



Central African Republic

The following climate factsheet summarizes available information on the climate of CAR, climate change and impacts of these changes on humanitarian activities in country. Each of the factsheets were written as a compilation of information from peer-reviewed academic papers, government publications, and INGO documentation

1. Climate overview

Average annual temperature: There is small spatial variation in temperature across the country with high temperatures experienced in the centre and north (Figure 1a).

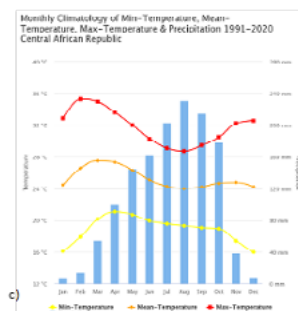
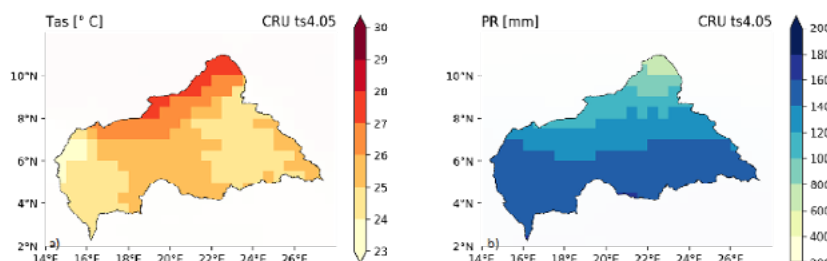
Average annual rainfall: The most part of southern region experiences total rainfall higher than 1,600 mm, while the north experiences rainfall around 800 mm (Figure 1b).

Short overview

Central African Republic is characterised by tropical, humid equatorial climate in the South and a Sahelo-Sudanian climate in the North. The country receives rainfall throughout the year up to 240 mm a month. The average temperature on any given day of the year is about 25°C; but the days with the greatest day–night difference tend to be in December to February. Coldest nights tend to happen in December (when temperatures drop to 15°C) and warmest days in February (when temperatures reach up to 35°C) (Figure 1c).

Figure 1: Observed Climatology of mean Temperature (a), annual mean total precipitation (b) and monthly climatology (c) over 1991–2020. (Adapted from World Bank, 2022)

Observed Climatology of Temperature and Precipitation (1991-2020)



The diverse and varied geography of 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. Ranked 6 out of 191 countries by the 2022 Inform Risk Index (DRMKC, 2022), CAR is one of the higher hazard risk countries in the world.

1.1 Climate Change in CAR

Historical climate change

Projected climate change

Temperature

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| <ul style="list-style-type: none"> ▪ The mean annual temperature over Chad have increased at a rate of approximately 0.2°-0.3°C/decade since 1961 to 2015 (Gutiérrez <i>et al.</i>, 2021) ▪ The frequency and intensity of hot extremes have increased and cold extremes have decreased (Seneviratne <i>et al.</i>, 2021) | <ul style="list-style-type: none"> ▪ Mean temperature over the region are projected to rise until 2050 by at least 2.5°-3°C for a high greenhouse gas concentration scenario (SSP5-85) and 2°-2.5°C for low greenhouse gas concentration scenario (SSP2-4.5) (Gutiérrez <i>et al.</i>, 2021). ▪ Maximum and minimum temperature will increase, and heat waves 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 with high certainty (Gutiérrez <i>et al.</i>, 2021; Ranasinghe <i>et al.</i>, 2021; Seneviratne <i>et al.</i>, 2021). |
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Precipitation

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| <ul style="list-style-type: none"> ▪ Overall, no clear trend in rainfall due to high year to year natural variability. Rainfall variability has increased, with wetter and drier periods. | <ul style="list-style-type: none"> ▪ Mid-century estimates (2040-2060) of annual precipitation changes over Somalia under a low emission scenario (SSP2-4.5) and high emissions scenario (SSP5-8.5) is projected to increase around 5-20%, with enhanced interannual variability (Gutiérrez <i>et al.</i>, 2021) ▪ The frequency and intensity of heavy precipitation events are projected to increase with potential effects in flooding and soil erosion (Seneviratne <i>et al.</i>, 2021) |
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2. Priorities of the Movement and climate change

2.1 Scale up climate-smart DRR, early action and preparedness: DRR portrait

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 for the whole land area of the Central African Republic (ThinkHazard!, 2022). Recent disasters from floods in the southwest areas surrounding the urban areas of the capital city Bangui left over 14,500 people homeless in 2009 and is estimated to have cost \$6 million, with losses estimated at \$2.6 million (World Bank, 2021).	The World Bank (2021) predicts a likely increase in the intensity of heavy rain 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 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 the last years, accentuating the susceptibilities of the population residing in this region (CCKP, 2022).	Ahmadalipour <i>et al.</i> (2019) project that the drought risk for CAR may decrease with increasing climate change. This is expected to be the case as a result of 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 produced 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 communities, individuals, and sectors more impacted by the hazards. All project design should consider the risk mentioned above and the compounding risks they represent.

Disaster Risk Management Strategies

In order to attempt to increase the country's capacity to prepare for and respond to natural disasters, CAR has committed to implementing a national **early warning program by 2030**, in addition they will create flood and drought management programs, riverbank development projects and a national investment program for agriculture to improve the country's food security situation, especially after disaster events. This is outlined in the Nationally Determined Contribution (NDC) (Government of CAR, 2021; World Bank, 2021). The National Adaptation Plan (NAP) finalised in 2022 should support the creation of the DRR strategy that is currently being developed despite coordination challenges observed between the responsible entities (MEDD, 2022).

2.2 Reduce health impacts of climate change

CAR continues to grapple with severe malnutrition and diseases such as typhoid, respiratory infections, acute meningitis, diarrhoeal diseases and malaria, which are expected to increase as conditions become favourable due to climate change (World Bank, 2021b). CAR has the worst infant mortality rates in the world, with 890 deaths per 100,000 live births (Concern Worldwide US, 2022). In CAR, epidemics are second to floods, per the annual hazard statistics (World Bank, 2021a). Epidemics like measles and malaria have plagued the country and continue to grow, leading to severe illness and deaths (Concern Worldwide US, 2022). The 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 diseases (World Bank, 2021a).

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

CAR already has inadequate healthcare infrastructure, due in large part to protracted armed conflicts which have crippled the public health system and led to destruction of health infrastructure more broadly (Ruckstuhl *et al.*, 2017). In this context, climate change impacts pose additional stress on these already compromised systems and structures.

2.3 Sustainable water: resources management, infrastructure and access

Water, Sanitation and Hygiene

Projected increases in prolonged drought and flood events are expected to stress water resources and lead to water quality deterioration in CAR (USAID, 2018; World Bank, 2021b). While 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). According to the United Nations Office for the Coordination of Humanitarian Affairs (OCHA), 60% of the population does not have access to water and sanitation services (OCHA, 2022a). Climate change is expected to worsen safe water access challenges by further reducing the quality of water through recurrent flooding.

Lastly, prolonged drought and temperature rises will increase the evaporation of surface water and reduce groundwater infiltration rates (World Bank, 2021b). Residents of 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. However, communities foresee that in a rapidly changing climate, they need more comprehensive watershed management measures in upstream and forest areas (Nguimalet 2018).

Infrastructure, Power and Electricity

Flooding causes deterioration of surface and groundwater water quality by contaminating it with faecal matter, especially in urban areas and areas with poor waste management, water and sanitation services (OCHA, 2020; World Bank, 2021b). In addition, floods cause damages to water and sanitation infrastructure, for example, by submerging pit latrines (USAID, 2018). During flood events in August 2021, 94 water wells were destroyed and a further 107 pit latrines were destroyed in CAR (IFRC, 2021).

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, the projected climate risks will likely weaken the road infrastructure, impeding access to market (USAID 2018).

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 infrastructure 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 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

The projected increase in flooding and droughts will continuously impact natural resources and agriculture, the core livelihood source of most people in CAR (World Bank, 2021b). Agriculture, primarily rainfed, employs about 72% of the country's population (*ibid.*, 2021b). Other natural resource-dependent livelihood sources include forest farming, hunting and gathering (CIA, n.d.). A combination of climate change impacts and insecurity affects agriculture in CAR, despite its abundant rains and natural resources with rich soils (OCHA, 2022b).

Rising temperatures and changes in precipitation will disrupt agricultural activities by changing the seasonal calendar for growing crops (Brown *et al.*, 2013; Soule Baoro *et al.*, 2018). These will lead to significant crop failures and impact the livelihoods of local communities. For example, coffee, one of the main crop exports of 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 crop pests and disease outbreaks, for example, cassava mosaic (USAID, 2018).

Flooding is one of CAR's greatest natural hazards (World Bank, 2021a). Floods increase the risks of soil erosion and the destruction of crops (Soule Baoro *et al.*, 2017). Moreover, floods also destroy road networks, impeding access to markets to purchase food or sell other products for subsistence (USAID, 2018). Secondary issues such as low coping capacity and limited awareness on the impacts of climate change are expected to increase climate change related impacts, especially in subsistence farming communities, in CAR (Soule Baoro *et al.*, 2017).

2.5 Address climate displacement and protection

Current and future displacement challenges

CAR has recently experienced a high increase in displacement due to conflict in 2021, with almost half a million people displaced (IDMC 2022). Disputes between government military forces and non-stated armed groups largely explain fluctuations in displacement figures over time, although at the end of 2021 there were at least 692,000 IDPs in the country. Over 632,000 refugees from CAR are in neighboring countries such as Cameroon, Chad, DRC and Republic of the Congo (UNHCR 2021).

Climate migration is projected to increase in Central Africa, including in CAR, with between 2.6 to 5.1 million climate-induced migrants and displaced people (World Bank 2018). Conflict, drought, and shrinking access to resources such as water will all drive migration.

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 CAR's population relies on subsistence agriculture, which is rainfall-dependent, and thus are vulnerable to changing seasonality and extreme weather events (*ibid.*)

Flooding is a significant but underreported driver of displacement and migration in 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 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 for 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.** 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 and 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 [Nationally Determined Contribution \(NDC\) \(2022\)](#)

Emission target: Up to 24% by 2030 with support of international community of 1,7 billion USD (of which 444 millions USD would be dedicated to adaptation). Focus on energy, agriculture and forest, 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, forest, water management and WASH, health, urban planning, infrastructure and housing.

Inclusion of DRR: Yes, it is seen as a transversal measure (including early warning system and multi-risk management) and integrated to health risks, risk assessment of infrastructure, livestock risks, nature-based solution and forest, 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, UN Environment, NDC Partnership, IRENA.

Relevant information from the [National Adaptation Plan \(2022\)](#)

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

Inclusion of DRR: Yes, it is one of the priorities mentioned above and part of the 8 operational areas identified. The NAP will support the development of DRR policies.

Key stakeholders: In the recent year numerous coordinating national agencies have been created (on desertification, biodiversity, forest and climate the *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 policy is being finalised, **targeted policies are already in place regarding desertification, biodiversity and drought**. (MEDD, 2022b)
- 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 CAR focusing on the country, but there is a multicountry project and Readiness activities are ongoing (GCF, 2022). National societies cannot directly apply for climate finance from [the GCF](#), 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 [GEF's Small Grants Programme](#) or the [FFEM's Small Scale Initiatives Program](#). Other funding from bilateral donors, national climate funds, or multilateral climate funds like 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. <https://www.climatecentre.org/wp-content/uploads/Fact-Sheet-on-Climate-Finance.pdf>

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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