will likely see increased water access challenges as drought compounds stress on groundwater (Meier & Ankeny, 2017; USAID, 2018).

A range of community-based local adaptation solutions – for example, sink wells near rivers; building gutters for draining floodwater; purchasing drinking water; using borewell water to combat flood and droughts events – have been undertaken in rural CAR (Nguimalet, 2018). However, the Croix-Rouge Centrafricaine foresees that, in a rapidly changing climate, it will need more comprehensive watershed management measures in upstream and forest areas.

Infrastructure and electricity

Flooding is one of CAR's greatest natural hazards (World Bank, 2021). Flooding causes deterioration in the quality of surface- and groundwater by contaminating it with faecal matter, especially in urban areas and wherever there is poor waste management as well as inadequate water and sanitation services (World Bank, 2021). In addition, floods cause damage to water and sanitation infrastructure, for example, by submerging pit latrines (USAID, 2018). During flood events in August 2021, 112 water wells were destroyed and a further 130 pit latrines were damaged in the country (IFRC, 2022).

Longer dry spells or droughts, coupled with increased high-intensity rainfall or floods, will disrupt river transportation systems which may hinder the supply of goods and, therefore, community livelihoods (Peach Brown *et al.*, 2013; USAID, 2018). Furthermore, extreme weather events will likely weaken the road infrastructure, impeding access to markets (USAID 2018) and may further hamper access to healthcare.

Conflict and insecurity are significant barriers to comprehensive poverty reduction measures as well as adaptation to climate change in CAR. For instance, the country's armed conflict has already damaged the infrastructures for water supply, agriculture and transportation – essential services to help improve climate change adaptation (Johnson, 2013). It has also been observed that, although institutions in the CAR are aware of the risks of climate change, work to adapt to or mitigate them has been limited by conflict (Peach Brown *et al.*, 2013).

2.4 Enable climate-resilient livelihoods and economic security

Agricultural and natural resources are the core sources of livelihoods for most people in the CAR (World Bank, 2021). Agriculture, primarily rainfed, employs about 72 per cent of the country's population. Agricultural activities combine farming, hunting/gathering/fishing and small animal husbandry (*ibid*). A combination of climate change impacts and insecurity affects agriculture in the CAR, despite its abundant rains and natural resources with rich soils (OCHA, 2022).

Rising temperatures and changes in precipitation will disrupt agricultural activities by changing the seasonal calendar for growing crops (Peach Brown *et al.*, 2013; Soule Baoro *et al.*, 2018). This will lead to significant crop failure and impact the livelihoods of local communities. For example, coffee, one of the main crop exports of the CAR, will be greatly impacted by temperature rises and droughts (USAID, 2018). Furthermore, increased temperatures and extended dry seasons also increase the risk of forest fires and alter the forest ecosystem, flora, fauna and soil health (Soule Baoro *et al.*, 2017; USAID, 2018). As a result, the livelihoods of the local people dependent on forest-based economic activities will be affected. In addition, rising temperatures will lead to the increased incidence of crop pests and disease outbreaks, for example, cassava mosaic virus (USAID, 2018).

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2.5 Address climate displacement and protection

Current and future displacement challenges

The CAR has experienced a high increase in displacement since the ongoing conflict which began in 2012, with 290,000 people being internally displaced because of conflict and violence and 77,000 people displaced because of disasters. Combined with displacement that occurred in previous years, 516,000 people remained internally displaced because of conflict and violence in 2022 with the majority being displaced for two years or longer (IDMC 2022). Disputes between government military forces and non-state armed groups largely explain recorded displacement. Over 632,000 refugees from the CAR are in neighboring countries such as Cameroon, Chad, Democratic Republic of the Congo and Republic of the Congo (UNHCR, 2021).

Climate migration is projected to increase in Central Africa, including in CAR, with 2.6–5.1 million climate-induced migrants by 2050 (World Bank, 2018). Conflict, drought, and shrinking access to resources such as water will all drive migration. Internal displacement due to disasters, currently 77,000 people, are the second highest recorded in CAR (IDMC, 2022).

Displacement has affected the country's agricultural production, which contributes to food insecurity. Many of those displaced in the run-up to the 2020 and 2021 general elections were small-scale farmers, who lost their livelihoods when their villages were attacked and they were forced to flee (FAO, 2021). Approximately half of CAR's population faces high levels of acute food insecurity (ibid).

Ongoing conflict, displacement and climate hazards, such flooding and drought, are projected to further harm agricultural production and increase the degradation of food systems (World Bank, 2021). Most of the CAR's population relies on subsistence agriculture, which is rainfall-dependent, and thus vulnerable to changing seasonality and extreme weather events (*ibid*).

Flooding is a significant but underreported driver of displacement and migration in the CAR. The country has experienced multiple significant floods in the last decade, with most of those reported around Bangui (World Bank, 2021). For example, in 2019, heavy, almost continuous rains flooded the Oubangui River bordering the CAR, affecting villages as well as the capital Bangui. Over 10,000 homes were destroyed and approximately 100,000 people affected (Haynes, 2019).

Potential needs of migrants and displaced people

Food insecurity is an ongoing issue and projected to continue. Displaced people, particularly those who were former subsistence farmers, are often dependent on humanitarian assistance in the country. Basic necessities such as food, healthcare, shelter, and water and sanitation will likely remain key needs for both displaced people and the majority of the population. The CAR is one of the world's most under-funded humanitarian emergencies (UNHCR, 2021).

Protection

Around the world, people in detention frequently have heightened vulnerability to natural disasters due to spatial marginalization resulting from prison locations on hazard-prone land and/or isolation from emergency evacuation services; limited to no connections to social networks, which are crucial aspects to hazard resilience; and political marginalization, including lack of policies and services to prevent disaster impacts on imprisoned populations (Gaillard & Navizet, 2012). These existing vulnerabilities, coupled with more frequent and intense disasters due to climate change, may leave prison populations in especially precarious positions to hazards such as extreme heat and floods.

2.6 Policy

Relevant information from the <u>Nationally Determined Contribution</u> (NDC) (2022)

Emission target: Up to 24 per cent by 2030 with support from the international community worth 1.7 billion US dollars (of which 444 million US dollars would be dedicated to adaptation). Focus on energy, agriculture and forests, waste management, industrial production and usage, carbon sequestration.

Area of focus on adaptation: Communities are at the centre of the adaptation and resilience objectives. Focus on agriculture and livestock, energy, forests, water management and WASH, health, urban planning, infrastructure and housing.

Inclusion of DRR: Yes, it is seen as a transversal measure (including an early warning system and multi-risk management) and integrated with health risks, risk assessment of infrastructure, livestock risks, nature-based solutions, availabilities of risk data for urban planning. There is also a focus on indigenous communities' needs and vulnerabilities.

National designated entity: Ministre de l'Environnement, de l'Ecologie et du Développement Durable

Key stakeholders: UNDP; German, Spanish and Swedish bilateral cooperation; EU; UN Women; UN Habitat; World Bank; ILO; FAO; UNICEF; UNEP; NDC Partnership; IRENA.

Relevant information from the <u>National Adaptation Plan</u> (2022)

Area of focus on adaptation: Agriculture, food security, health, water management, forests, energy, and disasters.

Inclusion of DRR: Yes, it is one of the priorities mentioned above and part of the eight operational areas identified. The NAP will support the development of DRR policies.

Key stakeholders: Recently, numerous coordinating national agencies have been created (on desertification, biodiversity, forests and climate) as part of the UNFCCC's *Coordination Nationale Climat*. A detailed stakeholder analysis of all adaptation-related sectors is available in the document.

Other national policies on climate

- National Strategy on Sustainable Development (*Stratégie nationale de développement durable*) (2021). This strategic and programmatic document aims to implement the Plan national d'action environnementale (National Environmental Action Plan 2000–2020). The strategy is central to the achievement of the Sustainable Development Goals and to environmental actions in CAR (MEDD, 2022b).
- While the National Environmental Action Plan is being finalized, targeted policies are already in place regarding desertification, biodiversity and drought (MEDD, 2022b)
- The CAR has adopted two laws related to climate change mitigation and adaptation: Law No. 08-18 regarding biofuels, and Law No. 08.222 establishing a forestry code (USAID, 2018).

Climate finance

There is currently no Green Climate Fund (GCF) project in the CAR, but there is a multicountry project and readiness activities are ongoing (GCF, 2022). National Societies cannot apply directly for climate finance from <u>the GCF</u>, but they can be an implementing partner for an accredited entity (Climate Centre, 2022a).

National Societies can explore options for accessing climate funds through smaller funds, such as the <u>GEF's Small Grants Programme</u> or the <u>FFEM's Small Scale Initiatives Program</u>. Other funding from bilateral donors, national climate funds, or multilateral climate funds like the Adaptation Fund, CREWS or GCCA+ could be explored (Climate Centre, 2022a).

Engaging in national climate adaptation planning is vital for accessing climate finance.

Additional resources

Climate Centre. (2022a). Factsheet on climate finance. <u>https://www.climatecentre.org/wp-content/uploads/Fact-Sheet-on-Climate-Finance.pdf</u>

Climate Centre. (2022b). Entry points for National Societies on climate finance partnerships. https://www.climatecentre.org/wp-content/uploads/Entry-Points-for-Climate-Finance-Partnerships.pdf

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