

# Central African Republic

## 1. Country overview

The Central African Republic (CAR) is a landlocked country in the centre of Africa (World Bank n.d.). According to the United Nations Development Programme (UNDP) Human Development Index, CAR is one of the poorest countries (UNDP 2019). The state is bordered by Cameroon, Chad, Democratic Republic of the Congo, Republic of the Congo, Sudan and South Sudan (Britannica n.d.). As of July 2020, the country's total population was 5,990,855, and most of its population is concentrated in and around the capital city of Bangui (Central Intelligence Agency (CIA) n.d.).

Agriculture is one of the significant economic activities in CAR (United States Agency for International Development (USAID) 2018). The country has rich agricultural lands and natural resources such as diamonds and wood (UNDP n.d.). However, the government faces widespread poverty, a high unemployment rate and poor infrastructure (CIA n.d.). CAR has a high mortality rate; low life-expectancy is a result of HIV/Aids, malaria, inadequate healthcare facilities, food insecurity and armed conflicts (CIA n.d.). In 2013, the country confronted armed conflict and an associated humanitarian crisis, which resulted in the displacement of over 1 million people internally as well as externally to neighbouring countries (United Nations High Commissioner for Refugees (UNHCR), n.d.).

CAR ranks 179 out of 181 countries in the Notre Dame Global Adaptation Initiative (ND-GAIN) index. The ND-GAIN index summarizes a country's vulnerability to climate change and other global challenges in combination with its readiness to improve resilience. This ranking indicates that CAR has high vulnerability levels and low levels of readiness to adapt to climate change (ND-GAIN n.d.).

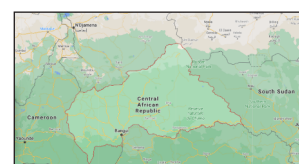


Figure 1: Map of the Central African Republic. Source: [maps.google.com](https://maps.google.com)

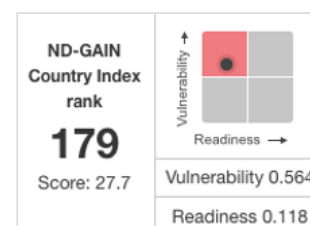


Figure 2: Central African Republic's ND-GAIN Ranking (ND-GAIN 2021).

## 1.1 Climate

The climate throughout the CAR is tropical – characterized by abundant rainfall and warm, stable temperatures. In most of the country, rainfall peaks from May to October; and, during the wettest months of August and September, there are often 15 days of rain in a month. Rainfall in August is often above 200 millimetres (mm) in that month alone (International Research Institute for Climate and Society (IRI) n.d.).

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) (IRI n.d.).

The northern part of the country tends to have a more distinct and longer dry season, with very little rain from December to February; while the southern part of the country still sees several days of rainfall per month, even during this drier season (IRI n.d.).

## 1.2 Climate change

### Historical climate

#### Temperature

Temperature has increased over time in CAR, with a total increase of about 1°C in the last 100 years (IRI n.d.).

The increase in temperature has been faster in the north-east than in the south-west of the country (World Bank n.d.).

### Climate Projections

Temperature will continue to rise with climate change, and we expect a rise of 1–4°C in global average temperatures by the end of the century, depending on the level of climate change (World Bank n.d.).

Extreme temperatures are expected to continue to rise in CAR over the coming century. By the end of 2100, the hottest day per year could be 2–8°C hotter than it is now, assuming unmitigated climate change (World Bank n.d.).

#### Precipitation

There have been substantial ups and downs in rainfall over time in CAR. For example, in the north-east, a drier decade in the 1990s was followed by a wetter decade in the early 2000s (IRI n.d.).

Very little is known about how rainfall will change in the future with climate change in CAR. Some studies show a potential increase in rainfall, especially in the southern part of the country, but there is considerable uncertainty about this estimate (World Bank n.d.).

The intensity of rainfall events is expected to increase in CAR with climate change (Sonkoue *et al.* 2019).

## 2. Humanitarian sectors and climate change

### 2.1 Water and habitat

Water resources in CAR form a fragile system. The country faces a water and sanitation crisis, mainly due to armed conflicts and a lack of infrastructure. In rural areas, it is estimated that 65 per cent of people lack safe water, while 90.95 per cent of people lack sanitation facilities (Charity Water n.d.). Climate change poses a direct risk to water and sanitation systems. Increased temperatures and a high intensity and frequency of rainfall, due to climate change, are likely to worsen the present water and sanitation stresses (Johnson 2013).

The residents of CAR are mostly dependent on groundwater. Rising temperatures are leading to over-extraction of groundwater and, consequently, the groundwater level is dipping further. Surface water sources also are drying, due to high evapotranspiration and the increased sedimentation of water bodies (USAID 2018). Furthermore, an increased frequency of extreme rainfall events and floods contaminate water sources, especially in urban areas (Haynes 2019). Therefore, people need to go further to fetch water for household consumption, mostly affecting women and children (Peach Brown *et al.* 2013). In addition, climate change impacts also propel communities' seasonal migration at the time of drought or flood events (Nguimalet 2018). The projected climate change risks of more prolonged dry spells or drought conditions along with increased flood events will exacerbate the current situation.

Climatic risks will reduce the quantity and quality of surface- or spring water in shallow wells, thereby impacting human health (USAID 2018). Insufficient water and sanitation infrastructure in rural CAR, together with the climate change impacts, will contribute to morbidity and mortality (Charity Water n.d.).

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).

## 2.2 Economic security

Most of the population of CAR – or 72 per cent of the people – especially in rural areas, are dependent on agricultural activities for their livelihoods (USAID 2018). Other economic activities consist of diamond mining, timber, cotton (CIA n.d.). The agricultural activities are mainly dependent on rainwater and, on some occasions, groundwater is also used for agricultural purposes (USAID 2018; Nguimalet 2018).

Rising temperatures and changes in precipitation will directly disrupt agricultural activities. They will change the local seasonal calendar for preparing fields, sowing seeds, and planting and harvesting crops, leading to loss of crops or failing agricultural production. As a result, a changing climate will seriously impact the livelihoods of rural communities (Peach Brown *et al.* 2013; Soulé Baoro *et al.* 2017). In addition, high-intensity rainfall will likely cause damage to harvested plants and, therefore, food insecurity (Soulé Baoro *et al.* 2017). Coffee is one of the few agricultural products that the country exports; production of which will likely be negatively affected by climate change (USAID 2018). In addition, rising temperatures will change soil fertility, while increased rainfall will multiply pests and pathogens (USAID 2018). Flood incidents are likely to cause soil erosion and agricultural land loss in CAR (Soulé Baoro *et al.* 2017).

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).

Increased temperatures and extended dry seasons will likely lead to a higher incidence of forest fires. Indigenous peoples dependent on forest food will face acute food security issues (Peach Brown *et al.* 2013; Nguimalet 2018). In addition, climate change risks will impact the forest ecosystem. This will result in the altering of flora and fauna as well as soil health. Consequently, forest-based economic activities in CAR will be affected (Soulé Baoro *et al.* 2017; Peach Brown *et al.* 2013). The forest ecosystem has a direct link to the country's hydrology and, as a result, a changing climate will have an adverse impact on the water resources and hydropower generation in CAR (Sonwa *et al.* 2014). A greater risk of conflicting priorities between endangered species, wildlife and human settlements will also be engendered (USAID 2018).

A lack of diversification in terms of livelihoods with an over-dependency on agricultural practices and forest production, along with a lack of knowledge on climate change, a mostly unskilled workforce, and a low capacity on climate-resilient agricultural practice among local institutions, will affect livelihoods and economic security in the country (Soulé Baoro *et al.* 2017).

## 2.3 Health

Health is one of the critical sectors which is vulnerable to climate change impacts in CAR (Soulé Baoro *et al.* 2017; Sonwa *et al.* 2012; Sonwa *et al.* 2014). Some of the major diseases that cause high morbidity and mortality in the country, such as malaria, will likely have a direct negative impact due to climate change (USAID 2018; Sonwa *et al.* 2012). Increased temperatures and changes in precipitation patterns will intensify malaria transmission as well as its geographical distribution, leading to higher exposure (USAID 2018; Sonwa *et al.* 2012).

At the same time, increasing temperatures and high-intensity rainfall patterns will likely impact the spread of vector-borne diseases such as cholera (USAID 2018). Access to clean drinking water is already in an alarming situation (World Bank Climate Change Knowledge Portal (CCKP) n.d.). Due to water scarcity during drought and the contamination of water during floods, diarrhoeal diseases pose additional stress on the country's public healthcare service (USAID 2018). Climate change will further exacerbate this situation.

According to the World Bank, in addition to the spread of typhoid, respiratory infections, acute meningitis, diarrhoeal disease and malaria, the dry season will likely cause the spread of meningococcal meningitis outbreaks each year (World Bank CCKP n.d.).

Climate change impacts disrupt the forest ecosystem and increase the incidence of forest fires, exposing indigenous peoples to acute health risks (Peach Brown *et al.* 2013). A low crop yield, due to rising temperatures and changes in rainfall patterns, will affect the country's food security and pose additional health risks (Soulé Baoro *et al.* 2017). Climate change impacts will also directly affect agricultural practices and, as a result, the country's food security and nutrition (Nguimalet, 2018).

Moreover, CAR has an inadequate healthcare infrastructure, especially due to armed conflicts that have crippled the public healthcare system (Ruckstuhl *et al.* 2017). The capital city of Bangui has the only major hospital in the country, which is below the standard for minimal care (Britannica n.d.). Furthermore, access to the region's healthcare service is limited by costs (Sonwa *et al.* 2012), while an inadequate transportation system hampers the distribution of medicine (Ruckstuhl *et al.* 2017). Climate change impacts will pose additional stress on the existing system and make it worse.

## 2.4 Protection

CAR is affected by armed conflict. According to the latest UNHCR data (as of 31 July 2020), over 623,400 refugees from CAR are in neighbouring countries such as Cameroon, Chad, Democratic Republic of the Congo and the Republic of the Congo. In addition, 684,004 people are displaced inside the country (UNHCR n.d.). People who are displaced are often particularly vulnerable to climate extremes. Displacement has also affected the country's agricultural production, contributing to food insecurity (Migration Policy Institute (MPI) 2014).

Climate shocks will also pose additional stress on populations suffering from conflict and violence (Peach Brown *et al.* 2013; Sonwa *et al.* 2014). For instance, at the end of 2019, an unseasonal heavy rain caused flooding in Bangui, which resulted in the displacement of 20,500 people (International Organization for Migration / UN Migration Agency, 2019) who had already weathered repeated cycles of violence since 2013.

In addition, 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).

Moreover, refugees and internally displaced people have started coming back to their homes now (UNHCR n.d.). Together with climate change impacts, an increasing population will likely lead to new lines of conflict between human settlement and wildlife at risk (USAID 2018).

Finally, 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.

## 2.5 Policy

CAR signed and ratified the Paris Agreement in 2016 and submitted its Intended Nationally Determined Contributions (INDC) in 2015. The INDC outlines CAR's commitments to climate change mitigation and adaptation, which include a goal to reduce greenhouse gas emissions by 5 per cent by 2030. It also outlines priority adaptation sectors which include: "agriculture and food security, forestry, energy, public health, water resources and land-use planning" (Central African Republic 2015). CAR's INDC also outlines nine climate change adaptation options which are: "Adjustment of the policy framework; improved knowledge of resilience to climate change; sustainable management of the agricultural, forestry and animal husbandry systems; land-use planning; improvement and development of basic infrastructures; guarantee of energy security; improvement of public healthcare systems; improvement of waste management; and sustainable management of water resources" (Central African Republic 2015).

CAR has also adopted an institutional framework under its Ministry of Water, Forestry, Fisheries, Hunting and Environment to develop its National Adaptation Programme of Action (NAPA). CAR developed and submitted its NAPA to the United Nations Framework Convention on Climate Change in 2008. Some of the prioritized sectors identified as the most urgent and immediate climate change investment areas are: agriculture and food security; forestry and agroforestry; water resources; health; energy; and natural disasters (Central African Republic 2008).

Finally, CAR has signed a treaty that aims to harmonize regional policies on forestry and biodiversity conservation. The treaty is called Comité National de Pilotage de la Convention sur les Changements Climatiques and is being implemented by the Central African Forests Commission (COMIFAC) (USAID 2018). Furthermore, 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).

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