Climate Resilient WASH and Disaster Management services for vulnerable children in the Central African Republic (CRDM-CAR)

Feasibility Study

This annex has been redacted in accordance with the GCF Information Disclosure Policy, as a portion is confidential under the disclosure policy of the Accredited Entity.

This report has been prepared for UNICEF Central African Republic as part of work to prepare the UNICEF GCF project "Climate Resilient WASH and Disaster Management services for vulnerable children in the Central African Republic (CRDM-CAR)"

Published by: UNICEF
Last edited: 28 May 2026

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Overall Country Profile

The Central African Republic (CAR) is a landlocked nation situated in the heart of the African continent, sharing borders with Chad, Sudan, South Sudan, the Democratic Republic of Congo, the Republic of Congo, and Cameroon. It gained its independence from France on August 13, 1960. In recent decades, and particularly since 2012, CAR has been plagued by a complex and devastating civil war involving various armed groups often with inter-communal and ethnic dimensions[1]. The conflict has led to widespread displacement, humanitarian crises, and a significant security presence from UN peacekeeping forces (MINUSCA) and other allied forces[2]. Despite the Political Agreement for Peace and Reconciliation signed in 2019, some factions remain active, undermining peace efforts and the security situation remains precarious [3] The CAR is consistently ranked among the poorest countries globally and is officially recognized by the United Nations as a Least Developed Country (LDC), facing severe challenges in human development, economic vulnerability, and a low gross national income per capita[4].

The country lies between latitudes 2° and 11°N and longitudes 14° and 27°E. CAR is largely situated on a plateau averaging 600–700 meters in elevation, with isolated highlands in the west (the Yade Massif) and northeast (Bongo Massif). The terrain is marked by a north–south gradient: dry savannah in the north transitions to dense equatorial rainforest in the south. The Bongo Massif and the Dar Fertit form key upland areas that influence regional hydrography and rainfall distribution.

Major rivers include the Ubangi, a tributary of the Congo River, and the Chari, which connects to the Lake Chad basin. These water systems are vital to the national ecosystem and livelihoods, though seasonal variability and limited hydrological infrastructure restrict water access and management. While the country has abundant renewable water resources, with an estimated per capita water availability of approximately 25,800m3 per year,[5] this extensive hydrographic network has not translated into widespread access and use, with only 10% of the country's water resources currently being exploited. [6]

Figure 1: Geophysical map of the Central African Republic (2022)[7]

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[1] https://ipisresearch.be/wp-content/uploads/2018/09/1809-CAR-conflict-mapping_web.pdf

[2] https://www.securitycouncilreport.org/atf/cf/%7B65BFCF9B-6D27-4E9C-8CD3-CF6E4FF96FF9%7D/s_2019_498.pdf

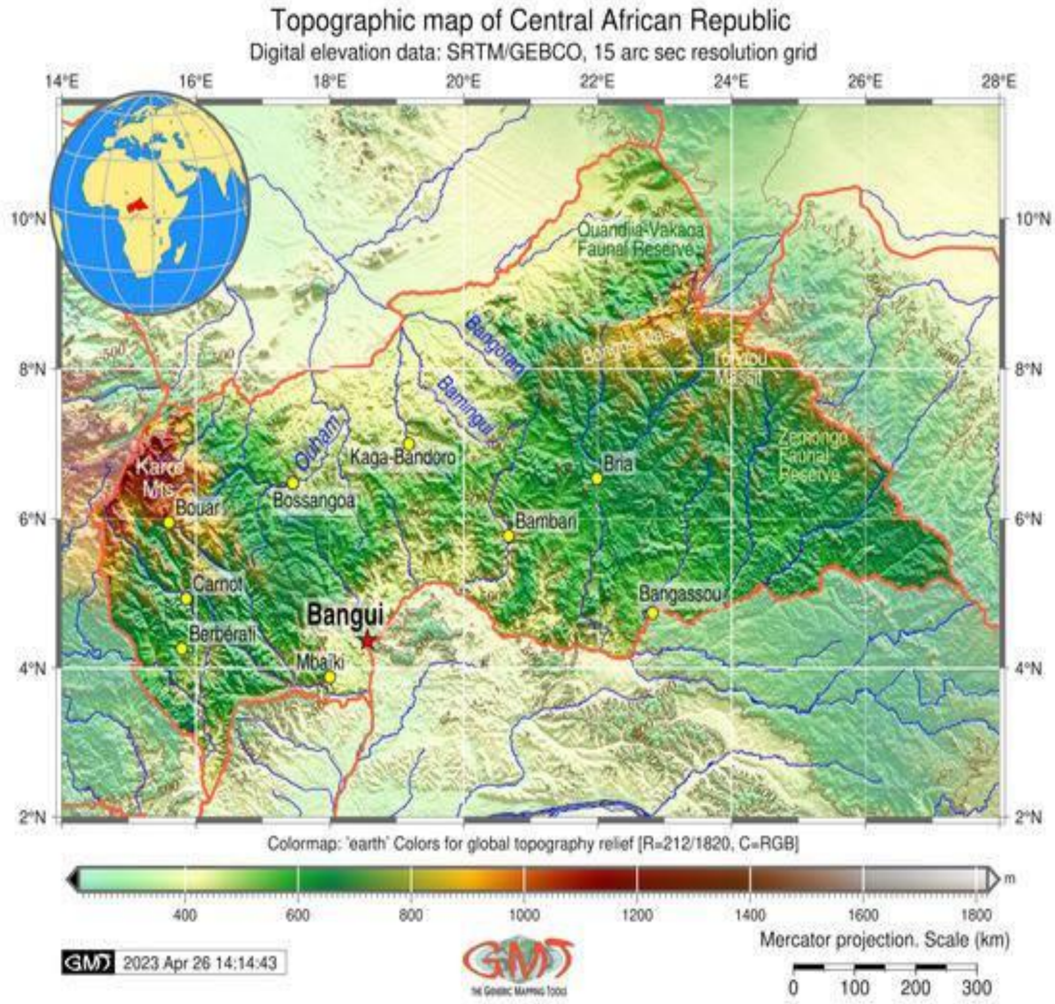
[3] https://news.un.org/en/story/2025/02/1160321

[4] https://www.un.org/ohrlls/content/list-ldcs

[5] World Bank Group. (2024). Central African Republic country climate and development report. https://openknowledge.worldbank.org/server/api/core/bitstreams/e1553b3b-3ce6-4800-8f93-476e7c89d21b/content

[6] Ministère du Développement de l'Energie et des Ressources Hydrauliques, 2021. Politique Nationale de l'Eau.

[7] Lemenkova, P., & Debeir, O. (2023). Coherence of Bangui Magnetic Anomaly with Topographic and Gravity Contrasts across Central African Republic. *Minerals*, *13*(5), 604. https://doi.org/10.3390/min13050604



Administratively, CAR is divided into 20 prefectures, including 16 standard prefectures and 4 others historically designated as economic prefectures for planning purposes (not functionally different today). These include Nana-Mambéré, Sangha-Mbaéré, Ouham-Pendé, and Lobaye, though all operate under the same governance structure as standard prefectures. The autonomous commune - Bangui, is the capital. Prefectures are governed by presidentially appointed prefects, serving primarily as regional representatives of the central government. They are not autonomous but coordinate administrative functions at the regional level. The capital Bangui, located along the Ubangi River, is the country's largest city and economic centre, home to about 900,000 people. Other urban centres include Berbérati, Bambari, Bossangoa, and Bouar - all of which play secondary roles in regional governance and service delivery.[8]

The climate is tropical with a rainy season from May to October and a dry season from November to April. Rainfall ranges from over 1,600 mm annually in the forested south to below 700 mm in the northern Sahel zone. Temperatures average between 24°C and 27°C year-round, but in northern regions, dry-season temperatures can exceed 38°C[9].

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[8] UNDP CAR Country Programme Document, 2023–2027: https://www.undp.org/central-african-republic; Institut National de la Statistique et des Études Économiques et Sociales (INSEE-RCA). (2022). Annuaire Statistique de la République Centrafricaine 2022. Bangui : INSEE-RCA. Retrieved from https://www.insee-rca.org/publications/annuaire-statistique-2022.pdf

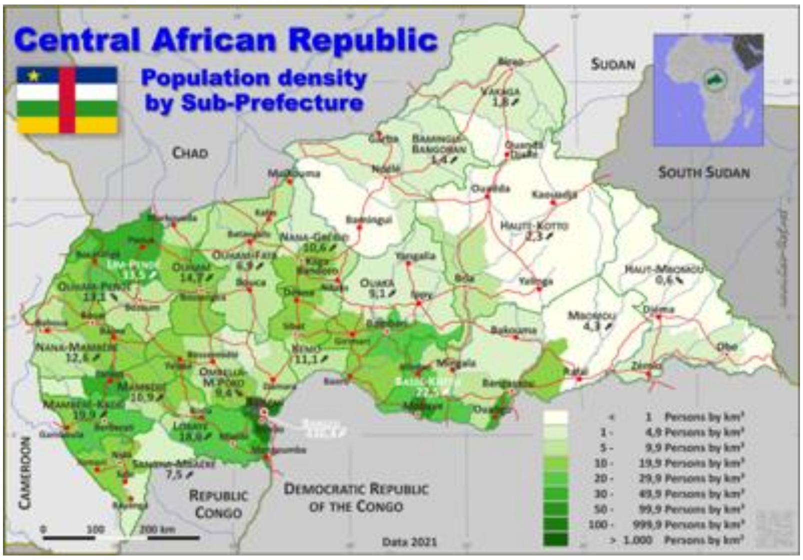
[9] Ibid.

Demographics and Urbanization

As of 2024, the CAR had an estimated population of approximately 5.4 million.[10] The national population density is just 8 people per km² as of 2022, making it one of the least densely populated countries in Sub-Saharan Africa.[11] Despite this, population distribution is highly uneven across the country's sub-prefectures. Rapid urbanization in CAR is primarily driven by conflict-induced displacement, rural poverty, and limited economic opportunities outside major urban centres[12]. Urban areas like Bangui attract internal migrants due to better access to services, markets, and humanitarian assistance, despite being overstretched.

Figure 2 presents population density (people/km²) across CAR's sub-prefectures. High-density areas such as Bangui, Bimbo, Berbérati, and Bouar contrast with sparsely populated regions like Vakaga, Bamingui-Bangoran, and Haute-Kotto. This spatial fragmentation poses serious challenges for equitable infrastructure planning, WASH service delivery, and humanitarian access.

Figure 2: Population Density by Sub-Prefecture in the Central African Republic (2022).[13]



As of 2024, the CAR's highest population numbers are concentrated in Bangui, with a population of 1,464,921, and Ouaka prefecture, which has an estimated population of 459,411. Following these are Basse-Kotto and Nana-Mambéré, with populations of 393,276 and 371,863, respectively. The prefectures with the smallest populations are Haut-Mbomou, home to only 59,225 people, and Bamingui-Bangoran and Vakaga, which both have a population of 89,189. Other prefectures with low population count include Haute-Kotto and Sangha-Mbaéré, with populations of 144,289 and 152,674, respectively.

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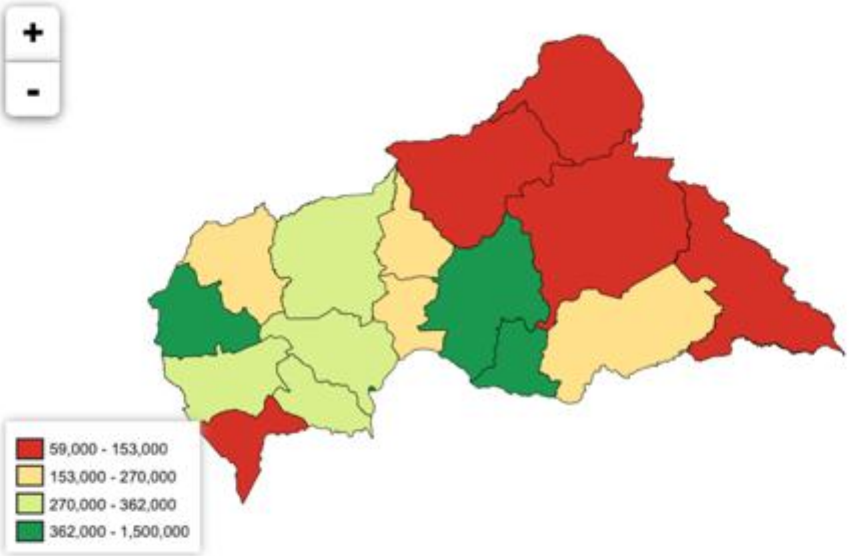
[10] Analysis based on prefecture population data from ICASEES.

[11] World Bank. (2022). Population density (people per sq. km of land area) - Central African Republic. https://data.worldbank.org/indicator/EN.POP.DNST?locations=CF

[12] UN-Habitat. (2023). Urbanization and Development in the Central African Republic. [online] Available at: https://unhabitat.org/

[13] Geo-ref.net 2021, Country map - Administrative structure - Population density of Central African Republic https://www.geo-ref.net/ph/caf.htm

Figure 3. Population per prefecture. Source: ICASEES (2024)[14]



Around 57% of the CAR's population resides in rural areas, where access to electricity, healthcare, and education remains significantly lower. Rural communities in CAR face significant development challenges due to decades of conflict and neglect. Poor road connectivity, limited access to markets, and under-resourced health and education facilities constrain economic mobility and human development. Meanwhile, urbanisation is accelerating, with the urban population growing at an average rate of 3.6% annually[15], often outpacing the capacity of infrastructure and services. The capital, Bangui, now houses nearly 15% of the population in less than 1% of the country's land area. Informal settlements are proliferating in urban peripheries, particularly in cities like Berbérati, Bambari, and Bossangoa, often without adequate land-use planning.[16]

As of April 2025, over 509,000 people were internally displaced in the CAR, according to UNHCR. Most of these displacements were driven by persistent conflict and intercommunal violence, with thousands seeking shelter in informal urban settlements, exacerbating pressure on already limited services[17]. This trend has led to the rapid expansion of informal settlements with minimal sanitation and water infrastructure[18]. CAR also has one of the youngest populations globally. About 78% of citizens are under 35, and 50% are under 18 [19]. The median age is just 17 years. The youth dependency ratio stands at 87 dependents per 100 working-age adults, placing enormous strain on education, employment, and health systems[20].

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[14] ICASEES. (2024). Population de la RCA par préfecture, 2024. https://www.icasees.org

[15] (World Bank, 2024: CAR Country Climate and Development Report, p. 53).

[16] Ibid.

[17] UNHCR. (2023). CAR Emergency Situation Update. [online] Available at: https://www.unhcr.org/emergency/central-african-republic; ibid.; (UNHCR, 2025: https://data.unhcr.org/en/situations/car).

[18] UNHCR (2024). Central African Republic Situation – Global Appeal 2024. UNHCR.; World Bank (2023). How Data Can Inform Policy to Address Challenges Faced by Internally Displaced People in the Central African Republic. Africa Can Blog, World Bank, 2023.

[19] UNICEF. (2023). Central African Republic Humanitarian Situation Report. [online] Available at: https://www.unicef.org/appeals/central-african-republic

[20] UN DESA. (2024). World Population Prospects 2024: Central African Republic. [online] Available at: https://population.un.org/wpp/

Political and Security Context

Since independence in 1960, CAR has suffered decades of political instability, marked by repeated coups, authoritarian rule, and violent rebellions. Since 2012, the CAR has been embroiled in a severe conflict, which led to the displacement of over 1 million people, and enabled the proliferation of armed groups[21]. Efforts towards peace gained momentum in early 2019 with peace talks initiated under the "African Initiative for Peace and Reconciliation in CAR." This initiative, spearheaded by the African Union (AU) and supported by the United Nations (UN), led to an agreement in Khartoum, which was then formally signed in CAR's capital, Bangui.[22] To support the stabilization the United Nations Multidimensional Integrated Stabilization Mission in the Central African Republic (MINUSCA) was established by the UN Security Council on April 10, 2014 and started its operations on September 15, 2014.

Despite these efforts, CAR remains in a state of chronic insecurity driven by the activities of armed groups, transnational criminal networks, weak state presence, and the spillover effects of regional conflicts. Since the outbreak of the most recent civil conflict in 2013, the security environment has remained fragmented and volatile. In early 2025, armed groups continue to exert control or influence over large portions of the country, particularly in the northeast, northwest, and central regions. The prefectures of Vakaga, Bamingui-Bangoran, Haute-Kotto, Nana-Grébizi, and Ouham-Pendé remain particularly affected by recurrent clashes, road ambushes, and extortion at checkpoints[23].

Civilians bear the brunt of the insecurity. The UN recorded a 15% increase in human rights violations between 2024 and 2025, including killings, abductions, forced recruitment, and destruction of property. Between January and May 2025 alone, at least 48 documented security incidents occurred across the country, concentrated primarily in the sub-prefectures of Birao (9 incidents), Ndélé (8), and Bangui-Centre (5). These areas are among the most persistently volatile in CAR, reflecting hotspots of armed activity and population risk.

The monthly trend of recorded incidents over the past 12 months reveals sharp surges in conflict intensity—peaking in June 2024 (18 incidents), October 2024 (13), and again in March and May 2025 (14 each)—pointing to recurring instability cycles that particularly endanger rural and peri-urban populations [24]. Women and girls are particularly vulnerable, with rising incidents of rape, forced marriage, and other forms of gender-based violence (GBV) in both conflict zones and displacement sites[25].

The figures above indicate that the sub-prefectures of Birao, Ndélé, and Bangui-Centre recorded the highest number of violent incidents in early 2025. Monthly fluctuations reflect recurring conflict surges affecting civilian populations across affected zones. The security situation poses risks and leads to significant impacts on the CAR population. Conflict and violence remain the primary drivers of forced displacement. Hundreds of thousands of Central Africans are either internally displaced within the country (estimated at over 442,000 as of March 2025) or have sought refuge in neighbouring countries (approximately 680,000 refugees and asylum seekers)[26].

[21] (OCHA, 2024. Humanitarian Response Plan).

[22] https://news.un.org/en/story/2025/02/1160321

[23] (OCHA, 2024. CAR Humanitarian Response Plan)

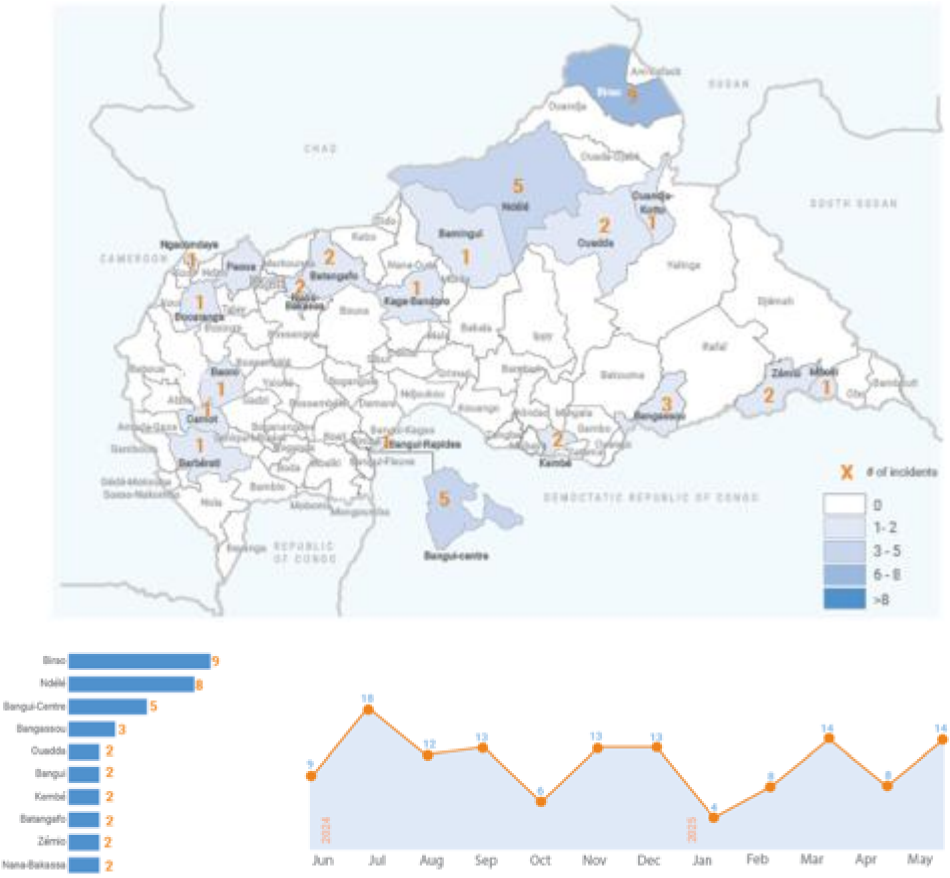
[24] UN Security Council, 2025. Report of the Secretary-General on CAR.

[25] (OCHA, 2024. CAR Humanitarian Response Plan)

[26] (UNHCR, 2025. CAR Operational Update – March 2025)

Moreover, a significant portion of the population faces acute food insecurity. As of early 2025, 57% of people are food insecure, and 41% face severe food insecurity. This is exacerbated by disruptions to agricultural activities, trade routes, and markets due to insecurity, as well as rising global food and fuel prices[27]. Civilians are continually at high risk of human rights violations and abuses, including killings, sexual violence, abductions, and extortion. Women and children are particularly vulnerable to GBV, including rape and forced marriage[28]. The threat of forced recruitment—especially of boys by armed groups—remains widespread in areas under militia control.

Figure 4: Civilian insecurity hotspots and trends by sub-prefecture, Jan–May 2025 (number of incidents per sub-prefecture; trend over the past 12 months)[29]



Conflict, insecurity, and displacement have severely damaged and disrupted essential services. Healthcare facilities are often non-functional or inaccessible, leading to elevated mortality rates and delayed responses to disease outbreaks[30]. Epidemics of measles, malaria, and cholera have worsened in remote areas where health infrastructure has collapsed, or health workers have fled due to violence[31].

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[27] (OCHA, 2024. CAR Humanitarian Response Plan).

[28] Ibid.

[29] Source: OCHA (2025). Overview of Incidents Affecting Humanitarian Workers, created 11 June 2025 (OCHA, UNDSS and humanitarian partners) [Central African Republic: Humanitarian Bulletin | ReliefWeb Response]

[30] (UNICEF, 2023. Health Cluster CAR Overview)

[31] (WHO, 2023. CAR Epidemiological Bulletin).

Access to education remains extremely limited in insecure prefectures. Thousands of schools have been damaged, destroyed, or occupied by armed actors, and teachers have been displaced or forced to abandon their posts. An estimated 800,000 school-aged children face disrupted or no education, further exacerbating long-term human capital losses[32].

National Socio-Economic Context

Macroeconomic Overview

The CAR remains one of the world's poorest economies, with a gross domestic product (GDP) of just USD 2.5 billion in 2023. The country is officially classified as a Least Developed Country (LDC) by the United Nations, reflecting its exceptionally low levels of income, human assets, and economic resilience [33]. GDP per capita stood at approximately USD 496 in 2023—well below the sub-Saharan Africa average of USD 1,590—reflecting deep structural constraints (World Bank, 2024).

CAR's economic performance is marked by volatility. Over the past two decades, GDP growth has fluctuated sharply, driven by recurring cycles of political instability, armed conflict, and global shocks. For instance, in 2013, GDP contracted by nearly 37% due to civil war and the collapse of state institutions. While the economy has since shown signs of recovery, growth remains fragile—recording only 0.9% in 2023 (World Bank, 2024). External shocks have also undermined macroeconomic resilience. The COVID-19 pandemic led to a contraction of -1.0% in 2020, primarily due to trade disruptions, reduced remittances, and declining demand in extractive sectors (IMF, 2021). Recovery has been modest and uneven, hindered by conflict flare-ups and limited fiscal space.

CAR faces considerable public debt pressures. As of 2023, public debt represented approximately 48% of GDP—moderate by regional standards, but increasingly difficult to service due to weak revenue collection and limited export diversification (IMF, 2023). The economy depends heavily on external aid and concessional financing to maintain basic service delivery and infrastructure investment[34].

In addition, the informal economy is estimated to account for over 80% of employment, constraining tax revenue and complicating macroeconomic planning[35]. The formal private sector remains small, with most firms concentrated in Bangui and operating in trade, logistics, and resource extraction. These persistent structural weaknesses in employment, productivity, and state capacity severely limit inclusive economic transformation. This level of structural vulnerability further justifies the country's LDC classification and its eligibility for targeted international support measures.[36]

Figure 5: Annual GDP growth (%) in CAR (1961–2023) [37] and GDP per capita in current US$ (1960–2023) – World Bank Data[38]

[32] (UNICEF, 2024. CAR Education Cluster Snapshot)

[33] (UN Committee for Development Policy, 2024. List of Least Developed Countries, United Nations Department of Economic and Social Affairs).

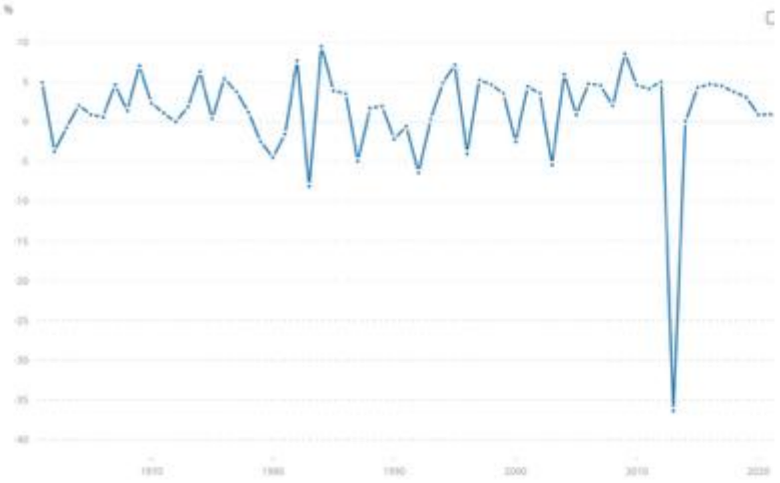
[34] (Green Climate Fund, 2022. Country Programming Guidelines for LDCs, Incheon: GCF Secretariat).

[35] (UNDP, 2022. Human Development Report – CAR Country Briefing Notes. New York: United Nations Development Programme).

[36] (UN Committee for Development Policy, 2024. List of Least Developed Countries. United Nations Department of Economic and Social Affairs)

[37] Source: World Bank. (2024). World Development Indicators: Central African Republic GDP and GDP per capita. [online] Available at: https://data.worldbank.org/country/central-african-republic

[38] Source: World Bank. (2024). World Development Indicators: Central African Republic GDP and GDP per capita. [online] Available at: https://data.worldbank.org/country/central-african-republic



CAR's economy continues to rely heavily on agriculture, though its share of the GDP has shifted. Agriculture's contribution to the nation's output declined from an average of 42% between 2001 and 2010 to 35% during 2011–2020. Conversely, the services sector saw its GDP contribution rise from 33% to 40% over the same period, while the industrial sector's share remained relatively stable at around 22-25%. Much of the industrial sector is driven by natural resource extraction—particularly diamonds, gold, and timber—which account for a significant share of exports but remain under-regulated and vulnerable to smuggling, conflict financing, and international market fluctuations.[39]

Despite these shifts in GDP contribution, agriculture remains the dominant employer, engaging 70% of the workforce, compared to 22% in services. This economic dynamic has been significantly shaped by the country's numerous conflicts, which have destroyed capital essential for structural economic transformation.[40]

Poverty and Inequality

The CAR remains one of the most impoverished countries globally. The UNDP ranks CAR 188th out of 191 on the Human Development Index [41]as illustrated on Figure 6. The country is positioned among the lowest on the HDI, that combines indicators of life expectancy, education, and per capita income to provide a composite measure of human development. CAR's persistently low HDI score underscores

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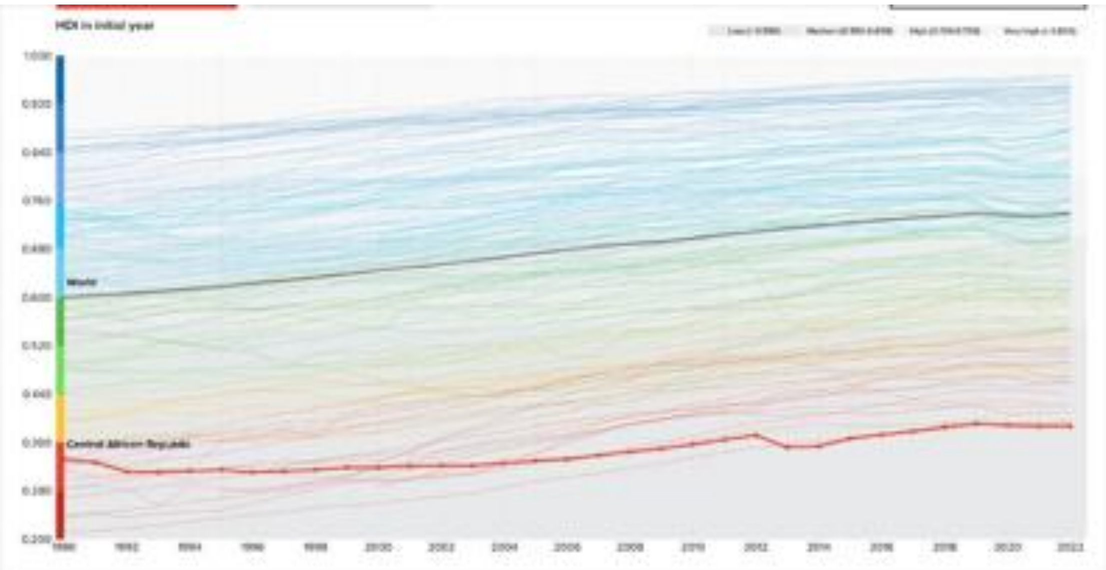
[39] Central African Republic Overview: Development news, research, data | World Bank

[41] (UNDP, 2023: https://hdr.undp.org/data-center/human-development-index#/indicies/HDI),

the country's structural socio-economic challenges and the urgent need for resilient, inclusive service delivery systems—especially in the WASH sector.

Figure 6: Central African Republic – Human Development Index (HDI) Rank and Value (2023)[42]



Patterns of Poverty and Inequality in CAR

The CAR continues to face one of the most entrenched poverty crises in the world. As of 2021, 68.8% of the population lived below the national poverty line (263,485 XAF or approximately USD 775 in 2017 PPP terms), while 54.9% fell under the food poverty threshold (197,990 XAF or around USD 582)[43]. International comparisons show that 65.7% of Central Africans lived on less than USD 2.15 per day in 2017 PPP terms, placing the country among the five poorest globally[44].

While the availability of detailed poverty data is relatively recent—largely stemming from the 2021 Enquête Harmonisée sur les Conditions de Vie des Ménages (EHCVM)—current projections suggest that poverty reduction will remain limited without significant shifts in policy and investment[45].

Youth and children are especially vulnerable. With over 75% of CAR's population under the age of 30, the poverty burden is deeply generational. For children, physical access to services such as education remains highly constrained. Notably, 54.8% of secondary-school-aged children live more than one hour away from the nearest school, significantly lowering enrolment and attainment rates.

Additionally, rural girls face a substantial gender gap in educational attainment—only 13.2% complete secondary school compared to 30.8% of boys. The rural-urban divide in poverty levels is striking. Rural areas exhibit a poverty rate of 74.2%, compared to 61.1% in urban settings. For food poverty, the figures are 60.1% and 47.5%, respectively. These disparities are largely driven by the capital Bangui,

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[42] *UNDP, 2023: https://hdr.undp.org/data-center/human-development-index#/indicies/HDI*

[43] World Bank (2023). Central African Republic Poverty Assessment 2023. Available at: https://documents.worldbank.org/en/publication/documents-reports/documentdetail/682481682844578200

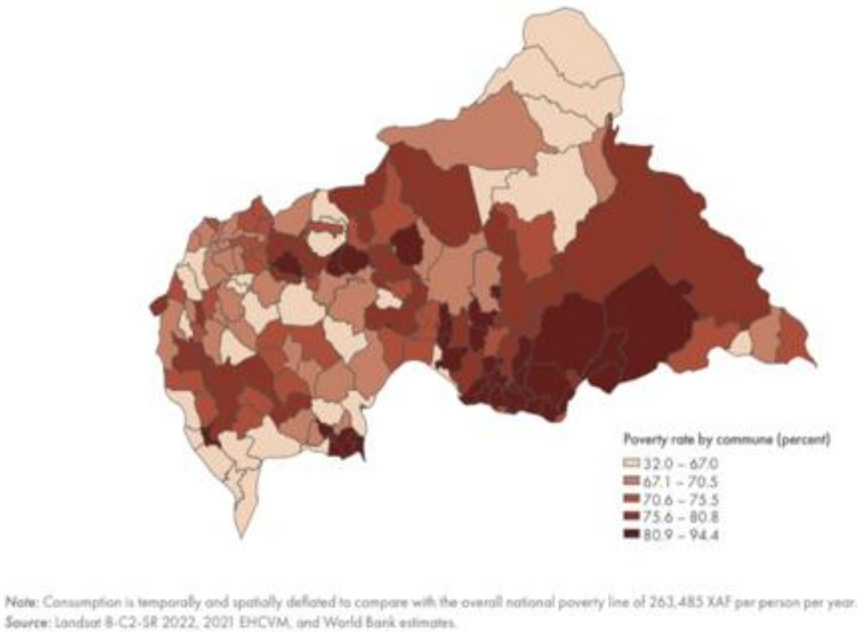
[44] Ibid.

[45] Ibid.

where the poverty rate is significantly lower at 40.1%, while rates in other regions frequently exceed 70%.[46]

Spatial disaggregation highlights stark regional contrasts. Haut-Oubangui is the poorest region with a headcount poverty rate of 84.7%, followed by Kagas (78.6%) and Yadé (72.3%). The capital, Bangui, stands out with the lowest rate at 40.1%. Geospatial data at the commune level further reveal critical subnational variations, showing poverty pockets even within moderately performing regions. This underlines the importance of micro-targeted interventions at the commune scale.[47]

Figure 7: Estimated poverty headcount rates at the commune level using small-area estimation models[48]



Beyond income, poverty in CAR is multidimensional and intersects across several deprivations—education, health, and access to infrastructure. According to the Multidimensional Poverty Measure (MPM), nearly 8 in 10 Central Africans are poor in multiple dimensions. A significant share of the population lacks access to electricity, sanitation, and skilled health services. Only 40% of births are attended by trained personnel, and vaccination rates remain among the lowest in Africa.

The overlap between monetary and multidimensional poverty creates compounded deprivation, making it critical to design interventions that address both economic and social deficits simultaneously.

CAR's Gini coefficient stands at 39.9—relatively moderate in global terms—but this masks considerable inter-group inequality. The top consumption quintile consumes 7.6 times more than the bottom quintile. This inequality is further reinforced by disparities in education, access to infrastructure, and geographic location.

[46] Government of CAR, 2021: BUR 1

[47] Government of CAR (2023). Premier Rapport Biennal Actualisé de la RCA.

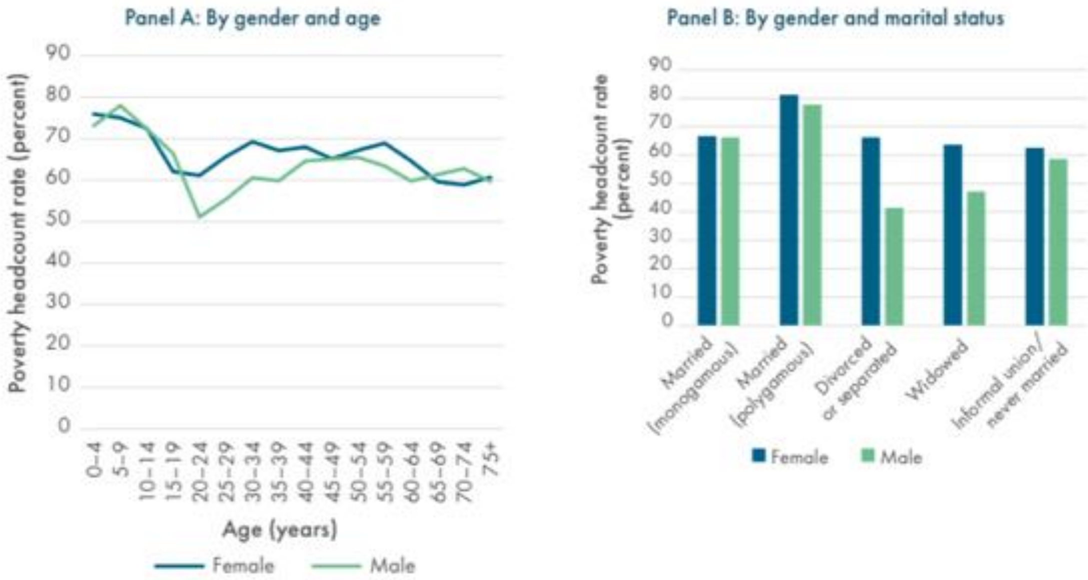
[48] Source : https://documents.worldbank.org/en/publication/documents-reports/documentdetail/099111323121515851/p17739108d680e074088b608a00615bcba3

Education, Gender, and Social Inclusion

The CAR continues to face deeply entrenched gender inequality. According to the UNDP's Gender Inequality Index (GII), the country ranks among the five worst globally for gender inequality, reflecting severe gaps across health, education, empowerment, and labour participation.[49] [50]

While national poverty rates for women (69.7%) and men (67.9%) appear broadly similar, deeper disaggregation reveals that gender-based poverty risks are concentrated at key life stages. Women and girls are significantly more likely to be poor (girls up to age 18 and women during their reproductive and caregiving years—particularly through age 39) due to constrained income-generating opportunities and caregiving burdens. Additionally, women who are divorced, separated, or widowed face far higher poverty rates than men in the same situations, revealing heightened economic vulnerability linked to marital status (World Bank, 2023a).

Figure 8: Gendered Poverty Risks by Age and Marital Status[51]



Note: Charts report poverty using the overall national poverty line of 263,485 XAF per person per year. Consumption is temporally and spatially deflated to compare with the national poverty line. Statistics on marital status focus on those aged 15 years or more.
Source: 2021 EHCVM and World Bank estimates.

Gender inequality also emerges at the household level. Households headed by women tend to have slightly higher poverty rates than male-headed households. However, when intersected with low education and large household size, disparity widens considerably. For example, poverty reaches over 80% in households with 5–9 members, and rates are higher when the household head is female or has only primary education. These patterns underscore how gender, education, and family structure compound deprivation.

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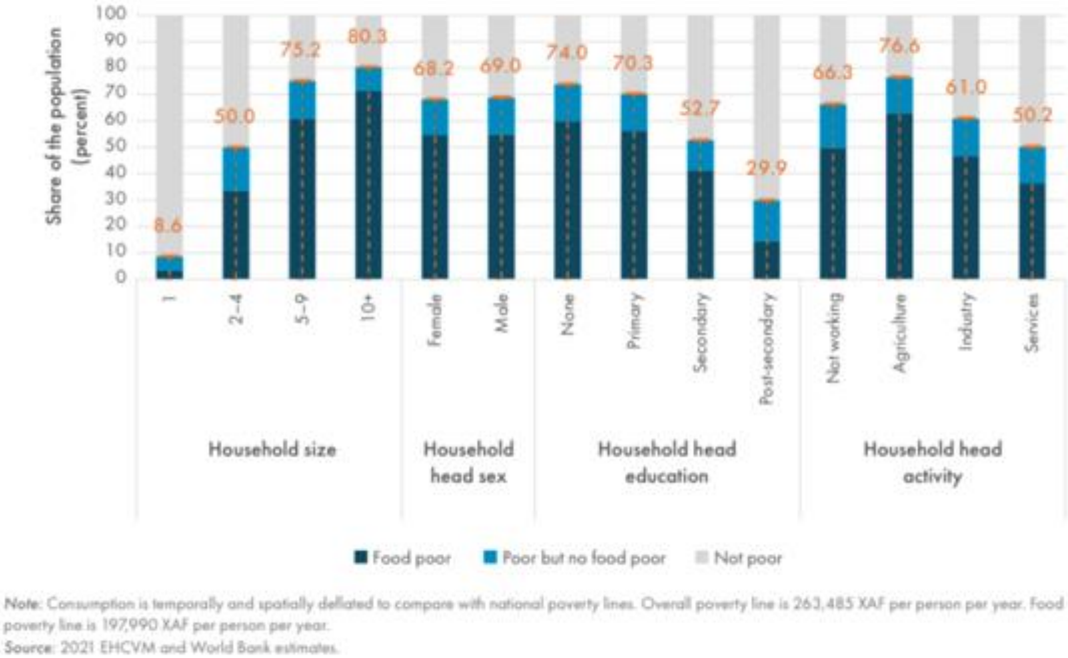
[49] UNDP (2023). Human Development Report 2023/24: Breaking the gridlock – Reimagining cooperation in a polarized world. United Nations Development Programme. Available at: https://hdr.undp.org/content/human-development-report-2023-24

[50] Women's Peace and Humanitarian Fund (2024). Central African Republic Country Profile. Available at: https://wphfund.org/countries/car/

[51] Source: World Bank (2023a), Central African Republic Poverty Assessment, p. 50.

Figure 9: Poverty by Household Size, Head's Gender and Education[52]

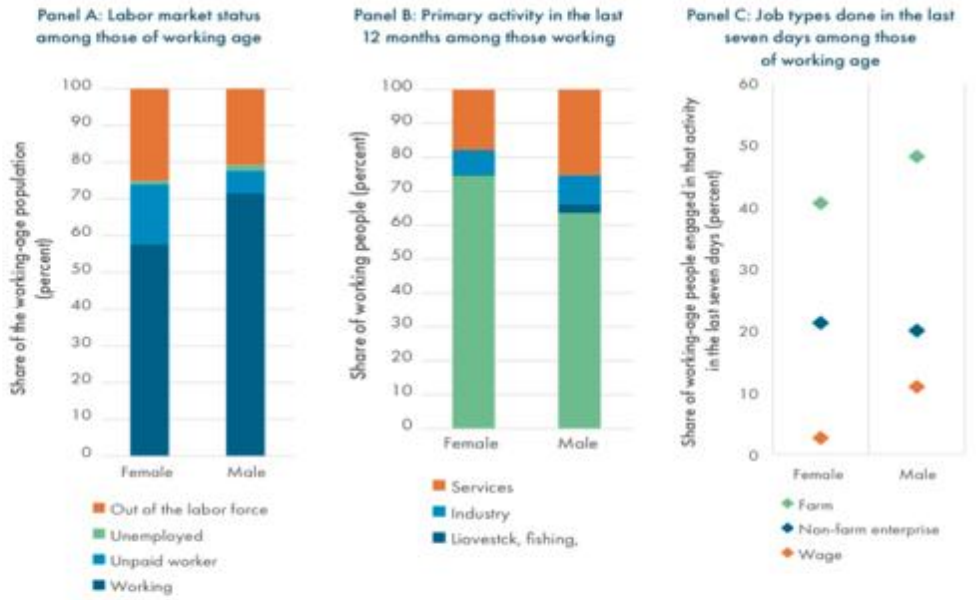


In labour markets, 73.9% of working-age women report being economically active, nearly matching men at 77.7%. However, the nature of their employment reveals deep structural inequality. Just 2.6% of women are in wage employment, compared to 10.9% of men, and women are overwhelmingly concentrated in unpaid work, agriculture, and informal sectors. Men, in contrast, dominate formal wage jobs and are more evenly distributed across industries.

These gaps are reflected in the distribution of job types across rural, urban, and displaced contexts. Women in both rural and urban areas remain concentrated in farming and informal services, while men are more likely to diversify into non-farm enterprises and wage work. This divide is consistent across displaced (IDP) and non-displaced households.

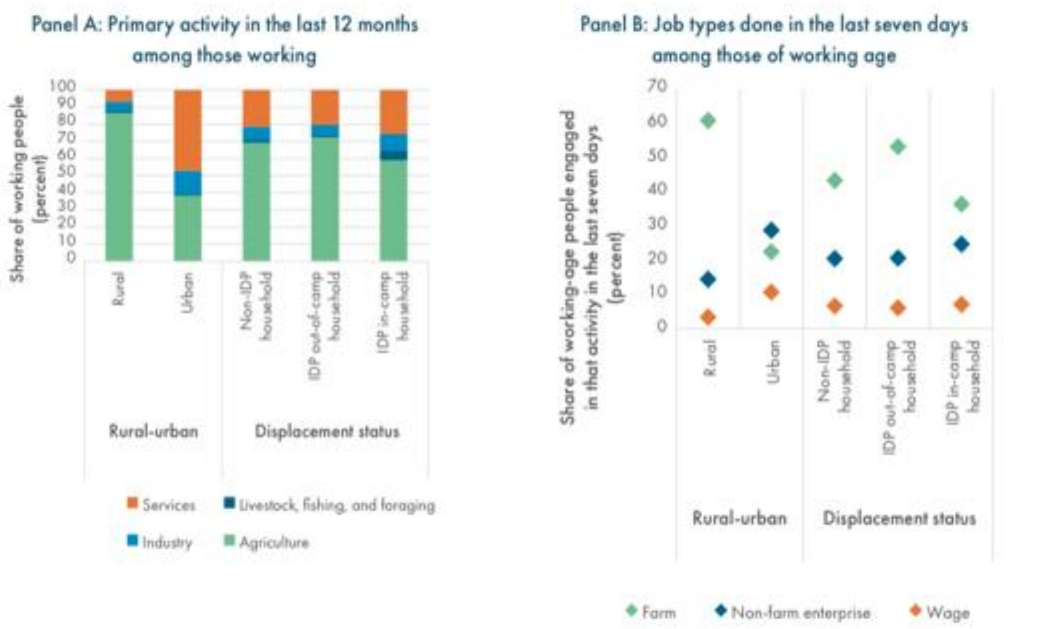
[52] Source: World Bank (2023a), Central African Republic Poverty Assessment, p. 49.

Figure 10: Gender Differences in Labour Market Outcomes in CAR[53]



Note: For Panel A, statistics focus on labor market status during the last seven days. "Working" includes those who worked for pay, profit, or gain including farmers, non-farm self-employed workers, wage workers, and apprentices, as well as those who were temporarily absent from those activities. Sample restricted to those of working age (15-64 years). For Panel B, statistics focus on the primary activity undertaken during the last 12 months. Sample restricted to those working in the last seven days. For Panel C, statistics focus on the whether or not each job was undertaken in the last seven days, with more than one type of job being possible. The sample is restricted to those of working age (15-64 years).
Source: 2021 EHCVM and World Bank estimates.

Figure 11: Job Type Distribution by Residence and Displacement[54]



Note: Statistics in Panel A focus on the primary activity undertaken during the last 12 months, with the sample restricted to those working in the last seven days. Statistics in Panel B focus on the whether or not each job was undertaken in the last seven days, with more than one type of job being possible. The sample for Panel B is restricted to those of working age (15-64 years).
Source: 2021 EHCVM and World Bank estimates.

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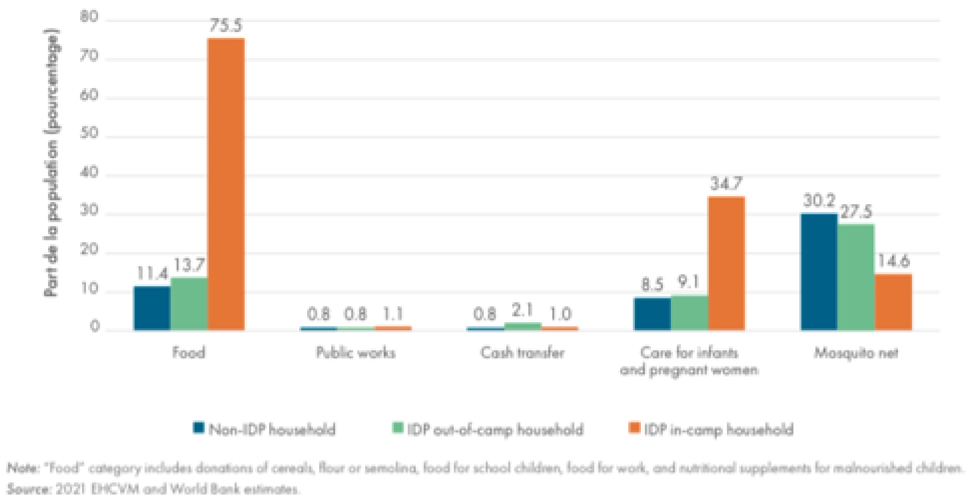
[53] World Bank (2023a), Central African Republic Poverty Assessment, p. 105.

[54] World Bank (2023a), Central African Republic Poverty Assessment, p. 103.

Health and social vulnerability further compound these economic barriers. Displaced girls and women, especially those in camps, are among the most deprived. Recent data shows that 75.5% of internally displaced persons (IDPs) in camps received food aid, and 34.7% received support for maternal and child healthcare—compared to far lower rates among non-IDP households. These figures highlight how gender and displacement intersect to exacerbate poverty [55].

Figure 12: Safety Net and Maternal Support by Displacement Status[56]



These findings underscore that women in CAR face persistent, multidimensional barriers: from limited access to formal employment and social protection to heightened poverty during key life stages and structural exclusion from support systems. Targeted interventions to expand formal job opportunities, improve social protections for women and girls in informal sectors, and transform discriminatory gender norms are essential to promote inclusion and reduce poverty sustainably. CAR's economy is primarily agrarian, employing over 70% of the population in subsistence agriculture[57]. Yet less than 5% of arable land is cultivated and only 1% of total water withdrawals go to irrigation[58]

Climate shocks such as prolonged droughts and floods disproportionately impact women / girls and socially vulnerable groups. As primary caregivers and subsistence farmers, rural women face heightened food insecurity and crop failure, which undermines both household nutrition and income. In 2023, an estimated 3.4 million people (over 60% of the population) required food assistance—many of whom were women-headed households in conflict-affected or isolated areas[59]. Limited infrastructure in remote zones like Vakaga and Bamingui-Bangoran (where only ~30% of rural areas have all-season roads) restricts women's and girls' access to health, education, and economic opportunities[60]. Additionally, underinvestment in WASH—less than 1% of the national budget—and the lack of affordable services increase the care burden on women and girls, who are often responsible for water

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[55] World Bank (2023). Central African Republic Poverty Assessment. Available at: https://documents.worldbank.org/en/publication/documents-reports/documentdetail/099818503232317293

[56] Ibid.p. 76.

[57] (FAO, 2023: https://www.fao.org/countryprofiles/index/en/?iso3=CAF).

[58] (SDG6 Data Portal, 2023: https://www.sdg6data.org/en/country-or-area/Central%20African%20Republic).

[59] (OCHA, 2024: https://reliefweb.int/report/centralafricanrepublic/rca-apercu-des-besoins-humanitaires-2024)

[60] (World Bank, 2024: https://www.worldbank.org/en/country/centralafricanrepublic/overview).

collection. These compounding factors can be addressed through inclusive adaptation strategies that improve resilience, accessibility, and gender-sensitive infrastructure.

Sectoral Context

WASH

WASH Overview

The CAR experiences some of the lowest WASH access rates in the world. As of 2024, only 6% of the national population had access to safely managed water services, the lowest rate worldwide, and 14% had access to safely managed sanitation services, ranking 10th lowest globally.[61] Meanwhile, unimproved water source use is the highest in the world, at 33%.[62] These limitations in WASH infrastructure access pose major barriers to, among others, early childhood survival, health, and educational attainment, contributing to CAR's critically low human capital index.[63] WASH-related diseases are a leading cause of mortality, with diarrhoeal disease ranked as the sixth leading cause of death,[64] and conditions such as neonatal infections and malaria, linked to inadequate WASH, among the top five contributors to the national disease burden.[65]

Climate change in the CAR is fundamentally impacting the provision of WASH services. Changing rainfall patterns have contributed to increased flooding, which degrades water quality, damages WASH infrastructure and disrupts access to services.[66] [67] Increased flooding is expected to exacerbate contamination and accelerate the spread of water- and vector-borne diseases, while higher temperatures and erratic rainfall reduce groundwater infiltration rates and water availability.[68] [69]Although rainfall may increase overall, the CAR is vulnerable to water shortages as much of the increased precipitation is expected to come in extreme events, leading to poor water retention and groundwater recharge.[70] These impacts are compounded by the country's political instability, armed conflict, and widespread insecurity, which have led to the displacement of populations and placed additional pressure on existing WASH services.[71] In addition, environmental degradation, including deforestation, watershed degradation, urbanization, and land use practices such as slash-and-burn agriculture, further strain water resources, hindering efforts to improve WASH access across the country.[72] The impacts of climate change on WASH in the CAR are discussed in detail in section 3.4 "Climate induced vulnerabilities and impacts on WASH".

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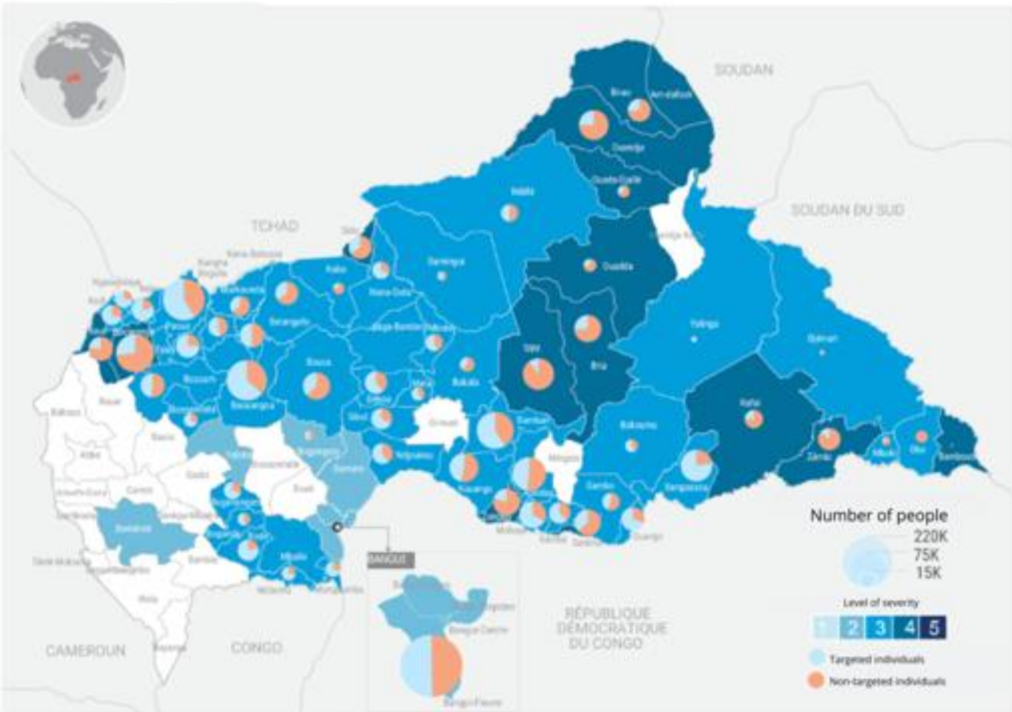
[61] WHO/UNICEF JMP. (2024). *Progress on household drinking water, sanitation and hygiene, 2000-2024. https://washdata.org/reports/jmp-2025-wash-households*
[62] Ibid.
[63] World Bank. (2020). *The Human Capital Index 2020 Update: Human Capital in the Time of COVID-19.* The World Bank Group.
[64] World Health Organization. (2024). *Data: Central African Republic.* https://data.who.int/countries/140
[65] World Bank Group. (2024). *Central African Republic country climate and development report*. https://openknowledge.worldbank.org/server/api/core/bitstreams/e1553b3b-3ce6-4800-8f93-476e7c89d21b/content
[66] World Bank Group. (2024). *Central African Republic country climate and development report*. https://openknowledge.worldbank.org/server/api/core/bitstreams/e1553b3b-3ce6-4800-8f93-476e7c89d21b/content
[67] Red Cross Climate Centre. (2024). *Climate fact sheet : Central African Republic.*
[68] Red Cross Climate Centre. (2024). *Climate fact sheet : Central African Republic.*
[69] UNICEF. (2025). *Analyse du paysage climatique pour les enfants (CLAC) en République Centrafricaine.*
[70] UNICEF. (2025). *Analyse du paysage climatique pour les enfants (CLAC) en République Centrafricaine.*
[71] pS-Eau. (2023) *Fiche pays : République Centrafricaine.*
[72] UNEP. (2022). *Interactive Country Fiches: Central African Republic.* https://dicf.unepgrid.ch/central-african-republic/water#section-impacts

These environmental and structural challenges are reflected in widespread humanitarian WASH needs across the country. Nearly all sub-prefectures in the CAR face significant levels of WASH-related vulnerability, with 14 sub-prefectures classified as experiencing severe needs (severity threshold 4) (Figure 13).[73] The severity of these needs is driven by limited access to safe drinking water, the continued prevalence of open defecation, and high morbidity and mortality rates from faeco-oral diseases, particularly affecting children under five years of age.[74] Gender and age disaggregated data indicate that among the population in need of WASH services, 25% are women, 24% are men, 23% are girls, and 23% are boys, suggesting that children represent 46% of the population with WASH-related needs.[75]

Figure 13. Severity of WASH-related needs by sub-prefecture. Source: OCHA (2025).[76]



Water

2.1.2.1 Water resources

The CAR has an extensive hydrographic network and abundant renewable water resources, with an estimated per capita water availability of approximately 25,800 m³ per year.[77] Despite this

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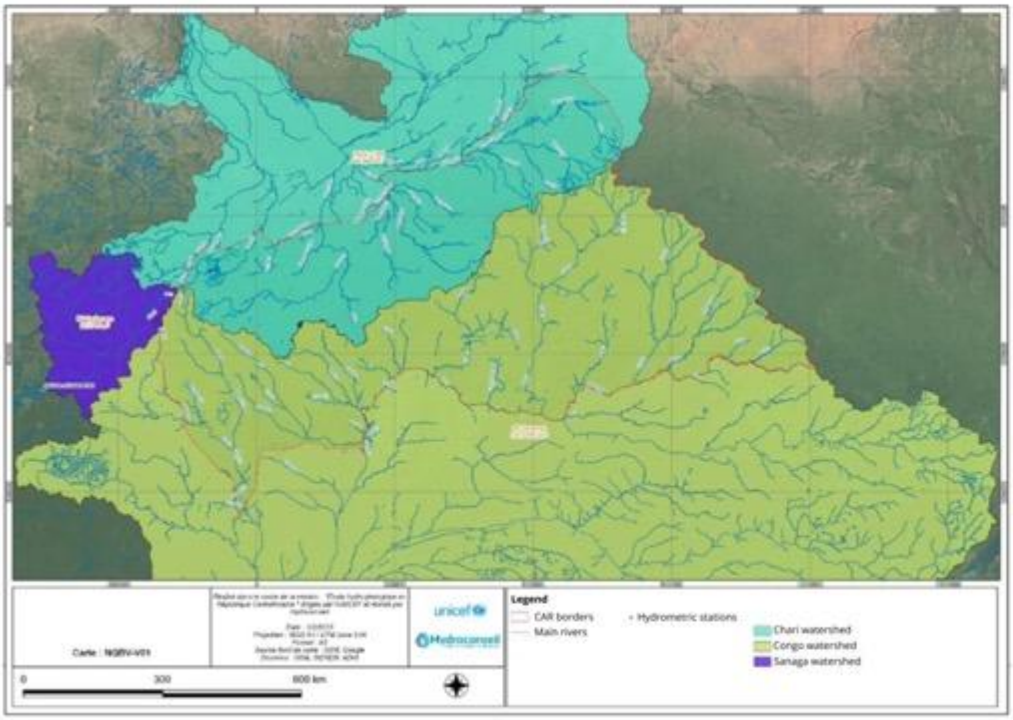
[73] OCHA (2025). *Besoins Humanitaires et Plan de Réponse.* https://humanitarianaction.info/plan/1256/document/besoins-humanitaires-et-plan-de-reponse-rca-2025/article/33-eau-hygiene-assainissement-eha#page-title
[74] OCHA (2025). *Besoins Humanitaires et Plan de Réponse.* https://humanitarianaction.info/plan/1256/document/besoins-humanitaires-et-plan-de-reponse-rca-2025/article/33-eau-hygiene-assainissement-eha#page-title
[75] OCHA (2025). *Besoins Humanitaires et Plan de Réponse.* https://humanitarianaction.info/plan/1256/document/besoins-humanitaires-et-plan-de-reponse-rca-2025/article/33-eau-hygiene-assainissement-eha#page-title
[76] OCHA (2025). *Besoins Humanitaires et Plan de Réponse.* https://humanitarianaction.info/plan/1256/document/besoins-humanitaires-et-plan-de-reponse-rca-2025/article/33-eau-hygiene-assainissement-eha#page-title
[77] World Bank Group. (2024). *Central African Republic country climate and development report*. https://openknowledge.worldbank.org/server/api/core/bitstreams/e1553b3b-3ce6-4800-8f93-476e7c89d21b/content

abundance, actual water withdrawals represent only a small portion of the available resources. [78] According to the National Water Policy (2021), less than 10% of the country's water resources are currently being exploited, leading to a high percentage of the population facing water insecurity.[79]

Surface water

From a hydrological standpoint, the CAR's territory spans two international river basins: the Lake Chad basin and the Congo basin.[80] The transboundary Lake Chad basin is supplied by the Chari River and its tributaries, including the Bar Sara to the west, the Bamingui in the central region, and the Bahr Aouk to the east.[81] The transboundary Congo basin consists of two principal sub-basins: the Oubangui basin and the Sangha basin.[82] The country's major watersheds are illustrated in Figure 14.

Figure 14. Major watersheds in the Central African Republic. Source: UNICEF (2023).[83]



The CAR's rivers experience highly fluctuating water levels, ranging from flooding to complete drying, highlighting a need for water infrastructures which can cope with the extreme variability of water availability in the country. This variability is evident in the rivers of the Lake Chad basin, which are marked by flooding events occurring primarily between July and September, while the remainder of the year is characterized by low water levels.[84] For example, the western tributaries of the Chari

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[78] World Bank Group. (2024). *Central African Republic country climate and development report*. https://openknowledge.worldbank.org/server/api/core/bitstreams/e1553b3b-3ce6-4800-8f93-476e7c89d21b/content
[79] Ministère du Développement de l'Energie et des Ressources Hydrauliques, 2021. *Politique Nationale de l'Eau.*
[80] UNICEF. (2023). Étude hydrogéologique en République Centrafricaine : Rapport sur l'état de connaissance des ressources en eau.
[81] Ibid.
[82] Ibid.
[83] Ibid.
[84] Ibid.

display significant annual variations, ranging from 50 m³/s in March-April to 800 m³/s from August to October.[85] During the rainy season, most of the CAR's rivers spread over their floodplains.[86]

The variability of the CAR's rivers is reflected in high minimum and maximum daily streamflow values, indicative of potential drying and flooding. Several rivers, including the Bamingui, Bangoran, Koukourou, Mbokou, and Nana Barya, recorded an average minimum daily streamflow of 0.00m3/s over the period 1950 to 1994, indicating they are intermittent or ephemeral and experience complete drying during specific periods, coinciding with the dry season (Table 1). Conversely, rivers like the Oubangui record high average maximum daily streamflow, at 12750.00m3/s, indicative of significant flood potential (Table 1). Other major rivers and large tributaries, including the Sangha (2800.00m3/s), Chinko (1880.00m3/s), Kotto (1540.00m3/s), and Ouham (1582.25m3/s), also exhibit high maximum flows (Table 1). These contrasting hydrological patterns indicate a dual challenge of seasonal drought and flood risk.

Table 1. Average mean daily streamflow, minimum daily streamflow, maximum daily streamflow and frequency of zero-flow days across rivers and tributaries in the Central African Republic. Source: ADHI (2020)[87]

River or tributary	Average mean daily streamflow (m3/s)	Average of minimum daily streamflow (m3/s)	Average of maximum daily streamflow (m3/s)
Bahr Aouk	82.36	6.25	363.00
Bamingui	18.40	0.00	185.00
Bangoran	7.65	0.00	78.00
Bangui-Kette	55.40	3.36	376.00
Chinko	316.94	4.25	1880.00
Fafa	34.86	0.11	312.00
Gribingui	20.15	0.56	166.00
Kerre	12.48	0.74	97.80
Kotto	320.85	45.55	1270.00
Koukourou	20.38	0.00	147.00
Lesse	5.63	0.28	45.90
Lobaye	208.79	95.50	497.50
Mambere	206.19	4.00	1000.00
Mbali	59.12	8.25	276.50
Mbari Mari	140.16	3.70	1050.00
Mbokou	16.19	0.00	131.00
Mbomou	171.54	1.28	809.00
Mpoko	181.96	3.33	808.00
Nana	61.37	1.86	383.00
Nana Barya	62.54	0.00	515.00
Ombella	32.48	0.89	154.00
Ouaka	164.60	7.50	784.00
Ouarra	65.93	2.00	320.00

[85] Ibid.
[86] Ibid.
[87] Tramblay, Yves, and Nathalie Rouché. (2020). ADHI: African Database of Hydrometric Indices. https://doi.org/10.23708/LXGXQ9

River or tributary	Average mean daily streamflow (m3/s)	Average of minimum daily streamflow (m3/s)	Average of maximum daily streamflow (m3/s)
Oubangui	3746.53	443.50	12750.00
Ouham	172.57	2.80	1582.25
Pipi	12.44	2.91	106.00
Sangha	724.34	77.00	2800.00
Tomi	14.66	0.10	154.00

In the CAR, surface water is rarely used as the main source of water for domestic and drinking purposes, with only an estimated 5% of the population relying on it for daily needs as of 2018, including 7.7% in rural areas and 0.5% in urban areas. [88] The predominant use of surface water is for agricultural and sylvicultural activities, which account for nearly 90% of surface water withdrawals.[89] An additional 9% of surface water is used for services such as drinking water supply, while industrial use represents less than 1% of total withdrawals.[90] While groundwater is the main source of drinking water in the country, several urban centres located along large rivers such as Bangui, Bambari, Bouar and Carnot rely on surface water as their main water source,[91] with urban water supplies primarily operated by SODECA.[92] In rural areas, populations may occasionally use resources from rivers and lakes, as surface water is available for a large part of the year.[93] Yet, the quality of these waters can be poor, and sources can become weak or dry up over the course of the year.[94] More detailed information, including quantitative assessments, on the quality of surface water can be found in sub-section 2.1.2.3 "Water quality".

Groundwater

Groundwater constitutes the primary source of drinking water in the CAR,[95] with approximately 95% of the population relying on it as their main source of drinking water.[96] In villages and peri-urban areas, communities predominantly access groundwater through small-scale supply systems, which include boreholes and shallow wells.[97] These water points are typically equipped with handpumps, while solar-powered systems and larger-scale network systems have been installed in some locations (larger villages, towns, and urban areas).[98]

Groundwater resources in the CAR remain insufficiently studied, **with existing knowledge largely based on historical high-level assessments and broad geological mapping initiatives.**[99] The most recent and comprehensive study was conducted in 2010 by the PRACTICA Foundation,

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[88] UNICEF. (2021). *MICS6: Central African Republic*. https://mics.unicef.org/surveys?display=card&f[0]=region:3841
[89] Global Water Partnership. (2022). *Aperçu de la situation en matière d'eau et de climat en République centrafricaine.* https://www.gwp.org/contentassets/536c7e6e652f410195dfe6c98c419464/car-snapshot-gwlp_fr---web.pdf
[90] Global Water Partnership. (2022). *Aperçu de la situation en matière d'eau et de climat en République centrafricaine.* https://www.gwp.org/contentassets/536c7e6e652f410195dfe6c98c419464/car-snapshot-gwlp_fr---web.pdf
[91] UNICEF. (2023). *Étude hydrogéologique en République Centrafricaine : Rapport sur l'état de connaissance des ressources en eau.*
[92] Evans, P. & L'hévéder, B. (2024). *Identification of Climate Change Risks to Surface and Groundwater Resources across the Central African Republic and Resilience Measures.* https://hydroconseil.com/wp-content/uploads/2025/01/6G2T3-LHeveder-Evans-2024-AJCCRS-Article.pdf
[93] UNICEF and Hydroconseil. (2023). *Rapport et cartographie des zones de vulnérabilité des ressources en eau. UNICEF en RCA.* Bangui, RCA.
[94] UNICEF. (2025). *Analyse du paysage climatique pour les enfants (CLAC) en République Centrafricaine : Rapport provisoire.*
[95] Evans, P. & L'hévéder, B. (2024). *Identification of Climate Change Risks to Surface and Groundwater Resources across the Central African Republic and Resilience Measures*. https://hydroconseil.com/wp-content/uploads/2025/01/6G2T3-LHeveder-Evans-2024-AJCCRS-Article.pdf
[96] UNICEF. (2025). *Analyse du paysage climatique pour les enfants (CLAC) en République Centrafricaine, Rapport provisoire.*
[97] Evans, P. & L'hévéder, B. (2024). *Identification of Climate Change Risks to Surface and Groundwater Resources across the Central African Republic and Resilience Measures*. https://hydroconseil.com/wp-content/uploads/2025/01/6G2T3-LHeveder-Evans-2024-AJCCRS-Article.pdf
[98] Evans, P. & L'hévéder, B. (2024). *Identification of Climate Change Risks to Surface and Groundwater Resources across the Central African Republic and Resilience Measures*. https://hydroconseil.com/wp-content/uploads/2025/01/6G2T3-LHeveder-Evans-2024-AJCCRS-Article.pdf
[99] Ibid.

which examined the characteristics of various aquifer types across the country.[100] However, hydrogeological data remains rare, fragmented, and inconsistent.[101] Available information is primarily derived from borehole drilling activities, but the systematic transmission of technical drilling data to national institutions such as the Directorate General of Water Resources (DGRH) and the National Agency for Water and Sanitation (ANEA) has yet to be fully implemented.[102] At the local level, there is a notable **lack of detailed hydrogeological data**, limiting effective water resource planning and management.[103]

The main aquifer groups in the CAR include:[104]

- Precambrian non-carbonate formations, covering about 75% of the country, consist of highly recrystallized and poorly metamorphosed rocks forming largely impermeable, fractured aquifers.[105] These aquifers are typically shallow (5–20 m), have low to moderate productivity, and yield between 300 and 1,000 L/h,[106] though some boreholes can exceed 10 m³/h.[107]

Precambrian carbonate formations overlie the basic complex and are divided into three units, with limestones and dolomitic limestones playing a key role in groundwater potential.[108] [109] These formations often form karst aquifers characterized by high permeability due to chemical and mechanical alteration. Though classified as high in productivity,[110] they are vulnerable to contamination and fluctuations in precipitation.
Cretaceous Mesozoic sandstones, notably the Carnot and Mouka Ouadda formations, rest with angular unconformity on the Precambrian basement complex and form distinct plateau outcrops.[111] These formations are composed predominantly of sandstone with inferred moderate to high permeability.[112] Combined with their thickness and direct recharge from precipitation, they are considered to form moderately to highly productive aquifers.[113] [114]
Tertiary and Quaternary sand and clay formations occur along the northeastern fringe of the country, overlying Mesozoic sediments or Precambrian formations.[115] These sediments contain multiple superimposed aquifers, with productivity largely controlled by lithology.[116] Sands and gravels, which are highly permeable and possess significant storage capacity, contribute to the classification of these aquifers as highly productive.[117] [118]

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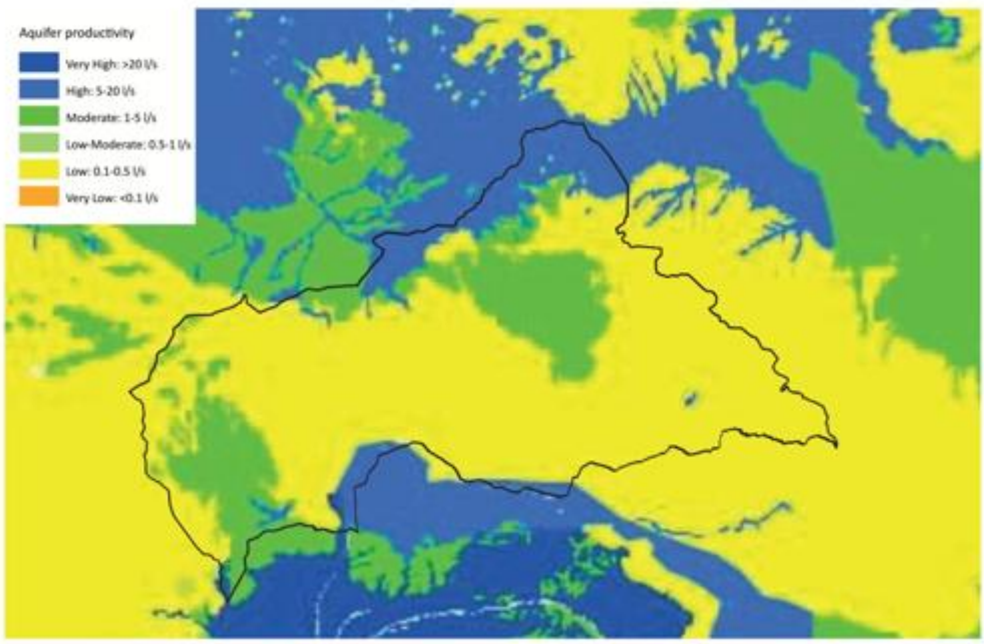
[100] UNICEF. (2010). Etude de faisabilité des forages manuels, identification des zones potentiellement favorables.
[101] UNICEF/SIWI. (2023). *Gestion de la demande en eau – République centrafricaine : Rapport d'état des lieux*.
[102] UNICEF/SIWI. (2023). Gestion de la demande en eau – République centrafricaine : Rapport d'état des lieux.
[103] Evans, P. & L'hévéder, B. (2024). Identification of Climate Change Risks to Surface and Groundwater Resources across the Central African Republic and Resilience Measures. https://hydroconseil.com/wp-content/uploads/2025/01/6G2T3-LHeveder-Evans-2024-AJCCRS-Article.pdf
[104] Ibid.
[105] Ibid.
[106] Ibid.
[107] UNICEF. (2010). Etude de faisabilité des forages manuels, identification des zones potentiellement favorables.
[108] UNICEF. (2010). Etude de faisabilité des forages manuels, identification des zones potentiellement favorables.
[109] Evans, P. & L'hévéder, B. (2024). Identification of Climate Change Risks to Surface and Groundwater Resources across the Central African Republic and Resilience Measures. https://hydroconseil.com/wp-content/uploads/2025/01/6G2T3-LHeveder-Evans-2024-AJCCRS-Article.pdf
[110] Upton K, Ó Dochartaigh BÉ and Bellwood-Howard, I. (2018). *L'Atlas de l'eau souterraine en Afrique : Hydrogéologie de la République centrafricaine. British Geological Survey.*
[111] Evans, P. & L'hévéder, B. (2024). Identification of Climate Change Risks to Surface and Groundwater Resources across the Central African Republic and Resilience Measures. https://hydroconseil.com/wp-content/uploads/2025/01/6G2T3-LHeveder-Evans-2024-AJCCRS-Article.pdf
[112] Ibid.
[113] Ibid.
[114] Upton K, Ó Dochartaigh BÉ and Bellwood-Howard, I. (2018). L'Atlas de l'eau souterraine en Afrique : Hydrogéologie de la République centrafricaine. British Geological Survey.
[115] Evans, P. & L'hévéder, B. (2024). Identification of Climate Change Risks to Surface and Groundwater Resources across the Central African Republic and Resilience Measures. https://hydroconseil.com/wp-content/uploads/2025/01/6G2T3-LHeveder-Evans-2024-AJCCRS-Article.pdf
[116] Ibid.
[117] Ibid.
[118] Upton K, Ó Dochartaigh BÉ and Bellwood-Howard, I. (2018). L'Atlas de l'eau souterraine en Afrique : Hydrogéologie de la République centrafricaine. British Geological Survey.

Groundwater productivity maps from 2011 provide information on the borehole yields which can reasonably be expected in different hydrogeological units of the CAR.[119] Aquifer productivity rates are predominantly low across the majority of the country, with typical yields ranging from 0.1 to 0.5 litters per second (Figure 15). Areas with moderate aquifer productivity rates include the western prefectures of Sangha-Mbaéré, Lobaye, Mambéré-Kadéï, Nana-Mambéré and Ouham Pendé, and certain central and northern prefectures such as Haute-Kotto, Ouham, Bamingui-Bangoran and Vakaga (Figure 15). High productivity rates, indicating yields of 5 to 20 litres per second, are present in the south of the country along the border with the Democratic Republic of the Congo, as well as in the north of the country along the border with Chad, in particular in Vakaga (Figure 15).

Figure 15. Aquifer productivity rates in the Central African Republic - 2011. Source: MacDonald et al. (2012)[120]



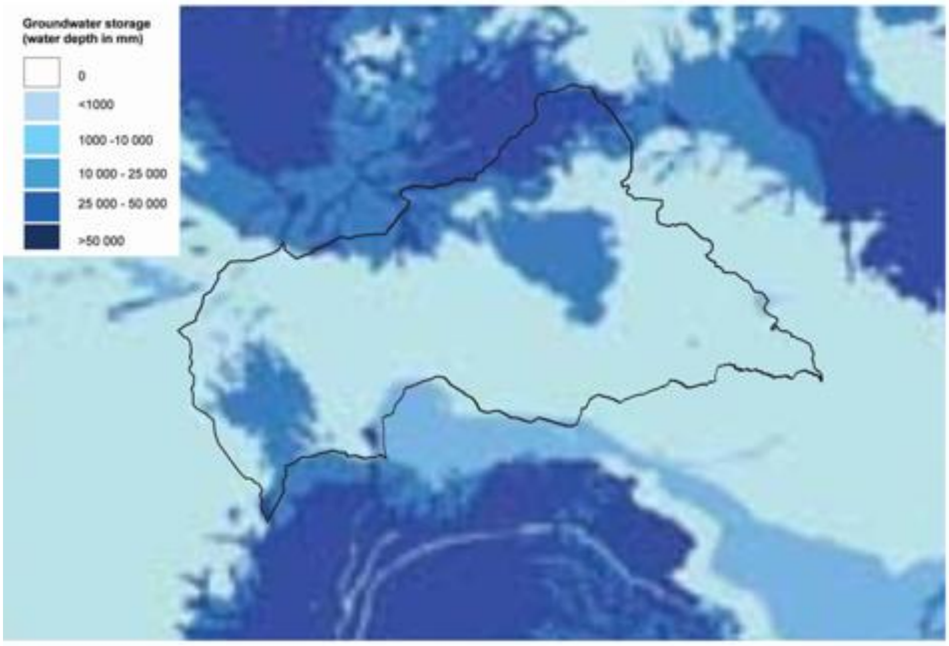
Groundwater storage data from 2011 reveals significant regional variations. Higher groundwater storage exists in the north and west of the country, despite a majority of areas where storage is <1000mm (Figure 16). Much of the central and southeastern regions of the CAR appear to have relatively low groundwater storage, predominantly within the <1,000 mm range (Figure 16). In contrast, areas in the western and north-central parts of the country exhibit higher groundwater storage, with some zones reaching the 10,000–25,000 mm category (Figure 16). Isolated regions in the north, particularly in Vakaga, show even higher values, from 25,000 to 50,000mm (Figure 16).

Regional differences in groundwater storage carry implications for water supply and security strategies across the country. Areas with low groundwater reserves, including much of the centre and southeast, are likely to be more vulnerable to water scarcity, particularly during dry seasons and projected temperature increases and droughts. In contrast, the western and north-central regions where groundwater storage is moderate to high have more favourable conditions for the development

[119] MacDonald, A. M. et al. (2012). Quantitative maps of groundwater resources in Africa. *Environmental Research Letters, 7*(2), 024009. https://doi.org/10.1088/1748-9326/7/2/024009
[120] MacDonald, A. M. et al. (2012). Quantitative maps of groundwater resources in Africa. *Environmental Research Letters, 7*(2), 024009. https://doi.org/10.1088/1748-9326/7/2/024009

of groundwater-fed systems. High storage values in Vakaga suggest substantial groundwater potential, which is supportive of long-term water supply development.

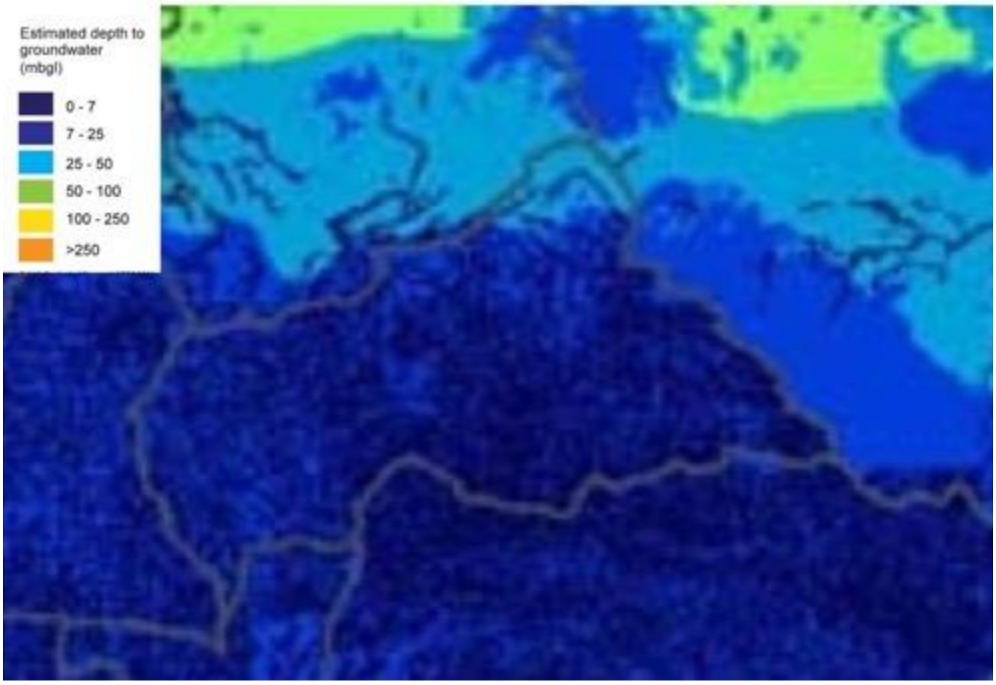
Figure 16. Groundwater storage (water depth in mm) in the Central African Republic - 2011. Source: MacDonald et al. (2012)[121]



The generally shallow groundwater depths across much of the CAR enhance the physical accessibility of water and could support cost-effective groundwater development. The majority of the country, especially in central, western, and southern regions, falls within the 0–7 metres below ground level (mbgl) range, indicating relatively easy access to groundwater resources (Figure 17). In the northeast, towards Vakaga and parts of the north-central areas, groundwater depths increase slightly, ranging from 7 to 25 mbgl, with northernmost zones reaching 25 to 50 mbgl (Figure 17).

Figure 17. Depth to groundwater (mbgl) in the Central African Republic - 2011. Source: MacDonald et al. (2012).[122]

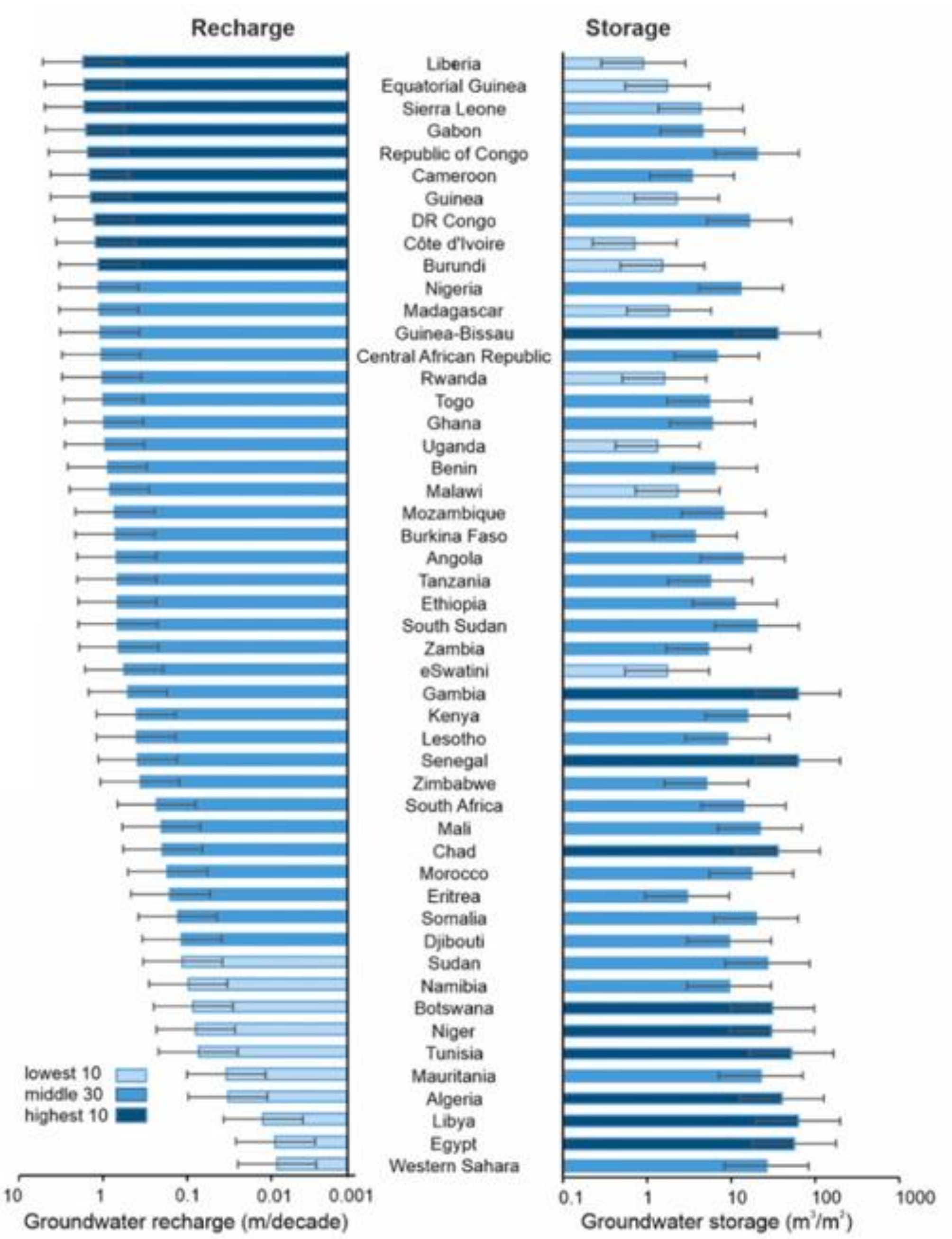
[121] MacDonald, A. M. et al. (2012). Quantitative maps of groundwater resources in Africa. *Environmental Research Letters,* *7*(2), 024009. https://doi.org/10.1088/1748-9326/7/2/024009
[122] MacDonald, A. M. et al. (2012). Quantitative maps of groundwater resources in Africa. *Environmental Research Letters,* *7*(2), 024009. https://doi.org/10.1088/1748-9326/7/2/024009



The CAR exhibits moderate to high groundwater recharge and moderate groundwater storage, compared to other African countries (Figure 18). Its estimated decadal recharge depth is of 1100 mm (1.1 meters), placing it among countries with moderate to high recharge rates and suggesting stable replenishment of groundwater reserves.[123] The total groundwater storage in CAR is estimated at 4200 km^3.[124]

Figure 18. Bar graph of recharge depth and groundwater storage m−2 among African countries. Source: MacDonald et al (2021).[125]

[123] MacDonald, A.M. et al. (2021). Mapping groundwater recharge in Africa from ground observations and implications for water security. Environmental Research Letters.
[124] MacDonald, A.M. et al. (2021). Mapping groundwater recharge in Africa from ground observations and implications for water security. Environmental Research Letters.
[125] MacDonald, A.M. et al. (2021). Mapping groundwater recharge in Africa from ground observations and implications for water security. Environmental Research Letters.



2.1.2.2 Water Access

Regional coverage and functionality of water infrastructure

While the CAR has considerable renewable water resources and moderate to high groundwater recharge and storage rates, this has not translated into widespread access to safe drinking water in the country. The contrast between CAR's water endowments and the population's limited access to drinking water points to economic water scarcity as a cause rather than physical water scarcity: while physical water scarcity occurs when sufficient water is not available to meet the demand of the region or country, economic water scarcity emerges due to poor management of water resources, lack of good governance, non-investment on sustainable water infrastructure or lack of human capacity to meet the water demand, even in places with abundant resources.[126] The high availability of water resources coupled with low water access rates indicate that the CAR faces economic water scarcity.

The centre of the country, more densely populated, benefits from higher infrastructures coverage. As of 2011, approximately three-quarters of the country's boreholes, totalling around 2625, are located in the central prefectures, specifically Ouham (700), Nana Gribizi (550), Lobaye (389), Ombella Mpoko (320), Kémo (220), and Basse Kotto (146).[127] Of these, four are among the country's eight prefectures with the highest population density, specifically Ouham, Lobaye, Ombella M'Poko and Basse-Kotto. These boreholes were developed through various drinking water supply projects, including the UN Capital Development Fund's C03 project, which funded about 200 boreholes in Lobaye and Ombella Mpoko, and UNICEF projects which implemented approximately 1500 boreholes.[128]

While reliable and up-to date information on the state of water infrastructures in the CAR is largely lacking, [129] **available information for urban areas largely points to low functionality and poor maintenance.** In urban areas such as Bangui, the water supply infrastructure has been characterized as "archaic and poorly maintained",[130] and unable to meet demand even when operating at full capacity.[131] The Société de Distribution d'eau en Centrafrique (SODECA), which is the main water supplier in Bangui and other major urban centres, has a water supply system which has been described as suffering from outdated water distribution network, degraded water pipes, and lack of maintenance of water treatment infrastructure.[132] Disadvantaged neighbourhoods in Bangui reportedly rely on informal networks such as standpipes, boreholes, and wells for their water supply.[133] The existing water distribution network is old and in poor condition, with degraded pipes and a lack of maintenance for water treatment facilities.[134] This leads to repeated leaks, which contribute to water loss and create entry points for microbes.[135] For Birao, Vakaga, however, reports from USAID (in 2022) show that the majority of water points in the city are functional.[136] Out of a total of 22 hand pumps, 2 are non-functional, while 20 are functional; among the functional hand pumps, 9 are available free of charge, and 11 require payment for use (
Figure 19.). Additionally, there are 2 improved springs; both are functional, with one providing potable water and the other non-potable water, and both are accessible without cost (Figure 19).

Figure 19. Distribution and functionality of water points in Birao. Source: USAID (2022).[137]

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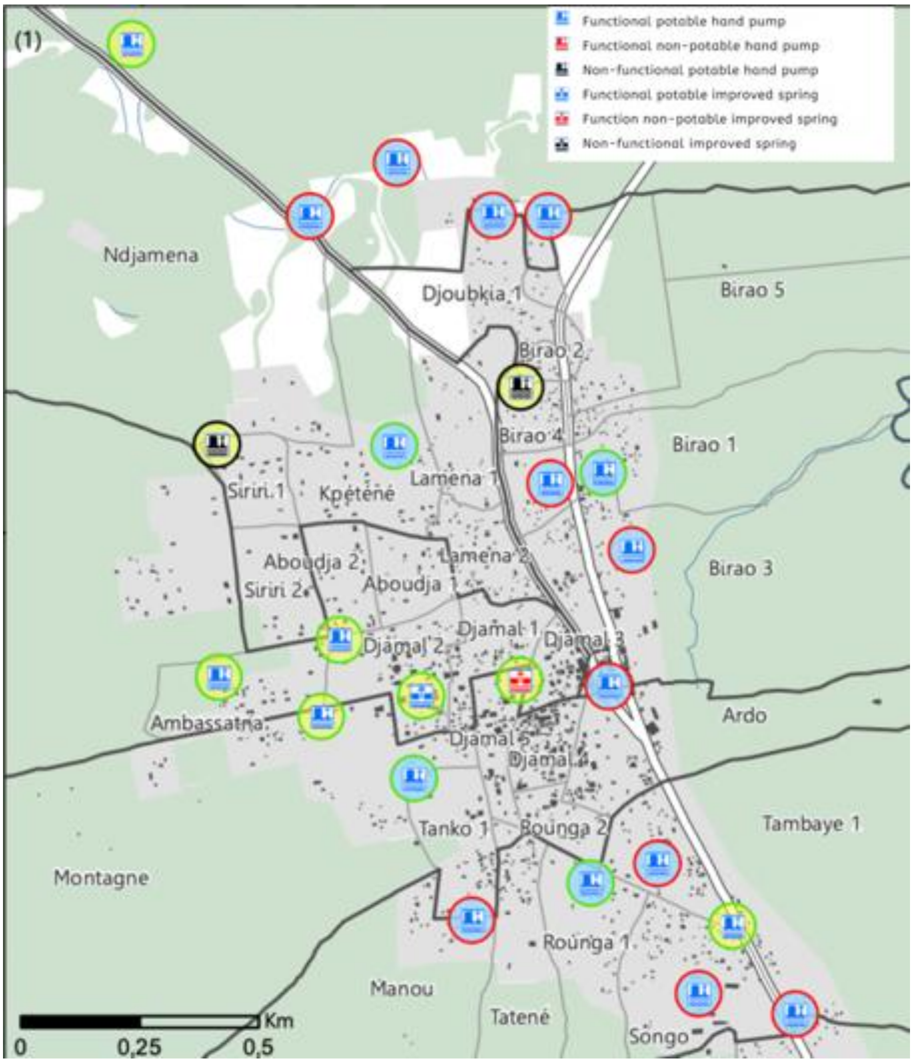
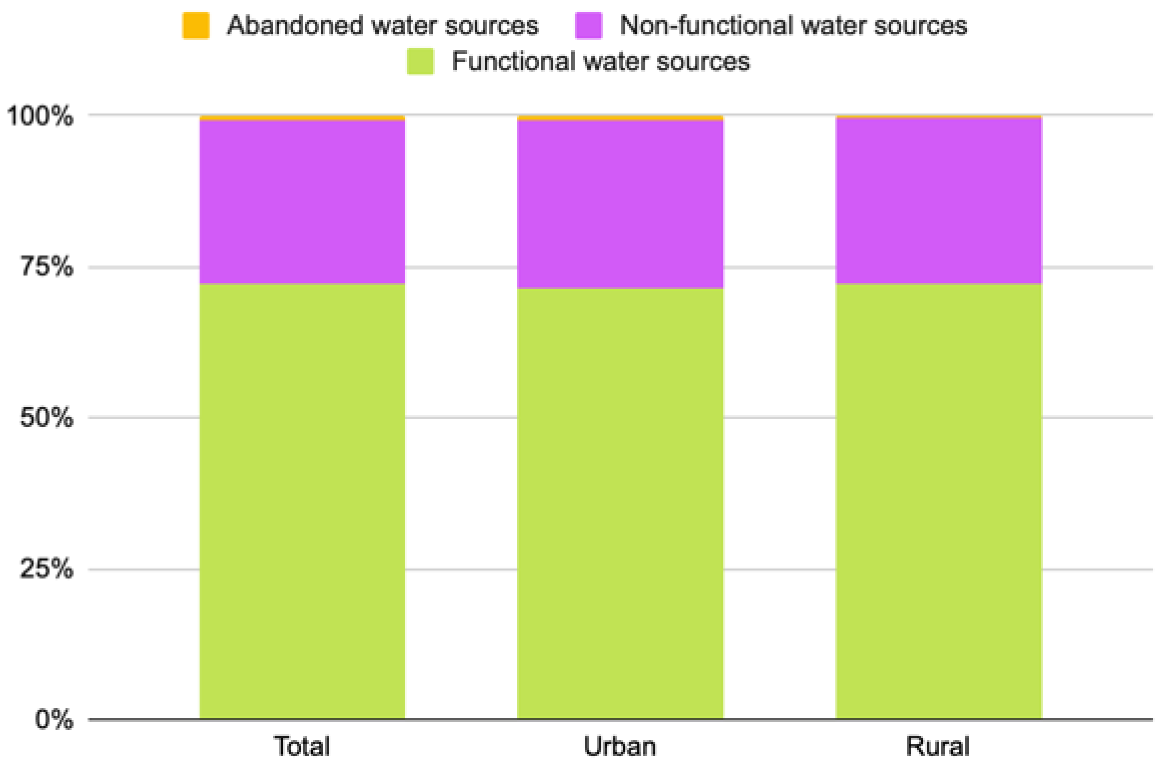
[126] Gupta, P.P., 2021. *Economic Water Scarcity: The Beginning of the End of Growth Story. Available at: https://adriindia.org/images/newsletter/15427130456-Economic-Water-Scarcity-The-Beginning-of-the-End-of-Growth-Story.pdf*
[127] PRACTICA, EnterpriseWorks/VITA and UNICEF. (2011). Etude De Faisabilite Des Forages Manuels Identification Des Zones Potentiellement Favorables.
[128] Ibid.
[129] UNICEF. (2023). *Pérennisation des ouvrages WASH dans la Région 3.*
[130] Global Water Partnership. (2022). *Central African Republic snapshot on water and climate*. https://www.gwp.org/contentassets/536c7e6e652f410195dfe6c98c419464/car-snapshot-gwlp---web.pdf
[131] UNICEF. (2023). Gestion de la demande en eau – République centrafricaine : Rapport d'état des lieux.
[132] Grembo, Diogène Macaire Siro. (2017). *Croissance urbaine, un défi pour l'accès à l'eau potable et à l'assainissement à Bangui (République Centrafricaine)*. [Thèse de doctorat]. Paris 8. https://theses.fr/2017PA080004
[133] Ibid.
[134] Ibid.
[135] Ibid.
[136] USAID. (2022). République Centrafricaine, Vakaga - Ville De Birao : Caractéristiques des Points d'Eau.
[137] Ibid.



Available data from the General Directorate of Hydraulic Resources highlights that a significant share (27-28%) of surveyed water points in the CAR are non-functional, regardless of whether they are in urban or rural areas. Across the prefectures of Bamingui-Bangoran, Bangui, Kemo, Lobaye, Nana-Gribizi and Ombella M'Poko, out of 2450 recorded and surveyed water sources, 72% were functional, 27.4% were non-functional, and 0.6% were abandoned (Figure 20). In urban areas, 71.4% of water sources were functional, 27.8% non-functional, and 0.8% were abandoned (Figure 20). Shares of functional and non-functional water sources were similar in rural areas, where 72.3% of sources were functional and 27.2% were non-functional (Figure 20). In addition, 0.5% of water sources in rural areas were reported as abandoned (Figure 20).

Figure 20. Functionality of water sources by total population, urban population and rural population among monitored individuals. Source: General Directorate of Hydraulic Resources (2022).[138]

[138] Direction Générale des Ressources Hydrauliques (DGRH). (2022). *Base de données sur l'eau PIPEP RCA*. https://rcawashportal.org/donnees/



In addition to the above, the UNICEF developed ANEA water point database monitors a variety of groundwater-related infrastructure in CAR, including boreholes, piezometers, and developed springs (*sources aménagées*). The database tracks key metrics on these sources, including their location, forage/drilling method, construction year, depth and static level, over the period 1992-2018. It is currently used by both UNICEF and government partners. Despite its utility, the database faces limitations, including incomplete territorial coverage and a lack of consistent updates regarding new installations or infrastructure inventories. In addition, crucial groundwater level data collected during borehole and well construction isn't systematically centralized. In an effort to enhance its functionality, the database will be integrated into the project's Monitoring and Evaluation (M&E) framework of the WASH sector, with the Ministry of Energy Development and Hydraulic Resources (MEHR) assuming responsibility for its regular updating. This integration aims to systematically track and make available data on infrastructure functionality, operation and maintenance (O&M) performance, and climate resilience for improved decision-making at both local and national levels.

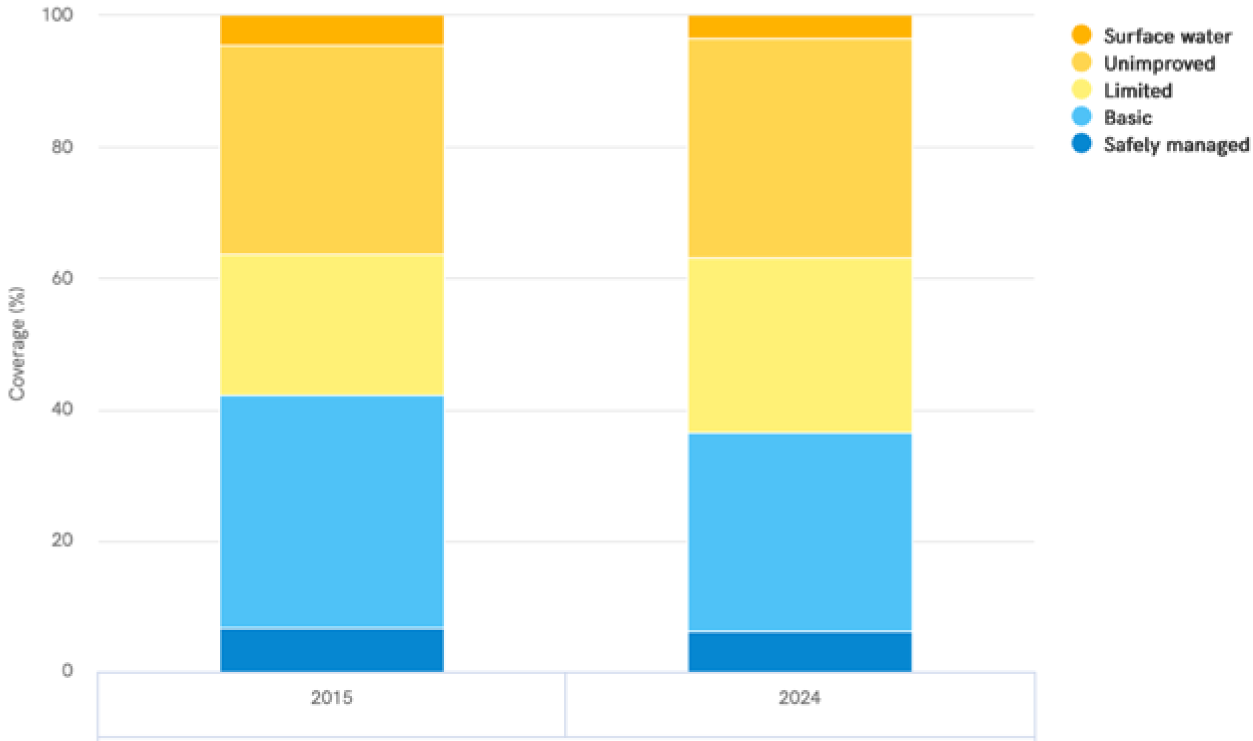
Water access challenges and disparities in the CAR

While the CAR has abundant surface and groundwater resources, access to basic and safely managed water remains limited. A large proportion of the CAR's population, both rural and urban, still lacks access to drinking water within a reasonable distance of less than 500 meters.[139] At the national level, as of 2024, only 30.29% of the CAR's population has access to basic water, and 6.22% has access to safely managed water (Figure 21). 33.36% of the population relies on unimproved water sources, and 3.34% on surface water. In addition, basic and safely managed water access is worsening

[139] République Centrafricaine, Ministère du Développement de l'Energie et des Ressources Hydrauliques (2021). Politique Nationale de l'Eau.

over time: in 2015, 6.70% of the population had access to safely managed water, 35.61% to basic water, and 32.01% relied on unimproved water.

Figure 21. Water service levels in the Central African Republic in 2015 and 2024. Source: JMP (2024).[140]



Access to basic and safely managed water in the CAR is unequal across geographic, demographic and socioeconomic lines. As of 2022, the poorest quintiles of the population experience lower basic water access than the richest quintiles, at 33% and 68% respectively.[141] Disability equally impedes safe water access, with 51% of people with disabilities facing difficulties in accessing clean water.[142] In addition, rural-urban disparities are pronounced: as of 2024, 11.25% of the urban population had access to safely managed water, compared to 2.24% among the rural population (Figure 22). Access to basic water was higher among the urban population, at 36.81%, compared to 25.13% among the rural population. Conversely, unimproved water use was significantly higher in rural areas, at 46.91%, than in urban areas, at 16.22%.

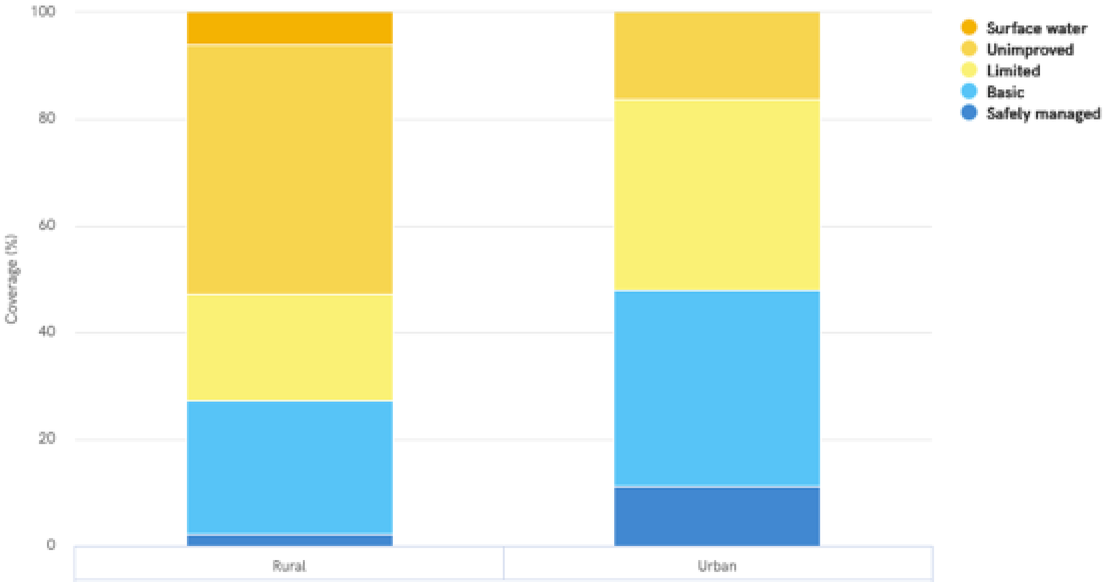
Figure 22: Rural-urban disparities in access to water services in the CAR. Source: JMP 2024.[143]

[140] WHO/UNICEF JMP. (2024). *Joint Monitoring Programme for Water Supply, Sanitation and Hygiene (JMP) Data.* https://washdata.org

[141] Sanitation and Water for All. (2022). *Country Overview: Central African Republic*. https://www.sanitationandwaterforall.org/sites/default/files/2022-04/SWA_Profile_Central%20African%20Republic_en.pdf

[142] World Bank Group. (2024). *Central African Republic country climate and development report*. https://openknowledge.worldbank.org/server/api/core/bitstreams/e1553b3b-3ce6-4800-8f93-476e7c89d21b/content

[143] WHO/UNICEF JMP. (2024). *Joint Monitoring Programme for Water Supply, Sanitation and Hygiene (JMP) Data.* https://washdata.org



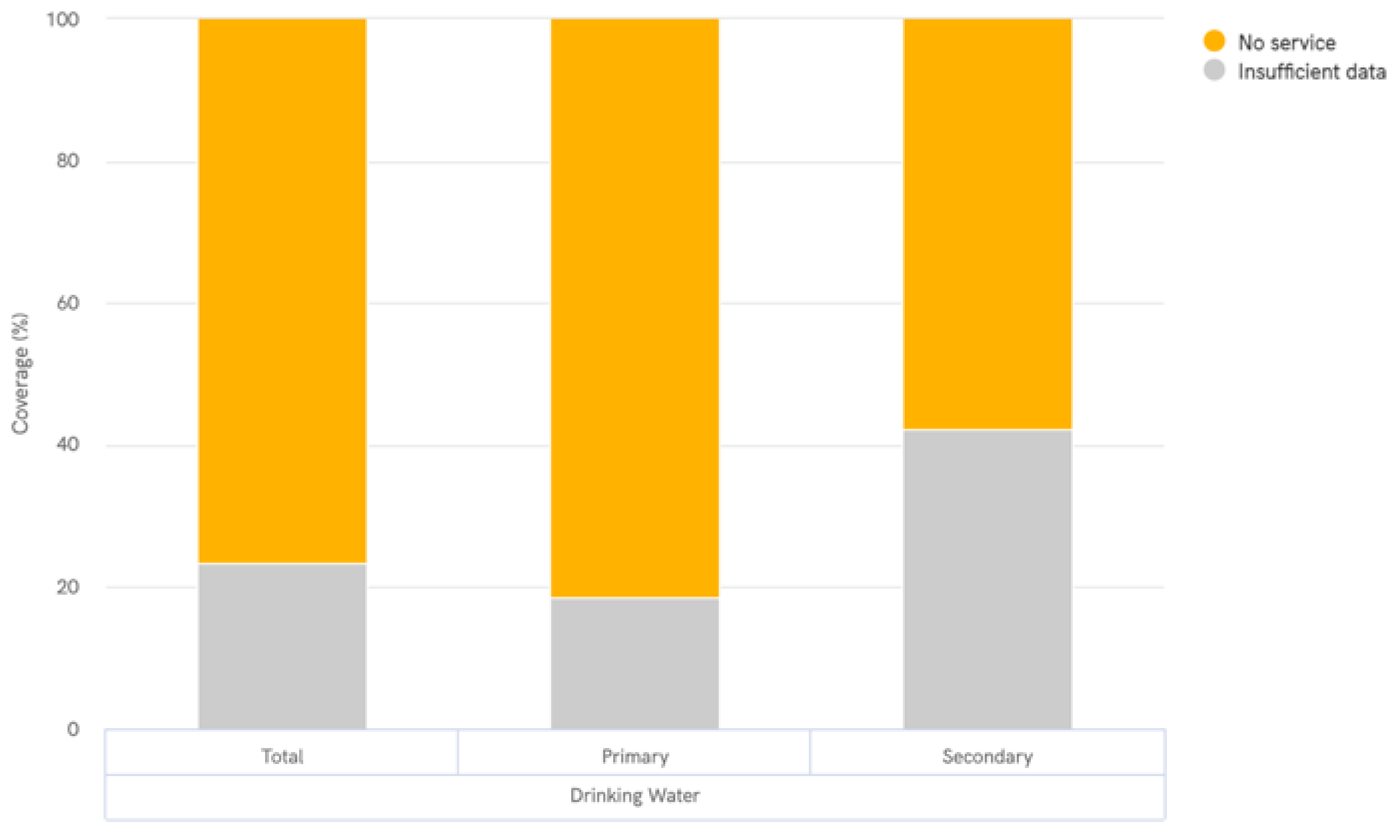
The following sections provide greater detail on specific characteristics of water access in the CAR, including access to water in public spaces, the time required to reach improved and unimproved water sources, the primary factors contributing to insufficient water access, and the distribution of responsibilities for water collection within households. The section detailing access to water in public spaces uses data from the Joint Monitoring Programme, while the remaining analysis draws on data from the Multiple Indicator Cluster Survey 6 (MICS6-RCA), conducted in 2018–2019 by the Institut Centrafricain des Statistiques et des Études Économiques et Sociales (ICASEES) as part of the global MICS survey program.[144] This represents the most recent MICS survey for which a comprehensive national report is available.

Access to water in public spaces

As of 2023, access to safe water in schools remains limited. Figure 23 shows that at least 76.7% of schools in the CAR provide no drinking water. As data is lacking on the remaining 23.3% of schools in the country, the number of schools providing no drinking water may be higher. At the primary level, at least 81.4% of schools provide no drinking water, and at the secondary level, at least 57.7%. These figures show that the provision of drinking water in schools is lowest for young children, as primary schools have the lowest provision of drinking water.

Figure 23. Drinking water service levels in schools in the CAR, 2023. Source: JMP (2023). [145]

[144] UNICEF. (2021). *MICS6: Central African Republic*. https://mics.unicef.org/surveys?display=card&f[0]=region:3841
[145] WHO/UNICEF JMP. (2022). *Joint Monitoring Programme for Water Supply, Sanitation and Hygiene (JMP) Data.* https://washdata.org

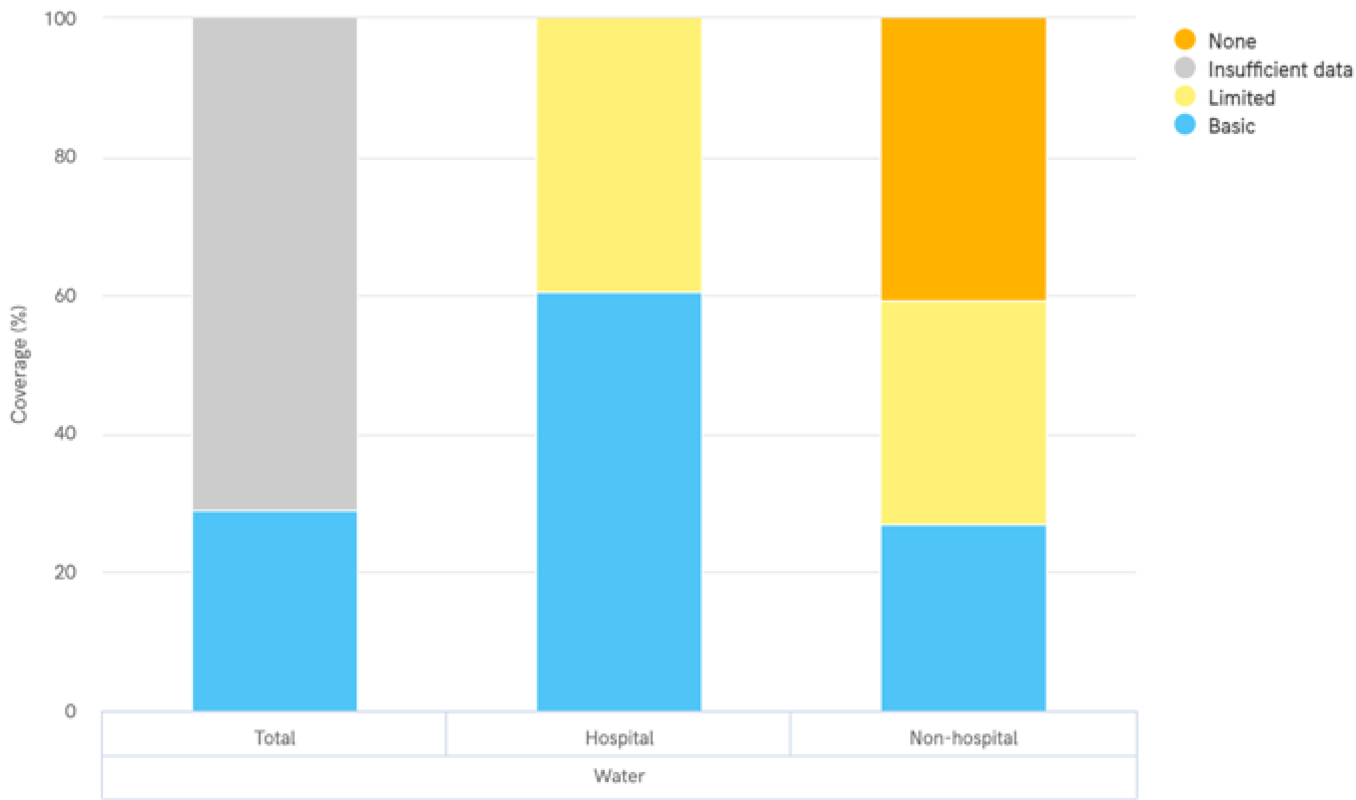


There is a clear deficit in school water infrastructures, with the majority of schools in the CAR having no water points, taps or functional boreholes. Statistics from the Ministry of Education show that 52% of schools in the CAR have no water points.[146] The shares of schools with no water points are highest in the prefectures of Mbomou (92%), Ouham (86%), Haut Mbomou (82%), Lobaye (77%), Sanga Mbaere (75%) and Kémo (75%).[147] The overall share of schools with a tap in the CAR is only 15%, and the share of schools with functional boreholes is 26%.[148]

Similarly, only 29% of healthcare facilities in the CAR provide access to basic drinking water, while there is insufficient data on the remaining 71% (Figure 21.). Regarding hospitals, 60.6% provide basic water services, and 39.4% provide limited water services. In non-hospital health facilities, 26.9% provide basic water services, 32.3% provide limited water services, and 40.7% provide no water services.

Figure 24 Water service levels in health care facilities in the CAR, 2023. Source: JMP (2023). [149]

[146] Ministère de l'Education Nationale, Direction Générale des études, des statistiques et de la planification (DGESP), République Centrafricaine. (2024). *Annuaire Statistique 2022-2023.*
[147] Ibid.
[148] Ibid.
[149] WHO/UNICEF JMP. (2022). *Joint Monitoring Programme for Water Supply, Sanitation and Hygiene (JMP) Data.* https://washdata.org



There is also limited safe water access in IDP host localities in the CAR. As of 2024, only 47% of the country's IDP host localities provide safe drinking water, [150] exacerbating the vulnerability of displaced populations and the communities hosting them. At the prefectural level, this share reduces to less than 1% for Mambéré-Kadéï, and 1% for Haut-Mbomou, Vakaga, and Sangha-Mbaere, [151] highlighting severe localized crises in water access for IDPs in these prefectures.

Time to access improved and unimproved water points

The vast majority of the population faces a significant time burden in accessing water, as few have water available on their premises and a substantial portion spend over 30 minutes collecting it daily. Among all water users, only 7.2% (4.5% from improved sources and 2.7% from unimproved sources) of users have water available on site (Table 2). A combined 53.7% (33.1% from improved and 20.6% from unimproved sources) collect water in 30 minutes or less, while 37.5% (20% from improved sources, 17.5% from unimproved sources) of users need more than 30 minutes to collect water (Table 2). This suggests that over 70% of the population faces a time burden in accessing water, with over a third of the population facing a significant time burden (Table 2).

Table 2. Percentage distribution of household members by time taken by users of improved and unimproved drinking water sources to travel to drinking water source, obtain water and return – 2018-2019. Source: UNICEF MICS6 (2021).[152]

[150] International Organization for Migration (IOM). (2024). République Centrafricaine : Rapport sur les déplacements 22 (01 Aout – 09 Septembre 2024). https://dtm.iom.int/fr/reports/republique-centrafricaine-rapport-sur-les-deplacements-22-01-aout-09-septembre-2024?close=true
[151] Ibid.
[152] UNICEF. (2021). *MICS6: Central African Republic*. https://mics.unicef.org/surveys?display=card&f[0]=region:3841

Time taken to reach drinking water source							
Users of improved water sources				**Users of unimproved water sources**			
Water on site	30 minutes or less	More than 30 minutes	Unknown / missing	Water on site	30 minutes or less	More than 30 minutes	Unknown / missing
4.5	33.1	20	1.1	2.7	20.6	17.5	0.6

Rural households in the CAR face greater challenges in both access time and quality of water sources, with a heavier reliance on unimproved sources and less on-site availability. Among urban residents, 13.2% (10.0% from improved sources and 3.2% from unimproved sources) have water available on site, while only 3.8% of rural residents (1.4% from improved sources and 2.4% from unimproved sources) do (Table 3). 52.2% of urban residents (43.6% from improved sources and 8.6% from unimproved sources) collect water in 30 minutes or less, compared to 54.5% of rural residents (27.3% from improved sources and 27.2% from unimproved sources) (Table 3). 40.6% of rural residents (16.1% from improved sources and 24.5% from unimproved sources) need more than 30 minutes to collect water, compared to 32.1% of urban residents (27.3% from improved sources and 4.8% from unimproved sources) (Table 3).

Table 3. Percentage distribution of rural and urban household members by time taken by users of improved and unimproved drinking water sources to travel to drinking water source, obtain water and return – 2018-2019. Source: UNICEF MICS6 (2021).[153]

Socio-demographic category	Time taken to reach drinking water source							
	Users of improved water sources				**Users of unimproved water sources**			
	Water on site	30 minutes or less	More than 30 minutes	Unknown / missing	Water on site	30 minutes or less	More than 30 minutes	Unknown / missing
Urban	10.0	43.6	27.3	2.3	3.2	8.6	4.8	0.2
Rural	1.4	27.3	16.1	0.5	2.4	27.2	24.5	0.8

In the CAR, the poorest households face the greatest challenges in both the time it takes to access water sources and the quality of water sources. Among the poorest households, only 2.2% (0.9% from improved sources and 1.3% from unimproved sources) have water available on site,

[153] Ibid.

compared to 18.5% among the richest households (14.9% from improved sources and 3.6% from unimproved sources) (Table 4). The share of households needing more than 30 minutes to collect water is highest among the poorest at 44.4% total (16.2% from improved and 28.2% from unimproved sources), compared to 35% among the richest (Table 4). In addition, access to improved water sources increases consistently with economic status across all time categories.

Table 4. Percentage distribution of household members by time taken by users of improved and unimproved drinking water sources to travel to drinking water source, obtain water and return, by income quintile – 2018-2019. Source: UNICEF MICS6 (2021).[154]

Economic well-being quintile	Time taken to reach drinking water source							
	Users of improved water sources				Users of unimproved water sources			
	Water on site	30 minutes or less	More than 30 minutes	Unknown / missing	Water on site	30 minutes or less	More than 30 minutes	Unknown / missing
The poorest	0.9	23.0	16.2	0.6	1.3	28.7	28.2	1.1
Poor	1.2	28.3	15.9	0.5	1.4	27.9	24.2	0.6
Medium	1.7	34.1	17.2	1.4	3.5	22.7	18.7	0.8
Rich	3.5	40.9	19.5	1.3	3.6	18.2	12.8	0.2
The richest	14.9	39.0	31.4	1.9	3.6	5.5	3.6	0.2

Primary reasons for lack of sufficient water access

Insufficient water access in the CAR is primarily due to the physical unavailability or inaccessibility of water sources. Among the households reporting insufficient access to water when needed, 72.7% cite the primary reason as the unavailability of water at the source, and 17.0% point to the water source being inaccessible (Table 5). Only 4.2% of household attribute their lack of access to the price of water (Table 5).

Table 5. Primary reasons for which household members do not have access to sufficient quantities of water– 2018-2019. Source: UNICEF MICS6 (2021).[155]

[154] Ibid.
[155] Ibid.

Main reasons for which household members do not have access to sufficient quantities of water				
Water unavailable at the source	Water is too expensive	Water source is not accessible	Other	Unknown or missing
72.7%	4.2%	17.0%	6.0%	0.1%

Challenges related to water availability and accessibility are consistently the primary reasons for insufficient water access in both urban and rural households. In urban areas, 75.0% of households cite water not being available at the source as the main reason, compared to 71.0% in rural areas (Table 6). Similarly, 15.2% of urban households and 18.4% of rural households report the water source not being accessible as the primary reason (Table 6).

Table 6. Main reasons for which rural and urban household members do not have access to sufficient quantities of water – 2018-2019. Source: UNICEF MICS6 (2021).[156]

Socio-demographic characteristic	Main reasons for which household members do not have access to sufficient quantities of water				
	Water unavailable at the source	Water is too expensive	Water source is not accessible	Other	Unknown or missing
Urban	75%	4.9%	15.2%	4.7%	0.3%
Rural	71%	3.6%	18.4%	7.0%	0.0%

The physical availability and accessibility of water sources are the primary reported reasons for insufficient water access across all economic quintiles. The proportion of households identifying the unavailability of water at the source as the primary reason ranges from 69.1% among the rich quintile to 75.7% among the poorest quintile (Table 7). Likewise, the percentage of households citing source inaccessibility as the main barrier remains relatively stable across quintiles, ranging from 14.6% among the poorest group to 18.5% among the rich (Table 7).

Table 7. Main reasons for which household members do not have access to sufficient quantities of water, by economic-wellbeing quintile – 2018-2019. Source: UNICEF MICS6 (2021).[157]

[156] Ibid.
[157] Ibid.

Economic well-being quintile	Main reasons for which household members do not have access to sufficient quantities of water				
	Water unavailable at the source	Water is too expensive	Water source is not accessible	Other	Unknown or missing
The poorest	75.7	2.4	14.6	7.4	0.0
Poor	72.0	3.7	18.2	6.0	0.0
Medium	69.9	7.4	16.9	5.8	0.0
Rich	69.1	4.1	18.5	8.3	0.0
The richest	75.5	3.7	16.8	3.6	0.5

Household member with the responsibility for water collection

Women and girls disproportionately bear the burden of water collection in the CAR. In the surveyed population without on-site drinking water, in 76.2% of households, the primary person collecting water is a woman aged 15 or older, while in 9.2% it is a girl under 15 (Table 8). In comparison, men account for 8.3% of primary water collectors, and boys under 15 for 3.8% (Table 8). Overall, children are responsible for collecting water in 13% of households (Table 8).

Table 8. Percentage of household population without on-site drinking water by person who usually fetches drinking water used in the household – 2018-2019. Source: UNICEF MICS6 (2021).[158]

Person who usually fetches drinking water				
Girls 15-17 + Women	Boys 15-17 + Men	Girls under 15	Boys under 15	Unknown / missing / household does not collect water
76.2	8.3	9.2	3.8	2.5

[158] Ibid.

Gender disparities in the burden of water collection are higher in rural areas than in urban areas. While in urban areas, women bear the responsibility of water collection in 69.8% of households, this increases to 79.2% of households in rural areas (Table 9). Similarly, girls under 15 collect water in 8.8% of urban households and in 9.5% of rural households (Table 9). Overall, the share of households where children collect water is lower in rural areas (12.6%) than in urban areas (14%) (Table 9).

Table 9. Percentage of rural and urban household population without on-site drinking water by person who usually fetches drinking water used in the household – 2018-2019. Source: UNICEF MICS6 (2021).[159]

Socio-demographic characteristic	Person who usually fetches drinking water				
	Girls 15-17 + Women	Boys 15-17 + Men	Girl under 15	Boy under 15	Unknown / missing / household does not collect water
Urban	69.8	12.9	8.8	5.2	3.3
Rural	79.2	6.1	9.5	3.1	2.0

Gender disparities in the burden of water collection decrease with economic well-being. The share of households where women are the primary water collectors decreases from 79.9% among the poorest to 65.2% among the richest (Table 10). The share of girls as primary water collectors is less clearly correlated with economic well-being: girls under 15 are primary water collectors in 9.1% of the poorest households, 8.4% of poor households, 10.4% of households in the medium category, 9.8% of rich households and 8.3% of the richest households (Table 10). In addition, the share of children (girls and boys) who are primary water collectors of a household is highest among the richest at 15.3%, and lowest in the poor category, at 11.6% (Table 10).

Table 10. Percentage of household population without on-site drinking water by person who usually fetches drinking water used in the household, by income quintile – 2018-2019. Source: UNICEF MICS6 (2021).[160]

Economic well-being quintile	Person who usually fetches drinking water				
	Girls 15-17 + Women	Boys 15-17 + Men	Girl under 15	Boy under 15	Unknown / missing / household does not collect water

[159] Ibid.
[160] Ibid.

The poorest	79.9	5.8	9.1	3.3	1.9
Poor	79.9	6.4	8.4	3.2	2.1
Medium	79.2	6.1	10.4	2.3	2.0
Rich	74.5	9.1	9.8	3.8	2.9
The richest	65.2	15.7	8.3	7.0	3.7

Across all geographic regions and economic quintiles in the CAR, the responsibility for water collection falls predominantly on women and girls. This gendered division exposes women and girls to heightened protection risks: when local water sources become non-functional, they are often required to travel greater distances to alternative sources, increasing their exposure to potential threats, including harassment, violence, and abduction.[161] Concerns regarding the safety of women and girls at water collection points are reported in 25% of surveyed households,[162] indicating that water-related responsibilities heighten girls' and women's vulnerabilities.

2.1.2.3 Water quality

Despite a lack of comprehensive scientific data, observations and anecdotal evidence suggest widespread water contamination and pollution in the CAR. Various pollution-related events and information reported by local communities suggest that issues related to water quality, contamination and pollution are widespread, affecting both urban and rural areas and posing risks to public health. Water contamination and pollution in the CAR are direct consequences of inadequate sanitation systems, which are detailed in section 2.1.3.

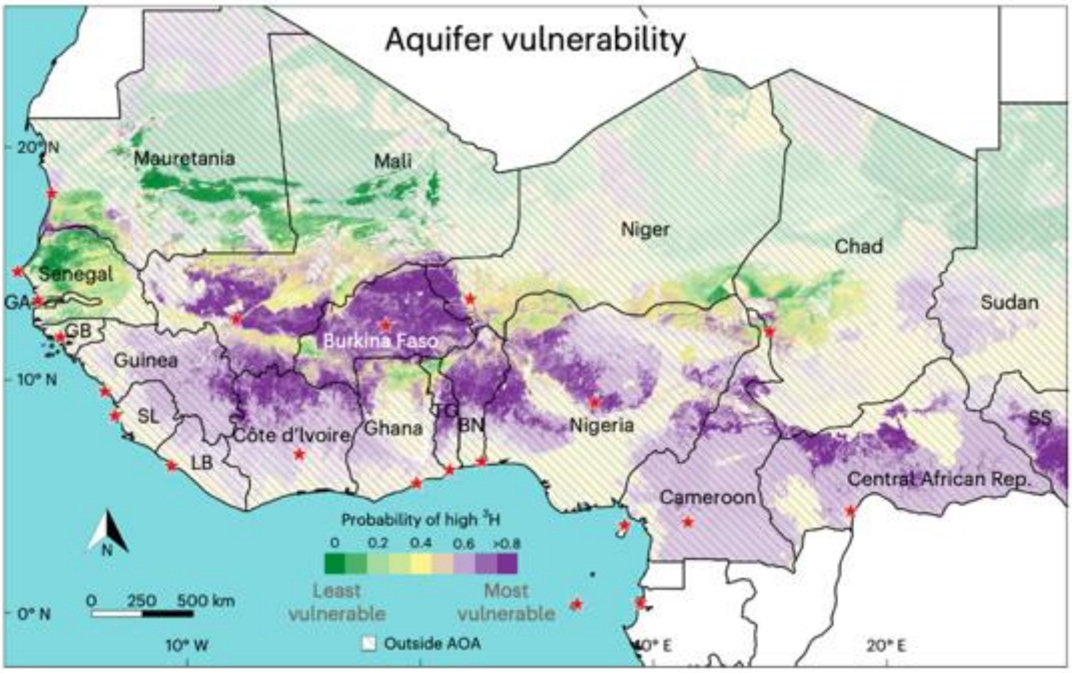
Industrial, mining and agricultural activities, driven by the CAR's development and demographic growth, are significantly increasing surface water pollution. [163] The discharge of industrial and mining effluents, as well as agricultural runoff rich in fertilizers and pesticides, reportedly contribute to the degradation of water quality.[164] [165] One particular source of surface water pollution is the gold mining industry, which contributes to heavy metal contamination, including lead and mercury.[166] A notable example of mercury pollution of the Ouham River resulted from the activities of

[161] UNICEF. (2023). *Raising awareness among communities to lower risks of gender-based violence in CAR*. https://www.unicef.org/car/en/stories/raising-awareness-among-communities-lower-risks-gender-based-violence-car
[162] REACH. (2024). *Évaluation multisectorielle des besoins (MSNA) 2024 en République centrafricaine (RCA) : Présentation des résultats clés.* https://reliefweb.int/report/central-african-republic/evaluation-multisectorielle-des-besoins-msna-2024-en-republique-centrafricaine-rca-presentation-des-resultats-cles-10-octobre-2024?_gl=1*12waonp*_ga*MTA5NzM4MTUwOS4xNzQwNjQ5ODY0*_ga_E60ZNX2F68*MTc0MDY0OTg2My4xLjAuMTc0MDY0OTg2My42MC4wLjA.
[163] UNICEF. (2023). *Étude hydrogéologique en République Centrafricaine : Rapport sur l'état de connaissance des ressources en eau.*
[164] UNICEF (2023). Gestion de la demande en eau – République centrafricaine : Rapport d'état des lieux.
[165] République Centrafricaine. (2021). *Stratégie Nationale de Développement Durable*. https://faolex.fao.org/docs/pdf/caf223531.pdf
[166] Ibid.

a mining company in 2019, during which mercury concentrations were recorded at levels four to twenty-six times above the admissible threshold.[167] [168] [169]

The presence of widespread pollution exacerbates challenges related to safe drinking water access, as even groundwater sources are susceptible to contamination from surface activities. A study assessing aquifer vulnerability in the CAR, using tritium concentrations in groundwater as an indicator, revealed that groundwater sources are highly vulnerable to pollution from surface activities.[170] Tritium, which reflects the recharge of aquifers through precipitation, serves to identify the extent to which surface water contributes to groundwater replenishment, thereby indicating the susceptibility of groundwater to contamination from surface sources. In the CAR, the probability of detecting high tritium levels ranges from 0.4 to 0.8, suggesting moderate to very high vulnerability of groundwater resources (Figure 25). Very high susceptibility is predominantly found in the north-east and centre-north of the country, including prefectures such as Bamingui-Bangoran and Ouham.

Figure 25. Aquifer vulnerability map of the Sahel region of Africa based on using a tritium threshold in groundwater on one-half of that in local precipitation. Source: Podgorski et al. (2024).[171]



These findings are further supported by a hydro-geomorphological study conducted in Bangui, which is considered representative of other rapidly urbanizing areas in the country. The study revealed that local aquifers, including both shallow unconfined layers used for traditional wells and deeper confined layers accessed via boreholes, are rapidly recharged by rainfall,[172] leading to the infiltration of contaminants, including coliform bacteria, ammonia, and other pollutants derived from the

[167] Assemblée Nationale. (2019). Rapport de la mission d'enquête parlementaire à Bozoum sur la pollution du fleuve Ouham suite à l'exploitation de l'or par les
sociétés chinoises.
[168] Le Figaro. (2019). Mines chinoises en Centrafrique : la pollution au mercure des eaux confirmée. https://www.lefigaro.fr/flash-actu/mines-chinoises-en-centrafrique-la-pollution-au-mercure-des-eaux-confirmee-20190731
[169] République Centrafricaine. (2021). *Stratégie Nationale de Développement Durable*. https://faolex.fao.org/docs/pdf/caf223531.pdf
[170] Podgorski et al. (2024). Groundwater vulnerability to pollution in Africa's Sahel region. *Nature Sustainability*, *7*(5), 558-567.
[171] Ibid.
[172] République Centrafricaine. (2021). *Stratégie Nationale de Développement Durable*. https://faolex.fao.org/docs/pdf/caf223531.pdf

decomposition of municipal waste. Such contamination affects both the shallow and lateritic aquifers used for water extraction.[173]

Available evidence points towards iron water contamination in certain boreholes in the country. A decade ago, over 3,500 human-powered boreholes were installed to provide access to drinking water. [174] The majority of these boreholes are contaminated with iron, with concentrations reaching 10 mg/L, significantly exceeding the standard limit of 0.2 mg/L.[175]

Faecal matter contamination of water sources is a common issue in the CAR, with significant impacts on public health. Water quality monitoring conducted under the MICS6-RCA reveals widespread contamination by Faecal indicator bacteria such as E. coli at the household level. The percentage of the household population at risk of faecal contamination based on the presence of *Escherichia coli* (E. coli) in their drinking water source can be categorized according to E. Coli concentrations per 100ml of water: low (<1 per 100ml), moderate (1–10 per 100ml), high (11–100 per 100ml), and very high (>100 per 100ml). Nationally, 32.5% of the household population falls within the low-risk category, 11.2% in the moderate-risk category, 20.8% in the high-risk category, and 35.5% in the very high-risk category (Table 11). Overall, 67.5% of the population is exposed to some level of faecal contamination in their drinking water, as indicated by the presence of *E. coli* (Table 11).

Table 11. Level of risk based on the number of E. coli per 100ml – 2018-2019. Source: UNICEF MICS6 (2021).[176]

Level of risk based on the number of E. coli per 100ml			
Low (<1 per 100ml)	Moderate (1–10 per 100ml)	High (11–100 per 100ml)	Very high (>100 per 100ml)
32.5	11.2	20.8	35.5

While both rural and urban populations are exposed to Faecal contamination of water, the number of E. coli detected in drinking water sources appears higher in rural areas. While 44% of the urban household population is exposed to low levels of E. coli (<1 per 100ml), this share reduces to 26.0% among rural households (Table 12). While the share of urban and rural households exposed to moderate levels of E. coli in their drinking water source is relatively similar, at 10.7% and 11.4%, respectively, the share of the rural population exposed to high and very high levels of E. coli is higher (Table 12). While 19.5% of urban households use drinking water sources with high levels of E. coli, this share rises to 21.5% among rural populations (Table 12). In addition, 25.5% of urban households use drinking water sources with very high E. coli, compared to 41.1% among rural households (Table 12).

Table 12. Level of risk based on the number of E. coli by 100ml across urban and rural households – 2018-2019. Source: UNICEF MICS6 (2021).[177]

Level of risk based on the number of E. coli by 100 ml

[173] République Centrafricaine. (2021). *Stratégie Nationale de Développement Durable*. https://faolex.fao.org/docs/pdf/caf223531.pdf
[174] Ministere de l'Environnement et du Développement Durable, UNEP, and Enda Energies. (2020). *Analyse des barrières et cadres propices à la mise en œuvre des technologies d'adaptation aux changements climatiques en République Centrafricaine*.
[175] Ibid.
[176] UNICEF. (2021). *MICS6: Central African Republic*. https://mics.unicef.org/surveys?display=card&f[0]=region:3841
[177] UNICEF. (2021). *MICS6: Central African Republic*. https://mics.unicef.org/surveys?display=card&f[0]=region:3841

Socio-demographic characteristic	Low (<1 per 100ml)	Moderate (1–10 per 100ml)	High (11–100 per 100ml)	Very high (>100 per 100ml)
Urban	44.2%	10.7%	19.5%	25.5%
Rural	26.0%	11.4%	21.5%	41.1%

Levels of E. coli in drinking water sources vary across economic well-being quintiles, with higher levels among the poorest households. Among the poorest households, 40.8% are exposed to high levels of *E. coli* in drinking water sources, compared to only 24.2% of households in the richest quintile (Table 13). Conversely, low levels of *E. coli* contamination are more common among wealthier households: 46.3% of those in the richest quintile have access to water sources with low E. coli, whereas this proportion reduces to 30% among the poorest and 28% among the poor (Table 13).

Table 13. Level of risk based on the number of E. coli by 100ml by economic well-being quintile – 2018-2019. Source: UNICEF MICS6 (2021).[178]

Economic well-being quintile	Level of risk based on the number of E. coli by 100 ml			
	Low (<1 per 100ml)	Moderate (1–10 per 100ml)	High (11–100 per 100ml)	Very high (>100 per 100ml)
The poorest	30.0%	10.6%	18.6%	40.8%
Poor	28.0%	11.0%	20.3%	40.7%
Medium	31.5%	13.9%	19.5%	35.1
Rich	26.2%	13.6%	23.1%	37.1%
The richest	46.3%	7.0%	22.5%	24.2%

In general, organic pollution resulting from inadequate sanitation systems is exacerbated during flood events. During floods, runoff mobilizes contaminants from polluted soils and releases decomposing organic matter through soil degradation and altered hydrological flows.[179] This phenomenon poses risks to rural populations relying on surface or shallow groundwater sources, as well as to urban populations through the overflow of drainage networks and the dispersal of inadequately stored and partially treated Faecal sludge into the environment.[180] Contributing factors, including the prevalence of open defecation and the inadequacy of sanitation systems, are detailed in section 2.1.3.2.

Health-related impacts of water contamination

Several common water-borne diseases, such as typhoid, hepatitis, cholera and other diarrhoeal diseases, have been attributed to consumption of poor-quality water in the CAR. Populations across multiple prefectures in the CAR report having to resort to contaminated waters when safe water

[178] UNICEF. (2021). *MICS6: Central African Republic*. https://mics.unicef.org/surveys?display=card&f[0]=region:3841
[179] UNICEF. (2023). Argumentaire climatique pour l'eau, l'assainissement et l'hygiène en République Centrafricaine.
[180] UNICEF. (2023). Argumentaire climatique pour l'eau, l'assainissement et l'hygiène en République Centrafricaine.

sources break down, including water from rivers, leading to the propagation of water-borne diseases.[181] [182] [183]

Cholera: Cholera spreads through the consumption of water or food contaminated by the bacterium *Vibrio cholerae*.[184] From 1997 to 2016, three out of four recorded cholera cases in the country were reported along or close to the Oubangui River.[185] This suggests that cholera strains move from area to area along the river.[186] Prevailing conditions in remote areas, including the lack of safe drinking water, increase the risk for transmission via the Faecal-oral route,[187] as populations use water contaminated with Faecal matter.

Diarrhoeal diseases: The consumption of untreated water in the CAR contributes to the continued prevalence of diarrhoeal diseases, including among children.[188] Communities across multiple prefectures report experiencing diarrhoea after consuming polluted or contaminated water.[189] [190] [191] Data shows that in the CAR, for the year 2012, unsafe water was the most frequent cause of diarrhoea deaths, at 2,957 cases.[192] WASH-related diarrhoeal disease ranks as the fourth leading cause of death in the country.[193]

Typhoid: Typhoid is spread through the consumption of contaminated water and food.[194] Due to the high proportion of the population with no access to basic water services, and the corresponding proportion having to resort to unsafe, contaminated water sources, the CAR is a typhoid-endemic country.[195] The Global Burden of Disease 2021 study estimated that CAR experienced over 1,800 cases of typhoid, with the highest burden in children younger than 5 years old,[196] although the actual burden is likely underestimated due to limitations in diagnostic capacity and surveillance.[197]

Hepatitis: Water contamination is a key factor in the transmission of hepatitis, including the hepatitis E virus (HEV) genotypes 1 and 2, which are primarily spread through the faecal-oral route.[198] In the

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[181] Corbeaunews. (2025). *Mala : une population condamnée aux maladies par l'eau insalubre*. https://corbeaunews-centrafrique.org/mala-une-population-condamnee-aux-maladies-par-leau-insalubre/
[182] RFI. (2025). *Centrafrique : de graves pénuries d'eau potable à Bangui exposent les habitants à diverses maladies*. https://www.rfi.fr/fr/afrique/20250315-centrafrique-de-graves-pénuries-d-eau-potable-à-bangui-exposent-les-habitants-à-diverses-maladies
[183] Solidarités International. (2019). *RCA : malnutrition, diarrhées, typhoïde : l'eau potable comme premier rempart*. https://www.solidarites.org/fr/pays/rep-centrafricaine/rca-malnutrition-diarrhees-typhoide-leau-potable-comme-premier-rempart/
[184] World Health Organization (WHO). (2024). *Cholera*. https://www.who.int/health-topics/cholera
[185] Breurec, S., Franck, T., Njamkepo, E., Mbecko, J.R., Rauzier, J., Sanke-Waïgana, H., Kamwiziku, G., Piarroux, R., Quilici, M.L., & Weill, F.X. (2021). *Seventh Pandemic Vibrio cholerae O1 Sublineages, Central African Republic*. Emerging Infectious Diseases, 27(1), 20-0375. https://wwwnc.cdc.gov/eid/article/27/1/20-0375_article
[186] Ibid.
[187] Ibid.
[188] Ibid.
[189] ACTED and UNICEF. (2021). *République centrafricaine : Rapport d'intervention NFI/EHA Bema centre, Tomounga, Ngombe et Tondomazoma Commune de Ngbandinga, sous-préfecture de Ouango, préfecture du Mbomou, novembre 2019-février 2020*. https://reliefweb.int/report/central-african-republic/r-publique-centrafricaine-rapport-dintervention-nfieha-bema-centre
[190] OXFAM. (2025). *WASH (eau, hygiene, assainissement).* https://republiquecentrafricaine.oxfam.org/blogtopic/example-blog-topic
[191] Corbeaunews. (2023). *L'épisode catastrophique des inondations dans le Sud-Est de la RCA : besoins humanitaires et reconstruction*. https://corbeaunews-centrafrique.org/lepisode-catastrophique-des-inondations-dans-le-sud-est-de-la-rca-besoins-humanitaires-et-reconstruction/
[192] World Health Organization. (2014). *Preventing Diarrhoea Through Better Water, Sanitation and Hygiene: Exposures and impacts in low- and middle-income countries*. World Health Organization. https://iris.who.int/bitstream/handle/10665/150112/9789241564823_eng.pdf
[193] World Bank Group. (2024). *Central African Republic country climate and development report*. https://openknowledge.worldbank.org/server/api/core/bitstreams/e1553b3b-3ce6-4800-8f93-476e7c89d21b/content
[194] Coalition Against Typhoid. (2025). *Burden of Typhoid in the Central African Republic (CAR)*. https://www.coalitionagainsttyphoid.org/wp-content/uploads/2025/03/TakeonTyphoid-CAR-Infographic-Mar2025.pdf
[195] Ibid.
[196] Institute for Health Metrics and Evaluation. (2021). Global Burden of Disease. ghdx.healthdata.org/gbd-results-tool..
[197] Coalition Against Typhoid. (2025). *Burden of Typhoid in the Central African Republic (CAR)*. https://www.coalitionagainsttyphoid.org/wp-content/uploads/2025/03/TakeonTyphoid-CAR-Infographic-Mar2025.pdf
[198] Nombot-Yazenguet, M.P.M., Doté, J.W., Koyaweda, G.W., Zemingui-Bembete, P.A., Selekon, B., Vickos, U., Manirakiza, A., Nakoune, E., & Komas, N.P.J. (2020). *Hepatitis E outbreak in the health district of Bocaranga-Koui, Central African Republic, 2018–2019*. BMC Infectious Diseases, 20(1), 260. https://bmcinfectdis.biomedcentral.com/articles/10.1186/s12879-020-04961-4

CAR, poor-quality water sources significantly contribute to the spread of these pathogens.[199] A notable increase in HEV cases in Bangui during 2008-2009 followed periods of heavy rainfall, suggesting that communal water sources contaminated with faecal matter may have been responsible for the outbreak.[200] Epidemiological analysis shows that HEV genotypes 1 and 2 have a higher incidence in Bangui compared to other regions of the country.[201] This elevated risk is attributed to the city's high population density and the widespread sharing of limited and often unsafe water supplies.[202]

Water-borne diseases are a direct consequence of floods, as these events exacerbate organic pollution through runoff.[203] In the CAR, floods lead to contamination of both surface and shallow water sources used by rural populations.[204] This contamination disproportionately affects vulnerable groups, particularly children.[205] Water-borne diseases frequently emerge following disasters, which are expected to increase in frequency.[206]

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[199] Ibid.
[200] Ibid.
[201] Ibid.
[202] Ibid.
[203] UNICEF. (2023). Argumentaire climatique pour l'eau, l'assainissement et l'hygiène en République Centrafricaine
[204] Ibid.
[205] Ibid.
[206] Ibid.

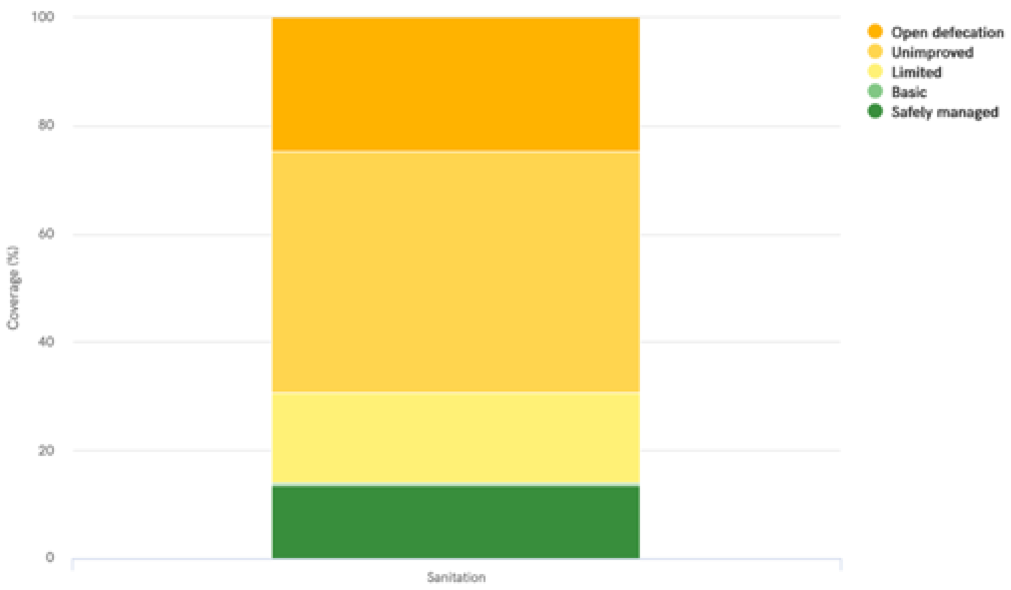
Sanitation

The CAR exhibits some of the lowest sanitation access rates and highest rate of open defecation in the world. In many areas, the primary form of sanitation observed is the absence of a formal system, often manifesting as open latrines lacking proper slabs or platforms, or the practice of open defecation. In addition, municipal solid waste management systems and wastewater treatment are mostly lacking or ineffective.

This critical deficiency in sanitation infrastructure and access has far-reaching implications for public health, human dignity and the country's environment. From a public health perspective, improved sanitation in the CAR is essential for reducing waterborne diseases and preserving overall population health.[207] Insufficient sanitation infrastructure also contributes to environmental degradation,[208] leading to insanitary environmental conditions. Furthermore, the lack of proper sanitation reportedly carries an economic cost. In 2012, inadequate sanitation was estimated to cost the CAR 13.2 billion XAF annually, representing 1.2% of the country's GDP at the time.[209]

National-level statistics from the Joint Monitoring Programme (2024) reveal critical insufficiencies in safely managed and basic sanitation services.[210] As of 2024, only 14.04% of the CAR's population had access to either safely managed or basic sanitation services, while 16.54% of the population had limited sanitation services, and 44.70% had unimproved sanitation services (Figure 26). Furthermore, open defecation is practiced among 24.72% of households (Figure 26). In addition, more than half of households (54%) in the country share sanitation services with an average of eight other households.[211]

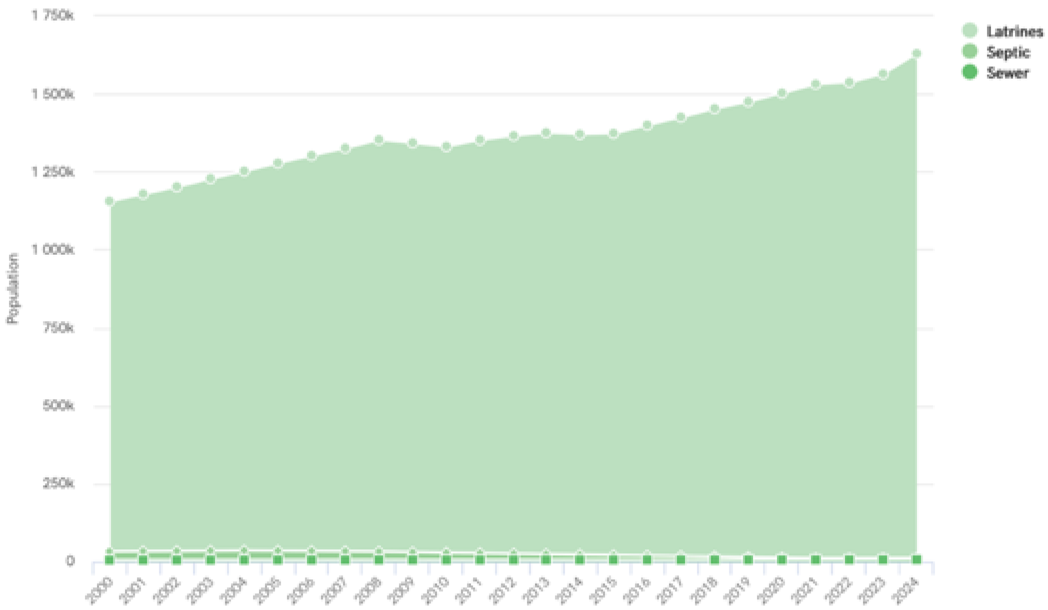
Figure 26. Sanitation access at the household level in the Central African Republic. Source: JMP (2024)[212]



[207] Première Urgence Internationale. (2024). *Préserver la santé des populations par des infrastructures sanitaires en RCA*. https://www.premiere-urgence.org/actualites/preserver-la-sante-des-populations-par-des-infrastructures-sanitaires-en-rca/
[208] Ibid.
[209] Water and Sanitation Program (WSP). (2012). République Centrafricaine : Impacts Économiques D'un Mauvais Assainissement En Afrique. https://www.ircwash.org/sites/default/files/WSP-2012-CAR.pdf
[210] WHO/UNICEF JMP. (2024). *Joint Monitoring Programme for Water Supply, Sanitation and Hygiene (JMP) Data).* https://washdata.org
[211] REACH. (2024). *Aperçu des besoins humanitaires République centrafricaine.*https://www.unocha.org/publications/report/central-african-republic/republique-centrafricaine-apercu-des-besoins-humanitaires-janvier-2024
[212] WHO/UNICEF JMP (2024). *Joint Monitoring Programme for Water Supply, Sanitation and Hygiene (JMP) Data.* https://washdata.org

Sanitation coverage in the CAR for the period 2000-2024 shows diverging trends, characterized by increases and decreases depending on facility types. Latrine coverage continually increased over the period 2000 – 2024, increasing from 1,122,813 individuals with access to latrines in 2000 to 1,617,704 in 2024 (Figure 27). Conversely, septic tank coverage experienced a decline, with the number of individuals having access to septic tanks falling from 27,523 in 2000 to 5,022 in 2024. Regarding sewer systems, access numbers increased, rising from 5,579 individuals in 2000 to 7,153 individuals in 2024.

Figure 27. Sanitation coverage trends in the CAR for 2000 – 2024. Source: JMP (2024)[213]

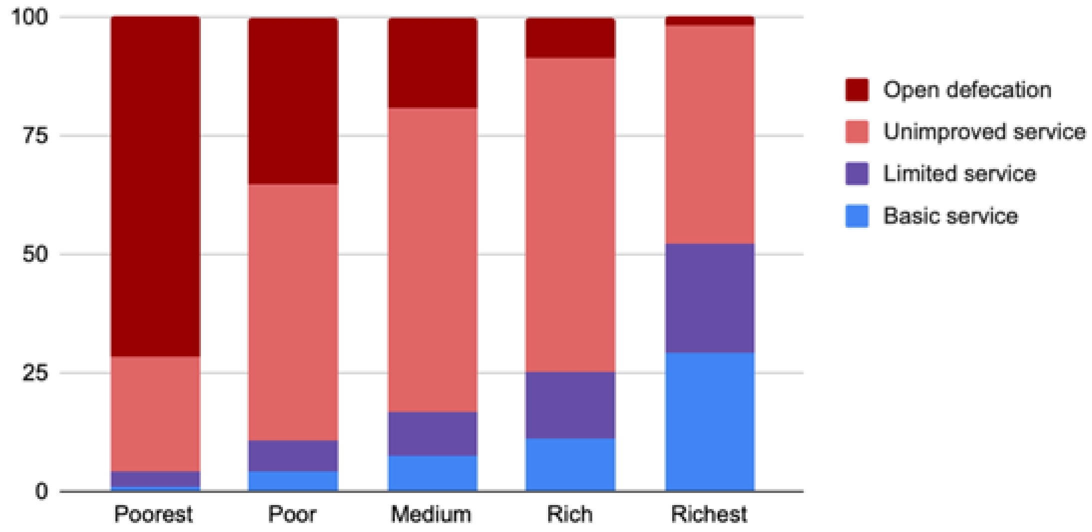


Disparities in sanitation access

There are significant socio-economic disparities in access to sanitation services, with the poorest populations having extremely limited access and resorting to open defecation more frequently than the richest. According to MICS (2018-2019) data, only 0.9% of the poorest population has access to basic sanitation services, while 29.3% of the richest do. However, even among the richest quintiles, it is notable that less than a third of households have access to basic sanitation services. Open defecation is also highest among the poorest quintiles, at 71.7%, compared to 2.1% among the richest.

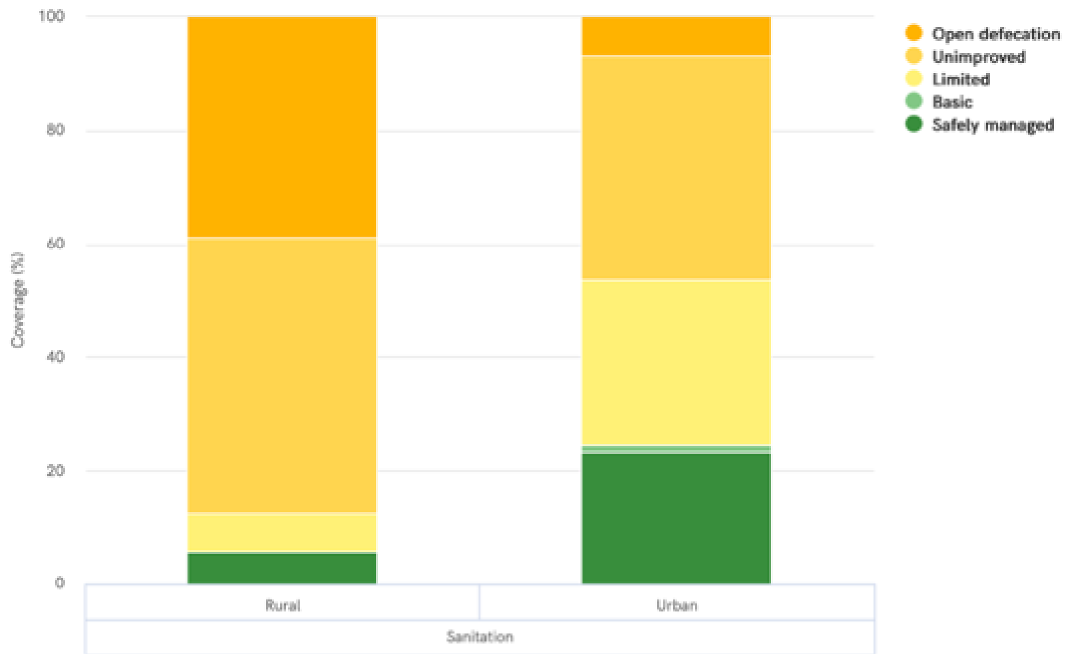
[213] WHO/UNICEF JMP. (2024). *Joint Monitoring Programme for Water Supply, Sanitation and Hygiene (JMP) Data.* https://washdata.org

Figure 28. Sanitation service levels among different economic quintiles, 2018. Source: MICS6-RCA (2019).



Significant demographic disparities also exist in sanitation access, with rural populations having lower access to safely managed and basic sanitation services than urban populations. According to JMP (2024) data, as of 2024, 23.43% of urban residents had access to safely managed sanitation, while only 5.71% of the rural population did (Figure 29). For **basic sanitation**, 1.12% of the urban population was covered, with 0% coverage reported for the rural population. Regarding **limited sanitation**, 28.99% of urban residents and 6.70% of rural residents were included in this category. **Unimproved sanitation** affected 39.62% of the urban population and 48.72% of the rural population. **Open defecation** was practiced by 6.84% of the urban population and 38.85% of the rural population.

Figure 29. Urban and rural access to sanitation in 2024. Source: JMP (2024).[214]



[214] WHO/UNICEF. (2024). *Joint Monitoring Programme for Water Supply, Sanitation and Hygiene (JMP).* https://washdata.org

Furthermore, individuals with disabilities generally experience reduced access to sanitation facilities in the CAR.[215] Within a subset of households experiencing sanitation access issues, 56% of the households identified people with disabilities as a group lacking access to latrines.[216] In addition, 38% of households using community latrines report that these latrines are not adapted for use by people with disabilities.[217]

Women and girls face significant barriers to accessing latrines in the CAR, **primarily due to insufficient gender-segregated facilities and security concerns**. Within the aforementioned subset of households, 41% identified women as a group lacking access to latrines, and 40% identified girls as a group lacking access to latrines.[218] Among households using community latrines, 89% indicate that the latrines are not separated by gender,[219] a factor which may restrict women's and girls' access due to concerns regarding privacy and security. 9% of interrogated households report fearing for the security of women and girls from their localities around latrines/toilets and sanitation installations.[220]

Sanitation access in public spaces

There is a critical deficit of sanitation infrastructure and access in schools in the CAR, with particularly detrimental effects on girls' educational access and well-being. While Sphere standards recommend 1 latrine door for every 30 girls and 1 door for every 60 boys, the average latrine/pupil ratio in the CAR was 1 latrine for every 152 pupils in primary schools, and 1 for every 228 pupils in secondary schools, well-below the recommended standard.[221] In addition, there was no separation between latrines for girls and boys in 59% of schools, reducing access to facilities for girls due to a lack of privacy and increasing GBV risks.[222] JMP data for 2019 showed that 59% of schools in the CAR provided no sanitation services.[223] As more than half of girls in the CAR report missing school during their periods due to a lack of privacy in toilets, the impact of the sanitation situation goes beyond health and hygiene, calling into question equitable access to education and quality learning for girls, and compromising their regular attendance in class.[224]

Despite the importance of functioning sanitation services in healthcare facilities for preventing infections, reducing antimicrobial resistance and responding to outbreaks and emergencies,[225] the country's sanitation provision in these settings currently remains insufficient. According to 2023 data, only 2% of the country's healthcare facilities have basic sanitation services, while 87.05%

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[215] World Bank Group. (2024). *Central African Republic country climate and development report*. https://openknowledge.worldbank.org/server/api/core/bitstreams/e1553b3b-3ce6-4800-8f93-476e7c89d21b/content
[216] REACH. (2024). *Aperçu des besoins humanitaires République centrafricaine.*https://www.unocha.org/publications/report/central-african-republic/republique-centrafricaine-apercu-des-besoins-humanitaires-janvier-2024
[217] Ibid.
[218] Ibid.
[219] Ibid.
[220] REACH. (2024). *Évaluation multisectorielle des besoins (MSNA) 2024 en République centrafricaine (RCA) : Présentation des résultats clés.* https://reliefweb.int/report/central-african-republic/evaluation-multisectorielle-des-besoins-msna-2024-en-republique-centrafricaine-rca-presentation-des-resultats-cles-10-octobre-2024?_gl=1*12waonp*_gaMTA5NzM4MTUwOS4xNzQwNjQ5ODY0*_ga_E60ZNX2F68*MTc0MDY0OTg2My4xLjAuMTc0MDY0OTg2My42MC4wLjA.
[221] Global Education Cluster. (2021). *Joint Education Needs Assessment (JENA) Report, Central African Republic (CAR)*. https://inee.org/sites/default/files/resources/Summary%20JENA%20Report%20CAR_EN.pdf
[222] Ibid.
[223] WHO/UNICEF. (2024). *Joint Monitoring Programme for Water Supply, Sanitation and Hygiene (JMP) - WASH in Schools Data for CAR.*
[224] Global Education Cluster. (2021). *Joint Education Needs Assessment (JENA) Report, Central African Republic (CAR)*. https://inee.org/sites/default/files/resources/Summary%20JENA%20Report%20CAR_EN.pdf
[225] World Health Organization (WHO). (2025). *WASH in Health Care Facilities*. https://www.who.int/teams/environment-climate-change-and-health/water-sanitation-and-health-(wash)/health-care-facilities/wash-in-health-care-facilities

of healthcare facilities have limited sanitation services, and 10.95% have no sanitation services.[226] In addition, figures from the World Health Organization (2023) show that out of 778 health facilities where sanitation was at least partially available, pit latrines are the predominant installation: 76% of facilities had latrines with covered pit or ventilated improved pit (VIP) latrines and 21% had latrines with uncovered pit (Table 14). More advanced sanitation solutions, such as flush and composting toilets, constitute a smaller proportion, with 10% of facilities having flush toilets, 3% having composting toilets, and 3% having pour-flush toilets (Table 14).

Table 14. Sanitation installation types within health facilities in the CAR. Source: WHO (2023).[227]

Latrines with covered pit or VIP	Latrines with uncovered pit	Flush toilets	Composting toilets	Pour-flush toilets	Other
76%	21%	10%	3%	3%	9%

Sanitation installations across health facilities in the CAR also reveal disparities in meeting various user needs, including those of women and girls. Only 65% of facilities offer separate toilets for men and women, a fundamental aspect of women's privacy and security.[228] Inclusive access is also limited, with only 9% of installations being accessible to persons with reduced mobility.[229] Furthermore, only 2% of toilets facilitate menstrual hygiene management, highlighting limitations in addressing the needs of menstruating women and girls.[230]

Available data indicates that individuals in internally displaced camps exhibit comparatively better access to sanitation than those residing outside camps (Figure 30). Specifically, the proportion of individuals categorized as disadvantaged in sanitation is 3% lower for those living in camp settings than non-displaced individuals (Figure 30). This observation suggests that the provision of sanitation services in IDP camps may operate with greater directness and efficiency than in other settings.

Nonetheless, site-level data from displacement sites in selected cities reveals significant challenges related to sanitation access. At displacement sites assessed in Ndélé in 2020, while 200 latrines were identified, none were functional or meeting basic hygiene standards, rendering them unusable.[231] The latrines lacked internal locking mechanisms, and neither the sanitation facilities nor the water points were equipped with lighting.[232] These deficiencies contributed to increased safety and accessibility concerns for the displaced populations.[233]

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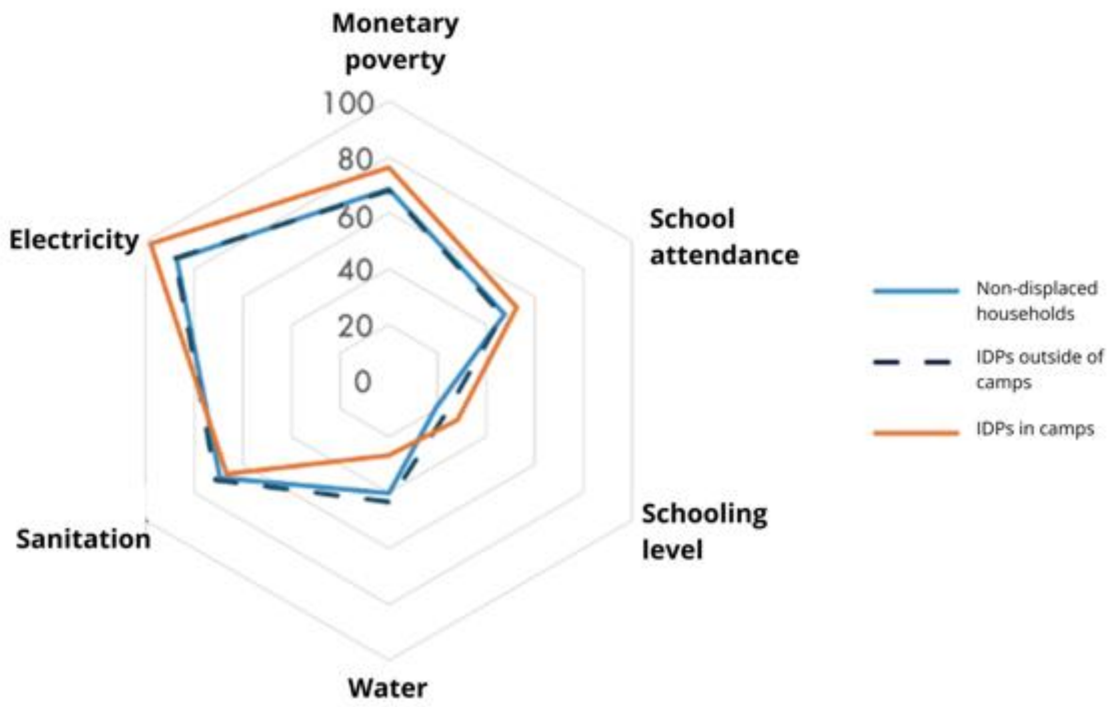
[226] WHO/UNICEF. (2022). *Joint Monitoring Programme for Water Supply, Sanitation and Hygiene (JMP).* https://washdata.org
[227] WHO. (2023). *HeRAMS République centrafricaine : Rapport de mise à jour abrégé septembre 2023 : Cartographie détaillée des formations sanitaires, de la disponibilité des services essentiels et des barrières à leur prestation.* https://reliefweb.int/report/central-african-republic/herams-republique-centrafricaine-rapport-de-mise-jour-abrege-septembre-2023
[228] WHO. (2023). *HeRAMS République centrafricaine : Rapport de mise à jour abrégé septembre 2023 : Cartographie détaillée des formations sanitaires, de la disponibilité des services essentiels et des barrières à leur prestation.* https://reliefweb.int/report/central-african-republic/herams-republique-centrafricaine-rapport-de-mise-jour-abrege-septembre-2023
[229] Ibid.
[230] Ibid.
[231] IOM. (2020). RÉPUBLIQUE CENTRAFRICAINE : Rapport d'évaluation rapide Ndélé 15 – 20 Mai 2020. https://dtm.iom.int/dtm_download_track/11278?file=1&amp%3Btype=node&amp%3Bid=8771
[232] Ibid.
[233] Ibid.

Figure 30. Percentage of individuals in need of sanitation, water, electricity schooling level, school attendance and monetary lob, by displacement category (non-displaced, displaced in a camp, displaced outside of a camp). Source: World Bank (2023).[234]



Waste management and wastewater treatment

The CAR faces a severe and largely unmanaged municipal solid waste crisis, with inefficiencies and limited collection creating a reliance on unsafe, informal disposal practices. Although municipalities are officially responsible for managing waste, the system's effective operation is largely confined to Bangui.[235] Elsewhere in the country, waste management remains largely ineffective.[236] Even in Bangui, overall, the waste collection coverage rate is estimated at only 5%.[237] In most neighbourhoods, households, particularly women and children, take responsibility for collecting and disposing of their own waste, usually storing it in buckets or sacks and dumping it in informal open-air sites.[238] While no recent data on waste disposal systems is available, in 2004, only 15.2% of households had an adequate waste disposal system.[239] Solid waste management services are unstructured and lack qualified personnel, contributing to poor waste and excreta management affecting over 50% of the population.[240] In 44% of schools, solid waste was openly dumped within the school grounds.[241]

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[234] World Bank Group. (2023). Évaluation De La Pauvreté En République Centrafricaine 2023 : Feuille De Route Pour La Réduction De La Pauvreté En République Centrafricaine.
[235] Ministère de l'Environnement et du Développement Durable, République Centrafricaine. (2024). *Rapport National d'Inventaire des Gaz à Effet de Serre de la RCA*. https://unfccc.int/sites/default/files/resource/BTR1_NC4_CAR_NIR.pdf
[236] Ibid.
[237] Ibid.
[238] Ibid.
[239] Ministère du Développement de l'Energie et des Ressources Hydrauliques (2019). Rapport Diagnostique Du Secteur De L'eau Et De L'assainissement.
[240] Sanitation and Water for All (SWA). (2020). *République Centrafricaine Country Overview: Sanitation and Water for All*. https://www.sanitationandwaterforall.org/sites/default/files/2020-12/2020%20Country%20Overview_CAR_EN.pdf
[241] REACH. (2023) Évaluation multisectorielle des besoins (MSNA) 2023 en République centrafricaine (RCA) : Présentation des résultats clés Eau Hygiène et Assainissement (EHA).

The CAR demonstrates a critical deficiency in wastewater management, as evidenced by its "very high" wastewater pollution score of 5 on the EPI Wastewater Treatment Performance Indicator. The Wastewater Pollution indicator measures the estimated levels of wastewater treatment in Basin Country Units (based on national data), rather than absolute volumes of wastewater polluting waterways.[242] This gives an indication of the risks from pathogens which may be highly relevant to vulnerable populations at local scales, and of threats stemming from poor wastewater treatment performance on a country level.[243] The indicator assesses national wastewater treatment performance by combining two metrics: the proportion of wastewater that is effectively treated and the share of the population connected to municipal sewerage systems. A score of 5 suggests a critical level of untreated wastewater and clear deficiencies in wastewater treatment coverage.

The lack of effective wastewater treatment and inadequate municipal solid waste management lead to significant contamination of groundwater and surface water bodies, precipitating outbreaks of waterborne diseases during and after flood events. While a robust connection between flooding and water-borne diseases is challenging to establish due to data limitations, there is anecdotal evidence of outbreaks of such diseases following flood events. For instance, a notable increase in Hepatitis E Virus cases in Bangui during 2008-2009 followed periods of heavy rainfall, suggesting that communal water sources contaminated with faecal matter were likely responsible for the outbreak.[244] Similarly, the 2009 floods in Bangui are reported to have exposed many individuals to malaria, diarrhoea, and other waterborne diseases.[245]

Hygiene

Access to adequate hygiene remains a severe challenge in the CAR, with the vast majority of the population experiencing critical hygiene conditions according to the National Health Policy.[246] The lack of access to clean, safe water prevents hygiene practices such as handwashing, which is crucial for preventing the spread of diseases. This is further compounded by deficiencies in sanitation access, with the lack of functional, gender-separated toilets and latrines in schools and other public settings making effective menstrual hygiene difficult for women and girls. At the national level, most households cite better hygiene as one of their top three needs.[247]

Hygiene behaviours have the potential to reduce the prevalence of some of the CAR's deadliest diseases. In low- and middle-income countries, regular handwashing with soap has been shown to lower the risk of respiratory infections, including lower respiratory infections.[248] Evidence also shows that promoting handwashing with soap can reduce the risk of diarrhoea by up to 30% among children in low-income and middle-income settings.[249] This is particularly relevant in the CAR, where, as of 2021, lower respiratory infections were the second leading cause of death, responsible for 99.4 deaths

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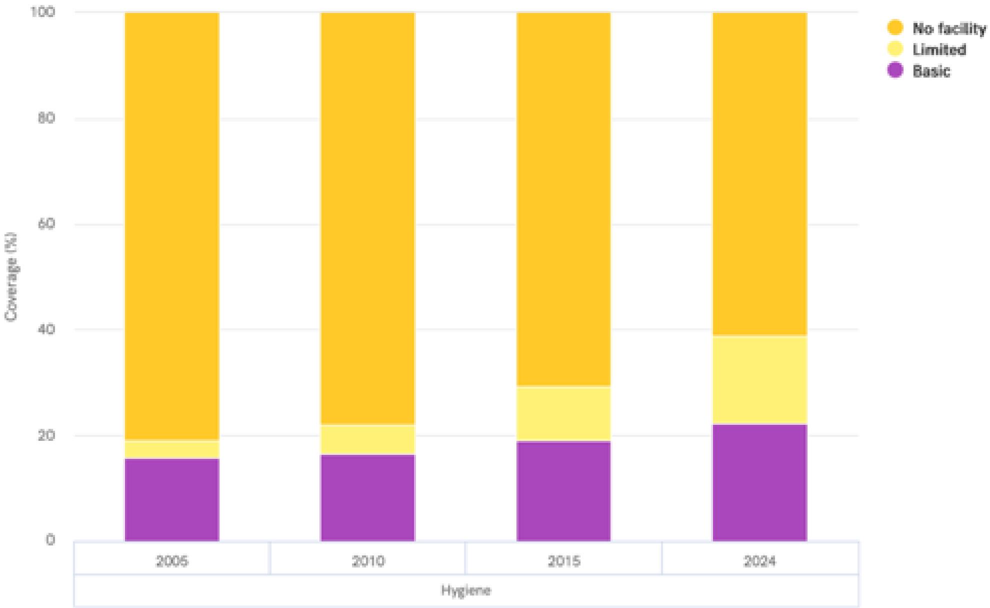
[242] UNEP and GRID Geneva. (2018). Wastewater pollution indicator - Country level BCU (weighted scores based on population and area) - EPI (Environmental Performance Index). https://develop.unepgrid.ch/en/datasetproxy/MX-NGS7E-T4B7P-7NCNA
[243] Ibid.
[244] Nombot-Yazenguet, M.P.M., Doté, J.W., Koyaweda, G.W., Zemingui-Bembete, P.A., Selekon, B., Vickos, U., Manirakiza, A., Nakoune, E., & Komas, N.P.J. (2020). *Hepatitis E outbreak in the health district of Bocaranga-Koui, Central African Republic, 2018–2019*. BMC Infectious Diseases, 20(1), 260. https://bmcinfectdis.biomedcentral.com/articles/10.1186/s12879-020-04961-4
[245] GFDRR. (2009). *Central African Republic– 2009– Subsequent to floods in Bangui, which left 14,500 people homeless, GFDRR supported a Joint Needs Assessment to assess and mitigate the impacts of recurrent flooding.* https://www.gfdrr.org/en/central-african-republic-2009-subsequent-floods-bangui-which-left-14500-people-homeless-gfdrr
[246] Ministère de la Santé et de la Population. (2019). Politique Nationale de Santé 2019-2030. https://www.sante.gouv.cf/sites/default/files/2024-07/Politique%20Nationale%20Santé_2019-2030.pdf
[247] REACH. (2021). République Centrafricaine : Évaluation Multisectorielle des besoins (MSNA) Rapport Final.
[248] Staley, J. W., et al. (2023). *Association of HIV with non-communicable diseases: a systematic review and meta-analysis*. The Lancet, 401(10373), 370-387. https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(23)00021-1/fulltext
[249] Ibid.

per 100,000 people, while diarrhoeal diseases ranked fifth, causing 66.4 deaths per 100,000 of the population.[250]

Despite a gradual increase in basic hygiene access over the past two decades, the majority of the population still lacks access to basic hygiene facilities. At the national level, as of 2024, 22.41% of the population had access to basic hygiene, while 16.49% of the population had access to limited hygiene and 61.09% has no facility (Figure 31). While coverage remains low, it has gradually increased over time: basic hygiene access increased from 15.78 percent in 2005 to 16.66 percent in 2010 and 18.93 percent in 2015. Meanwhile, the proportion of the population with no hygiene facility declined from 80.98 percent in 2005 to 78.04 percent in 2010 and 70.66 percent in 2015.

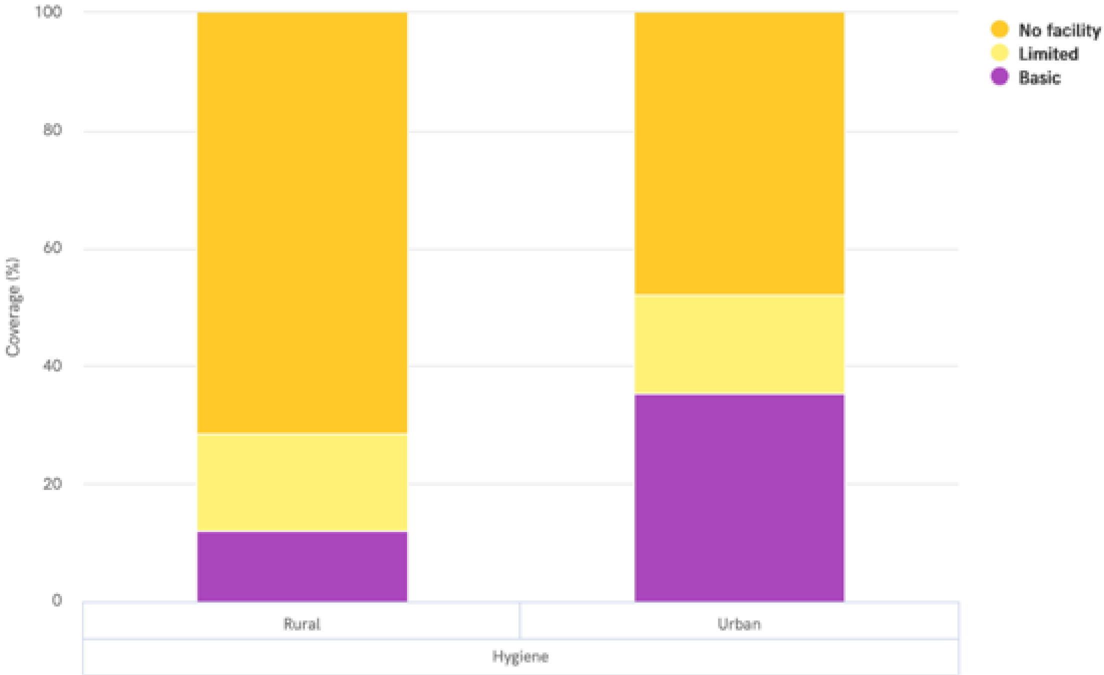
Figure 31. Trends in hygiene service coverage in the CAR, 2005–2024. Source: JMP (2024).[251]



Urban-rural disparities in hygiene access remain significant in the CAR. As of 2024, 35.43% of urban households had access to basic hygiene services, compared to only 12.13% of rural households (Figure 32). Conversely, the proportion of the population with no hygiene facility was substantially higher in rural areas, at 71.44%, compared to 47.99% in urban areas.

Figure 32. Urban–rural disparities in hygiene service access in the CAR. Source: JMP (2024).[252]

[250] WHO. (2024). Data: Central African Republic. https://data.who.int/countries/140
[251] WHO/UNICEF Data. (2024). *Joint Monitoring Programme for Water Supply, Sanitation and Hygiene (JMP).* https://washdata.org
[252] Ibid.



Access to hygiene in public spaces

Schools in the CAR are deficient in basic hygiene facilities, particularly handwashing stations and adequate support for menstrual hygiene management. As of 2023, 77 percent of schools surveyed in the CAR lacked handwashing facilities, highlighting the fragility of basic hygiene services in education.[253] [254] Additionally, schools lack adequate facilities to support menstrual hygiene management, with many failing to provide girls with access to water, soap, and private spaces, further affecting their health, dignity, and school attendance.[255]

A significant majority of healthcare facilities in CAR lack basic handwashing facilities, severely compromising hygiene standards and exposing vulnerable patients to medical complications. As of 2023, 70 percent of healthcare facilities in the CAR lacked handwashing facilities,[256] which raises concerns for patient safety and infection control. In healthcare settings, malnourished children receiving treatment are often exposed to increased risks of medical complications due to poor hygiene practices.

Handwashing facilities

A significant majority of households in the CAR, particularly in rural areas and among poorer populations, lack dedicated handwashing facilities. Among a total surveyed population of 45,438 households, 63% reported having no specific handwashing location in their home or yard, 28.3% utilized mobile handwashing facilities, and only 4.4% had fixed facilities. This disparity is more pronounced in rural areas, where 70.2% of households lack any specific handwashing location

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[253] REACH. (2024). *Aperçu des besoins humanitaires République centrafricaine.*https://www.unocha.org/publications/report/central-african-republic/republique-centrafricaine-apercu-des-besoins-humanitaires-janvier-2024
[254] Global Education Cluster. (2023). *Joint Education Needs Assessment (JENA) Report, Central African Republic (CAR)*.
[255] REACH. (2024). *Aperçu des besoins humanitaires République centrafricaine.*https://www.unocha.org/publications/report/central-african-republic/republique-centrafricaine-apercu-des-besoins-humanitaires-janvier-2024
[256] Organisation mondiale de la Santé (WHO). (2023). *HeRAMS République centrafricaine : Rapport de mise à jour abrégé septembre 2023 - Cartographie détaillée des formations sanitaires, de la disponibilité des services essentiels et des barrières à leur prestation.*

compared to 49.9% in urban settings (Table 15). The proportion of households with fixed handwashing facilities also increases with economic wellbeing. Among the poorest households, only 1.5% having fixed handwashing facilities, and 77.3% have no specific handwashing location. Comparatively, 11.2% of the richest households have fixed facilities, and 41% have no specific handwashing location.

Table 15. Types of handwashing facilities among households by total population, urban and rural population, and economic well-being quintile – 2018-2019. Source: UNICEF MICS6 (2021).[257]

Demographic / socioeconomic characteristic	Fixed facility (%)	Mobile handwashing facility (%)	No specific handwashing location in home/yard (%)	No permission to observe / other (%)
Total population	4.4	28.3	63	4.3
Urban	8.3	37.7	49.9	4.1
Rural	2.3	23.2	70.2	4.4
Poorest	1.5	16.0	77.3	4.8
Poor	2.4	20.8	72.0	4.8
Middle	2.1	25.0	69.9	3.1
Rich	4.9	35.5	54.7	4.9
Richest	11.2	43.9	41.0	3.9

Menstrual hygiene

A remarkably high and consistent percentage of girls aged 15-17 and women aged up to 49 in the CAR report having a private place at home to wash and change, and the vast majority also use appropriate hygiene products in these spaces. 92.0% of girls aged 15-17 and women aged up to 49 in the country reported having a private place at home to wash and change, and of these, 89.8% also used appropriate hygiene products in that private space (Table 16). A comparison between urban and rural areas shows minimal differences in access to a private washing and changing space, with 91.8% of urban women and 92.2% of rural women reporting such access (Table 16). However, a disparity appears in the use of appropriate hygiene products in these spaces, with 88.7% in urban areas compared to 90.6% in rural areas (Table 16). When examining socioeconomic status, the percentage of women with a private place to wash and change remained consistently high across all wealth quintiles, ranging from 91.6% (rich) to 93.0% (middle) (Table 16). Similarly, the use of appropriate hygiene products also showed relatively consistent high percentages across wealth quintiles, with the poorest at 90.5% and the richest at 88.4% Table 16).

Table 16. Percentage of girls aged 15-17 and women aged up to 49 who have a private place to wash and change at home and percentage of girls aged 15-17 and women aged up to 49 using appropriate hygiene products in a private place to wash and change at home, by total population, urban and rural population, and economic well-being quintile – 2018-2019. Source: UNICEF MICS6 (2021).[258]

Demographic or socio-economic characteristic	Percentage of girls aged 15-17 and women aged up to 49 who have a private place to wash and change at home	Percentage of girls aged 15-17 and women aged up to 49 using appropriate hygiene products in

[257] UNICEF. (2021). *MICS6: Central African Republic*. https://mics.unicef.org/surveys?display=card&f[0]=region:3841
[258] UNICEF. (2021). *MICS6: Central African Republic*. https://mics.unicef.org/surveys?display=card&f[0]=region:3841

		a private place to wash and change at home
Total population	92.0	89.8
Urban	91.8	88.7
Rural	92.2	90.6
Poorest	92.0	90.5
Poor	91.8	90.1
Middle	93.0	91.1
Rich	91.6	89.5
Richest	91.9	88.4

A substantial proportion of women in the CAR experience non-participation in social, educational or work activities due to menstruation. In the surveyed population, a total of 31.1% of girls aged 15-17 and women aged up to 49 reported not participating in social activities, school, or work due to their last menstruation within the past 12 months (Table 17). Regarding urban and rural populations, 27.7% of urban women experienced such non-participation, compared to 33.4% among rural women Table 17). Analysis by socioeconomic status reveals an inverse relationship with wealth. The highest rates of non-participation were found among the poorest and poor quintiles, at 34.7% and 36.0% respectively (Table 17). Conversely, the lowest rates were observed among the richest (25.7%) and rich (29.1%) quintiles, indicating that women from higher socioeconomic backgrounds were less likely to miss activities due to menstruation (Table 17).

Table 17. Percentage of girls (up to age 18) and women (aged up to 49) who did not participate in social activities, school, or work due to their last menstruation during the last 12 months by total population, urban and rural population, and economic well-being quintile – 2018-2019. Source: UNICEF MICS6 (2021).[259]

Demographic or socio-economic characteristic	Percentage of girls aged 15-17 and women aged up to 49 who did not participate in social activities, school, or work due to their last menstruation during the last 12 months
Total population	31.1
Urban	27.7
Rural	33.4
Poorest	34.7
Poor	36.0
Middle	31.8
Rich	29.1
Richest	25.7

[259] UNICEF. (2021). *MICS6: Central African Republic*. https://mics.unicef.org/surveys?display=card&f[0]=region:3841

Disaster risk reduction and early warning systems

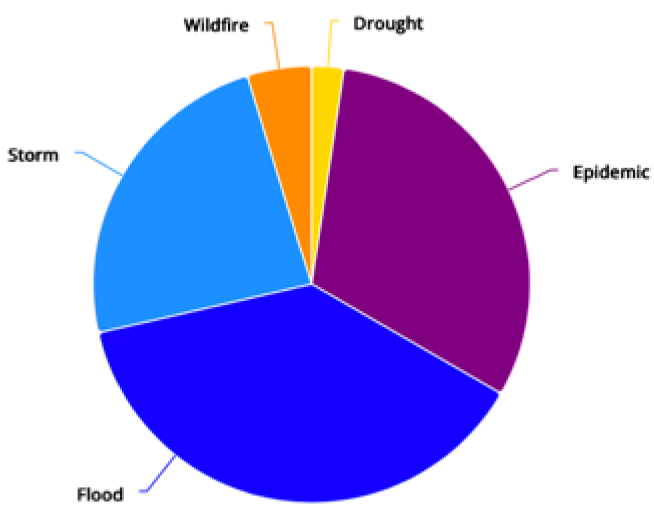
Disaster profile and compounding factors

Climate-induced disasters, predominantly hydrometeorological hazards, pose a significant vulnerability to the CAR. This vulnerability is exacerbated by a convergence of structural vulnerabilities including poverty, infrastructure fragility, displacement, and environmental degradation.[260] While bushfires and hazards such as droughts occur, the most frequent and damaging disasters are floods and associated landslides and mudslides. [261]

The CAR faces a significant and widespread risk of flooding. Hydrologically, most of the CAR's rivers extend over vast floodplains during the rainy season.[262] Rivers such as the Oubangui, the Sangha, the Chinko, the Kotto and the Ouham exhibit high maximum streamflow rates, characteristic of significant flood potential.[263] In the mountainous regions, this uneven hydrology frequently results in flash floods, which commonly trigger associated landslides and mudslides.[264] [265]

Floods are the most frequent natural hazard reported in the CAR, accounting for over a third of climate-related hazard occurrences. Over the period 1980-2020, floods constituted 38% of natural hazard occurrences reported in the country, followed by epidemics at 31% and storms at 24% (Figure 33). Wildfires and droughts constituted 5% and 2% of occurrences, respectively. The share of natural hazards over the period 1980-2020 is presented in Figure 33.

Figure 33. Average Annual climate induced and climate related Hazard Occurrence for 1980-2020. Source: EM-DAT (2021).[266]

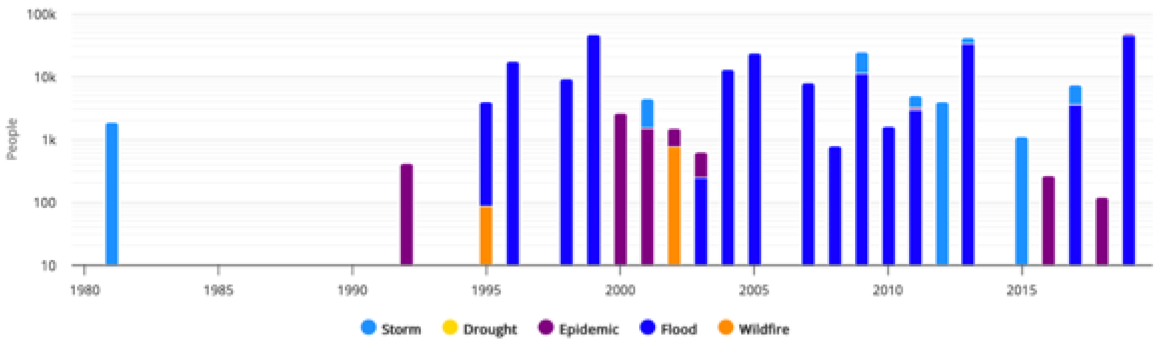


[260] World Bank. (2021). Climate Risk Country Profile: Central African Republic. Washington, DC: World Bank Group.
[261] EM-DAT (2023). http://www.emdat.be/
[262] Global Water Partnership Central Africa. (2010). *Développement d'une stratégie de financement du secteur de l'eau en Afrique centrale : Etude nationale sur le financement du secteur de l'eau, Rapport RCA*. https://www.gwp.org/globalassets/global/gwp-caf-files/etude-nationale-sur-le-financement-du-secteur-de-leau-en-rca.pdf
[263] MacDonald, A. M. et al. (2012). Quantitative maps of groundwater resources in Africa. *Environmental Research Letters,* 7(2), 024009. https://doi.org/10.1088/1748-9326/7/2/024009
[264] UNICEF. (2023). *Étude hydrogéologique en République Centrafricaine : Rapport sur les risques du changement climatique en Centrafrique*.
[265] The World Bank Group. (2021). Climate Risk Profile: Central African Republic.

[266] World Bank Group. (2023). Climate Change Knowledge Portal: *Central African Republic - Vulnerability*. https://climateknowledgeportal.worldbank.org/country/central-african-republic/vulnerability

Floods have been by far the most impactful climate-related hazard in the CAR between 1980 and 2020. According to EM-DAT (2021) data, over the period 1980-2020, recorded floods in the CAR affected a total of 218,814 individuals, storms affected 37,096 individuals, and epidemics affected 9,875 individuals (Figure 34). Additionally, 835 individuals were affected by wildfires. While droughts are reported to have affected individuals in 1983, the exact number is unknown. The number of people affected by natural hazards each year between 1980 and 2020 is displayed in Figure 34.

Figure 34. *Number of people affected by natural hazards for 1980-2020. Source: EM-DAT (2021).*[267]



Disasters in the CAR are compounded by the country's geomorphological features, inadequate infrastructure, and socioeconomic vulnerabilities. The country's terrain, with its swampy peneplains, barren hills, and low-permeability lateritic formations, naturally limits rainwater absorption, a problem worsened by degraded forest cover that increases runoff and erosion.[268] Existing water supply systems are highly vulnerable to intense rainfall and floods due to poor and often clogged drainage systems, particularly in urban areas like Bangui where waste blocks infrastructure, and in secondary cities that mostly lack networks entirely.[269] [270] [271] [272] The poorest households, women, and children, who have fewer resources to cope, are particularly vulnerable to disasters.[273] This vulnerability is amplified by the conflict and insecurity situation, which has also deterred funding of relevant projects by international partners.[274] [275] Unregulated urban expansion into flood-prone zones, particularly along riverbanks, has aggravated these vulnerabilities by disrupting natural watersheds and rivers overflowing into residential areas, intensifying the impact of floods.[276] [277]

Existing Capacities and Infrastructure

[267] Ibid.
[268] République Centrafricaine. (2021). *Stratégie Nationale de Développement Durable*. https://faolex.fao.org/docs/pdf/caf223531.pdf
[269] UNICEF. (2023). *Étude hydrogéologique en République Centrafricaine : Rapport sur les risques du changement climatique en Centrafrique*.
[270] Sanitation and Water for All. (2022). *Country Overview: Central African Republic*. https://www.sanitationandwaterforall.org/sites/default/files/2022-04/SWA_Profile_Central%20African%20Republic_en.pdf
[271] Ministère du Développement de l'Energie et des Ressources Hydrauliques (MDERH). (2024). *Études d'Avant-Projet Detaillé (APD), des Dossiers de Consultation des Entreprises (DCE) et des Études d'Impact Environnementales et Sociales, et des Plans d'Action de Réinstallation Relative aux Travaux de Construction des Infrastructures de Traitement, de Stockage et de Distribution d'Eau Potable dans le Grand Bangui*.
[272] Ministère du Développement de l'Energie et des Ressources Hydrauliques (2019). Rapport Diagnostique Du Secteur De L'eau Et De L'assainissement.
[273] IFRC. (2024). Central African Republic: 2024-2025 IFRC network country plan.
[274] IFRC. (2024). Central African Republic: 2024-2025 IFRC network country plan.
[275] Global Water Partnership Central Africa. (2010). *Développement d'une stratégie de financement du secteur de l'eau en Afrique centrale : Etude nationale sur le financement du secteur de l'eau, Rapport RCA*. https://www.gwp.org/globalassets/global/gwp-caf-files/etude-nationale-sur-le-financement-du-secteur-de-leau-en-rca.pdf
[276] République Centrafricaine. (2021). *Stratégie Nationale de Développement Durable*. https://faolex.fao.org/docs/pdf/caf223531.pdf
[277] République Centrafricaine. (2021). *Stratégie Nationale de Développement Durable*. https://faolex.fao.org/docs/pdf/caf223531.pdf

Hydrometeorological systems and technical capacity

The CAR's hydro-meteorological system is anchored within the Ministry of Transport and Civil Aviation, which houses the Direction Générale de la Météorologie (DGM). The Centre Météorologique Principal de Bangui-M'poko is the country's main surface observation centre and aggregates data from ground observations and international platforms such as EUMETSAT, Windy, NOAA, and Ogimet.[278]

Capacities for weather forecasting, hydro-climate prediction, groundwater monitoring, early warning, and risk anticipation in the CAR are weak. This is largely due to the absence of a comprehensive system, unclear institutional roles, and a shortage of financial resources, equipment, and technical skills. Sparse rainfall, river and stream flow monitoring equipment (e.g. hydrometric stations) hinder data collection, and remote sensing technologies and satellite imagery are not fully leveraged. Consequently, forecasts rely on limited local data, as well as extrapolations from Chad and other neighbouring countries' data and reanalysis of NASA open-source information.

The CAR's meteorological forecasting capabilities are limited by a lack of functional monitoring stations. The 2025 bulletin explicitly acknowledges that forecasts are reliant on only a few functioning ground stations with other regional stations either non-functional or not maintained.[279] Many meteorological stations across the country are out of service due to conflict, resource shortages, or lack of trained personnel.[280] Table 18 outlines 32 meteorological stations in the CAR and their condition and functionality. While only 4 are indicated as being fully functional, as of June 2025, the DGM reports that 16 stations in the country are functioning. Three hydrometric stations and three synoptic stations are operational, but none located in the target areas.

Table 18. Meteorological stations in the CAR. Source: DGM (nd.)[281]

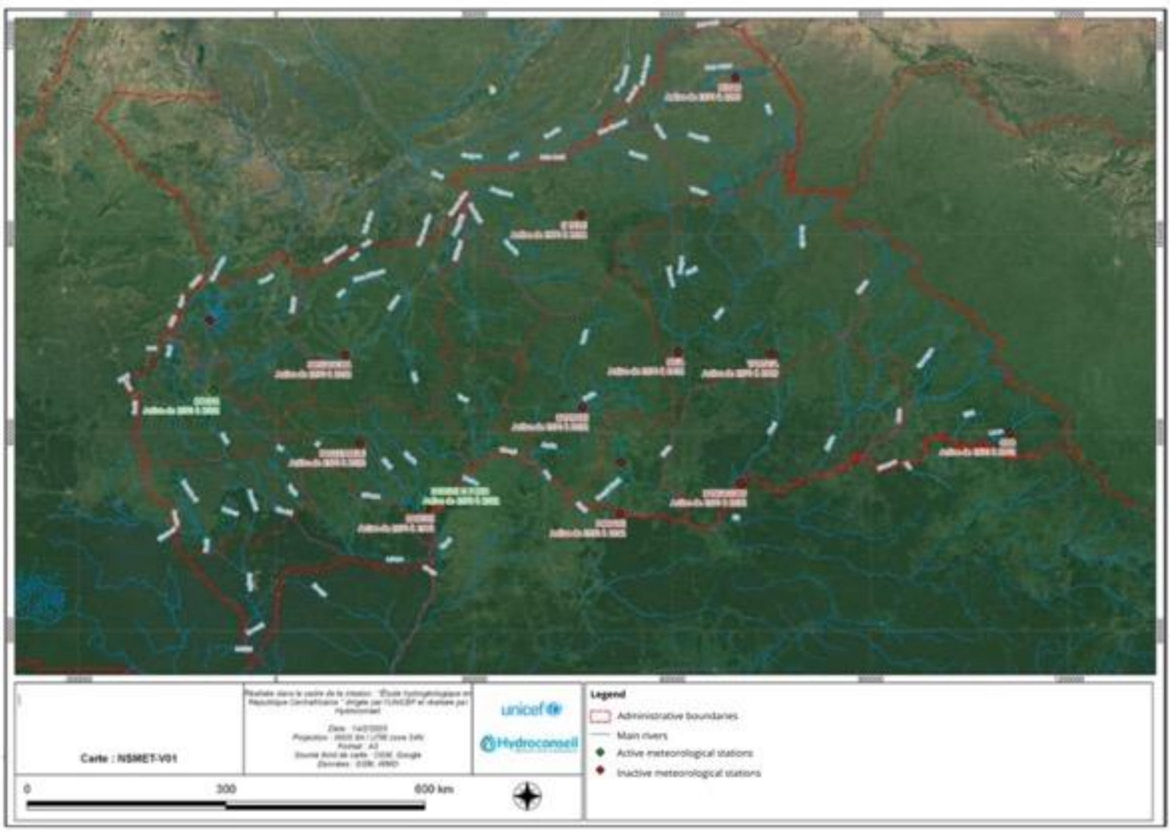
N°	Name	Latitude	Longitude	Station condition
1	**Bakéré**	5,143012	17,77218	Good physical condition but non-functional
2	**Bria**	6,5327264	21,9944167	Site destroyed with relics
3	**Bossangoa**	6,490086	17,4480446	Completely destroyed
4	**Bossongo**	4,2404961	18,2445361	Non-functional
5	**M'Bata**	3,6685588	18,2985243	Partially destroyed
6	**Carnot**	4,9401217	15,85948	Partially destroyed
7	**Bambari – Grand pont**	5,7630283	20,6617517	To be installed

[278] Ministère des Transports et de l'Aviation Civile. (2025). Bulletin météo RCA du 01.06.2025
[279] UNICEF. (2023). Cartes des stations hydrologiques et agrométéorologiques en République Centrafricaine.
[280] SIWI & UNICEF. (2021). Évaluation des Politiques liées au Climat et à l'Eau en République Centrafricaine. Stockholm International Water Institute.
[281] General Direction of Meteorology. (nd.) Stations météo retenues pour appui SAP par project PRUCAC. Internal document.

8	**Bogbaza**	5,41647	17,61748	Completely destroyed
9	**Mobaye Hydro**	4,3211796	21,1753859	New site
10	**Bria Hydro**	6,5360141	21,999042	New site
11	**Bossangoa Hydro Ouham**	6,477327	17,4505619	Functional
12	**Baoro**	5,6845708	15,9437008	New site
13	**Damara Ombella**	5,1532855	18,8654053	Partially destroyed
14	**Loungoumba Hydro (Bangassou)**	4,7292911	22,6777912	Illegible, non-functional
15	**Bombé at Boyali RN6**	4,1029592	18,2311443	Completely destroyed
16	**Oubangui at Zinga Hydro**	3,71143	18,5874383	Completely destroyed
17	**Oubangui at Sofitel Bangui Hydro**	4,3644746	18,5947735	Functional
18	**Bossangoa Synop (Aerodrome)**	6,493718	17,42702	Aerodrome
19	**Bossembelé Synop**	5,2720079	17,6418645	Partially destroyed, part of the support could be used
20	**Mobaye (Aerodrome)**	4,3783069	21,1359797	New site
21	**Bria (Aerodrome)**	6,5263794	21,9909083	Completely destroyed
22	**Bangassou Synop (Aerodrome)**	4,7861096	22,787605	To be installed
23	**Bambari (Aerodrome)**	5,8478383	20,64672	To be installed
24	**General Direction of Meteorology**	4,3836111	18,5647222	To be installed
25	**ISDR at 5 km from M'Baïki Agro**	-	-	-
26	**Boukoko at 11km from M'Baïki Agro**	-	-	-
27	**ICRA Bambari**	5,8198997	20,6752082	Nothing to report
28	**Bogoin**	4,7114065	17,9978301	Completely destroyed
29	**Berberati Synop (Aerodrome)**	4,1336642	15,4713836	Functional
30	**Bouar Synop (Aerodrome)**	5,5655638	15,381648	Functional
31	**M'Bari (Bangassou) Hydro**	4,825759	22,7492632	Completely destroyed

32	**SCEVN (Service Commun d’Entretien des Voies Navigables) Hydro**	4,3334918	18,5457593	Non-functional

Figure 35. Location of meteorological stations in the CAR. Source: WMO, from UNICEF (2023).[282]



Despite its membership in regional basin commissions, the CAR’s river monitoring is insufficient. The CAR is a member of the Lake Chad Basin Commission (LCBC), of the Congo-Oubangui-Sangha Basin Commission, and part of a regional hydrological information exchange network. Yet, the CAR currently lacks an effective river monitoring network, which hinders the identification of pollution, drought and flood risks related to surface water.[283] While hydrological monitoring networks with basic infrastructure were set up during the colonial era, notably by ORSTOM (now IRD), budget cuts in the 1980s and 1990s led to the abandonment of most stations. This has led to an almost complete absence of raw river flow data for over two decades, hindering visibility on recent trends.[284] Hydrological stations are also concentrated in the west and centre of the country, while the east has fewer such stations (Figure 36). According to the Third National Communication to the UNFCCC, the CAR’s diverse physical environment, including its varied topography and geology, means that existing observation networks are currently insufficient to capture local climate variability.[285]

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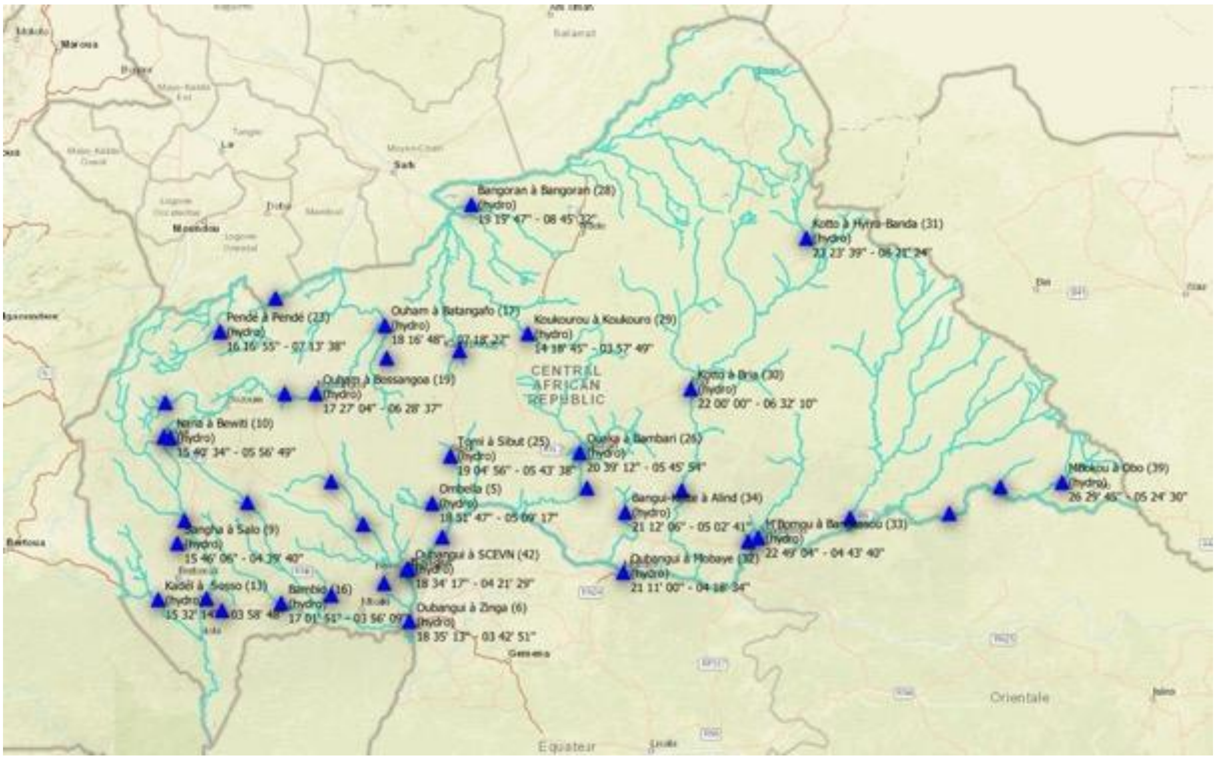
[282] UNICEF. (2023). Étude hydrogéologique en République Centrafricaine : Rapport sur l’état de connaissance des ressources en eau.
[283] UNICEF. (2023). *Étude hydrogéologique en République Centrafricaine : Rapport sur les risques du changement climatique en Centrafrique*.
[284] UNICEF. (2023). Étude hydrogéologique en République Centrafricaine : Rapport sur l’état de connaissance des ressources en eau.
[285] Ministère de l'Environnement et du Développement Durable, République Centrafricaine. (2022). *Troisième Communication Nationale de la République Centrafricaine*. https://unfccc.int/sites/default/files/resource/TNC%20VF%20FR.pdf

Figure 36. Hydrological stations. Source: UNICEF (2023).[286]



The scarcity of national surface and groundwater data in the CAR hinders the understanding of the hydrological connection between these resources, and, consequently, the vulnerability of water resources to climate change. Groundwater level collection is sporadic, primarily occurring during borehole or well construction, and the data is often not shared or centralized in a database. The government currently undertakes no groundwater monitoring; existing efforts are limited to a small number of sites where UNICEF and a few NGOs have installed piezometers and borehole loggers. Although a well-equipped water quality analysis laboratory exists in Bangui, there are no systems are in place to monitor groundwater quality and to understand the risks posed by climate change on water quality, which inhibits the detection of emerging health risks. Compounding the situation further, there is no integrated information system for real-time analysis or automated alerts that consolidates data across sources and institutions.

The CAR currently lacks an operational and effective early warning system for hydro-meteorological hazards. A 2024 internal directive from the health and meteorological coordination structure notes that the national EWS does not yet function as a real-time or anticipatory system, but rather provides periodic bulletins, limiting its ability to warn populations with sufficient lead time for response .[287] The CAR's Third National Communication notes that early warning systems for extreme weather events such as storms and heavy rains are not yet in place for implementation, and that further efforts are required to equip the DGM with such systems. According to a categorization of National Meteorological and Hydrological Services (NMHSs) by ECCAS, the CAR's provision of meteorological, climatological and hydrological services currently ranks as category 1, the most basic.[288]

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[286] UNICEF. (2023). Cartes des stations hydrologiques et agrométéorologiques en République Centrafricaine.
[287] Ministère de la Santé. (2024). Surveillance basée sur les événements RCA – Directives 2024. République Centrafricaine.
[288] Becker, A., Mve, I., & Mahjoub, Y. (2021). *Etat des lieux sur l'état de l'hydrométéorologie et les systèmes d'alerte précoces en Afrique Centrale : Rapport de synthèse*. Deltares for GFDRR and The World Bank. https://www.gfdrr.org/sites/default/files/Synth%C3%A8se%20Diagnostic%20R%C3%A9gional%20SHMN%20CEEAC.pdf

Despite numerous initiatives by various stakeholders to build early warning systems, these efforts are often siloed by sector or geography and lack integration, leaving communities vulnerable to various shocks. While various line ministries, basin commissions, and development partners (including the World Bank, AfBD, UNDP, WMO and GWP and Oxfam) have plans to rehabilitate or equip stations, develop early warning systems, or build institutional and community capacities, their efforts remain fragmented. These initiatives are often limited to a single sector or type of risk (floods, health, agriculture…), geographic area (i.e. Bangui), administrative level (national or community), or EWS component (typically, risk knowledge or hazard monitoring and management through drainage infrastructure, with less emphasis on contingency planning/preparedness and communication of alerts). As such, a fully operational, integrated multi-hazard early warning system does not yet exist and communities are left vulnerable to shocks with no warning. The limited early warning systems inhibits early action from being taken. Furthermore, no national multi-hazard early warning framework currently integrates climate, health, and conflict dimensions, despite the growing interlinkages between these sectors.[289]

Geographic Reach and Accuracy of Meteorological Forecasts

As EWS are not yet operational in the CAR, it is unfeasible to assess their geographic reach and accuracy, with current initiatives mostly limited to weather bulletins. The Meteorology Directorate issues weather bulletins irregularly, ranging from daily to weekly, which are shared via radio and a WhatsApp group of approximately 100 institutional and individual members (not broadcasted on television). Yet, the 2025 seasonal meteorological bulletin, for example, offers predictions only for zones with partial hydrological records, acknowledging that “no data was available for several northern and western basins”.[290]

The effectiveness and geographic reach of forecasts is limited by the scarcity of functional and reliable observation stations. As mentioned, as of February 2023, only a limited number of hydrological and agrometeorological stations were active - and many of these were in uncertain condition.[291] This limits both forecast resolution and the ability to calibrate localised hazard alerts. In addition, forecasts in CAR tend to be descriptive rather than predictive, offering summaries of likely conditions rather than probabilities or decision-support tools. For example, the June 1st, 2025, bulletin describes expected temperatures, rainfall zones, and wind patterns without linking these to any formal alert levels or suggested actions.[292]

Community Participation and Risk Communication

While the CAR has a policy framework for community-level risk communication, its implementation is currently limited. Notably, the 2023–2030 “Politique nationale d’engagement Communautaire” outlines a framework for local-level involvement in risk communication, advocating the use of community radio, mobile sensitisation teams, dialogue sessions with traditional leaders, and volunteer mobilisation.[293] However, the implementation of this framework faces challenges. The CAR’s low literacy rates limited mobile coverage in rural zones, and frequent disruptions to local radio and

[289] World Bank. (2021). Climate Risk Country Profile: Central African Republic.
[290] Ministère des Transports et de l’Aviation Civile. (2025). Bulletin de prévision saisonnière consensuelle de l’année 2025. République Centrafricaine.
[291] UNICEF. (2023). Cartes des stations hydrologiques et agrométéorologiques en République Centrafricaine.
[292] Ministère des Transports et de l’Aviation Civile. (2025). Bulletin météo RCA du 01.06.2025. République Centrafricaine.
[293] Ministère de la Santé et de la Population. (2023). Politique nationale d’engagement communautaire en RCA 2023–2030. République Centrafricaine.

civil administration severely hamper the community uptake of climate warnings.[294] In addition, such key policy document are often not widely accessible, known or used by relevant stakeholders.

Despite these challenges, promising examples of community-level climate and health risk communication and action exist. For example, in Ouham-Pendé and Nana-Grébizi, local NGOs have been working with health district offices to translate seasonal climate forecasts into community action plans, especially around malaria and flood prevention.[295] One advanced initiative in this area is the community- and event-based health surveillance system led by the Ministry of Health. It aspires to become national in scope and intersectoral and multi-risk in nature. It mainly relies on field reports (through SMS and other mobile apps) from community health workers/centres (and village development committees when they exist), whose training has only begun in April 2025 but highlights that a well-planned initiative can generate extensive support.

Institutional Coordination between EWS and DRR

CAR lacks a formalised coordination mechanism that bridges climate forecasting and disaster response. While some policy documents assign roles to ministries (e.g. meteorology, environment, interior), there is no operational multi-sectoral body ensuring that alerts trigger preparedness or DRR measures. The "Surveillance basée sur les événements" guidelines from 2024 call for a "One Health, multi-hazard surveillance" approach but acknowledge that the institutional landscape is fragmented, with overlapping mandates and minimal information-sharing between meteorological, public health, and civil protection agencies.[296] Moreover, EWS funding is predominantly external, fragmented across short-term projects and humanitarian programmes, which undermines efforts to build sustainable, integrated systems.[297]

[294] World Bank. (2021). Climate Risk Country Profile: Central African Republic.
[295] Ministère de la Santé et de la Population. (2023). *Politique nationale d'engagement communautaire en République Centrafricaine.*
[296] Ministère de la Santé. (2024). Surveillance basée sur les événements RCA – Directives 2024. République Centrafricaine.
[297] SIWI & UNICEF. (2021). Évaluation des Politiques liées au Climat et à l'Eau en République Centrafricaine. Stockholm International Water Institute.

Policy, governance and institutional framework

This section provides an overview of the key policies, the governance and institutional framework for project key sectors. In particular it presents institutional, and strategic frameworks guiding the governance of WASH (including CR-WASH), climate change adaptation, disaster risk reduction (DRR), early warning systems (EWS), and public health in the CAR. It reflects national commitments to sustainable development, climate resilience, public health, and emergency preparedness.

Policy Framework

This section outlines the legal, institutional, and strategic frameworks guiding the governance of WASH (including CR-WASH), climate change adaptation, disaster risk reduction (DRR), early warning systems (EWS), and public health in the CAR. It reflects national commitments to sustainable development, climate resilience, public health, and emergency preparedness.

Climate policies and plans

The following climate Policies and Plans were reviewed for alignment to the project:

- CAR NDCs (first, updated, 2022)
- National Climate Change Adaptation Plan of the Central African Republic (2022)
- National Development Plan 2024-2028
- National Gender and Climate Change Strategy for 2023-2030

Each policy is reviewed in detail, and a summary table highlights the key alignments at the end of the section.

Updated first Nationally Determined Contribution (2022)[298]

According to the NDC Business-As-Usual (BAU) scenario there will be an increase in greenhouse gases emissions from 10,040 GgCO2e in 2010 to 17,644 GgCO2e by 2030, primarily from the Energy, AFOLU (Agriculture, Forestry, and Other Land Uses), Industrial Processes and Waste sectors. To counter this, the NDC proposes mitigation measures. Under an unconditional scenario, it aims for an 11.82% reduction in GHG emissions by 2030. Under the conditional scenario with international financial support, there is a more ambitious conditional target of 24.28% reduction by 2030. The NDC covers the following sectors: energy (traditional energy sources, electricity, energy efficiency), AFOLU and Industry (Table 19)
The financial needs associated with the implementation of the scenarios described above are estimated at USD1.764B, including:

- USD 1.32 B for mitigation: $USD236 M for the unconditional scenario and USD1.08 B for the conditional scenario
- USD 443.87 M for adaptation: USD 44.38 M for the unconditional scenario and USD 399.48M for the conditional scenario

Table 19: National determined contributions of the Central African Republic for the unconditional and conditional scenarios per sector.

	Energy	AFOLU	Industry

[298] Central African Republic. (2022). *Nationally Determined Contribution (NDC) First NDC (Updated submission)*. https://unfccc.int/sites/default/files/resource/T-NDC-CAF-2022-EN.pdf

Unconditional	Traditional energy sources Energy Efficiency Reduction in GHG Emissions 2025: 2.02% 2030: -6.34%	Agriculture, forestry and Land Use Reduction in GHG Emissions 2025: -2.76% 2030: -4. 33%	Reduce the use of HFC in appliances 2025: - 6.25% 2030: -12.5%
Conditional	Traditional energy sources Electricity generation Reduction in GHG Emissions Energy Efficiency 2025: -6.53% 2030: -19,89%	Agriculture, forestry and Land Use Reduction in GHG Emissions 2025: -11.03% 2030: -17.30%	Reduce the use of HFC in appliances 2025: - 25% 2030: -50%

Initial National Climate Change Adaptation Plan of the Central African Republic (2022)[299]:

CAR's NAP is integrated with the country's broader development vision and peacebuilding efforts. It acknowledges the socio-economic vulnerabilities of the country from its post-conflict situation, political instability and high exposure to extreme climate hazards (such as droughts and floods).

The NAP process itself aims for "increased resilience of the agricultural and food security sectors, health, national resource management, and infrastructure to the adverse effects of climate change" in the medium and long term. Vulnerable sectors include agriculture, water and sanitation, health, energy, forestry ecosystems, construction and housing, with women, youth, displaced persons, people with disabilities and indigenous peoples identified as the most affected populations. The NAP also highlights ongoing weaknesses in policy implementation and the functioning of institutional framework. Specifically, it notes fragmentation across sectors, lack of inter-ministerial coordination, limited technical capacity, and insufficient financing mechanisms.

This document identifies crucial gaps and areas for improvement, including in governance and integrating climate adaptation into planning processes. It has been directly informed of the adaptation component of the country's revised NDC, and aligns with a number of national plans and programmes, including the National Gender and Climate Change Strategy for 2023-2030, the National Development Plan 2024-2028, the country's Third National Communication and the REDD+ Program.

National Development Plan 2024-2028[300]

The National Development Plan (PND) 2024-2028 was officially launched in September 2024. The plan aspires to move the country from an emergency response approach towards a more sustained development phase. The policy is focusing on stabilization, peacebuilding, and socio-economic development; climate change and environmental protection; human capital development and community building; economic, administrative, and financial reform; investing in infrastructure,

[299] Central African Republic. (2022). *Plan National d'Adaptation (PNA) de la République Centrafricaine*. https://unfccc.int/documents/460795
[300] Central African Republic. (2024). *Plan National de Développement (PND) 2024-2028*. https://fscluster.org/sites/default/files/2024-10/PND%20FINAL.pdf

economic diversification; durable solutions for displaced persons; and strengthening governance and accountability. Of the five axes, the three most relevant to this project are:

- **Axe 2. Développement du capital humain et accès équitable à des services sociaux de base de qualité (Development of human capital and equitable access to quality basic social services) :** This axis focuses on investing in core social services like health, education and WASH. Its goal is to strengthen human capital, reduce poverty and ensure vulnerable populations, including women and youth, have access to essential services and protection from violence and discrimination.

- **Axe 3. Développement des infrastructures résilientes et durables (Development of resilient and sustainable infrastructure) :** This axis focuses on improving critical infrastructure, including energy, roads, and telecommunications, with an emphasis on resilience.

- **Axe 5. Durabilité environnementale et résilience face aux crises (Environmental sustainability and resilience to crises) :** This axis is directly and explicitly focused on climate change. It aims to promote sustainable management of natural resources, ensure a transition to a green economy, and includes measures to protect the environment and exploit renewable energies.

National Gender and Climate Change Strategy for 2023-2030

CAR's National Gender and Climate Change Strategy for 2023-2030 is designed to integrate gender and social inclusion across all climate action. The NGCCS acknowledges the disproportionate climate change impacts on vulnerable groups, particularly women, and is aligned with the country's national development and peacebuilding goals.
The strategy is built upon five strategic annexes:

- Governance, coordination and climate finance that focuses on strengthening institutional frameworks and mobilising funding for gender-responsive acclimate action;
- Specific action in priority sectors' that integrates gender into adaptation and mitigation programs across key areas, such as agriculture, water and energy;
- Capacity building and knowledge transfer that addresses the need for skilled personnel and enhanced understanding of gender-climate linkages.
- Information, awareness and communication aim to improve public knowledge and foster behavioural change, and;
- Empowerment and climate leadership of women and vulnerable groups in a secure environment that supports their participation and leadership in climate action.

This NGCCS also features a robust monitoring, evaluation and learning mechanism which involves biannual internal monitoring, annual stakeholder meeting to review progress and update action plans, and midterm and final evaluations to assess the strategy's relevance and consistency.

Table 20: Summary of CAR's climate change policies alignment to the project

Policy	Relevant sections the project addresses	Explanation
Nationally Determined Contribution (2021)	The NDC envisions the WASH sector priorities in the following ways, of which the first three are addressed by the project: ● **Improving the governance framework for the water and sanitation sector, in line with the current and future vulnerability of water resources to climate change** ● **Establishment of a monitoring and surveillance system to ensure water security and uses in the context of climate variability and change** ● **Development of drinking water supply systems, combined with the promotion of water use efficiency** ● Strengthening the institutional capacities of municipalities in the collection, management, and recycling of solid waste	Firstly, the project dedicates a component to strengthening national policies, standards and regulations for climate resilient WASH, water resource management, and disaster risk reduction. It also seeks to improve cross-sectoral governance and coordination mechanisms. Secondly, the project prioritises improving hydrological data systems and impact scenarios for floods and droughts to inform early warning systems and adaptive planning. It also supports local stakeholders in strengthening water quality and level monitoring, contributing to the NDC goal of establishing comprehensive water security monitoring. Finally, the project aims to increase access to climate-resilient WASH services through the construction of water systems including solar-powered and multi-use networks.
	Objective 3: Inform And Prepare Infrastructures And Habitats, And Health Systems, For Climate Risks, Through The Improvement And Production Of Evidence In These Areas **Public Health:** ■ Improve knowledge on the health sector's vulnerability to climate change and identify adaptation options ■ Promotion of Hygiene and Basic Sanitation	The project directly tackles Objective 3 by aiming to reduce waterborne diseases and improve maternal and child health through enhanced water safety and hygiene practices. It also strengthens institutional capacities in the public health sector regarding climate change vulnerability and adaptation.
	Cross Cutting Measures: ● Disaster risk monitoring, rapid post-disaster needs assessment (PDNA), and operations management ● Climate education	The project actively integrates climate-informed disaster risk management and strengthens early warning systems. It emphasises training local stakeholders on climate risks, as well as disaster preparedness and risk assessments. This represents both institutional and community capacity building, serving as forms of climate education.
Initial National Climate Change Adaptation Plan of the	For the Water and Sanitation Sector: Adaptation priorities divided into 3 projects: ● Project 1: Integration of Climate Change Adaptation Into National and Regional Water Resources Management	The project aims to strengthen national policies and institutional capacities to integrate climate risks into water resource management. Specifically, it aims to update national standards and regulations and support the

Central African Republic (2022)	● Objective: Improve water resources management at the national and regional levels to address more intense flooding and other impacts of climate change	government in strengthening climate-resilient water resource management planning. The project's focus on improving hydrological data systems and impact scenarios for flood and drought risks also strengthens national-level water resource management in the face of climate change
	● Project 2: Strengthening the Resilience of Rural and Urban Areas to Climate Change Through Better Management of Community Water Resources ● Objective: Contribute to improving the resilience of rural and urban areas to climate change by integrating adaptation into community water resource management	The project focuses on strengthening WASH services, urban drainage infrastructure and water resource management at the community level. Activities like constructing and rehabilitating climate-resilient water and sanitation services and supporting community-led WRM measures (e.g., catchment protection, small-scale water retention) are direct actions that build resilience in rural and urban areas through improved community water management.
National Development Plan 2024-2028	Strategic Axis 2: Human Capital Development and Equitable Access to Quality Basic Social Services Strengthening human capital and social development are crucial for the CAR. Investing in health and education improves productivity, reduces poverty, and promotes social inclusion. It also strengthens resilience to crises and encourages citizen participation, thus laying the foundations for sustainable development and a prosperous society. This strategic axis aims to provide quality health, nutrition, education, water, sanitation, and hygiene services so that populations, particularly women, youth, and specific groups, enjoy shock-responsive social protection and are protected against all forms of violence, exploitation, and gender-based discrimination.	This axis prioritises investments in health, nutrition, education and WASH services to improve human capital and social development, particularly for women, youth and vulnerable groups. The project directly addresses this by aiming to strengthen climate resilience through enhanced access to climate-resilient WASH services. The project highlights co-benefits like improved maternal and child health, reduced waterborne disease incidence, decreased school dropout rates, and lower protection risks for women and girls due to reduced water collection burden.
	Strategic Axis 3: Development of Resilient and Sustainable Infrastructure Infrastructure development remains a priority for the Government. This strategic axis aims to develop the energy, road, and river infrastructure essential for sustainable economic growth by facilitating trade and improving population mobility. It also aims to connect communities to services and opportunities, improve social services, and increase infrastructure resilience to shocks. This fundamental pillar supports economic expansion and improved quality of life.	This project aligns by focusing on the ;development of resilient and sustainable WASH infrastructure' as a core component. It includes activities like the construction and rehabilitation of climate-resilient water and sanitation services, and improvement of urban drainage infrastructure to withstand climate risks. This directly contributes to making essential social service infrastructure more resilient to climate shocks, a key objective of this strategic axis.
	Strategic Axis 5: Environmental Sustainability and Resilience to Crises and the Effects of Climate Change	This project aims to strengthen community and ecosystem resilience to the adverse effects of climate

	The CAR represents a biogeographic crossroads characterized by diverse vegetation, maintained by a vast hydrographic network. This botanical mosaic abounds in a vast floral and faunal biodiversity, the inventory of which remains incomplete to date. This national heritage is integrated into a vast network of protected areas, some of which are listed as UNESCO World Heritage Sites. This nature reserve represents a vast potential for sustainable development, facing real and growing threats of biodiversity loss and climate change. This axis aims to strengthen the population's resilience to the effects of climate change and strengthen the contribution of natural resources and the green and circular economy to accelerating growth and social development.	change through improves water security and climate-informed disaster risk management. It focuses on sustainable water resource management and aims for environmental co-benefits such as reduced contamination of water resources due to climate-resilient WASH infrastructure, directly contributing to environmental sustainability and resilience outlined in axis 5.
National Gender and Climate Change Strategy for 2023-2030	**Strategic Axis 2: Specific actions in priority sectors in the fight against climate change** ● <u>Water sector</u>: the objective is to promote a more effective mechanism for sustainable water resource management. Aimed activities include: [i] Increase the construction of village pumps to facilitate access to drinking water in the most remote areas; [ii] Establish gender-sensitive teams for national and regional water resource management; [iii] Strengthen links between institutions responsible for water management and gender; [iv] Design/rehabilitate water supply systems to increase climate resilience, considering the specific needs of women and men; [v] Prioritize women in water resource management; [vi] Accompanying women in their search for water. ● <u>Public Sanitation sector</u>: the aim is to strengthen strategies to combat climate-related diseases. Aimed activities include: [i] Training healthcare staff on the links between health, climate change, and gender; [ii] Design and implementation of gender-sensitive programs aimed at reducing the risks of climate-sensitive diseases at the community level; [iii] Studies on the links between health, climate change, and gender; [iv]	Regarding the water sector, the project aims to increase access to climate-resilient WASH services, including constructing and rehabilitating water supply systems, which facilitate access to drinking water, particularly in remote areas. It acknowledges the disproportionate burden of water collection on women and girls, explicitly aiming to reduce their daily water collection burden and thereby promote a more effective and sustainable water resource management system and considers their specific needs. Through strengthening institutional and community capacity, the project inherently involved local governments and communities, including women, in managing WASH services. Regarding the public sanitation sector, the project aims to reduce waterborne disease incidence and improve maternal and child health. By improving sanitation services and urban drainage, the project directly mitigates the risks of climate-sensitive diseases like cholera and diarrhoea (exacerbated by flooding and inadequate sanitation). The project's emphasis on awareness campaigns and community engagement will also contribute to raising awareness on hygiene practices and the health impacts of climate change, which

Awareness-raising campaign on: The gender-specific impacts of climate change on health (pneumonia, cancer, etc.); Water-borne and climate-sensitive diseases; Gender-based violence (GBV) in priority sectors related to climate-related disasters; The promotion of technologies and services that contribute to health, adaptation and mitigation, and gender equality.	indirectly supports the 'awareness-raising' aims.
Strategic Axis 3: Capacity building and knowledge transfer: Assessment of knowledge and skills: ■ ***Gender and social inclusion stakeholders on climate change.*** ○ Climate change stakeholders on gender and social inclusion. ○ Sector stakeholders on both themes to develop the training plan. ○ Development of a capacity-building program that integrates gender and gender-related issues to improve technical expertise in the following areas: ■ ***Climate change risk and vulnerability assessment.*** ● Definition of adaptation options. ● Costing of these options. ● Integration of climate change adaptation into development planning and budgetary processes.	The project directly addresses this axis by strengthening national and subnational capacities, specifically including "Strengthen institutional capacities on WASH, WRM, environment, public health and disaster management sectors on climate at national and subnational levels". This intention – to build technical expertise in climate risk assessment and adaptation planning – aligns with the goal of improving technical expertise.
Strategic Axis 5: Empowerment and climate leadership of women and vulnerable groups in a secure environment ○ SO 5.1 - Improve and strengthen the participation of youth, women, and indigenous peoples in decision-making bodies related to climate change. ○ SO 5.3 Increase financial and **material** resources provided to women and vulnerable groups to enable them to take charge of their own lives and participate in the fight against climate change.	Through the project's activities of increasing climate-resilient water infrastructure, it hopes to reduce girls and women's water collection burden, which links to decreased school dropout rates, leading to greater participation. Furthermore, by intending to increase community and youth engagement and increase empowerment for climate resilient water management and disaster risk reduction at the local level, it aims to train local stakeholders, including women and youth, on climate risks and disaster preparedness, fostering their participation and leadership in local

climate action and decision-making.

In regard to increasing financial and material resources provided to women and vulnerable groups, by promoting 'context-relevant, affordable and viable financial schemes for climate resilient WASH services' and supporting the engagement of local entrepreneurs/youth-led businesses, the project indirectly increases financial opportunities. Also, the reduction in time spent collecting water frees up women's time, which can be reallocated to economic activities or education.

WASH Sector Policies, Regulations, and Strategies

CAR's WASH sector is primarily guided by the National Water Policy (Politique Nationale de l'Eau, 2021), which replaces the earlier 2005 policy. This document aims to ensure universal access to potable water, enhance the equitable distribution of water services, and institutionalise Integrated Water Resources Management (IWRM) principles for the sustainable use of water resources.

The 2021 Policy is operationalised through four national programmes[301]:

1. **National Drinking Water Supply and Sanitation Programme (*Programme National d'Approvisionnement en Eau Potable et d'Assainissement*):** Targets improved physical access to safe water and sanitation facilities, especially in underserved rural zones
2. **National Integrated Water Resources Management Programme (*Programme National de Gestion Intégrée des Ressources en Eau – GIRE*):** Applies IWRM principles to foster ecosystem resilience, mitigate water-related conflict, and ensure equitable allocation of water
3. **National Water and Sanitation Sector Governance Programme (*Programme National de Gouvernance du Secteur de l'Eau et de l'Assainissement*)**: Strengthens institutional governance through decentralised management and accountability structures
4. **National Strategic Hydraulic Infrastructure Programme *(Programme National d'Infrastructures Hydrauliques Structurantes):*** Focuses on developing strategic water infrastructure to expand access and bolster climate-resilient service delivery

In addition to the four primary programmes, the WASH Barriers and Investment Priorities Report[302] identifies the lack of inter-ministerial coordination, weak capacity of decentralised services, and insufficient climate-risk screening in rural infrastructure projects as key impediments to WASH service

[301] (République Centrafricaine. Plan National d'Adaptation au Changement Climatique de la République Centrafricaine (PNA), 2021).
[302] (SIWI & UNICEF, Évaluation des Politiques liées au Climat et à l'Eau en République centrafricaine, 2021)

resilience. It proposes aligning water infrastructure investments with decentralised development plans and creating a WASH–Climate Taskforce under the Ministry of Energy Development and Hydraulic Resources to mainstream resilience planning in infrastructure tenders and budgeting . Research shows that similar taskforces in neighbouring countries (e.g. DRC, Chad) achieved measurable resilience improvements when linked to national climate funds and technical advisory units[303].

The Water Code (Code de l'Eau[304]) serves as the primary legal framework for water governance. It defines water rights, pollution control mechanisms, and the establishment of water user associations. Notably, the Code calls for the integration of climate change considerations in water resource management[305]. To accelerate operationalisation, the 2024 Strategy for Resilient Water Resource Management identifies four strategic areas: enforcement of existing legal frameworks, establishment of a hydrological monitoring system, redeployment of human resources, and increased alignment between national budget allocations and sectoral needs[306].

In crisis-affected zones, the Strategic Operational Framework for the WASH Sector (Cadre Stratégique Opérationnel pour le secteur de l'EAH[307]) provides an emergency framework to coordinate WASH service delivery. The strategy aims to harmonise humanitarian interventions, ensure quality control, enhance emergency preparedness, and mobilise resources at local, national, and international levels.

Beyond legal texts and strategic programmes, the governance of the WASH sector in CAR is defined by a complex network of institutions operating at national, local, and transboundary levels. A detailed overview of institutional mandates and operational realities in the WASH sector is presented in Table 21 (see Section 1.3.2.1), where the main actors and coordination challenges are analysed in greater depth. While formal institutional roles are clearly defined on paper, real-world implementation is frequently hindered by insecurity, insufficient funding, and overlapping mandates. Several institutions — including the National Water and Sanitation Council (CONEA), Basin Agencies (ABSEA), and the Water Police — exist only nominally, limiting the country's capacity to manage water resources or respond effectively to climate-related shocks.

Meanwhile, local governments, expected to assume a central role under decentralisation laws, remain under-resourced and lack technical support. The resulting governance vacuum particularly affects rural and peri-urban areas, where decentralised water service provision is essential for climate adaptation and public health resilience.

Disaster Risk Reduction (DRR) and Early Warning Systems

In 2022, CAR adopted its first comprehensive framework on disaster resilience: the National Strategy for Disaster Risk Reduction and Adaptation to Climate Change (2023–2027)[308]. This policy seeks to enhance national preparedness and reduce vulnerability to both sudden and slow-onset events by:

- Promoting a risk-informed culture
- Strengthening institutional governance of emergency management
- Developing post-disaster reconstruction frameworks

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[303] (Ngandu et al., 2020. "Institutionalizing CR-WASH in Central Africa". Water Policy)
[304] République Centrafricaine. Code de l'Eau, 2006
[305] (République Centrafricaine. Code de l'Eau, 2006).
[306] (République Centrafricaine. Stratégie de Gestion Résiliente des Ressources en Eau, draft, 2024)
307 SIWI & UNICEF. Évaluation des Politiques liées au Climat et à l'Eau en République centrafricaine, 2021
308

- Improving coordination for early warning and emergency response

The National Drought Plan (2023) supplements this strategy by building a centralised drought forecasting and early warning system. It outlines institutional mechanisms for decision-making, prevention, and evaluation of drought-related responses

Despite these frameworks, monitoring capacity remains extremely limited. CAR has just 8 functional meteorological stations covering a territory of over 620,000 km², leading to major spatial gaps in early warning coverage. In its 2023 report, the Water Diagnostic Mapping initiative highlighted that no formal national platform exists to share flood/drought warnings with local WASH and health authorities, which undermines rapid deployment of pre-positioned hygiene kits and mobile health teams during acute climate shocks[309]

Public Health and WASH Integration

The National Health Policy (2019–2030) affirms WASH as integral to national health goals. Key strategic objectives include:

- SO1: Strengthening governance across the health system
- SO8–SO9: Upgrading health infrastructure and ensuring maintenance of WASH-related medical equipment
- SO16: Reinforcing the capacity to respond to epidemics and disasters
- SO17: Enhancing hygiene and sanitation at the community level[310]

These priorities are implemented through the PNDS III (Plan National de Développement Sanitaire), which targets four health system challenges: governance, resilience, disease burden, and epidemic/pandemic preparedness[311].

Other Relevant Policies and Instruments

- **Code d'Hygiène (2006):** Confirms sanitary norms across public health and environmental health domains. Official legal text archived by WHO-AFRO[312]
  - **Politique Nationale de la Santé Communautaire (2020–2030):** Supports community-led WASH service delivery and aligns with PNDS III.
- **Code de l'Environnement:** Referenced in climate and biodiversity frameworks. Not yet passed by Parliament. The Ministry of Environment confirmed in a 2023 policy brief that the Code remains in draft form pending parliamentary review.
- **Programme Pays du Fonds Vert Climat (2018):** CAR's GCF Country Programme prioritises mitigation and adaptation pipelines with WASH-related co-benefits. Details are not publicly disclosed.

It is notable to mention that comparative studies show that draft environmental codes in francophone Africa often stall due to conflict, land disputes, and competing resource interests, with CAR's draft delayed since 2018[313].

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[309] (SIWI & UNICEF. Évaluation des Politiques liées au Climat et à l'Eau en République centrafricaine, 2021)
[310] (Republique Centrafricaine. Politique Nationale de Santé 2019–2030, 2019)
[311] (République Centrafricaine. Politique Nationale de Santé 2019–2030, 2019).
312 République Centrafricaine. (2006). Code d'Hygiène. Bangui : Gouvernement de la RCA. Officially archived by WHO-AFRO. Available at: https://www.afro.who.int/publications/central-african-republic-hygiene-code
[313] (Dupont & Mbombo, 2021. "Barriers to environmental code adoption in fragile states." Journal of Environmental Law).

Institutional Landscape

Governmental Architecture and Coordination

The institutional landscape for climate-resilient water, sanitation, hygiene (CR-WASH), public health, disaster risk reduction (DRR), and climate adaptation in the CAR is characterised by a fragmented governance structure, weak decentralised presence, and limited intersectoral coordination. This section identifies key public institutions at national and local levels, outlines their legal mandates, and analyses coordination mechanisms and systemic limitations that affect effective policy implementation.

Climate Change Adaptation

The Ministry of Environment and Sustainable Development (MEDD) is the lead institution for climate change policy, responsible for coordinating adaptation actions and interfacing with international climate finance mechanisms such as the Green Climate Fund (GCF) and Global Environment Facility (GEF)[314].

Within MEDD, the Direction Générale de l'Environnement (DGE) is responsible for environmental regulation, while the National Climate Coordination Unit (CNC)—established by Decree No. 16.365 of 28 October 2016—manages multi-sectoral planning and technical coordination for climate adaptation and mitigation.

The CNC includes sub-units on climate finance, adaptation, and technical collaboration. Its Technical Committee brings together representatives from Parliament, the Prime Minister's Office, focal points for GCF and GEF, key ministries (Health, Agriculture, Water), research institutes, civil society, and the private sector. Nevertheless, stakeholder interviews indicate that coordination remains highly donor-driven and lacks sustainable government funding[315].

Water, Sanitation, and Hygiene (WASH)

The Ministry of Energy Development and Hydraulic Resources (MEDHR) is the primary national authority responsible for regulating the WASH sector. Through its General Directorate of Hydraulic Resources (DGRH), it oversees policy formulation, infrastructure planning, permitting, quality assurance, and strategic partnerships[316]. The DGRH's legal foundation is established under Decree No. 18.087 of 10 April 2018, which mandates the Ministry to:

- Formulate and implement water and sanitation policy;

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[314] (République Centrafricaine, 2021. Plan National d'Adaptation au Changement Climatique de la République Centrafricaine)
[315] (SIWI, 2023. Gestion de la demande en eau – Rapport d'état des lieux en République Centrafricaine)
[316] (République Centrafricaine, 2023. Water Diagnostic Mapping Report – Institutional Landscape and Data Systems).

- Harmonise legal and institutional frameworks with regional and international water management conventions;
- Oversee the exploitation of water resources and delivery of WASH services;
- Coordinate integrated water resource management (IWRM);
- Promote private sector engagement and manage technical norms and quality control systems[317].

However, DGRH suffers from chronic underfunding, low technical staffing, and weak implementation capacity, particularly outside the capital. At the local level, the National Agency for Drinking Water and Sanitation in Rural Areas (ANEA) is the sole government actor present in a limited number of prefectures, notably Bamingui-Bangoran, Kémo, and Nana-Gribizi. It is tasked with implementing rural water and sanitation projects, monitoring boreholes and groundwater systems, and coordinating with development partners[318].

Urban WASH services are managed by SODECA, the national water utility, which operates through a public-private lease with the state. It supplies piped water in eight urban centres including Bangui, Bouar, and Ndélé, though services are constrained by ageing infrastructure, weak cost recovery, and inconsistent chlorination[319].

The Water and Sanitation Sector Regulatory Agency (ARSEA), legally created to oversee tariff regulation, licensing, and consumer protection, has never been made operational due to overlapping institutional roles and its financial dependence on SODECA. As a result, regulatory oversight has been absorbed—de facto—by DGRH, in the absence of a formal framework[320].

Local authorities (communes and collectivités territoriales) have decentralised mandates to plan and contract small- to medium-scale WASH infrastructure. However, only a small number of them actively lead implementation due to capacity gaps in staffing, technical skills, and financial resources[321]. The National Water and Sanitation Council (CONEA) was established to provide multi-stakeholder oversight and policy coordination but remains non-operational.

The overview above outlines the formal distribution of responsibilities across key national and local institutions in the WASH sector. However, structural fragmentation, overlapping mandates, and inconsistent implementation across agencies continue to hinder effective governance. To complement this narrative, Table 21 below synthesises institutional mandates, implementation roles, and practical coordination issues, offering a consolidated snapshot of the WASH governance landscape in CAR.

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[317] (République Centrafricaine, 2023. Water Diagnostic Mapping Report – Institutional Landscape and Data Systems; SIWI, 2023. Gestion de la demande en eau – Rapport d'état des lieux en République Centrafricaine)
[318] (République Centrafricaine, 2023. Water Diagnostic Mapping Report – Institutional Landscape and Data Systems; SIWI, 2023. Gestion de la demande en eau – Rapport d'état des lieux en République Centrafricaine)
[319] (République Centrafricaine, 2023. Water Diagnostic Mapping Report – Institutional Landscape and Data Systems; SIWI & UNICEF, 2023. Financement du Climat en République Centrafricaine)
[320] Ibid.
[321] Ibid.

Table 21: Key Governmental Actors in the Water and Sanitation Sector – Mandates, Responsibilities, and Implementation Realities in CAR[322]

Institution / Actor	Role and Responsibilities	Context, Actions, or Examples
Ministry of Energy Development and Hydraulic Resources (MEDHR)	Leads national water policy, sector governance, IWRM implementation, and climate integration in water services.	Spearheaded the 2021 National Water Policy; attempting to centralise data via the Système National d'Information sur l'Eau (SNIEau); hampered by fragmented coordination.
Directorate-General for Hydraulic Resources (DGRH)	Develops regulations, supervises project implementation, manages permits, and ensures service quality.	Launched infrastructure mapping and developed draft regulations, but lacks enforcement power; responsible for setting technical norms.
National Water and Sanitation Agency (ANEA)	Implements rural WASH programmes and ensures delivery of basic services in underserved areas.	Functioning since 2006 but operations were severely constrained during the 2013 crisis; limited rural coverage and low operational budget.
Water and Sanitation Sector Regulatory Agency (ARSEA)	Regulates tariffs, service standards, and consumer protection in the WASH sector.	Created in 2007 but never operationalised due to political instability and reliance on revenues from SODECA. Functions were absorbed by the DGRH.
National Water Utility (SODECA)	Operates urban water systems including production, treatment, and distribution.	Covers cities like Bangui, Bouar, Berbérati; suffers from high water losses, poor treatment quality, and inability to maintain or extend networks.
Ministry of Agriculture and Rural Development	Oversees irrigation, agricultural water use, and climate-smart practices.	Runs a separate water-use database for agriculture; lacks integration with national water databases. Promotes water-efficient irrigation.
Ministry of Livestock and Animal Health	Manages pastoral water access and conflict prevention between herders and farmers.	Working on national strategy for pastoral hydraulics, including construction of boreholes along transhumance corridors.

322 République Centrafricaine (2023), Water Diagnostic Mapping Report.

Ministry of Environment	Protects aquatic ecosystems and integrates climate resilience into environmental management.	Leads implementation of the National Climate Risk Analysis; involved in the NAP and the Gender and Climate Strategy.
Ministry of Health	Ensures public health and hygiene; promotes WASH in health facilities and communities.	Implements PNDS III and coordinates epidemic response. Supported WASH investments in cholera-prone zones via HeRAMS and MAA monitoring.
Ministry of Forests, Waters, Fisheries and Hunting	Regulates use and protection of forest and water ecosystems.	Promotes water conservation and sustainable use of aquatic biodiversity; implements floodplain conservation in riverine zones.
Ministry of Territorial Administration and Local Development	Facilitates decentralisation and local governance of WASH services.	Coordinates local WASH plans; helps municipal actors align with national policies; many prefectures lack administrative capacity.
Ministry of Mines and Geology	Controls water-related pollution in mining zones.	Faces difficulty regulating informal artisanal mining, which contributes to severe river pollution and aquifer degradation.
Local Governments (Collectivités Territoriales)	Emerging implementers of WASH planning under decentralisation law.	Receive devolved responsibilities under the 2021 Water Policy; however, suffer from severe capacity and financing gaps.
National Water and Sanitation Council (CONEA)	Meant to serve as a national advisory and coordination platform.	Established by decree but remains inactive; intended to harmonise planning across ministries and development partners.
Basin Agencies (ABSEA)	Coordinate water resource management at watershed level.	Mandated by law but still unestablished; could resolve local–national planning misalignments if properly funded and staffed.
Water Police (Police de l'Eau)	Enforces compliance with water legislation and pollution control.	Legally defined but operational mechanisms are missing; relies on future regulatory instruments and capacity building.
CEEAC (Regional Body)	Harmonises regional water policies and	Supports transboundary river basin management and regional

	facilitates cooperation across borders.	climate adaptation initiatives in line with SDG 6 and the NAP.
Civil Society and NGOs	Engage in WASH education, advocacy, service delivery, and monitoring.	Key in community-based hygiene promotion, behaviour change, and infrastructure delivery in conflict-affected regions.
University of Bangui – Lavoisier Hydroscience Lab	Provides scientific research, water quality testing, and higher education.	Created in 2002; supports national water monitoring and training of technicians for SNIEau and lab-based quality assurance.

Evidently, even where legal mandates exist, actual operational responsibilities are often fragmented or poorly defined in practice. This disconnect not only weakens regulatory oversight and service delivery, but also undermines coordination with non-state actors and international partners. Strengthening institutional capacity, clarifying roles, and operationalising dormant entities like ARSEA and CONEA are essential steps toward effective and climate-resilient WASH governance.

Disaster Risk Reduction (DRR) and Early Warning Systems (EWS)

Five key government ministries coordinate disaster risk management:

- The Ministry of Humanitarian Action and National Reconciliation leads emergency response;
- The Ministry of Public Health and Population oversees epidemic preparedness through its Public Health Emergency Operations Centre (COUSP) and the Directorate of Public Hygiene;
- The Ministry of Territorial Administration and Decentralisation manages decentralised emergency operations through prefects and mayors, with support from the Directorate General for Civil Protection (DGPC);
- The MDERH/DGRH contributes water-related disaster risk monitoring;
- The Ministry of Transport and Civil Aviation manages hydro-meteorological surveillance through the National Meteorological Directorate

An Inter-Ministerial Platform for Disaster Risk Management, housed in the Prime Minister's Office, is intended to support cross-sectoral collaboration. However, operational integration across ministries remains limited in practice, particularly in zones at high risk of flooding and drought. As of 2023, the national meteorological system remains critically underdeveloped, with only three operational stations covering over 620,000 km². This significantly impairs early warning capabilities and data reliability for disaster forecasting[323].

[323] (République Centrafricaine, 2023. Water Diagnostic Mapping Report – Institutional Landscape and Data Systems).

Public Health

The Ministry of Public Health and Population (MSPP) leads national health policy through its Direction Générale de la Santé. The Directorate of Public Hygiene is specifically responsible for integrating WASH and health initiatives, including behavioural sanitation promotion, waterborne disease surveillance, and coordination with environmental health actors[324].

The Plan National de Développement Sanitaire (PNDS III) and the National Health Policy (2019–2030) identify access to safe water and sanitation as foundational to epidemic control. MSPP's Public Health Emergency Operations Centre (COUSP) coordinates epidemic responses under pre-defined Standard Operating Procedures (SOPs) for cholera, measles, and COVID-19. Yet collaboration between COUSP and water agencies such as DGRH and ANEA remains limited and informal[325]

See also Table 22 for institutional overlaps and missing linkages between WASH and health governance actors such as MSPP, DGRH, and ANEA.

Table 22: Overview of Institutional Roles and Coordination Status Across Key Sectors in CAR[326]

Institution / Ministry	WASH	DRR / EWS	Climate Adaptation	Public Health
Ministry of Energy Development and Hydraulic Resources (MEDHR)	✓ Lead policy and regulation via DGRH	✓ Water-related risks monitoring	✗	✗
General Directorate of Hydraulic Resources (DGRH)	✓ Policy, IWRM, permitting	✓ Flood and drought monitoring	✗	✗
National Agency for Drinking Water and Sanitation in Rural Areas (ANEA)	✓ Rural implementation and monitoring	✗	✗	✗
SODECA (National Urban Water Utility)	✓ Urban water provision	✗	✗	✗

[324] (République Centrafricaine, 2019. Politique Nationale de Santé 2019–2030)
[325] (République Centrafricaine, 2023. Water Diagnostic Mapping Report – Institutional Landscape and Data Systems; SIWI, 2023. Gestion de la demande en eau – Rapport d'état des lieux en République Centrafricaine).
[326] (Based on national decrees, official plans, and stakeholder consultations)

ARSEA (Sector Regulatory Agency)	✗ Not operational	✗	✗	✗
Ministry of Environment and Sustainable Development (MEDD)	✗	✗	✓ Climate policy, coordination	✗
National Climate Coordination Unit (CNC)	✗	✓ Disaster risk co-planning	✓ NAP, climate finance coordination	✗
Ministry of Humanitarian Action and National Reconciliation	✗	✓ Lead emergency response	✗	✗
Ministry of Territorial Administration and Decentralisation	✓ Local infrastructure planning	✓ Decentralised DRM coordination	✗	✗
Ministry of Transport and Civil Aviation	✗	✓ Hydro-meteorological monitoring	✗	✗
Ministry of Public Health and Population (MSPP)	✓ Hygiene promotion	✓ Epidemic preparedness via COUSP	✗	✓ Health system lead
Public Health Emergency Operations Centre (COUSP)	✓ Emergency hygiene action	✓ Outbreak coordination	✗	✓ Epidemic response SOPs

Legend

✓ = Active mandate or operational role

✗ = No formal role

Coordination Gaps and Constraints

Despite existing decrees and coordination platforms, cross-sectoral alignment is mostly donor-driven and irregular. Roles and responsibilities often overlap (e.g., between DGRH and ARSEA), while decentralised actors are under-resourced and functionally disconnected from national planning processes. Coordination committees (such as CONEA or the Inter-ministerial DRM platform) exist largely on paper and are rarely activated in emergencies or for planning.

Table 21 further illustrates the challenges posed by overlapping mandates, nominally active institutions, and the absence of a unified national WASH coordination mechanism.

Roles of NGOs, International Organisations, Civil Society, and the Private Sector

Whereas Table 21 summarises the official responsibilities of government institutions, this subsection focuses on how non-state actors complement or substitute these roles in practice—particularly in conflict-affected or under-served regions.

In the CAR, non-state actors play a vital role in bridging persistent gaps in the delivery of water, sanitation, and hygiene (WASH), climate adaptation, disaster risk reduction (DRR), early warning systems (EWS), and public health services. These actors not only implement frontline services but also complement and, at times, substitute for government functions, particularly in zones where state presence is minimal or contested. Their work is especially critical in conflict-affected and underserved areas, where they often represent the only consistent providers of basic infrastructure, emergency response, and resilience-building initiatives.

Climate Change Adaptation

International development partners drive CAR's climate adaptation agenda through financing, capacity building, policy assistance, and on-the-ground technical support. Key contributors include:

- **United Nations Development Programme (UNDP)**, which provides funding and advisory support for CAR's National Adaptation Plan (NAP) and national climate information systems through its Climate Promise programme[327]

- **Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)**, which has supported the integration of climate considerations into CAR's national water governance frameworks[328]
- **Food and Agriculture Organization of the United Nations (FAO)**, which implements climate-resilient livelihood programmes based on agroecological principles, especially in areas facing both food insecurity and climate stress [329]
- **Stockholm International Water Institute (SIWI) and Stockholm Environment Institute (SEI)**, which led the development of the Guide de Mainstreaming de l'Adaptation dans les Services d'Eau et d'Assainissement, piloted in Ouaka and Ouham to embed adaptation into municipal WASH service planning

CAR also participates in the Great Green Wall initiative, coordinated by the UN Convention to Combat Desertification (UNCCD), FAO, and the African Union. The initiative promotes reforestation and land regeneration to enhance soil health, water retention, and ecological resilience in CAR's semi-arid zones[330].

Water, Sanitation, and Hygiene (WASH)

Non-state actors — including international and national NGOs, UN agencies, civil society organisations, and private contractors — are central to the delivery of WASH services across CAR. Their interventions have led to increased community access to safe water, reduced incidence of waterborne diseases, and improved local capacity for maintenance and hygiene behaviour change. As of 2024, 50 organisations are active in the WASH sector: 26 international NGOs, 22 national NGOs, and 2 UN agencies [331]. Their operations span infrastructure development, hygiene promotion, climate-proofing of WASH systems, and community engagement.

Key contributors include:

- **Water for Good,** which has drilled and maintained over 1,000 boreholes in remote prefectures, using a sustainability model based on routine servicing and community financing[332]

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[327] (UNDP, Climate Promise Project Report – Central African Republic, 2023).
[328] (GIZ, Technical Cooperation Brief – CAR Water Sector, 2022).
[329] (FAO, Country Programme Framework – CAR, 2022).
[330] (UNCCD, Progress Report on the Great Green Wall, 2022; FAO, Restoring Landscapes for Resilience, 2023)
[331] (WASH Cluster Central African Republic, 4Ws Operational Presence Matrix, 2024).
[332] Water for Good Annual Report

- **Oxfam**, which is working in partnership with UNCEF CAR to install sustainable water system in Bria and Batangafo[333].
- **ACTED,** which operates large-scale WASH emergency programmes in Ouaka, Nana-Gribizi, and Ouham, often linking short-term relief with long-term resilience[334]
- **Action Against Hunger (ACF),** known for its integrated WASH–nutrition–health approach, targeting vulnerable communities in cholera-prone zones with rehabilitated infrastructure and hygiene education[335]
- **Vision Sincère and All for Peace and Dignity,** two grassroots NGOs promoting sanitation practices, menstrual hygiene, and inclusive water access in schools and remote villages[336]
- **Mercy Corps and Welt Hunger Hilfe,** which co-lead rural infrastructure rehabilitation using elevated latrine slabs, flood-proofing techniques, and solar-powered water distribution systems.[337]

Case study: ACTED in Nana-Gribizi

In 2023, ACTED constructed 12 flood-resilient latrines in displacement camps and trained 500 local health volunteers in safe hygiene practices. The intervention led to a documented 40% drop in open defecation rates and a reduction in reported diarrhoea

Civil society is critical to advancing climate-resilient WASH through behaviour change, technical support for community-managed systems, policy engagement, and localised climate communication. However, intervention density remains uneven. Ouham prefecture hosts 16 WASH partners, while Haut-Mbomou has only one. Research across African contexts shows that the sustainability of NGO-constructed WASH infrastructure hinges on community ownership models and routine maintenance budgets—without these, waterpoints often fail within 2–3 years[338].

In terms of financing, US $32.4 million was channelled to WASH and climate-linked humanitarian projects in 2023[339]. Of this, approximately 80% was disbursed through national and international NGOs, underscoring their central role in CAR's WASH delivery ecosystem[340]. Recent studies find that over 65% of WASH funding in fragile states is channelled through NGOs rather than government agencies, which can skew incentives toward short-term delivery vs. long-term systems strengthening[341].

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333 Oxfam International, Central African Republic,
334 ACTED Annual Report, 2021
335 IFRC Emergency Appeal Report
336 CAR WASH Cluster Partner's Profile, UN, 2022
337 Mercy Corps WASH Impact Summary; Welt Hunger Hilfe Project Brief
338 (Carrard et al., 2009. "Sustainability of NGO-led WASH systems in Africa and Asia." Water Policy, 11(5), pp. 621–641)
339 UNOCHA (2023) *Financial Tracking Service – Sector trends for WASH financing*. OCHA FTS
340 (United Nations Office for the Coordination of Humanitarian Affairs [OCHA], Financial Tracking Service, 2024)
341 (Smith et al., 2022. "Humanitarian WASH financing in fragile states." Global Water Journal, 10(2), pp. 45–60)

Despite the scale and diversity of NGO and civil society engagement, WASH access in CAR remains critically low and unevenly distributed. National statistics show that only 37% of the population had access to at least basic drinking water services as of 2024, and just 14% had access to basic or safely managed sanitation - among the lowest in the world[342]. Service functionality is also a major concern, with more than 30% of rural water points reported as non-functional due to lack of maintenance, spare parts, or local management systems[343]. In peri-urban and rural zones, low service coverage is exacerbated by ageing infrastructure, weak cost recovery, and fragile institutional support systems — all of which undermine long-term service sustainability[344]

Recent diagnostic data further reinforce the access and capacity challenges described above. A 2023 assessment by the United Nations University scored the country only 43 out of 100 on the African Water Security Index, placing it near the bottom quartile continentally[345]. Moreover, CAR scored particularly poorly on the infrastructure indicator, with less than 50% of rural households having year-round reliable water access—one of the steepest urban-rural disparities on the continent.

Table 23: CAR's performance on 10 key water security indicators[346]

Component Evaluated	Indicator	Score out of 10
Access to drinking water	Percentage of the population with access to at least basic drinking water services	2
Access to sanitation	Percentage of the population using at least basic sanitation services	2
Hygiene and health	Percentage of the population using basic hygiene services and number of deaths from diarrhoea	2
Water availability	Total renewable water resources per capita	10
Efficiency of water use	Efficiency of water use	6
Water infrastructure	Water storage per capita	2
Water quality	Percentage of treated wastewater	2
Water governance	Degree of implementation of IWRM (Integrated Water Resources Management)	4
Water-related disaster risks	Disaster Risk Index (DRI)	4
Physiography	Dependence on and variability of water resources	9
Total score for water security		**43 / 100**

The country scores a total of 43/100, placing it 41st out of 54 African countries, with especially low scores on WASH access, quality, and infrastructure. Table 23 underscores CAR's systemic vulnerabilities in delivering water security, especially in terms of infrastructure reliability and equitable service access. The country ranks among the lowest in sub-Saharan Africa on indicators such as rural

342 UNICEF/WHO JMP, 2024: https://washdata.org
343 UNICEF CAR WASH Sector Factsheet, 2023)
344 World Bank, 2021: "Water Supply and Sanitation in Fragile Contexts"
345 (UNU-INWEH, 2023. African Water Security Index Report, Annex 4, p. 23)
346 Source: United Nations University – Institute for Water, Environment and Health (UNU-INWEH), 2023.

water access, institutional capacity, and water quality regulation. Notably, CAR scores only 38/100 on infrastructure, reflecting widespread service interruptions, ageing systems, and limited coverage in peri-urban zones. These findings highlight the urgency of strengthening decentralised infrastructure planning and aligning national water strategies with climate adaptation needs[347]

Together, these findings signal a need for sustained investment in local systems, stronger coordination between non-state and public actors, and greater climate resilience in infrastructure planning.

Disaster Risk Reduction (DRR) and Early Warning Systems (EWS)

Non-state actors have helped strengthen CAR's fragmented DRR and EWS architecture, especially at the local level. However, a central coordination platform to integrate early warnings across WASH and health sectors remains absent. Key contributors include:

- **UNICEF**, which supports early warning protocol development in cholera and drought-prone regions, integrating WASH–health indicators in real-time alerts
- **Red Cross Movement (IFRC and CAR Red Cross)**, which conducts simulation exercises and disaster risk awareness campaigns across 10 prefectures, focusing on community-led preparedness.
- **ACTED, Mercy Corps, and REACH,** which carry out multi-hazard vulnerability assessments and train local responders in contingency planning.

This table has been redacted in accordance with the GCF Information Disclosure Policy, as the portion is confidential under the disclosure policy of the Accredited Entity.

[redacted]

Despite progress, coordination remains limited by the absence of an integrated EWS that covers all sectors, particularly WASH and health. In Bangladesh and Indonesia, NGO-led EWS pilots increased

[347] Ibid.
[redacted]

community preparedness by up to 30%, suggesting that similar multi-hazard integration in CAR could yield significant resilience gains[349].

Public Health

In CAR's fragile health system, non-state actors complement government services across prevention, preparedness, and WASH-health integration. International agencies such as WHO and UNICEF support policy implementation, epidemiological surveillance, and infrastructure upgrades. They contributed to the formulation of both the **Plan National de Développement Sanitaire III (PNDS III)** and the **Politique Nationale de Santé 2019–2030,** ensuring WASH infrastructure was embedded in public health goals[350]
Key operational actors include:

- **Médecins Sans Frontières (MSF)** and **International Medical Corps (IMC)**, which manage outbreak response units, maternal health services, and disease monitoring in fragile regions.
- **Local NGO**s engaged in hygiene education, school-based outreach, and menstrual hygiene management.

A strong example of locally led health action comes from 2023, when **Vision Sincère** implemented a menstrual hygiene and drought awareness campaign across 20 schools in Mambere-Kadei, reaching 3,500 adolescent girls and their families. The programme included menstrual hygiene management training, drought awareness workshops, and the distribution of low-cost sanitary kits; an evaluation found a 25% increase in school attendance among girls and a 15% drop in waterborne illness during dry periods[351].

The private sector's role in CAR's climate–WASH nexus is growing slowly but remains largely untapped. Its current involvement spans three main domains:

- **Small-scale WASH providers,** who operate community water kiosks and pit latrines, particularly in Bangui and peri-urban hubs.
- **Engineering and construction firms,** contracted through donor projects to build boreholes, latrines, and small piped networks.
- **Solar energy companies,** most notably **Solaris RCA,** which electrifies rural boreholes and clinics.

Figure 37 outlines the key areas of current private sector engagement in CAR's climate-WASH landscape—primarily through small-scale service providers, engineering firms, and solar companies—

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[349] (Rahman et al., 2024. "Role of NGOs in enhancing community resilience." Climate Resilience Journal, 15(1), pp. 112–130).
[350] (ministère de la Santé Publique et de la Population, Politique Nationale de Santé 2019–2030, 2019).
[351] (UNICEF CAR, 2023. Vision Sincère Health & Hygiene Impact Brief

alongside the systemic challenges limiting broader investment. It highlights promising innovations such as mobile payment systems and pay-as-you-go kiosks, while identifying blended finance and national innovation funds as strategic tools to unlock future potential. The visual illustrates how addressing tariff and licensing clarity, concessional finance gaps, and risk-sharing mechanisms could catalyse greater private participation in climate-resilient WASH infrastructure.

Figure 37: Pathways and Barriers to Private Investment in CAR's Climate–WASH Nexus[352]

Since 2022, Solaris RCA has delivered solar boreholes to 15 villages across Bamingui-Bangoran and Ouaka, reaching over 9,000 residents with clean, affordable water[353]. Additionally, mobile-based payment platforms and self-service kiosks have emerged as cost-efficient models for water access in urban areas. In fact, studies in Kenya and Zambia show that professionally managed pay-as-you-go water kiosks using digital payments improve cost recovery and reduce non-revenue water by 20%[354].

However, structural barriers remain. These include a lack of targeted investment incentives, unclear tariff and licensing frameworks, and minimal government engagement with early-stage enterprises in water and climate adaptation. Private actors also face difficulty accessing concessional capital or climate finance due to CAR's fragile credit environment and the absence of intermediary financing institutions tailored to small-scale service providers. Across Africa, Development Finance Institutions (DFIs) have identified similar challenges—highlighting the need for dedicated blended-concessional

[352] SIWI & SEI (2022); Nyika & Dinka (2025); Elshorst & O'Leary (2014); DFI Working Group (2021)
[353] (SIWI & SEI, Climate and WASH Policy Evaluation in CAR, 2022)
[354] (Nyika & Dinka, 2025. "Water kiosks in urban Africa." Water Conservation & Management, 9(2), pp. 335–338; Elshorst & O'Leary, 2014. "Mobile payment reduces corruption in water utilities." Water Alternatives, 7(1), pp. 237–254).

funds with higher risk tolerance and flexible tenors to attract private investment in fragile contexts[355]. Global analyses confirm that blended finance mechanisms in the WASH sector, such as public–private credit facilities, can mobilize up to US$200 million and extend loan maturities from 10 to 15 years, benefiting over 6 million users[356]. To address these issues, CAR could adopt a national climate-WASH innovation fund, drawing on international best practice, such as the Green Climate Fund's Private Sector Facility which deploys low-interest, long-tenor loans and guarantees to de-risk private investments in adaptation projects[357].

Water Resources Management in CAR

The management of water resources in the CAR is shaped by its vast hydrographic network, highly variable rainfall patterns, and vulnerability to climate shocks such as floods and droughts. Despite abundant surface water resources—including major river basins like the Ubangi, Chari, and Mbomou—the country faces systemic governance and capacity challenges that hinder effective and equitable resource allocation[358]

Institutional Responsibilities

The institutional framework for water resource management in CAR is largely centralised under the Ministry of Energy Development and Hydraulic Resources (MEDHR), with operational leadership provided by the Directorate-General for Hydraulic Resources (DGRH). Their role includes setting technical standards, issuing water permits, and coordinating integrated water resources management (IWRM) at the national level. However, implementation is hampered by limited decentralised capacity and weak enforcement[359]

In principle, the Water Code (République Centrafricaine, 2006. Code de l'Eau. Journal Officiel) mandates a decentralised, participatory, and sustainable management approach based on IWRM. This includes the promotion of watershed agencies (Agences de Bassin), water user associations, and harmonised policies across sectors and borders. Yet, as of 2024, none of the proposed basin agencies have become operational due to institutional fragmentation and financing constraints.

The 2023 Water Diagnostic Mapping report highlights the existence of over 14 institutions involved in water-related functions, but coordination mechanisms remain weak, and critical stakeholders such as the Water Police and National Water Council (CONEA) are inactive or understaffed. This limits the ability to respond to contamination events, illegal abstraction, or transboundary disputes[360].

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[355] (DFI Working Group on Blended Concessional Finance for Private Sector Projects, Blended Concessional Finance for Private Sector Projects – Joint Report, 2021)
[356] (World Water Council, Blended Finance in the Water Sector: Successful Case Studies, 2019)
[357] (Green Climate Fund, Private Sector Facility Strategy Overview, 2024).
[358] (République Centrafricaine, 2022a. Plan National d'Adaptation. Ministère de l'Environnement et du Développement Durable ; World Bank, 2022. Climate Risk Country Profile : Central African Republic).
[359] République Centrafricaine, 2021a. Politique Nationale de l'Eau. Ministère du Développement de l'Énergie et des Ressources Hydrauliques).
[360] (République Centrafricaine, 2023c. Water Diagnostic Mapping Report – CAR. WASH Cluster)

Table 25: Institutional responsibilities in water resource management in CAR[361]

Institution	Core Mandate (Water Resources)
MEDHR /DGRH	Management, licensing, and inventory of water resources (République Centrafricaine, 2006. Code de l'Eau. Journal Officiel)
ANEA	Water points, rural hydraulics
SODECA	Urban water supply infrastructure (Public utility under MDERH)
MEE (via DG of Water)	Sector strategy, water allocation, climate-linked resource use (République Centrafricaine, 2022a. Plan National d'Adaptation. Ministère de l'Environnement et du Développement Durable)

Integrated Water Resources Management (IWRM) and Planning

While CAR has formally adopted IWRM principles through the Programme National de Gestion Intégrée des Ressources en Eau (PNGIRE), implementation remains limited. The Politique Nationale de l'Eau recognises that water governance requires alignment across national, regional, and basin levels. However, there is no functioning centralised water database, and the Système National d'Information sur l'Eau (SNIEau) — intended to gather hydrological data and support decision-making — remains in its pilot phase, operating with incomplete data[362].

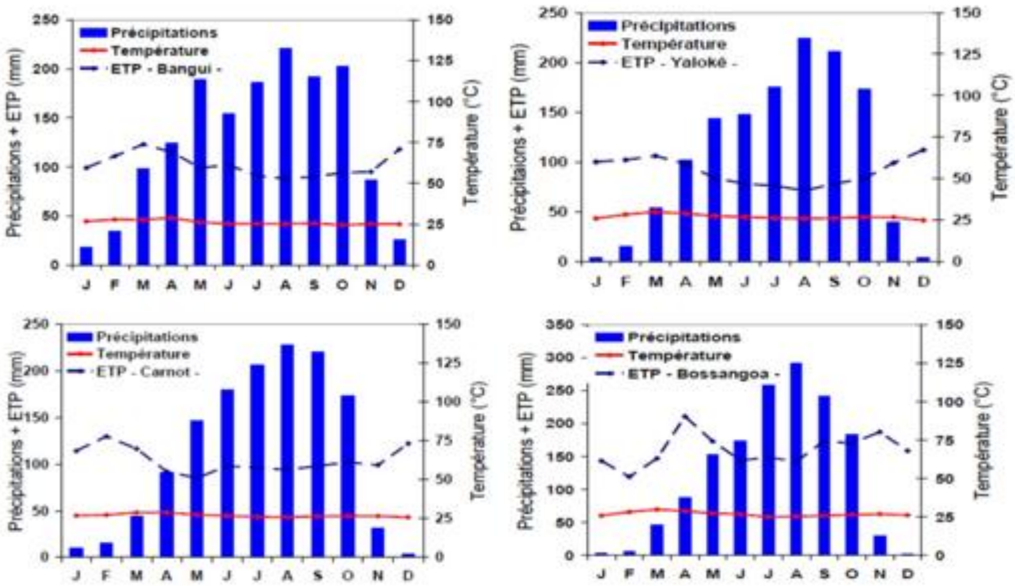
Furthermore, there is an absence of a national water security strategy or long-term infrastructure planning framework. Most planning is reactive and donor driven. For instance, investments in urban water infrastructure by SODECA are guided more by emergency repair needs than by strategic expansion, and rural water access programmes remain disconnected from basin-scale resource planning[363].

[361] République Centrafricaine, 2021a. Politique Nationale de l'Eau and UNICEF, 2025. Feasibility Study Inception Report – CAR

[362] République Centrafricaine, 2021a. Politique Nationale de l'Eau. Ministère du Développement de l'Énergie et des Ressources Hydrauliques ; Water for Good, 2024. Annual Monitoring and Evaluation Brief. Available at: https://waterforgood.org/impact)

[363] (République Centrafricaine, 2024a. Stratégie de Gestion Résiliente des Ressources en Eau. Draft).

Figure 38: Distribution of hydrological monitoring stations across CAR territory and time series of rainfall anomalies in major sub-basins[364]



The projections on Figure 38 highlight the compounded risks of water scarcity, poor monitoring, and institutional fragmentation—reinforcing the urgency of strengthening climate-informed decision-making in both infrastructure and emergency response planning. This is further illustrated in Table 26, which outlines the current status and functional gaps of the national hydrological monitoring system.

However, a 2021 study by the International Water Management Institute found that less than 10% of CAR's territory is covered by hydrological monitoring stations, making it extremely difficult to track seasonal fluctuations, assess groundwater recharge, or model future water supply under climate change scenarios[365]. This data gap is especially concerning given the strong dependence on boreholes in rural areas and the growing threat of water scarcity in agro-pastoral zones.

Table 26: Key Constraints in CAR's Hydrological Monitoring Network[366]

Indicator	Current Status	Implications
National Coverage	Less than 10% of national territory covered by active hydrological stations (IWMI, 2021).	Insufficient spatial data for surface water or aquifer-level management.
Geographical Gaps	Most monitoring stations are concentrated in select urban or riverine zones. Sparse or absent in northern and rural areas.	Agro-pastoral and arid regions lack real-time hydrological data.

[364] RCA-Analyse des risques climatiques-04.2022
[365] (IWMI, 2021. Hydrological Monitoring and Groundwater Modelling in Fragile States: Case of CAR).
[366] International Water Management Institute (IWMI), 2021. "Hydrological Data Availability and Monitoring Capacity in Fragile States"; SIWI & SEI, 2022. "Climate and WASH Policy Evaluation in the Central African Republic"; République Centrafricaine, 2023. "Plan National de Gestion Intégrée des Ressources en Eau (PNGIRE) – Note Technique" ; Ministère de l'Hydraulique, 2022.

Groundwater Monitoring	Minimal borehole recharge or aquifer tracking.	High risk for over-extraction and water scarcity in borehole-reliant communities.
Data Management System (SNIEau)	Pilot stage; limited functionality and incomplete national integration.	Hydrological data are fragmented, limiting decision-making for IWRM or climate adaptation.
Station Functionality and Maintenance	Many stations are outdated, poorly maintained, or non-operational.	Real-time monitoring is unreliable, affecting forecasting and emergency planning.
Conflict and Insecurity Constraints	Field access is restricted in several regions due to insecurity or poor road networks.	Station repairs, expansion, or data collection are often delayed or infeasible.

Climate Pressures and Transboundary Risks

CAR's hydrological system is highly climate sensitive. Increasing rainfall variability and more frequent extreme events have already disrupted seasonal water availability in key river basins such as the Ouham and Kotto[367]. According to the Plan National d'Adaptation, many regions are experiencing shifts in groundwater recharge, sedimentation of waterways, and water pollution from artisanal mining and urban waste[368].

CAR's rivers are also transboundary in nature, with over 60% of water resources shared with Chad, Sudan, and the Democratic Republic of Congo. Despite being a member of the Commission Internationale du Bassin Congo-Oubangui-Sangha (CICOS), CAR's role in transboundary water diplomacy remains limited. The National Climate Risk Assessment stresses the importance of enhancing CAR's negotiation capacity and institutional representation in basin-level fora to ensure equitable access and upstream-downstream conflict prevention.

Summary of Water Governance Challenges

As summarised in the Plan National d'Adaptation[369], CAR's water governance landscape suffers from:

- Lack of a national IWRM implementation roadmap;
- Non-operational basin-level institutions;
- Fragmented data systems and weak hydrometeorological monitoring;
- Minimal private sector participation in water resource management;
- Disconnection between water infrastructure planning and ecosystem protection;

[367] (République Centrafricaine, 2023c. Water Diagnostic Mapping Report – CAR. WASH Cluster)
[368] (République Centrafricaine, 2022a. Plan National d'Adaptation. Ministère de l'Environnement et du Développement Durable).
[369] Ibid.

- Inadequate mechanisms for enforcing the Water Code and pollution control;
- Weak institutional capacity at the prefecture and municipal levels.

As Figure 39 highlights, the absence of an operational roadmap and fragmented institutional roles undermine integrated water resources management. These bottlenecks not only limit infrastructure resilience but also prevent enforcement of pollution controls and equitable allocation across users and regions. For instance, in Bangui 3, only 27% of households reported reliable access to safe water and 44% to hygienic sanitation as of early 2023, underscoring service delivery constraints even within the capital[370]. These challenges are compounded by insecurity and recurring conflict, which have displaced technicians, destroyed infrastructure, and prevented long-term investments in water governance, as outlined in the above sections.

Figure 39: Institutional and Systemic Barriers to Effective Water Governance in CAR[371]

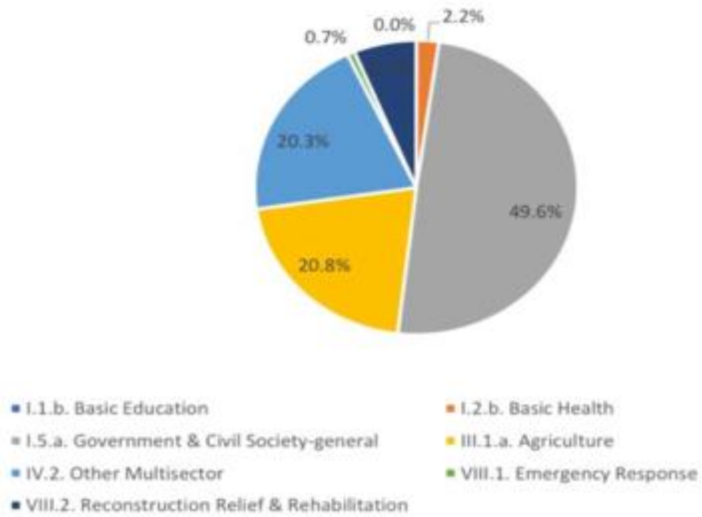
This challenge wheel distils the seven interlinked governance bottlenecks identified in the Plan National d'Adaptation, reflecting institutional, technical, and financial deficits that constrain integrated water management across CAR. Each challenge—ranging from the absence of basin-level agencies to weak data systems and enforcement capacity—contributes to a fragmented and reactive water governance model. By visually mapping these constraints, Figure 39 supports a clearer understanding of the reform areas where targeted investment and policy alignment are most urgently needed to achieve sustainable WASH outcomes.

Climate Finance Flows and Investment Gaps in the WASH Sector

While the need to mainstream climate adaptation into WASH is widely acknowledged, financial commitments remain misaligned. As Figure 40 illustrates, WASH-related sectors captured only 2.2% of the total climate finance disbursed in 2019[372].

[370] République Centrafricaine, 2023b. Rapport Global MAA RCA. UNICEF
[371] République Centrafricaine (2022), Plan National d'Adaptation au Changement Climatique ; SIWI & SEI (2022) ; UN-Water (2021)
[372] (SIWI & UNICEF. Évaluation du financement du climat en République Centrafricaine, 2023)

Figure 40: Distribution of climate finance received by CAR across sectors (2013)[373]

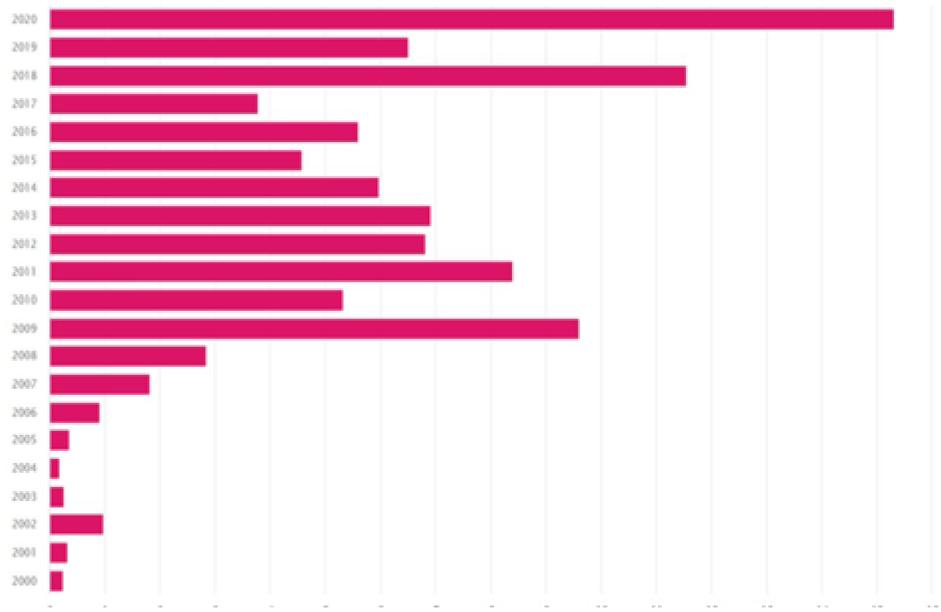


This low investment reflects both limited absorptive capacity and an absence of well-articulated project pipelines, suggesting the importance of capacity-building for WASH project formulation under international climate funds.

The National Adaptation Plan (Plan National d'Adaptation, 2021) acknowledges that existing water sector frameworks insufficiently integrate climate resilience. It calls for better mainstreaming of adaptation into WASH policies to access climate finance and address vulnerability hotspots, particularly in rural and peri-urban areas[374]. A modelling study estimates that integrating climate resilience across WASH could increase access by up to 20% by 2030 but would require a 30% increase in sectoral climate finance[375].

[373] Source : SIWI & UNICEF. Évaluation du financement du climat en République Centrafricaine, 2023.
[374] (République Centrafricaine. Plan National d'Adaptation au Changement Climatique de la République Centrafricaine, 2021
[375] (Kebede & Martin, 2023. "Modeling climate-smart WASH outcomes in CAR." Environmental Research Letters)

Figure 41: Evolution of climate finance allocated to water and WASH sectors in CAR (2010–2018).[376]*-*



(Millions of constant 2020 U.S. dollars (millions of 2020 USD)

Official Development Assistance (ODA) allocated to the WASH sector in CAR has shown an overall upward trend since 2000, but with strong year-on-year fluctuations that challenge long-term planning. As illustrated in Figure 41, annual disbursements remained below USD 5 million (2020 constant) for most of the early 2000s, before peaking significantly in 2009 (USD ~9 million) and reaching a record high in 2020 (USD ~15 million). Despite these increases, funding levels remain low relative to needs and are heavily dependent on external aid.

According to SIWI & UNICEF (2022) 100% of climate finance in the WASH sector is externally sourced, with no consistent public investment and limited transparency on budget execution or sector performance. In 2018, for example, 65% of sector funding came from grants and 35% from loans, primarily for basic water and sanitation systems. This fragmented and donor-driven financing model underscores the need for a sustained, transparent national budgetary commitment to WASH—particularly to build climate resilience and reduce the sector's vulnerability to aid volatility.

[376] Source : SIWI & UNICEF. Évaluation du financement du climat en République Centrafricaine, 2023.

Planning and Monitoring of Progress and Service Quality

Robust planning and monitoring mechanisms are essential for the delivery, adaptation, and sustainability of climate-resilient WASH services in the CAR. While sector-specific planning instruments exist, the implementation landscape is fragmented, with uneven data flows and weak inter-ministerial coordination, particularly at the subnational level. This section provides an overview of the core strategies and monitoring systems across WASH, disaster risk reduction (DRR), early warning systems (EWS), and climate adaptation, as well as the institutional roles and operational gaps in monitoring service quality.

National and Sectoral Planning Instruments

Each of the core resilience-related sectors in CAR—WASH, DRR, climate adaptation, and public health—has developed planning instruments aligned with national development priorities and international frameworks. In the WASH sector, the key policy is the Programme National pour l'Alimentation en Eau Potable et l'Assainissement (PN-AEPA) 2021–2030, which sets strategic goals for urban and rural WASH service expansion and quality assurance.

- **In the field of DRR and climate-related risk,** the Stratégie Nationale de Réduction des Risques de Catastrophes et d'Adaptation au Changement Climatique (RRC-ACC) 2022–2030 sets policy priorities but lacks a unified national monitoring framework[377].
- **Climate adaptation** is guided by the Plan National d'Adaptation (PNA) and the Nationally Determined Contributions (CDNs). Monitoring is meant to occur through biennial updates to the UNFCCC, notably via the Troisième Communication Nationale sur les Changements Climatiques (BUR1) report[378]
- **Early warning planning is outlined in the Plan National de Gestion de la Sécheresse (2023)** and overseen by DG METEO and DG Hydraulique. These plans rely on a meteorological station network that remains severely underdeveloped—only three stations are functional nationwide as of 2023, leaving wide geographic blind spots in climate hazard detection[379]

Monitoring Tools and Sector Information Systems

WASH monitoring is supported by two principal tools: SNIEau (Système National d'Information sur l'Eau), an information system intended to centralize data on water infrastructure, and HeRAMS, which assesses water, sanitation, and hygiene conditions in health facilities.[380]

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[377] (République Centrafricaine, 2022. Stratégie Nationale pour la Réduction des Risques de Catastrophes et l'Adaptation aux Changements Climatiques (2027–2030).
[378] (République Centrafricaine, 2023. Troisième Communication Nationale sur les Changements Climatiques (BUR1). UNFCCC).

[379] (SIWI & UNICEF, 2023. Évaluation des politiques et stratégies nationales p. 92).
[380] (World Health Organization & Ministry of Health CAR, 2023. HeRAMS RCA Rapport abrégé. https://healthcluster.who.int/publications/herams).

SNIEau is technically functional but remains incomplete and outdated in many areas, with data coverage weakest in remote prefectures[381]. HeRAMS, by contrast, offers regular reporting on core WASH indicators in health facilities, including service access, hygiene infrastructure, and trained staff levels.

For climate adaptation monitoring, no dedicated cross-sectoral system exists. Instead, the Coordination Nationale Climat (CNC) aggregates project-level data and reports intermittently to the UNFCCC via BUR and NDC submissions. Coordination with sectoral ministries is ad hoc and lacks a shared monitoring platform still.

DRR and EWS monitoring are even more fragmented. The DGPC maintains emergency alerts and disaster impact tracking through regional coordinators, while DG METEO manages early weather warning dissemination. However, the chain of data flow is fragmented, and many localities—especially Vakaga, Bamingui-Bangoran, and Haute-Kotto—lack both early warning infrastructure and communication channels for timely response[382].

Public health monitoring is led by the Centre des Opérations d'Urgence de Santé Publique (COUSP), which manages hygiene alerts and outbreak response, including cholera, using both community-level surveillance and formal health reporting systems[383]. Integration of climate-sensitive indicators—such as vector-borne diseases or climate-triggered outbreaks—remains limited in scope.

Institutional Fragmentation and Monitoring Gaps

Monitoring mandates are distributed across a range of institutions with limited coordination. As shown in Table 21, institutions such as SNIEau, SODECA, and ANEA face uneven data flows, weak coordination, and partial coverage—barriers which cascade into monitoring system dysfunctions. For example, SODECA reports urban WASH performance via its own audits, while ANEA and DGRH oversee rural WASH planning and submit data to SNIEau. However, real-time updates and consistent data sharing with national dashboards are rare.

Health-related WASH monitoring through HeRAMS remains uneven: in 2023, only 43% of health facilities had functional water services, 39% had improved sanitation, and a mere 21% met basic hygiene standards[384]. In seven prefectures, data on trained WASH personnel was unavailable altogether. Subnational reporting rates also vary widely—from 72% of facilities in Bangui submitting quarterly reports, to just 19% in Haut-Mbomou[385].

Climate adaptation data monitoring is similarly uneven. Although some ministries provide sector updates to CNC, there is no mechanism to integrate M&E processes across ministries or standardise indicators across resilience domains. Furthermore, the adaptation component in sectoral planning—

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[381] SIWI & UNICEF, 2023. Évaluation des politiques et stratégies nationales p. 29
[382] Ibid. pp. 92-93
[383] (World Health Organization & Ministry of Health CAR, 2023. HeRAMS RCA Rapport abrégé. https://healthcluster.who.int/publications/herams).
[384] (World Health Organization & Ministry of Health CAR, 2023. HeRAMS RCA Rapport abrégé, p. 7).
[385] Ibid. p. 26

especially for water, energy, and agriculture—remains underdeveloped despite being critical for vulnerability reduction.

According to the Notre Dame Global Adaptation Initiative, CAR ranks 187th globally in terms of adaptive capacity, with particularly low scores in planning integration and institutional capacity—highlighting the chronic underinvestment in monitoring frameworks across sectors [386]

Climate-Informed WASH Programmes

In the CAR, the integration of climate adaptation principles into WASH (Water, Sanitation, and Hygiene) programming remains at an early stage. Despite important policy frameworks such as the 2022 Plan National d'Adaptation (PNA) and the updated Nationally Determined Contributions (NDCs), operationalising climate-resilient (CR) WASH remains fragmented due to limited financing, weak institutional coordination, and capacity gaps in subnational planning[387].

Existing Programmes and Initiatives

CAR's most prominent attempt at mainstreaming climate resilience into WASH has been through the development of the Guide for Mainstreaming Adaptation into Water and Sanitation Services (*Guide de Mainstreaming de l'Adaptation dans les Services d'Eau et d'Assainissement*) produced by the Global Water Partnership and piloted in prefectures such as Ouaka and Ouham. However, uptake across other regions remains minimal due to low awareness and resource constraints. The Climate and WASH Policy Evaluation Report found that only 13% of communal development plans currently incorporate climate-sensitive WASH planning. A nationwide rollout of the guide remains a strategic opportunity for future programming[388].

UNICEF and partners have also introduced WASH emergency preparedness components into broader humanitarian response frameworks, such as the Strategic Operational Framework for the WASH Sector (2024) (*Cadre Stratégique Opérationnel pour le secteur de l'EAH*). This framework promotes rapid deployment of mobile water supply units, emergency hygiene kits, and pre-positioned water treatment technologies in flood- or drought-prone zones. However, these interventions remain largely reactive rather than systemic[389].

A number of climate-informed WASH initiatives—either piloted or under development—are emerging across CAR. These programmes vary in their scope, institutional maturity, and degree of climate integration. Table 27 provides a comparative overview of five key initiatives currently shaping the climate-WASH landscape in the country. Below, the overview shows how CR-WASH interventions are clustered in only a few regions, while vast areas of high climate vulnerability remain uncovered.

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[386] (Notre Dame Global Adaptation Initiative, 2023. Country Index: Central African Republic. https://gain.nd.edu/our-work/country-index/rankings/).
[387] (République Centrafricaine, 2022. Plan National d'Adaptation au changement climatique – PNA)
[388] SIWI & SEI, 2021. Climate and WASH Policy Evaluation in CAR. Stockholm International Water Institute & Stockholm Environment Institute).
[389] (République Centrafricaine, 2024. Stratégie de Gestion Résiliente des Ressources en Eau).

Improved geospatial planning, vulnerability-based site selection, and integrated coordination with national investment frameworks are necessary to maximise resilience and equity outcomes.

Table 27: Climate-informed WASH pilot projects and planned initiatives in CAR (2022–2025).

Project Name / Initiative	Lead Implementers	Key Components & Objectives	Target Regions / Status
GCF-Aligned Climate Resilience Programme	Ministry of Environment, GCF Secretariat	Integrates WASH into climate-resilient infrastructure. Targets cross-sectoral co-benefits, including improved water access, drought resilience, and emissions reduction through clean energy water systems.	Nationwide concept (non-operational). No public data on funding amounts or timelines. Listed under the Programme Pays du Fonds Vert Climat[390].
UNICEF–GIZ Rural Resilience WASH Programme	UNICEF, GIZ, Ministry of Energy Development and Hydraulic Resources	Focuses on drought-prone and pastoralist zones. Components include borehole upgrades, climate-proof hygiene education, and inclusive WASH planning in migration corridors.	Under design (as of 2025) in Vakaga and Bamingui-Bangoran. Prioritises high-risk zones based on NAP criteria.
Solar Water and Metering Pilot	Water for Good, Mercy Corps	Deploys solar-powered boreholes with digital metering to enhance cost recovery, reduce outage risk, and promote community ownership.	Active in Nana-Gribizi (since 2023). Serves as model for climate-smart rural water systems
Adaptation Mainstreaming Pilot in Municipal WASH Planning	Stockholm Environment Institute (SEI), Global Water Partnership, Local Authorities	Supports municipal officials to integrate climate risk into communal WASH development plans using the Guide de Mainstreaming de l'Adaptation.	Piloted in Ouaka and Ouham. Only 13% of plans currently integrate climate risks; low institutional uptake outside pilot zones
Rapid WASH Emergency Response Framework (CR-WASH EAH)	UNICEF, SIWI, National Water Directorate	Strengthens emergency preparedness with mobile water units, hygiene kits, and pre-positioned water treatment tech in climate-shock zones.	Operational in 2024 under the « Cadre Stratégique Opérationnel pour le secteur de l'EAH ». Used

[390] (République Centrafricaine, 2018. Programme Pays du Fonds Vert Climat. https://www.fvc.environnement.gouv.cf/)

reactively in flood-prone regions like Ouham-Pendé.

These projects represent early progress in operationalising climate resilience within WASH programming. However, spatial coverage remains limited, with only 8 out of 71 sub-prefectures hosting active CR-WASH projects in 2023. Strengthened coordination, climate-risk targeting, and integration into national WASH frameworks are critical for future scale-up.

Despite their promise, most of these projects are small-scale and highly dependent on donor coordination. As of 2023, only 8 of CAR's 71 sub-prefectures had any active CR-WASH projects with integrated monitoring systems, and few had alignment with broader adaptation financing strategies. Scaling and institutionalising such efforts—especially in areas facing compounded drought, displacement, and WASH service gaps—will be critical to achieving climate-resilient water access across CAR's territory.

The absence of climate vulnerability criteria in most WASH infrastructure tendering processes results in suboptimal allocation of funds, with projects often failing to prioritise regions facing the highest climate exposure or lowest adaptive capacity. According to a 2023 review by SIWI, fewer than 25% of infrastructure tenders include risk assessments or climate-proofing standards, and procurement guidelines seldom reference hydrological or meteorological data. This leads to a mismatch between project siting and areas of acute vulnerability—such as Vakaga and Haute-Kotto—where CR-WASH services are most urgently needed[391].

As shown in Table 28, CR-WASH interventions do not align with areas most vulnerable to flooding and drought.[392]

Table 28: Climate-Informed WASH Pilot Projects and Planned Initiatives by Region (2022–2025)[393]

Region	CR-WASH Pilot Project	Implementing Partners	Main Intervention Type
Nana-Gribizi	Yes	Water for Good, Mercy Corps	Solar boreholes, water metering
Ouaka	Yes (pilot)	GWP, Local Government	Mainstreaming adaptation guide
Vakaga	Planned	GIZ, UNICEF	Rural resilience + infrastructure
Bamingui-Bangoran	Planned	GIZ, UNICEF	Hygiene promotion + community WASH
Ouham	Yes (pilot)	GWP	Climate mainstreaming

[391] (SIWI & SEI, 2023. Guide de Mainstreaming de l'Adaptation dans les Services d'Eau et d'Assainissement ; République Centrafricaine, 2022. Analyse des risques climatiques)
[392] Ibid. p.7
[393] SIWI & SEI (2021) ; République Centrafricaine (2023); UNICEF (2025); République Centrafricaine (2018).

This illustrates a critical mismatch between climate-informed WASH initiatives and geographic vulnerability profiles. While promising pilots are underway in Nana-Gribizi, Ouaka, and Ouham, several of the most climate-exposed prefectures—particularly Vakaga, Haute-Kotto, and Bamingui-Bangoran—remain underserved or are only at the planning stage. This disconnect is partly due to limited subnational institutional capacity and inadequate targeting mechanisms within national investment frameworks. A 2023 analysis by SIWI and SEI found that less than 15% of CR-WASH project siting decisions utilised climate risk maps or vulnerability indices, resulting in missed opportunities to maximise resilience co-benefits [394]. Strengthening geospatial planning tools and enforcing vulnerability-based project selection criteria are vital steps toward equitable and climate-responsive WASH programming.

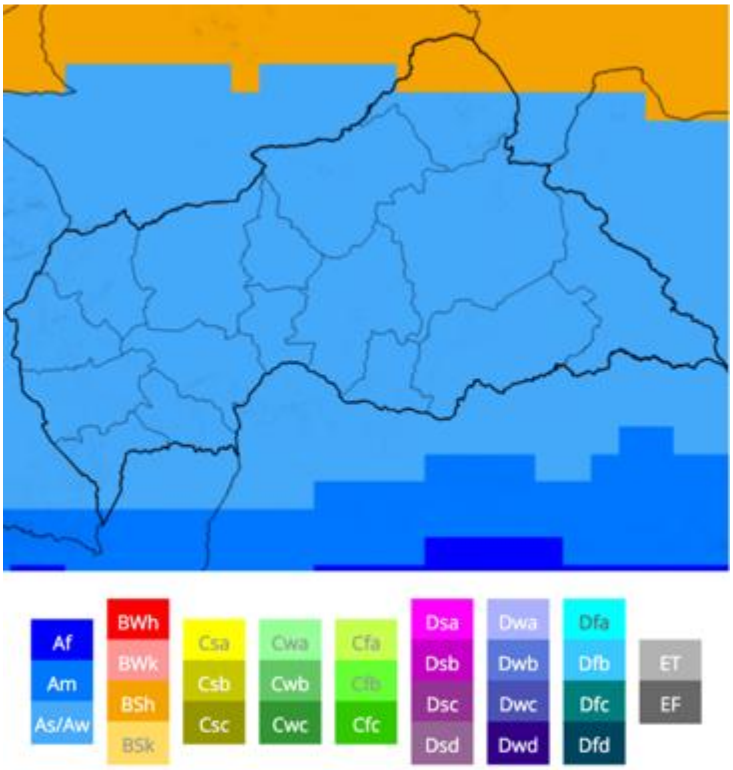
[394] Ibid.

Climate Problem

Current Climate

The CAR spans a tropical transition from humid equatorial conditions in the south to drier Sahelian conditions in the north, with a May–October rainy season and a November–April dry season.[395] To anchor this profile in country-relevant evidence, we use (i) station networks curated by the national hydrometeorological authorities (locations shown in FS Figure 35, Figure 36) together with (ii) high-quality global reanalysis and gridded datasets—ERA5-Land for temperature and heat indicators (1950–present)[396] and CHIRPS for precipitation (1981–present).[397] These sources allow robust, replicable estimation of historical trends and hazard indices across prefectures (methods and uncertainty notes below).

Figure 42: Köppen-Geiger Climate Classification for the CAR, 1991-2020. Source: Climate Change Knowledge Portal (2021): World Bank[398]



[395] World Bank. (2021). *Climate Change Knowledge Portal: Central African Republic, Country Summary*. https://climateknowledgeportal.worldbank.org/country/central-african-republic
[396] ERA5-Land (ECMWF/C3S) – https://cds.climate.copernicus.eu/datasets/reanalysis-era5-land ; dataset note – https://www.ecmwf.int/en/era5-land ; method paper – https://essd.copernicus.org/articles/13/4349/2021/ .
[397] CHIRPS precipitation (UCSB/CHG) – https://www.chc.ucsb.edu/data/chirps ; quick description – https://developers.google.com/earth-engine/datasets/catalog/UCSB-CHG_CHIRPS_DAILY .
[398] World Bank. (2021). *Climate Change Knowledge Portal: Central African Republic, Country Summary*. https://climateknowledgeportal.worldbank.org/country/central-african-republic

The alternation between rainy and dry seasons in CAR is primarily driven by two major high-pressure zones.[399] During the winter months, from December to March, the Libyan anticyclone in the north brings dry air, while in the northern summer, the St. Helena pressure zone drives moist air from the south-west towards the northeast, resulting in rainfall that decreases as it moves to the northeast.[400] The rainy season's duration ranges from more than 300 days in the south to approximately 125 days in the north-east of the CAR.[401]

Temperature

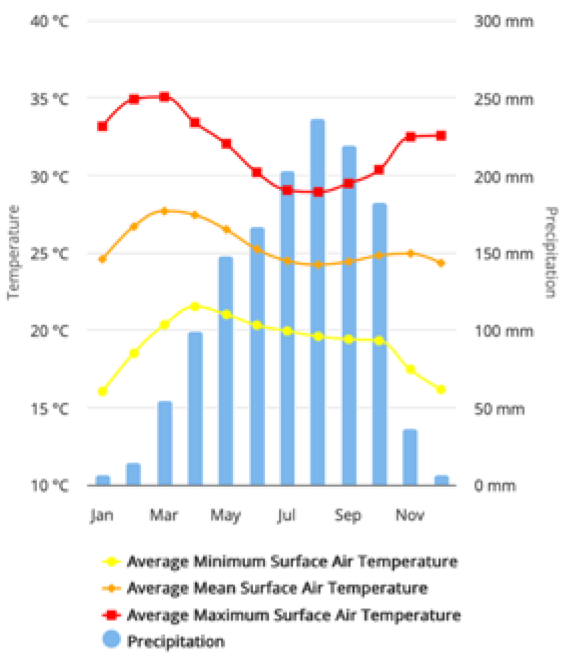
Across the country, annual average temperatures range from 23°C in the south to 26°C in the north. In the dry season, mean temperatures can range from 24.3°C to 27.7°C, with March being the hottest month.[402] During the rainy season, mean temperatures range from 24.2°C to 26.5°C, with May being the warmest month.[403]

Precipitation

Rainfall varies from 1,600 mm to 700 mm per year, with a spatial variation showing a south-north gradient.[404] The northernmost part of the country, in the prefecture of Vakaga, experiences the least precipitation.[405]
In the dry season, monthly precipitation ranges from 6.9mm in the driest months, December and January, to 99mm in the wettest month, April.[406] During the rainy season, rainfall is significantly higher, ranging from 147.4mm in May to 236.2mm in August. [407]

Figure 43. Monthly climatology of average mean surface air temperature, average minimum surface air temperature, average maximum surface air temperature and precipitation, 1991-2023, Central African Republic. Source: Climate Change Knowledge Portal (2021): World Bank.[408]

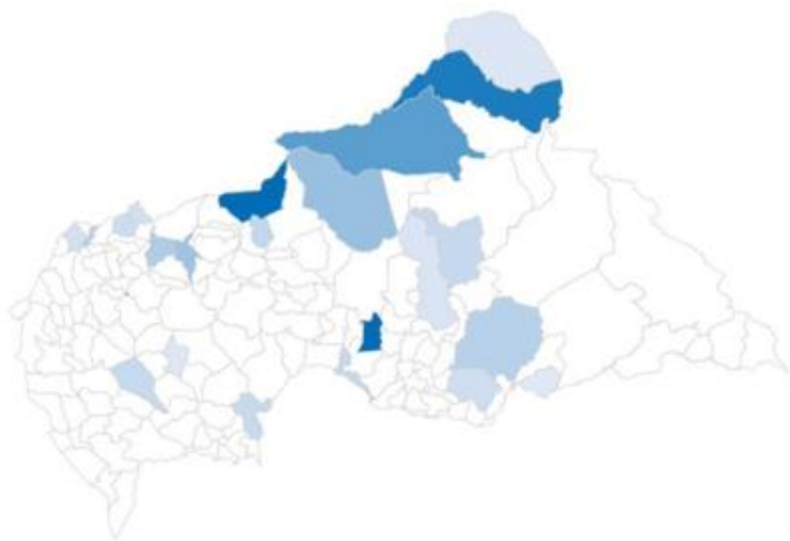
[399] World Bank Group. (2021). *Climate Risk Country Profile: Central African Republic*. https://climateknowledgeportal.worldbank.org/sites/default/files/2021-06/15875-WB_Central%20Africa%20Republic%20Country%20Profile-WEB.pdf
[400] World Bank Group. (2021). *Climate Risk Country Profile: Central African Republic*. https://climateknowledgeportal.worldbank.org/sites/default/files/2021-06/15875-WB_Central%20Africa%20Republic%20Country%20Profile-WEB.pdf
[401] GERICS. (2015). *Climate-Fact-Sheet, Central African Republic.*
[402] World Bank. (2021). *Climate Change Knowledge Portal: Central African Republic, Country Summary*. https://climateknowledgeportal.worldbank.org/country/central-african-republic
[403] World Bank. (2021). *Climate Change Knowledge Portal: Central African Republic, Country Summary*. https://climateknowledgeportal.worldbank.org/country/central-african-republic
[404] UNICEF. (2025). *Analyse du paysage climatique pour les enfants (CLAC) en République Centrafricaine, Rapport provisoire*.
[405] UNICEF. (2025). *Analyse du paysage climatique pour les enfants (CLAC) en République Centrafricaine, Rapport provisoire*.
[406] World Bank. (2021). *Climate Change Knowledge Portal: Central African Republic, Country Summary*. https://climateknowledgeportal.worldbank.org/country/central-african-republic
[407] World Bank. (2021). *Climate Change Knowledge Portal: Central African Republic, Country Summary*. https://climateknowledgeportal.worldbank.org/country/central-african-republic
[408] World Bank. (2021). *Climate Change Knowledge Portal: Central African Republic, Country Summary*. https://climateknowledgeportal.worldbank.org/country/central-african-republic



Extreme events

Flooding: Flooding is a common occurrence in the CAR, particularly during the rainy season. Extreme rainfall events and the overflow of major rivers, such as the Oubangui, can lead to widespread flooding. Figure 44 below shows the prefectures of CAR which were exposed to flooding in 2024.

Figure 44: Areas inundated in 2024. Source: Cadre Stratégique Operationnel: WASH Cluster, Ministry of Energy Development and Hydraulic Resources (2024)[409]



[409] Ministère du Développement, de l'Énergie et des Ressources Hydrauliques. (2024). *Cadre strategique operationnel WASH Cluster*.

Droughts: Droughts are particularly prevalent in the north of the CAR due to its local climate, which is semi-arid, with uncertain rainfall patterns and high evapotranspiration.[410] While most droughts occur during the dry season, they can occasionally extend into the rainy season.[411]

Heatwaves: Heatwaves occur across the entire country, most frequently between March and June, with more extreme occurrences in the central and northern regions.[412]

Observed climate change

Observed warming and changing extremes (1985-2004 → 2005-2024):

Using ERA5-Land, the national mean 2-m air temperature increased between 0.7 °C and 1.1 °C across most prefectures, with the strongest warming in the centre-east. When translated into heat-hazard metrics using the Excess Heat Factor (EHF),[413] the number of heatwave days and their intensity increased markedly in 2005–2024 compared to 1985–2004 (see FS Figure 47, Figure 50).

On precipitation, CHIRPS shows spatial heterogeneity: (i) increases in the frequency and contribution of very wet days (R95pTOT)[414] in the south-western and central belts; and (ii) longer dry spells in parts of the north and north-east. SPI-12 diagnostics[415] indicate more frequent moderate-to-severe drought conditions in northern prefectures in 2005–2024 vs. 1985–2004 (FS Figure 49, Figure 51).

Temperature

Over the period of 2005-2024, the CAR experienced an increase in average temperatures ranging from 0.8 to 1.2°C relative to the baseline period of 1985-2004.[416]
From 1990 to 2020, the average number of hot days per year increased by approximately 38%, with a marked increased from 2000 onwards (Figure 45).

Figure 45: Inter-annual variability in the number of hot days, very hot days and maximum temperature peaks in the Central Africa Republic, 1990-2020. Source : Labouratoire de Climatologie, de Cartographie et d'Etudes Géographiques (LACCEG), 2022. [417]

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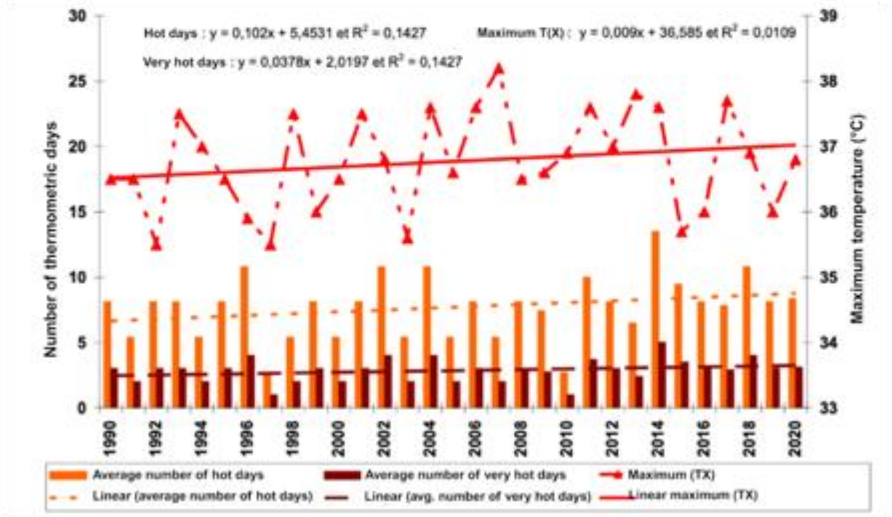
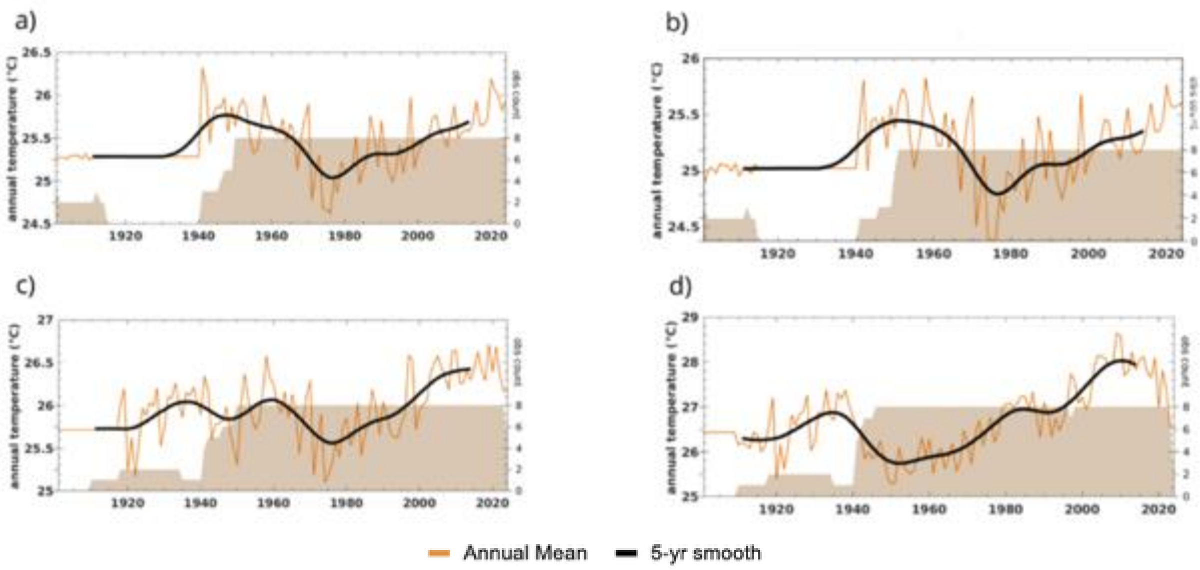
[410] UNICEF. (2023). *Argumentaire climatique pour l'eau, l'assainissement et l'hygiène en République Centrafricaine*. Background document.
[411] Ministère de l'Environnement et du Développement Durable. (2022). *Plan national initial d'adaptation aux changements climatiques de la République Centrafricaine*. https://unfccc.int/sites/default/files/resource/CAR-NAP-FR-web.pdf
[412] UNICEF. (2022). *République Centrafricaine: Analyse des risques et de l'impact des aléas sur les enfants*. https://www.unicef.org/car/media/1326/file/Analyses%20des%20risques%20et%20de%20l%27impact%20des%20aleas%20sur%20les%20enfants%20en%20RCA.pdf
[413] EHF definition & application – https://pmc.ncbi.nlm.nih.gov/articles/PMC4306859/ ; overview – https://climpact-sci.org/indices/ .
[414] ETCCDI extremes (R95p/R99p, etc.) – https://climate-scenarios.canada.ca/?page=climdex-indices ; index comparison note – https://etccdi.pacificclimate.org/docs/ETCCDMIndicesComparison1.pdf .
[415] Standardized Precipitation Index (SPI) user guide (WMO) – https://library.wmo.int/records/item/39629-standardized-precipitation-index-user-guide ; PDF – https://digitalcommons.unl.edu/droughtfacpub/209/ .

[416] UNICEF. (2025). *Analyse du paysage climatique pour les enfants (CLAC) en République Centrafricaine, Rapport provisoire*.
[417] DOUKPOLO Bertrand, WATTA Melchycedeck, HARRISON Mike. (2022). *Simulation des températures en Centrafrique au moyen des modèles climatiques et impacts potentiels sur la santé humaine*. Revue Espace, Territoires, Sociétés et Santé, 5 (10), 115-132.



Temperature data for 1901-2020 disaggregated by prefecture reveals significant variations in temperature changes across Bangui, Ouham, Bamingui-Bangoran and Vakaga (Figure 46). Bangui and Ouham experienced a temperature increase between 1930 and 1945, followed by a decline from 1945 to 1975, and a subsequent steady rise since 1975, returning to levels observed in 1945. In contrast, Vakaga and Bamingui-Bangoran show a clear overall temperature increase throughout the 1901-2020 period, with some phases of decrease in the 1940s, 1960s and 1980s. Despite these variations, a consistent and marked increase in temperatures over the past four decades is noticeable across all four prefectures.

Figure 46: Observed mean temperature for a) Bangui, Greater Bangui, (4.25 N, 18.75 E) b) Bossangoa, Ouham 6.25 N, 17.25 E) c) Ndélé, Bamingui-Bangoran, (8.25 N, 20.75 E) d) Birao, Vakaga, (10.25 N, 22.75 E), for 1901-2020 (0.5 x 0.5 resolution). Source: CRU TS Version 4.09[418]



Analysis of temperature variations across CAR, using the ERA5-Land dataset which provides a consistent view of the evolution of land variables over several decades at an enhanced resolution and the periods 1985-2004 and 2005-2024, indicates that the most significant temperature increases

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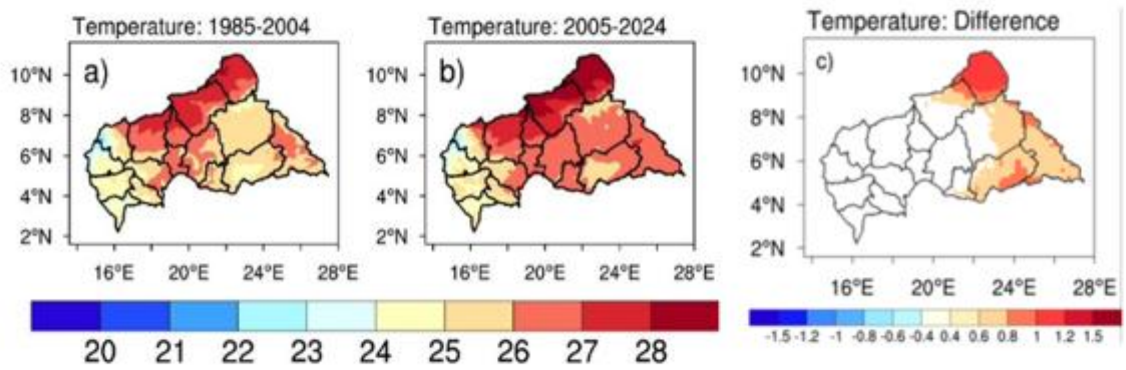
[418] Climatic Research Unit (University of East Anglia). (2025). *Cru TS v. 4.09*. https://crudata.uea.ac.uk/cru/data/hrg/

occurred in Bamingui-Bangoran, Vakaga, Haute-Kotto, Haut-Mbomou, Mbomou and Basse-Kotto.[419] The majority of Vakaga experienced temperature increases ranging from 1.0 to 1.2°C during this interval (Figure 47). The northeastern areas of Bamingui-Bangoran exhibited temperature increases within the range of 0.6 to 1.0°C, while southern Basse-Kotto experienced temperature increases in the range of 0.6 to 0.8°C (Figure 47).

Figure 47: The average observed surface temperatures (i.e., at 2 meters above ground) from ERA5-Land in (a) 1985-2004 and (c) 2005-2024 as well as (c) their differences (i.e., 2005-2024 minus 1985-2004). In (c), the shaded areas show significant differences. Source: UNICEF (2025)[420]

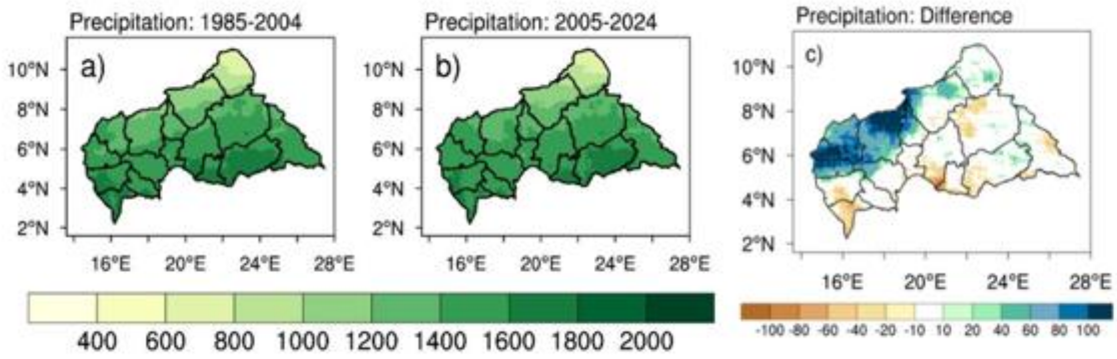


Precipitation

Analysis of precipitation trends in CAR indicates a significant increase in both total annual precipitation and interannual variability.[421] CAR's National Adaptation Plan 2022 estimates that over the last 30 years, total annual precipitation has increased by an average of 8% per year.[422]
Precipitation data from the Climate Hazards Centre Infrared Precipitation with Stations (CHIRPS) dataset reveals an increase in rainfall of approximately 100 mm/year over the period 2005-2024 compared to 1985-2004 in prefectures situated along the Chadian border, particularly Nana-Mambéré, Ouham-Pendé, Ouham, and Ouham-Fafa (Figure 48). Decreases of around 20% are noted in Sangha-Mbaéré in the Southwest, in the South of Ouaka and the East of Mbomou, and in the Northwest of Haute-Kotto (Figure 48).

Figure 48: Observed annual precipitation totals from CHIRPS in (a) 1985-2004 and (c) 2005-2024 as well as (c) their difference (i.e. 2005-2024 minus 1985-2004). In (c), shaded areas show significant differences. Source: UNICEF (2025)[423]

[419] UNICEF. (2025). *Analyse du paysage climatique pour les enfants (CLAC) en République Centrafricaine, Rapport provisoire*.
[420] UNICEF. (2025). *Analyse du paysage climatique pour les enfants (CLAC) en République Centrafricaine, Rapport provisoire*.
[421] DOUKPOLO Bertrand, WATTA Melchycedeck, HARRISON Mike. (2022). *Simulation des températures en Centrafrique au moyen des modèles climatiques et impacts potentiels sur la santé humaine*. Revue Espace, Territoires, Sociétés et Santé, 5 (10), 115-132.
[422] Ministère de l'Environnement et du Développement Durable. (2022). *Plan national initial d'adaptation aux changements climatiques de la République Centrafricaine*. https://unfccc.int/sites/default/files/resource/CAR-NAP-FR-web.pdf
[423] UNICEF. (2025). *Analyse du paysage climatique pour les enfants (CLAC) en République Centrafricaine, Rapport provisoire*.

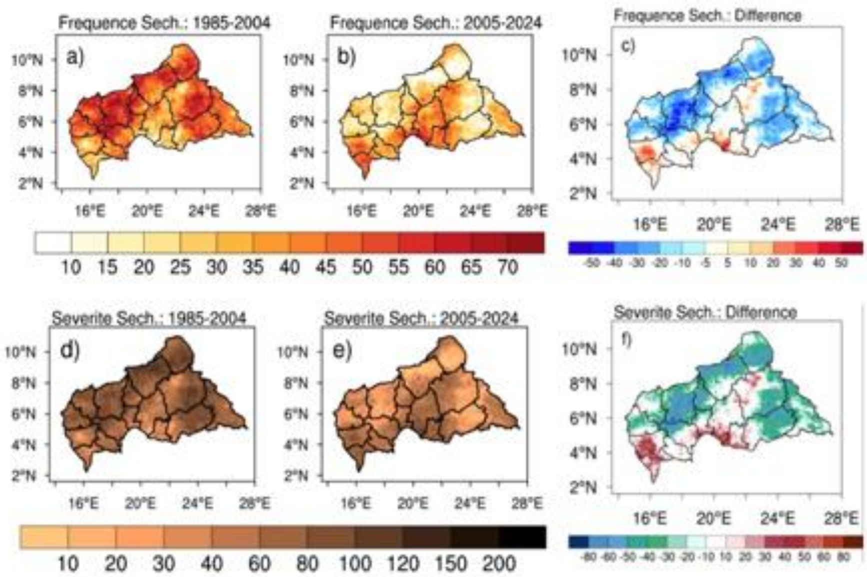


Extreme weather events

Droughts

From 1985 to 2004, the CAR experienced 60 drought events.[424]These events significantly impacted the northern areas of Vakaga, as well as the prefectures adjacent to Chad (including Bamingui-Bangoran and Ouham-Pendé) and South Sudan (including Haute-Kotto, Mbomou, and Haute-Mbomou).[425] The droughts located in these areas were also the most severe (Figure 49 d). In recent decades (i.e., 2005-2024; Figure 49b, d), these events have shifted towards the Centre (Haute-Kotto and Ouaka), the South (Basse-Kotto, Kémo, Ombella-M'Poko), and the Southwest (Sangha-Mbaéré and Mambéré-Kadéï) of the CAR. Droughts have therefore increased in these prefectures in the period 2005-2024 compared to 1985-2004 and decreased in the rest of the country, especially in the prefectures bordering Chad and South Sudan (Figure 49c and d).

Figure 49: Spatial distributions of drought frequency in (a) 1985-2004 and (b) 2005-2024, as well as their difference (c) 2005-2024 minus 1985-2004, and drought severity in (d) 1985-2004 and (e) 2005-2024, as well as their difference (f) 2005-2024 minus 1985-2004, based on SPI-12 applied to CHIRPS data. Source: UNICEF (2025)[426]



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[424] UNCCD. (2023). *Report from Central African Republic.* https://www.unccd.int/sites/default/files/national-reports/2022/CAF/UNCCD%20National%20Report%202022%20CAF.pdf

[425] UNICEF. (2025). *Analyse du paysage climatique pour les enfants (CLAC) en République Centrafricaine, Rapport provisoire*.

[426] UNICEF. (2025). *Analyse du paysage climatique pour les enfants (CLAC) en République Centrafricaine, Rapport provisoire*.

There are significant variations in the number of people exposed to droughts over the CAR for the period 2000-2019. According to a UNCCD (2023) national report, the number of exposed individuals was relatively high in 2004 (2,514,444) and peaked again in 2011 (2,934,468) 2018 (3,208,059).[427] Conversely, there were years with considerably lower exposure, such as 2013 (55,768) and 2017 (10,984), suggesting varying intensities of drought events (Table 29). The data indicates that the CAR is highly vulnerable to drought, with millions of its inhabitants frequently exposed to its impacts.

Table 29. National estimates of the proportion of the national population exposed to drought regardless of intensity. Source: UNCCD (2023).[428]

Reporting year	Exposed population number	Exposed share of population (%)
2000	2 336 742	86.6
2001	1 043 079	37.2
2002	1 628 828	57.0
2003	1 527 116	51.3
2004	2 514 444	82.7
2005	1 097 100	34.7
2006	1 922 072	60.1
2007	1 682 199	50.7
2008	2 421 449	71.7
2009	1 843 547	54.1
2010	196 320	5.6
2011	2 934 468	82.2
2012	2 233 481	60.9
2013	55 768	1.5
2014	2 469 711	65.0
2015	1 609 445	41.3
2016	106 149	2.7
2017	10 984	0.3
2018	3 208 059	77.3
2019	395 641	9.2

Heatwaves

Analysis of heatwave activity based on ERA5-Land data reveals a significant increase in heatwaves from the period 1985-2004 to the period 2005-2024 (Figure 50). The eastern, southeastern, northern and central regions of CAR experienced the highest increase in the frequency and intensity of heatwaves (Figure 50). The prefectures with the most pronounced increases in frequency and intensity are Mbomou and Haut-Mbomou, followed by Vakaga, Basse-Kotto, Haute-Kotto, Ouaka, Bamingui-Bangoran, Kémo, Nana-Grébizi and Ouham-Fafa (Figure 50).

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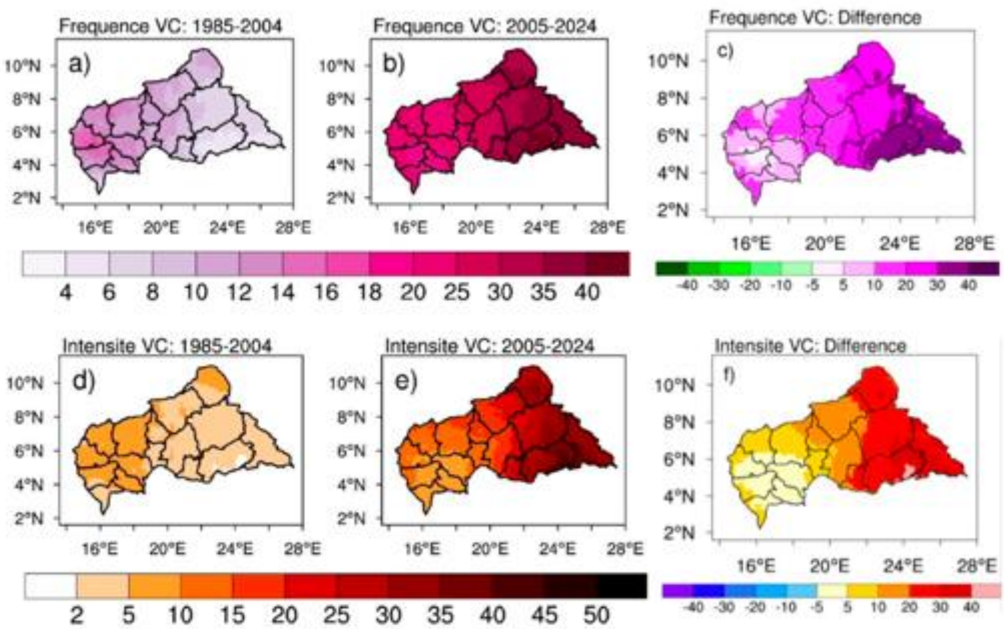
[427] UNCCD. (2023). *Report from Central African Republic.* https://www.unccd.int/sites/default/files/national-reports/2022/CAF/UNCCD%20National%20Report%202022%20CAF.pdf
[428] Ibid.

Figure 50: Spatial distributions of heat wave frequency in (a) 1985- 2004 and (b) 2005-2024 and their difference (c) 2005-2024 minus 1985-2004 and heat wave intensity in (d) 1985-2004 and (e) 2005-2024 and their difference (f) 2005-2024 minus 1985-2004 based on EHF applied to data from ERA5-Land. Source: UNICEF (2025)[429]

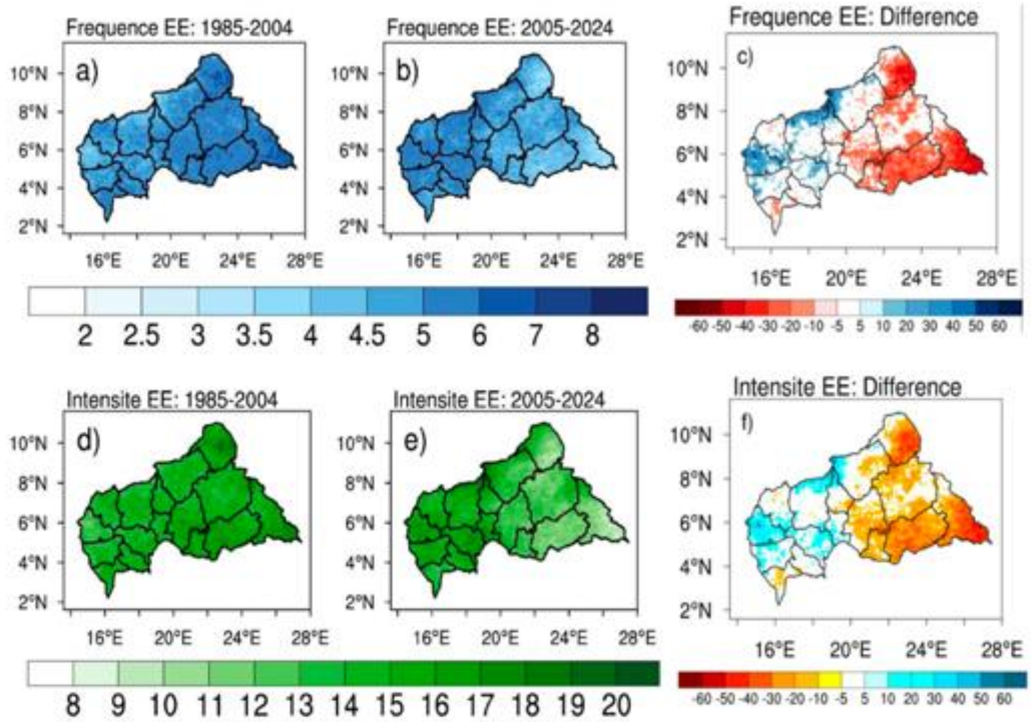


Extreme rainfall and flooding

Analysis of precipitation data from 1985 to 2004 shows a concentration of extreme rainfall events across the eastern half of CAR. Vakaga, Haute-Kotto, Mbomou, Haute-Mbomou, Ouaka, and Basse-Kotto, registered the highest precipitation intensities during this period (Figure 51). However, more recent data for the period 2005-2024 reveals a shift in the occurrence of these extreme precipitation events towards the western half of the country and along the border with Chad (Figure 51). The prefectures of Bamingui-Bangoran, Nana-Grézibi, Ouham-Fafa, Ouham, Kemo, Ombella-M'Poko, Bangui, Nana-Mambéré, Mambéré, and Mambéré-Kadéï are currently experiencing an increased frequency (40%) and intensity (30%) of extreme precipitation events, reflecting increased flooding risks (Figure 51).

Figure 51. Spatial distributions of the frequency of extreme precipitation events in (a) 1985-2004 and (b) 2005-2024 and their difference (c) 2005-2024 minus 1985-2004 and intensity of extreme precipitation events in (d) 1985-2004 and (e) 2005-2024 and their difference (f) 2005-2024 minus 1985-2004 based on R95day and R95ptot applied to CHIRPS data. Source: UNICEF (2025)[430]

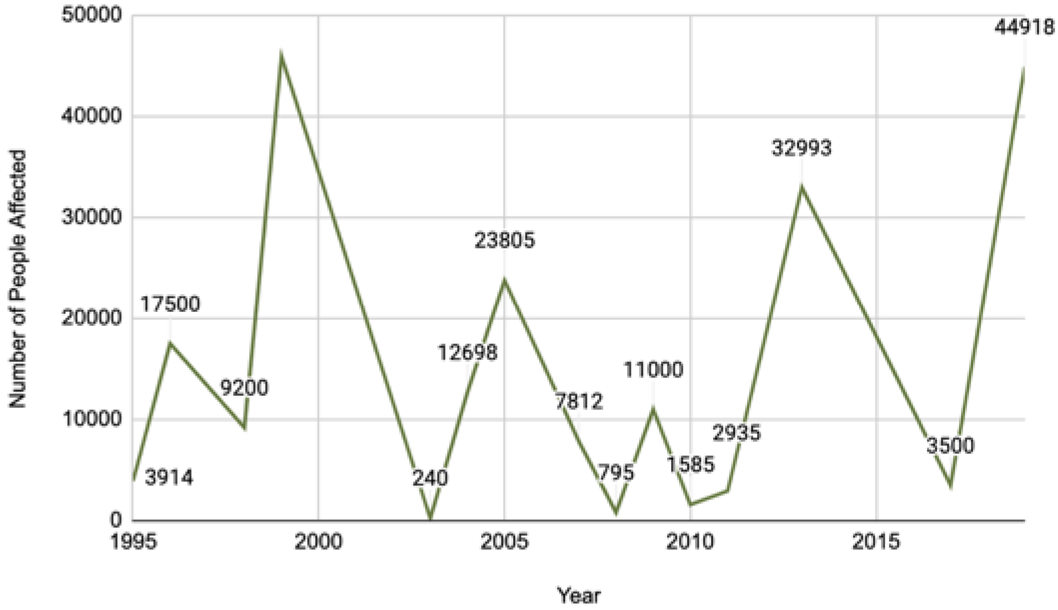
[429] UNICEF. (2025). *Analyse du paysage climatique pour les enfants (CLAC) en République Centrafricaine, Rapport provisoire*.
[430] UNICEF. (2025). *Analyse du paysage climatique pour les enfants (CLAC) en République Centrafricaine, Rapport provisoire*.



A significant proportion of flood events in CAR remain undocumented, with reported occurrences mostly concentrated around Bangui,[431] where population density is higher and specific urban vulnerabilities exist. Occurrences and their impacts on people and livelihoods might be underreported for other prefectures, including those targeted by the project, suggesting a potential data bias. The number of people affected by floods in the CAR for the period 1995-2020 is presented in Figure 52 below:

Figure 52. Number of people affected by floods in the CAR. Source: Climate Change Knowledge Portal: World Bank (2021).[432]

[431] World Bank Group. (2021). *Climate Risk Country Profile: Central African Republic*. https://climateknowledgeportal.worldbank.org/sites/default/files/2021-06/15875-WB_Central%20Africa%20Republic%20Country%20Profile-WEB.pdf
[432] World Bank. (2021). *Climate Change Knowledge Portal: Central African Republic, Historical Hazards*. https://climateknowledgeportal.worldbank.org/country/central-african-republic/vulnerability



Since 2020, other major flood events were recorded in CAR: the August 2024 event wherein torrential precipitation and strong winds affected 2700 individuals and destroyed 500 buildings,[433] and the July 2022 event in Bangui and surrounding prefectures, where intense torrential rains resulted in the destruction of residences for nearly 22,000 people.[434]

Recurring floods in Bangui were estimated to have caused approximately $7 million in annual damages and losses in 2009.[435] Flood events in the CAR equally have significant impacts on agriculture, affecting croplands, livestock, farmers' incomes, and overall yields and production.[436] For example, from June 2022 to October 2022, floods in the CAR were reported to have affected more than 18,500 hectares of crop lands.[437]

Methodological note and uncertainty

Station records were used where continuous series were available (Figure 35, Figure 36); gridded products (ERA5-Land, CHIRPS) fill spatial/temporal gaps and enable prefecture-level diagnostics. For each indicator (EHF, SPI-12, R95p/R99p), diagnostics were computed in 1985–2024 with a 1985–2014 baseline. We report trends as differences between 1985–2004 and 2005–2024, and we present uncertainty qualitatively by flagging areas with sparse in-situ coverage.

Projected climate change trends

Near- to Mid-Century Climate Projections

[433] UNFPA. (2024). *West and Central Africa situation report - Floods flash update #1*. UNFPA. https://reliefweb.int/report/chad/unfpa-west-and-central-africa-situation-report-floods-flash-update-1-9-september-2024
[434] SIPRI. (2022). *Climate, peace and security fact sheet Central African Republic*. https://www.sipri.org/sites/default/files/2023-10/22_fs_car.pdf
[435] GFDDR, the World Bank. (2022). Central African Republic– 2009– Subsequent to floods in Bangui, which left 14,500 people homeless, GFDRR supported a Joint Needs Assessment to assess and mitigate the impacts of recurrent flooding. https://www.gfdrr.org/en/central-african-republic-2009-subsequent-floods-bangui-which-left-14500-people-homeless-gfdrr
[436] World Bank. (2024). *Central African Republic Country Climate and Development Report.*
[437] OCHA. (2022). *République centrafricaine : Rapport de situation, 26 octobre 2022.* https://reliefweb.int/report/central-african-republic/republique-centrafricaine-rapport-de-situation-26-octobre-2022

Projections of future climate for the CAR are derived from the Coupled Model Intercomparison Project Phase 6 (CMIP6) ensemble, using two representative emissions scenarios: SSP2-4.5 (stabilization pathway) and SSP5-8.5 (high emissions pathway).

Unless otherwise indicated, the climate projections detailed hereafter are drawn from the GCF's Climate Information Portal,[438] which provides pre-calculated climate indicators at city and national scales based on median values from multi-model ensembles. The projections are reported for three standard time horizons (2011-2040, 2041-2070 and 2071-2100 for SSP2-4.5 and SSP5-8.5 scenarios). The projected changes are taken from the median values over an ensemble of climate models.

Consistent with the World Bank Climate Change Knowledge Portal (CCKP), the ensemble median for CAR shows:
Continued warming across all seasons, with mean annual temperature increases of approximately +1.5 °C to +2.5 °C by 2041–2070 under SSP2-4.5, and higher values under SSP5-8.5. These temperature shifts are accompanied by increases in hot days and heatwave metrics (excess heat factor, warm spell duration).
Intensification of very wet-day precipitation (95th percentile, R95p) in southern and central belts, even where projected annual totals show little change. This implies greater risks of extreme rainfall and localized flooding.

1. Longer and/or more frequent dry spells in northern and north-eastern prefectures, increasing the likelihood of seasonal water source depletion and drought stress.

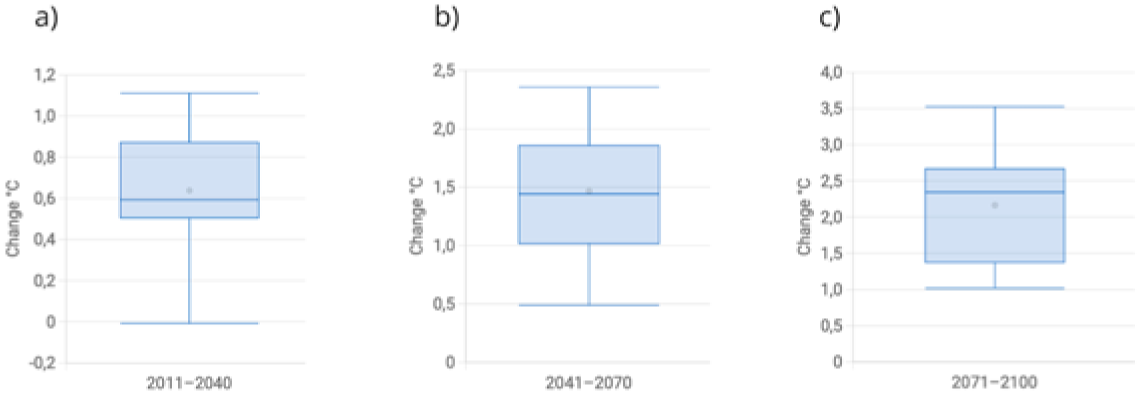
To translate these hazard signals into practical vulnerability metrics, section 5.2 overlays the model-derived extremes (temperature, wet-day precipitation, and dry-spell frequency) with exposure, adaptive capacity and sensitivity indicators, including OCHA-reported affected population datasets. This approach provides a transparent bridge from climate hazard projections to the location and scale of exposed assets and people, especially WASH infrastructure and vulnerable communities.

Temperature

The Climate Information Portal by the GCF demonstrates a consistent trend of ongoing warming for Bangui as a chosen location, which varies depending on the emissions scenario.[439] Using a mean ensemble of models and an emissions scenario SSP2-4.5, for the period 2011-2040 compared to 1981-2010, median annual temperature increase is projected to be 0.59°C (Figure 53). Using the same scenario, for the period 2041–2070 compared to 1981–2010 the median annual increase is projected to be 1.44°C (Figure 53). This projection increases to 2.34°C for the period 2071-2100 (Figure 53).

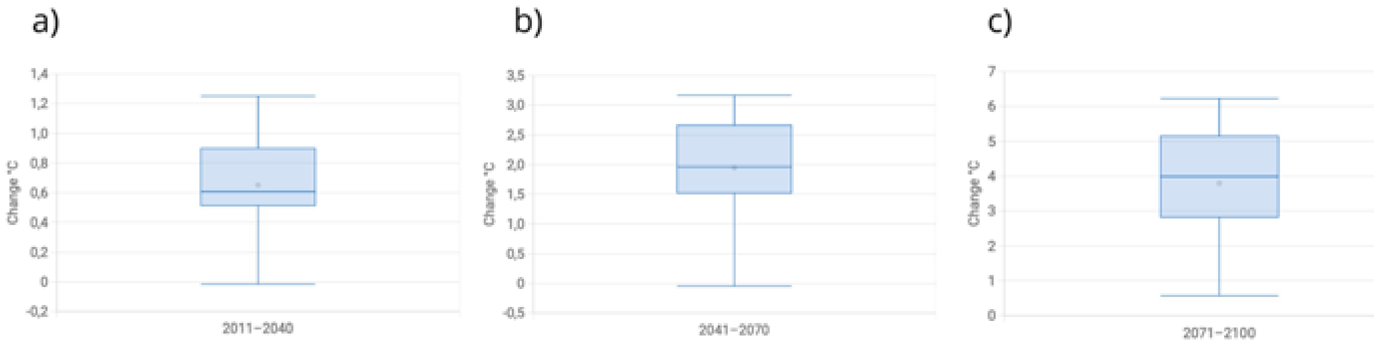
Figure 53. Temperature (annual mean), for a) 2011-2040, b)2041–2070, c) 2071-2100, baseline period 1981–2010, SSP2 4.5, Model ensemble: CMIP6 Global. Source: Climate information portal.[440]

[438] Climate Information Portal. https://climateinformation.org/
[439] Climate Information Portal. https://climateinformation.org/
[440] Climate Information Portal. https://climateinformation.org/



Using the SSP5-8.5 scenario, projections for annual temperature increases are exacerbated: compared to 1981-2010, median annual increases are projected to be 0.61°C for the period 2011-2040, 1.96°C for the period 2041-2070, and 3.99°C for the period 2071-2100 (Figure 54).

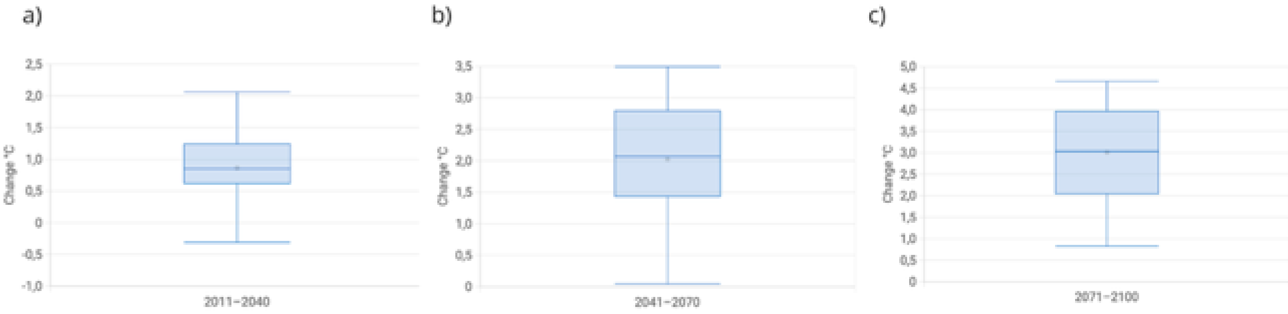
Figure 54. Temperature (annual mean), for a) 2011-2040, b)2041–2070, c) 2071-2100, baseline period 1981–2010, SSP5 8.5, Model ensemble: CMIP6 Global. Source: Climate information portal.[441]



Projections indicate that maximum temperatures are expected to rise more than average temperatures. Using the emissions scenario SSP2-4.5 and the baseline 1981-2010, median maximum temperature increase is projected to be 0.85°C for the period 2011-2040, 2.07°C for the period 2041-2070, and 3.04°C for the period 2071-2100 (Figure 55).

Figure 55. Maximum temperature (annual mean) for a) 2011-2040, b)2041–2070, c) 2071-2100, baseline period 1981–2010, SSP2 4.5, Model ensemble: CMIP6 Global. Source: Climate information portal.[442]

[441] Climate Information Portal. https://climateinformation.org/
[442] Climate Information Portal. https://climateinformation.org/



Meanwhile, under SSP5-8.5, projected median maximum temperature increase rises to 1.03°C for the period 2011-2040, 2.64°C for the period 2041-2070, and 5.39°C for the period 2071-2100, compared to the period 1981-2010 (Figure 56).

Figure 56. Maximum temperature (annual mean) for a) 2011-2040, b)2041–2070, c) 2071-2100, baseline period 1981–2010, SSP5 8.5, Model ensemble: CMIP6 Global. Source: Climate information portal

At the prefecture level, temperatures in Bangui, Ouham, Bamingui-Bangoran and Vakaga will increase under SSP2-4.5 and SSP5-8.5 in the short-term (2011-2040), medium-term (2041-2070) and long-term (2071-2100) (Table 30). Temperature changes are projected to be highest in the northern prefecture Vakaga under both scenarios, reaching 4.30°C in median annual increase in the period 2071-2100 under SSP 5-8.5 (Table 30). Projected changes in median annual temperatures by prefecture are displayed in the table below:

Table 30. Annual median temperature increases under SSP2 4.5 and SSP5 8.5, using CMIP6 Global and baseline 1981-2010. Source: Climate Information Portal.[443]

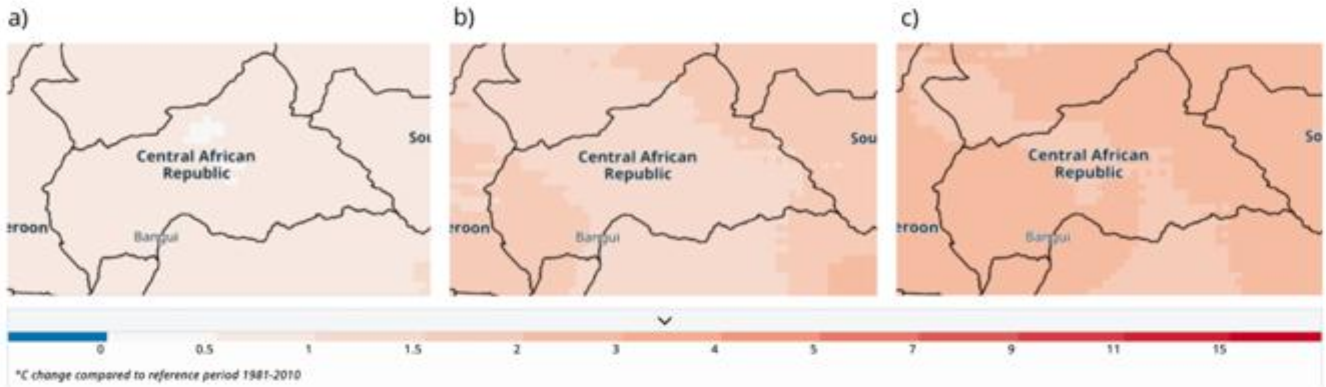
Prefecture	Scenario	2011-2040	2041-2070	2071-2100
Bangui, Greater Bangui	SSP2 4.5	0.59°C	1.44°C	2.34°C
	SSP5 8.5	0.61°C	1.96°C	3.99°C
Bossangoa, Ouham	SSP2 4.5	0.56°C	1.47°C	2.23°C
	SSP5 8.5	0.57°C	1.86°C	3.87°C
	SSP2 4.5	0.48°C	1.29°C	2.05°C

[443] Climate Information Portal. https://climateinformation.org/

Prefecture	Scenario	2011-2040	2041-2070	2071-2100
Ndélé, Bamingui-Bangoran	SSP5 8.5	0.58°C	1.77°C	3.73°C
Birao, Vakaga	SSP2 4.5	0.72°C	1.70°C	2.63°C
	SSP5 8.5	0.73°C	2.22°C	4.30°C

In the short-term (2011-2040), under SSP2-4.5 and compared to a baseline of 1981-2010, most of the CAR's prefectures will experience annual mean temperature increases ranging from 0.5 to 1.0°C. In the medium-term (2041-2070), this rises to 1 to 1.5°C for most of the country, with the northernmost areas, the western, and far south-eastern areas experiencing increases of 1.5 to 2°C (Figure 57). In the long-term, most of the CAR is projected to experience annual mean temperature increases between 2 and 3°C, with areas in the centre, south and north experiencing lower temperature increases, between 1.5 to 2°C (Figure 57).

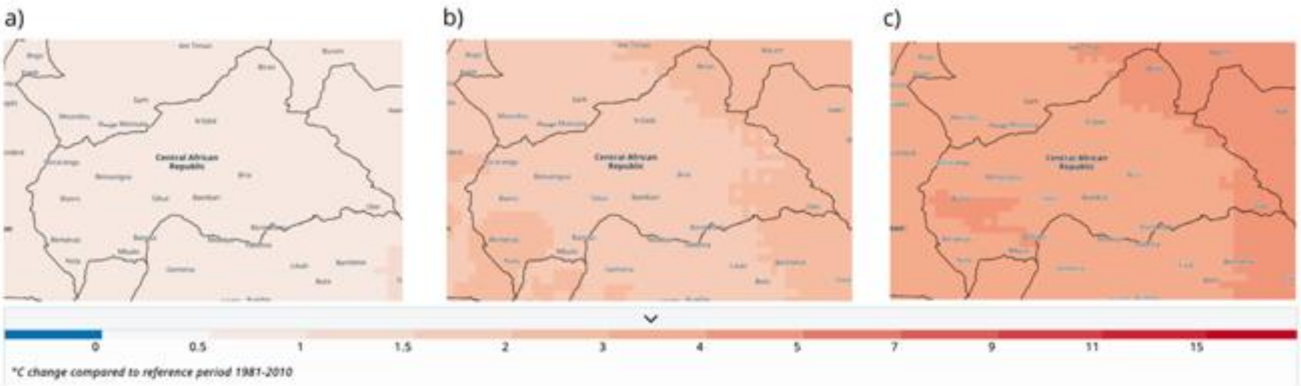
Figure 57. Temperature (annual mean) for a) 2011-2040, b) 2041-2070, c) 2071 - 2100, under SSP2 4.5, baseline 1981-2010, Model Ensemble: CMIP6 Global. Source: Climate Information Services.[444]



Under SSP5-8.5, for the period 2011-2040, all of the CAR's prefectures will experience annual mean temperature increases ranging from 0.5 to 1.0°C (Figure 58). For 2041-2070, this rises to 1.5 to 2.0°C for most of CAR, with the northernmost areas, certain western and south-eastern areas experiencing increases of 2 to 3°C (Figure 58). By 2071-2100, most of the country is projected to experience annual mean temperature increases between 3 and 4°C, with areas in the north, south-east and west experiencing temperature increases between 4 and 5°C (Figure 58).

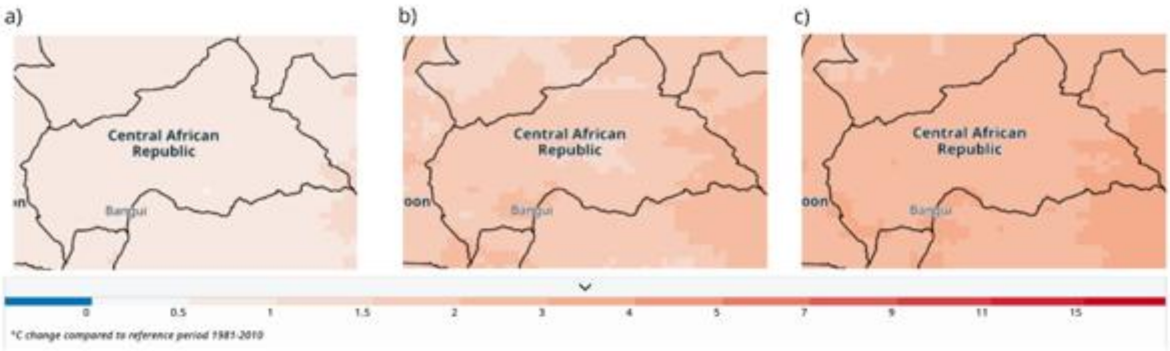
Figure 58. Temperature (annual mean) for a) 2011-2040, b) 2041-2070, c) 2071 - 2100, under SSP5 8.5, baseline 1981-2010, Model Ensemble: CMIP6 Global. Source: Climate Information Services.[445]

[444] Climate Information Portal. https://climateinformation.org/
[445] Climate Information Portal. https://climateinformation.org/



Under SSP 2-4.5, the CAR is projected to experience a general increase in maximum temperatures (Figure 59). For 2011-2040, most of the country is projected to experience a rise of 0.5 to 1°C compared to 1981-2010 (Figure 59). By 2041-2070, this increase is expected to be 1 to 1.5°C across most of the CAR, though central and northern areas will see a slightly smaller increase of 0.5 to 1°C, while eastern and southwestern parts could experience higher rises of 1.5 to 2°C (Figure 59). For the period 2071-2100, maximum temperatures are projected to increase by 1.5 to 2°C in most of the CAR, with southeastern and southwestern areas potentially facing even greater increases of 2 to 3°C (Figure 59).

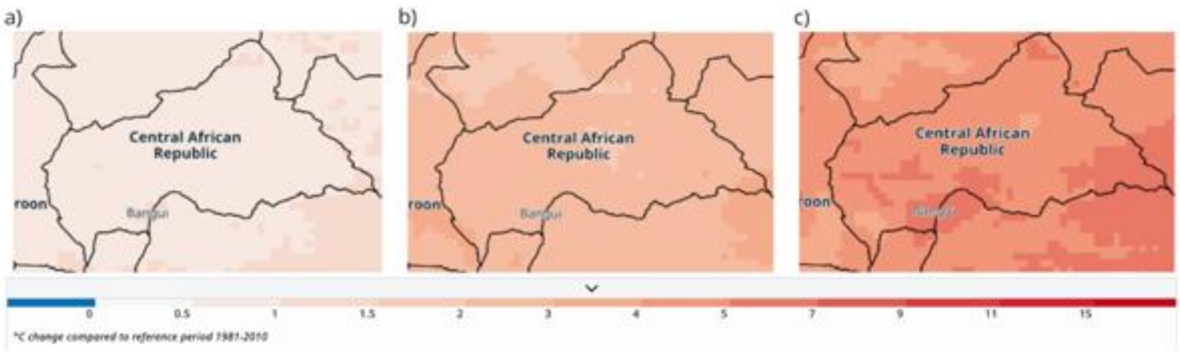
Figure 59. Maximum temperature (annual mean) for a) 2011-2040, b) 2041-2070, c) 2071 - 2100, under SSP2 4.5, Model Ensemble: CMIP6 Global. Source: Climate Information Services.



Under SSP5-8.5, the CAR faces substantial increases in maximum temperatures compared to 1981-2010 (Figure 60). By 2011-2040, most of the country is projected to experience increases of 0.5 to 1°C, with some northern, southeastern areas, and regions around Bangui seeing increases of 1 to 1.5°C (Figure 60). This trend intensifies from 2041-2070, as most of the CAR experiences a 2 to 3°C rise, while the southeast and southwest could see increases of 3 to 4°C (Figure 60). By 2071-2100, the majority of the CAR is projected to warm by 4 to 5°C, with multiple areas facing extreme increases of 5 to 7°C (Figure 60).

Figure 60. Maximum temperature (annual mean) for a) 2011-2040, b) 2041-2070, c) 2071 - 2100, under SSP5 8.5, Model Ensemble: CMIP6 Global. Source: Climate Information Services.[446]

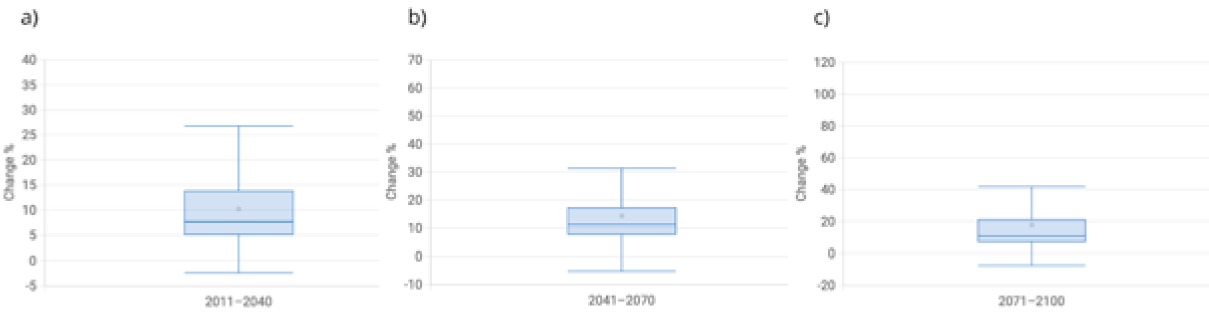
[446] Climate Information Portal. https://climateinformation.org/



Precipitation

Using Bangui as a chosen location in the CAR, data from the Climate Information service demonstrates a trend of increasing precipitation, which varies depending on the emissions scenario. Using a mean ensemble of models and SSP2-4.5, for the period 2011-2040 compared to 1981-2010, the median precipitation change is projected to be +7.69% (Figure 61). Using the same scenario, for the period 2041–2070, the median change is projected to be +11.21% (Figure 61). This projection decreases to +10.86% for the period 2071-2100 (Figure 61).

Figure 61. Precipitation (annual mean), for a) 2011-2040, b) 2041-2070, c) 2071–2100, Historical period: 1981–2010, SSP2 4.5, Model ensemble: CMIP6 Global. Source: Climate Information Services[447]



Under SSP5-8.5 and the baseline period 1981-2010, median precipitation changes are projected to be +10.76% for the period 2011-2040, +17.50% for the period 2041-2070, and +20.53% for the period 2071-2100 (Figure 62).

Figure 62. Precipitation (annual mean), for a) 2011-2040, b) 2041-2070, c) 2071–2100 Historical period: 1981–2010, SSP5 8.5, Model ensemble: CMIP6 Global. Source: Climate Information Services[448]

[447] Climate Information Portal. https://climateinformation.org/
[448] Climate Information Portal. https://climateinformation.org/

At the prefecture level, precipitation in Bangui, Ouham, Bamingui-Bangoran and Vakaga will increase under SSP2-4.5 and SSP5-8.5 in the short-term (2011-2040), medium-term (2041-2070) and long-term (2071-2100) (Table 31). Median precipitation changes are projected to be the highest in Vakaga under both scenarios, reaching a 41.30% increase for the period 2071-2100 under SSP5 8.5, compared to 1981-2010 (Table 31). Projected changes in median annual mean precipitation by prefecture are displayed in the table below:

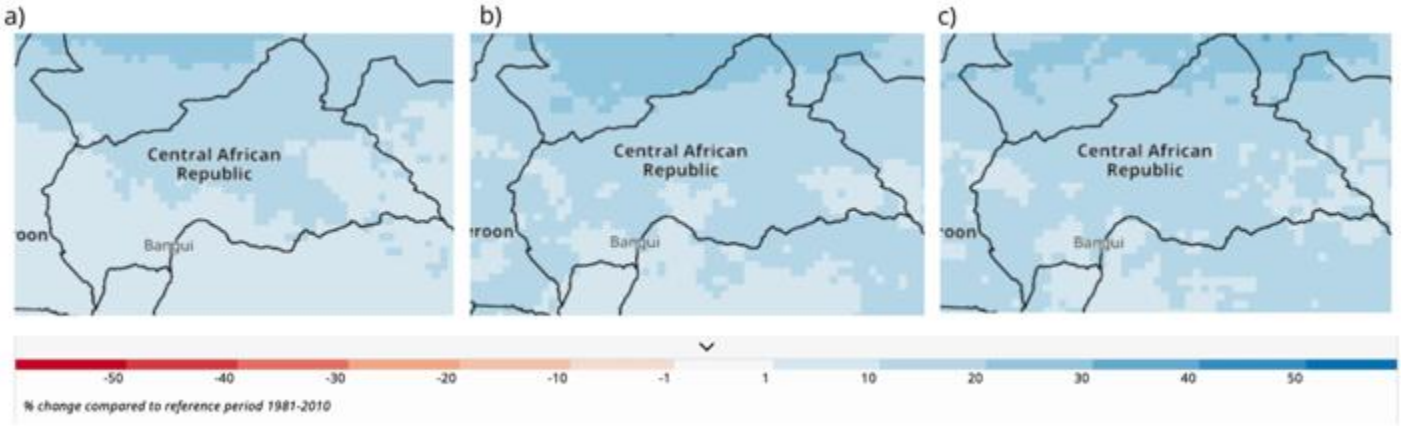
Table 31. Median annual mean precipitation changes compared to the historical period 1981-2010 for Bangui (Greater Bangui), Bossangoa (Ouham), Ndélé (Bamingui-Bangoran) and Birao (Vakaga). Source: Climate Information Services[449]

Prefecture	Scenario	2011-2040	2041-2070	2071-2100
Bangui, Greater Bangui	SSP2 4.5	7.69%	11.21%	10.86%
	SSP5 8.5	10.76%	17.50%	20.53%
Bossangoa, Ouham	SSP2 4.5	9.51%	12.73%	13.23%
	SSP5 8.5	13.34%	22.32%	23.43%
Ndélé, Bamingui-Bangoran	SSP2 4.5	16.29%	15.82%	16.64%
	SSP5 8.5	19.88%	26.60%	43.19%
Birao, Vakaga	SSP2 4.5	19.17%	23.60%	24.72%
	SSP5 8.5	22.56%	33.86%	41.30%

Under SSP2-4.5, compared to 1981-2010, precipitation projections in the CAR experience a south-north gradient for the period 2011-2040, with south-west and south-east of CAR experiencing precipitation changes in the order of 1 to 10%, and the centre and north of CAR experiencing changes from 10 to 20% (Figure 63). For the period 2041-2070, areas with precipitation projections of 10 to 20% expand over the south and west of CAR, with fewer areas projected to experience precipitation increases of 1 to 10% (Figure 63). The northern prefecture of Vakaga is projected to experience increases of 20 to 30% in this period (Figure 63). Over 2071-2100, these projections remain relatively stable, with small negative and positive changes in the south-east, centre south and west of the country (Figure 63).

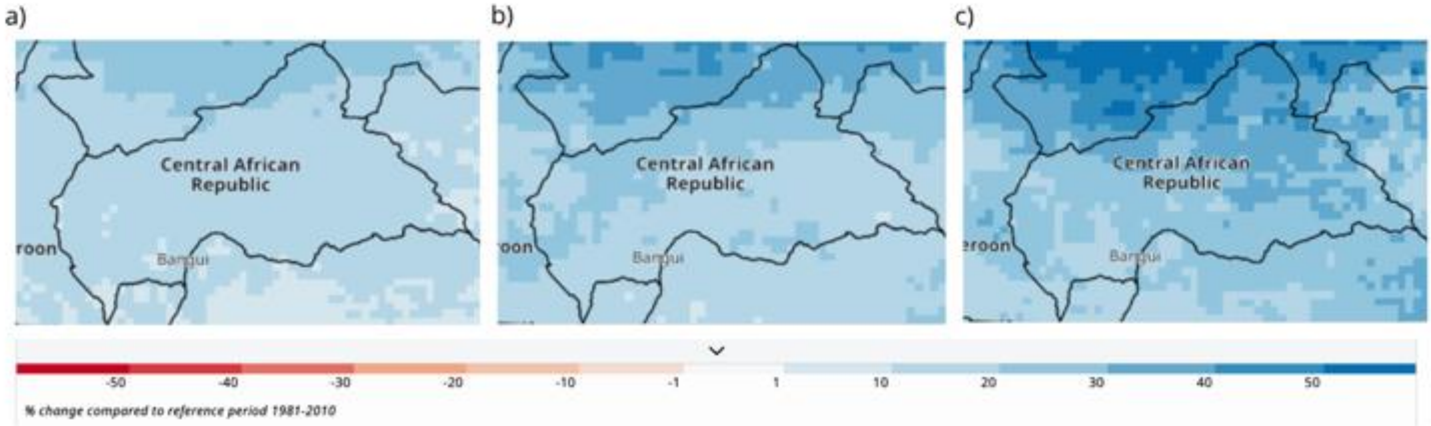
Figure 63. Precipitation (annual mean), for a)2011-2040, b) 2041-2070 c) 2071 - 2100, Emission scenario: SSP2 4.5, Model Ensemble: CMIP6 Global. Source: Climate Information Services[450]

[449] Climate Information Portal. https://climateinformation.org/
[450] Climate Information Portal. https://climateinformation.org/



Under SSP5-8.5 and the baseline period 1981-2010, for 2011-2040, the majority of CAR's prefectures are projected to experience increased precipitation changes of 10 to 20%, with only Vakaga experiencing increases of 20 to 30% (Figure 64). For 2041-2070, most of the CAR is projected to experience positive precipitation changes of 10 to 20%, with areas in the west, north-west and north-east experiencing increases of 20 to 30%, and the northern most part of the country, in particular Vakaga, experiencing increases of 30 to 40% (Figure 64). By 2071-2100, most of the CAR is projected to experience 20 to 30% increases (Figure 64). While some western prefectures will see 10 to 20% rises, the north and northeast (Haute-Kotto, Bamingui-Bangoran, and Vakaga) are projected for exacerbated increases of 30 to 40%, with Vakaga and northern Haute-Kotto, along with parts of Bamingui-Bangoran, reaching the highest projected increases of 40 to 50% (Figure 64).

Figure 64. Precipitation (annual mean), for a)2011-2040, b) 2041-2070 c) 2071 - 2100, Emission scenario: SSP5 8.5, Model Ensemble: CMIP6 Global. Source: Climate Information Services[451]



Extreme weather events

Floods

[451] Climate Information Portal. https://climateinformation.org/

To assess the susceptibility of flooding in the CAR, a country-wide analysis prepared by REACH was used, which depicts exposure to flooding in the country.[452] [453]

According to REACH, flood susceptibility in the CAR is spatially variable.[454] Northern regions, particularly prefectures such as Vakaga, Bamingui-Bangoran, and parts of Ouham and Nana-Grébizi, exhibit high to very high flood susceptibility (Figure 65). Southern prefectures, such as Bangui and Basse-Kotto, equally experience high flood susceptibility. In contrast, eastern and western prefectures, including Sangha-Mbaéré, Mambéré-Kadei, Nana-Mambéré, Haut-Mbomou, Haute-Kotto and Mbomou, predominantly fall within the Medium and Low flood susceptibility categories.

Figure 65. Flood susceptibility in the CAR. Source: REACH (2020).[455]

Table 32 below reflects exact flood susceptibility scores by prefecture. These are highest in Bangui (4.80), Vakaga (4.39), Ombella M'Poko (4.20), Haute-Kotto (4.19) and Kémo (4.13).

Table 32. Flood susceptibility score by prefecture. Source: REACH (2020)[456]

Prefecture	Susceptibility Score
Ombella M'Poko	4.20
Lobaye	3.59
Mambéré-Kadéï	2.87
Nana-Mambéré	2.06
Sangha-Mbaéré	3.65
Ouham Pendé	2.77
Ouham	**4.08**
Kémo	4.13
Nana-Gribizi	4.04
Ouaka	3.80
Bamingui-Bangoran	**3.99**

[452] REACH. (2020). *Central African Republic flood susceptibility & risk*. https://reliefweb.int/report/central-african-republic/central-african-republic-flood-susceptibility-risk
[453] The REACH analysis employs a geospatial, multi-criteria methodology to map flood susceptibility in the CAR. Nine biophysical and hydrological criteria - including elevation, slope, soil drainage, rainfall patterns, and stream density - were standardized to a uniform scale and weighted using the Analytic Hierarchy Process (AHP) to reflect their relative influence on flood susceptibility. A Weighted Linear Combination (WLC) technique was applied to integrate these factors into a composite susceptibility map.
[454] Ibid.
[455] Ibid.
[456] Ibid.

Haute-Kotto	4.19
Vakaga	**4.39**
Basse-Kotto	3.73
Mbomou	4.12
Haut-Mbomou	3.43
Bangui	**4.80**

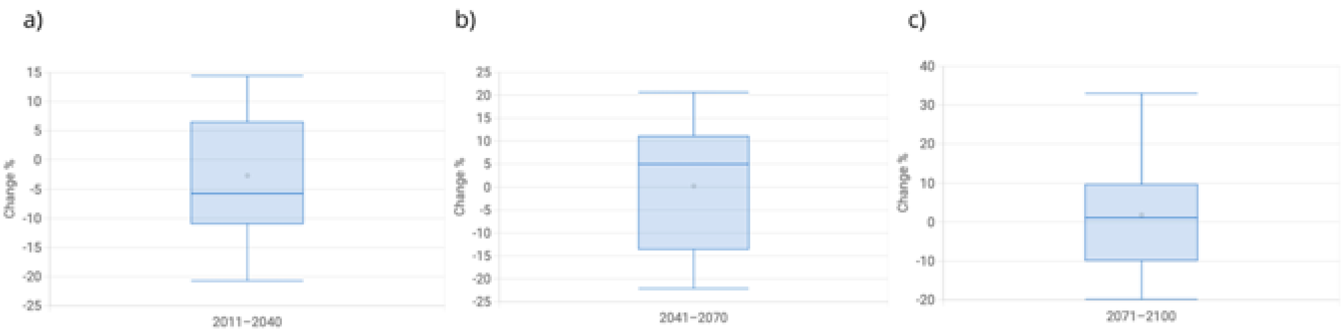
Projections from the Climate Service Centre Germany (GERICS),[457] INFORM,[458] and the World Bank[459] predict similar risks of river flooding in CAR. Increased heavy precipitation is projected to increase river flooding by raising river and surface water runoff, as well as flash floods, which are common in CAR's mountainous areas.[460] INFORM estimates flooding risks in CAR as medium under the scenarios SSP2 4.5 and SSP5 8.5 for 2050.[461]

Dry Spells

This section utilizes "longest dry spell" and "number of dry spells" as indicators of drought to provide a quantitative assessment of dry period characteristics within the CAR. The longest dry spell is calculated as the maximum number of consecutive dry days (daily precipitation < 1mm) over a 30-year period, while the number of dry spells is calculated as the number of dry periods for more than 5 days for a 30-year period.[462]

Using Bangui as a chosen location in the CAR, data from the Climate Information Portal suggests that longest dry spells are projected to decrease over 2011-2040 but increase over 2041-2070 and 2071-2100 under SSP2-4.5, compared to 1981-2010. In 2011-2040, the longest dry spell will experience a median decrease of -5.71% (Figure 66). For 2041-2070, however, the longest dry spell is projected to experience an increase of +4.95%, and for 2071-2100, a median increase of +1.12% (Figure 66).

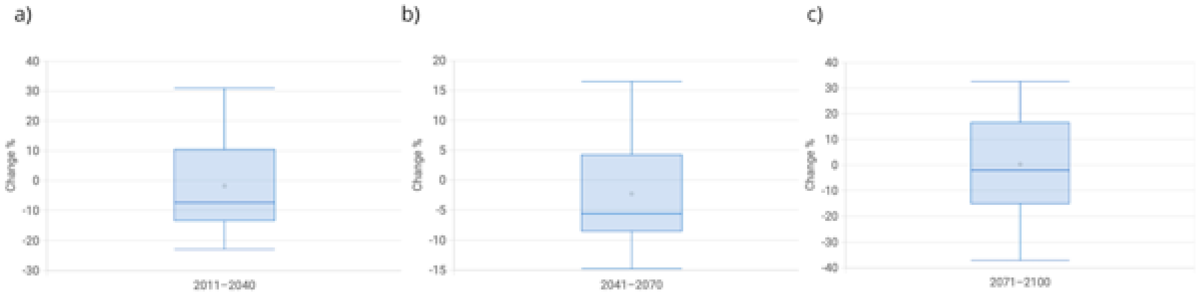
Figure 66. Longest dry spell (annual mean), for a) 2011-2040, b) 2041-2070, c) 2071–2100 Historical period: 1981–2010, SSP2 4.5, Model ensemble: CMIP6 Global. Source: Climate Information Service[463]



Under SSP5-8.5 and the same baseline period, for 2011-2040, the longest dry spell is projected to experience a median decrease of -7.37% (Figure 67). For 2041-2070, this increases to a median change of -5.62%, and for 2071-2100, to -2.08% (Figure 67).

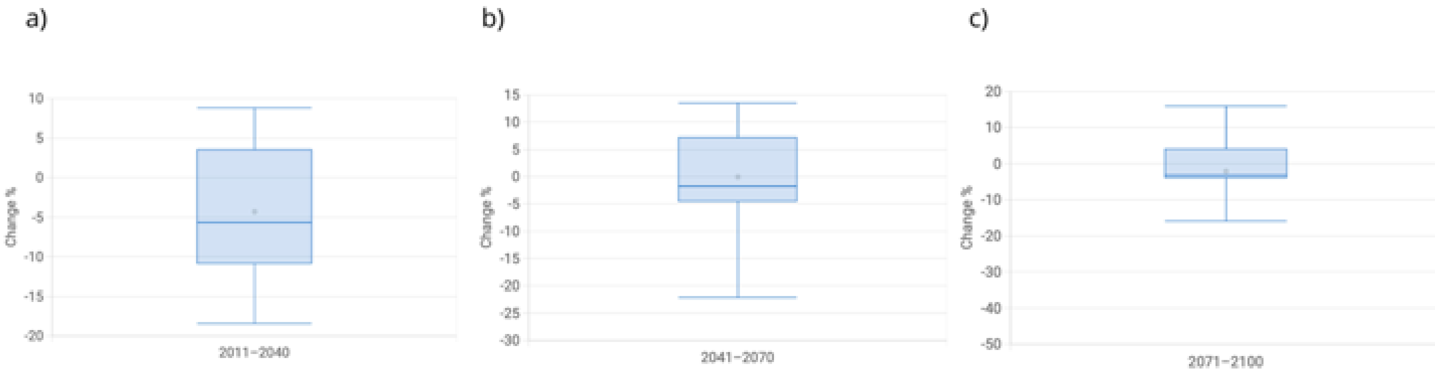
[457] GERICS. (2015). *Climate-Fact-Sheet, Central African Republic.*
[458] European Commission. *INFORM climate change tool*. https://drmkc.jrc.ec.europa.eu/inform-index/INFORM-Climate-Change/INFORM-Climate-Change-Tool
[459] World Bank Group. (2021). *Climate Risk Country Profile: Central African Republic*. https://climateknowledgeportal.worldbank.org/sites/default/files/2021-06/15875-WB_Central%20Africa%20Republic%20Country%20Profile-WEB.pdf
[460] World Bank Group. (2021). *Climate Risk Country Profile: Central African Republic*. https://climateknowledgeportal.worldbank.org/sites/default/files/2021-06/15875-WB_Central%20Africa%20Republic%20Country%20Profile-WEB.pdf
[461] European Commission. *INFORM climate change tool*. https://drmkc.jrc.ec.europa.eu/inform-index/INFORM-Climate-Change/INFORM-Climate-Change-Tool
[462] Climate Information Portal. https://climateinformation.org/
[463] Climate Information Portal. https://climateinformation.org/

Figure 67. Longest dry spell (annual mean), for a) 2011-2040, b) 2041-2070, c) 2071–2100 Historical period: 1981–2010, SSP5 8.5, Model ensemble: CMIP6 Global. Source: Climate Information Service[464]



Using Bangui as a chosen location and SSP2 4.5, the annual mean number of dry spells is projected to decrease by a median value of -5.63% over the period 2011-2040 compared to 1981-2010 (Figure 68). Over 2041-2070, a median change of -1.77% in the annual mean number of dry spells is projected, and over 2071-2100, projections suggest a median change of -3.20% (Figure 68).

Figure 68. Number of dry spells (annual mean) for a) 2011-2040, b) 2041-2070, c) 2071–2100 Historical period: 1981–2010, SSP2 4.5, Model ensemble: CMIP6 Global. Source: Climate Information Service[465]



Under SSP5-8.5, compared to 1981-2010, the period 2011-2040 is projected to experience a median change of -1.41% in dry spells (Figure 69). This trend of reduction continues in the 2041-2070 period, however with a smaller median change of -0.71%. A shift is projected for 2071-2100, with a median increase of 1.06% in the number of dry spells.

Figure 69: Number of dry spells (annual mean) for a) 2011-2040, b) 2041-2070, c) 2071–2100 Historical period: 1981–2010, SSP5 8.5, Model ensemble: CMIP6 Global. Source: Climate Information Service

[464] Climate Information Portal. https://climateinformation.org/
[465] Climate Information Portal. https://climateinformation.org/

At the prefectural level, longest dry spell projections for Bangui, Ouham, Bamingui-Bangoran and Vakaga point towards decreases for the period 2011-2040 under both SSP2-4.5 and SSP5-8.5 (Table 33). Ouham, Bamingui-Bangoran and Vakaga all experience decreases or minimal increases (0.68%, 0.82%) in longest dry spells over 2041-2070 and 2071-2100 under both scenarios (Table 33). In contrast, projections for Bangui indicate an increase in longest dry spells for 2041-2070 (4.95%) and 2071-2100 (1.12%) under SSP2-4.5 (Table 33).

Table 33. Median annual longest dry spell changes compared to the historical period 1981-2010 for Bangui (Greater Bangui), Bossangoa (Ouham) Ndélé (Bamingui-Bangoran) and Birao (Vakaga). Source: Climate Information Service[466]

Prefecture	Scenario	2011-2040	2041-2070	2071-2100
Bangui, Greater Bangui	SSP2 4.5	-5.71%	4.95%	1.12%
	SSP5 8.5	-7.37%	-5.62%	-2.08%
Bossangoa, Ouham	SSP2 4.5	-2.72%	0.68%	-0.65%
	SSP5 8.5	-1.23%	-5.37%	0.00%
Ndélé, Bamingui-Bangoran	SSP2 4.5	-4.60%	-2.42%	-1.14%
	SSP5 8.5	-3.68%	-4.52%	-6.01%
Birao, Vakaga	SSP2 4.5	-2.83%	-5.05%	-6.44%
	SSP5 8.5	-3.86%	-8.44%	-8.15%

At the prefectural level, the most significant projected median decrease in the annual number of dry spells occurs in Vakaga for 2011-2040 under SSP2 4.5, with a reduction of -6.48% (Table 34). Yet, increases in the number of dry spells are projected in several instances. The largest increase is projected in Ouham for the 2071-2100 period under SSP5 8.5, at 3.02% (Table 34). Other notable increases include Vakaga for 2071-2100 under SSP5 8.5 at 1.38%; Bamingui-Bangoran for 2041-2070 under SSP5 8.5 at 1.31%; and Bangui for 2071-2100 under SSP5 8.5 at 1.06% (Table 34).

Table 34. Median annual number of dry spell changes compared to the historical period 1981-2010 for Bangui (Greater Bangui), Bossangoa (Ouham), Ndélé (Bamingui-Bangoran) and Birao (Vakaga). Source: Climate Information Service[467]

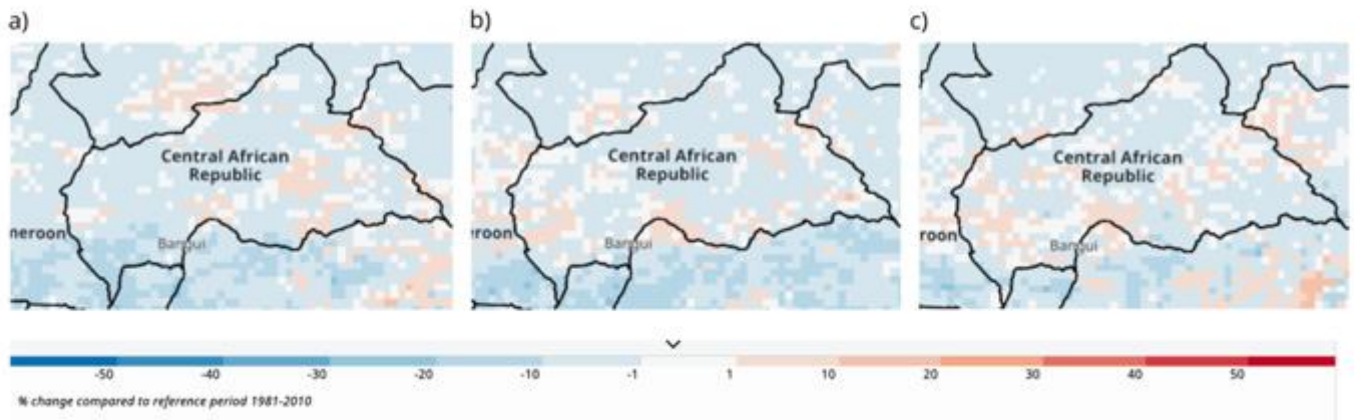
Prefecture	Scenario	2011-2040	2041-2070	2071-2100
	SSP2 4.5	-5.63%	-1.77%	-3.20%

[466] Climate Information Portal. https://climateinformation.org/
[467] Climate Information Portal. https://climateinformation.org/

Bangui, Greater Bangui	SSP5 8.5	-1.41%	-0.71%	1.06%
Bossangoa, Ouham	SSP2 4.5	-2.85%	0.00%	-0.45%
	SSP5 8.5	-2.35%	-3.90%	3.02%
Ndélé, Bamingui-Bangoran	SSP2 4.5	-0.88%	-3.25%	-1.75%
	SSP5 8.5	-4.35%	1.31%	-0.88%
Birao, Vakaga	SSP2 4.5	-6.48%	-2.78%	-3.43%
	SSP5 8.5	-5.29%	-3.19%	1.38%

Under SSP2 4.5, the majority of the CAR is projected to experience negative changes in the longest dry spell, compared to 1981-2010 (Figure 70). For the period 2011-2040, most of the CAR experiences negative changes in the longest dry spell of -1 to -10% (Figure 70). Smaller areas with projected increases of 1 to 10% are spread out across the country, occurring in prefectures such as Haute-Kotto, Haut-Mbomou, Basse-Kotto, Ouaka, Bamingui-Bangoran and Kémo (Figure 70). For the periods 2041-2070 and 2071-2100, most of the country is projected to experience decreases of -1 to -10% compared to 1981-210, with areas experiencing increases of 1 to 10% spread out across the country (Figure 70).

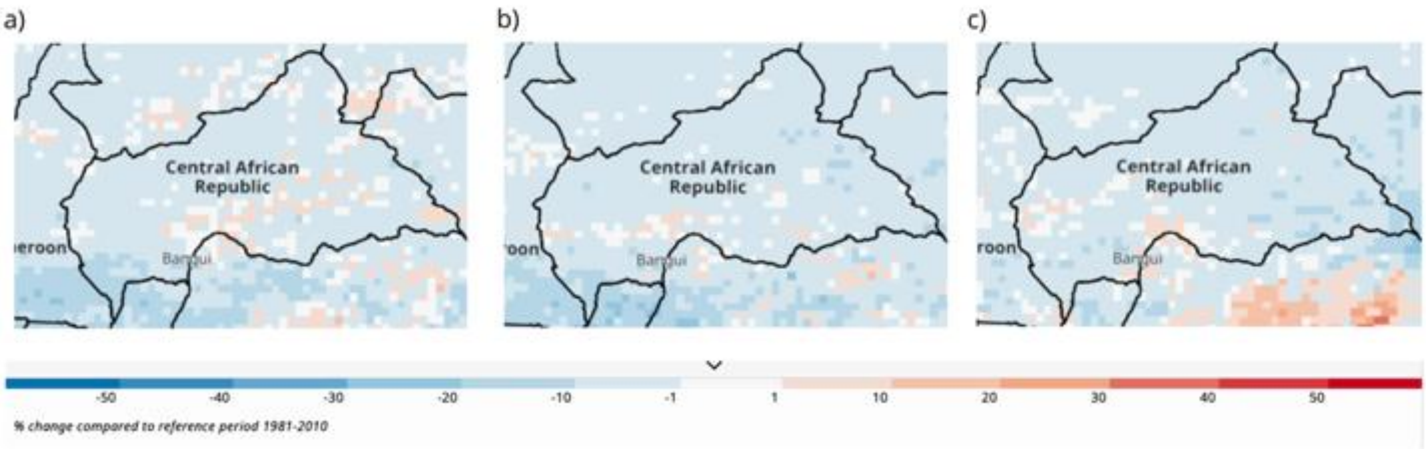
Figure 70. Longest dry spell (annual mean), for a) 2011-2040 b) 2041-2070, c)2071-2100, Historical period: 1981–2010, Emission scenario: SSP2 4.5, Model Ensemble: CMIP6 Global. Source: Climate Information Services[468]



Under SSP5 8.5, the areas in the CAR experiencing positive changes in the longest dry spell reduces across 2011-2040, 2041-2070, and 2071-2100, with the majority of the CAR experiencing decreases in the longest dry spell of -1 to -10% (Figure 71).

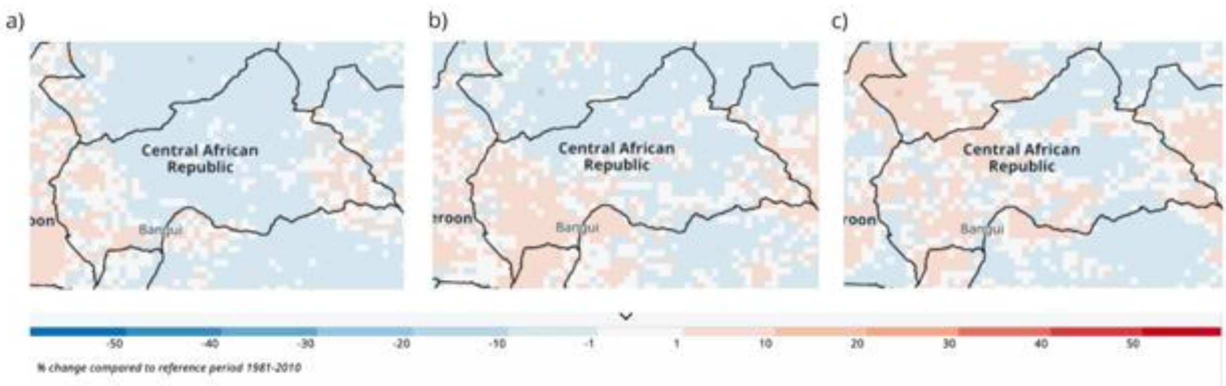
Figure 71. Longest dry spell (annual mean), for a) 2011-2040 b) 2041-2070, c)2071-2100, Historical period: 1981–2010, Emission scenario: SSP5 8.5, Model Ensemble: CMIP6 Global. Source: Climate Information Services[469]

[468] Climate Information Portal. https://climateinformation.org/
[469] Climate Information Portal. https://climateinformation.org/



Under SSP2-4.5, the CAR is largely projected to experience a decrease in the annual mean number of dry spells compared to 1981-2010 (Figure 72). From 2011-2040, most of the country will see changes ranging from -1% to -10%, though some western and eastern areas see increases of 1 to 10% (Figure 72). This negative trend in dry spells continues through 2041-2070, despite projections indicating a relative increase in dry spells compared to the previous period, especially in the west, with changes of 1 to 10% (Figure 72). By 2071-2100, the majority of the CAR is projected for -1 to -10% changes in dry spells, yet positive changes of 1 to 10% are also projected, primarily across the centre and west (Figure 72).

Figure 72. Number of dry spells (annual mean), for a) 2011-2040, b) 2041-2070, c) 2071 - 2100, Historical period: 1981–2010, Emission scenario: SSP2 4.5, Model Ensemble: CMIP6 Global. Source: Climate Information Services470



Under SSP5 8.5, from 2011-2040, most of the CAR is projected to experience a decrease in dry spells of 1 to 10% compared to 1981-2010, despite certain southwestern areas experiencing increases of 1 to 10% (Figure 73). For 2041-2070, while most areas still show a decrease, the number of regions with increasing dry spells rises, with the centre and northeast experiencing 1 to 10% increases (Figure 73). By 2071-2100, most of the country experiences an increase in dry spells of 1 to 10% (Figure 73). Only certain northern areas, and parts of Mbomou, Haut-Mbomou, and Sangha-Mbaéré, continue to experience decreases in the number of dry spells of 1 to 10% (Figure 73).

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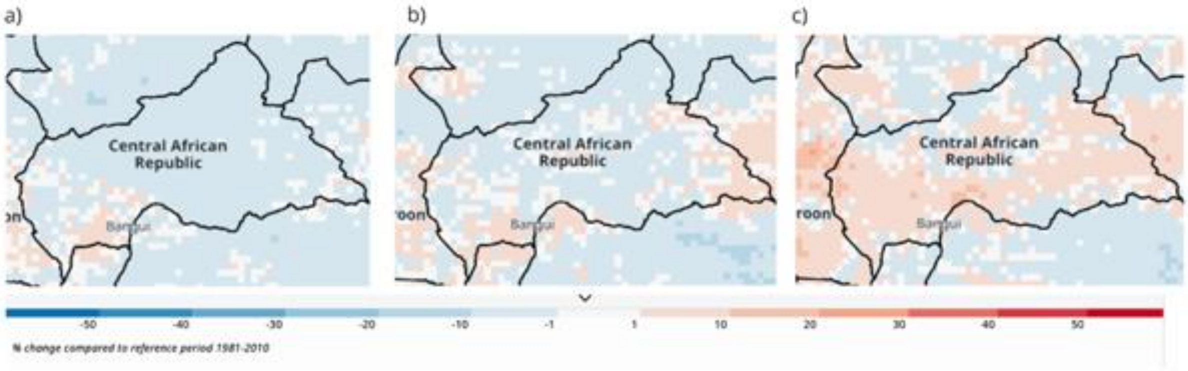
[470] Climate Information Portal. https://climateinformation.org/

Figure 73. Number of dry spells (annual mean), for a) 2011-2040, b) 2041-2070, c) 2071 - 2100, Historical period: 1981–2010, Emission scenario: SSP5 8.5, Model Ensemble: CMIP6 Global. Source: Climate Information Services471



Heatwaves

The CAR is projected to experience a substantial increase in heat wave duration.[472] By 2085, heatwave duration in the CAR is projected to be an additional 7 to 81 days.[473]

Although heatwaves are characterized by exceptionally high temperatures compared to a fixed baseline, the prevalence of permanent (chronic) heat stress is anticipated to rise in the CAR under all emissions scenarios.[474] This shift can be evaluated by assessing the frequency of days with a Heat Index exceeding 35°C. The Heat Index considers both temperature and humidity to identify conditions hazardous to human health.

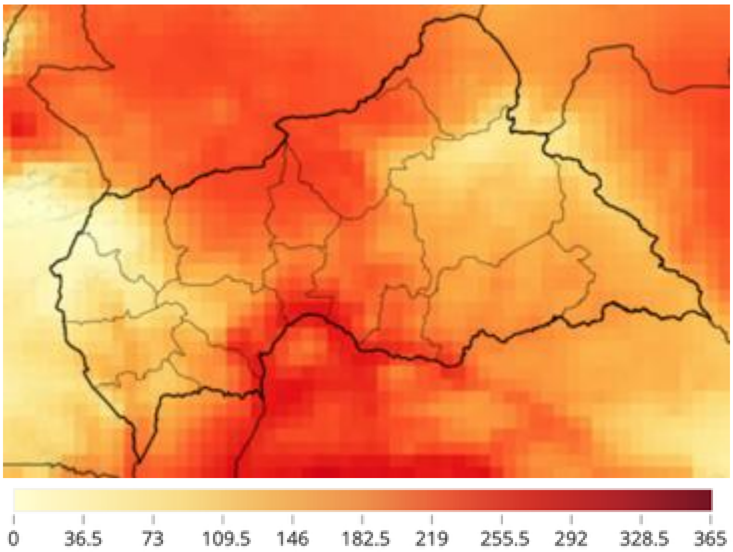
Under SSP5 8.5 and for the period 2080-2099, the number of days with heat index >35°C is projected to be highest in Bangui (252 days), Basse-Kotto (219 days), Kémo (218 days) Nana-Gribizi (217 days) and Bamingui-Bangoran (207 days) (Figure 74).

Figure 74. Projected Number of Days with Heat Index > 35°C for 2080-2099 (Annual) Central African Republic; SSP5-8.5; 50th percentile. Source: Climate Change Knowledge Portal: World Bank (2021).[475]

[471] Climate Information Portal. https://climateinformation.org/
[472] Dosio, A. (2016). Projection of temperature and heat waves for Africa with an ensemble of CORDEX Regional Climate Models. Climate Dynamics. 49. pp. 493–519. URL: https://link.springer.com/article/10.1007/s00382-016-3355-5

[473] World Bank Group. (2021). *Climate Risk Country Profile: Central African Republic*. https://climateknowledgeportal.worldbank.org/sites/default/files/2021-06/15875-WB_Central%20Africa%20Republic%20Country%20Profile-WEB.pdf

[474] World Bank. (2021). *Climate Change Knowledge Portal: Central African Republic, Heat Risk*. https://climateknowledgeportal.worldbank.org/country/central-african-republic/heat-risk
[475] World Bank. (2021). *Climate Change Knowledge Portal: Central African Republic, Heat Risk*. https://climateknowledgeportal.worldbank.org/country/central-african-republic/heat-risk



Climate Rationale and Causal Chain

The causal chain of climate change in this project follows the following path: Observed Changes → Projected Changes → Exposure & Vulnerability → Observed Impacts → Design Implications (for WASH/DRR).

- **Observed change (1985–2004 → 2005–2024):** ERA5-Land and station-constrained diagnostics show statistically significant warming across CAR, with heatwave days and intensity (EHF) increasing in most prefectures. CHIRPS-derived SPI-12 indicates more frequent drought conditions in northern prefectures, while R95pTOT and R99pTOT contributions to annual rainfall increased in southern/central belts (Figure 47, Figure 48, Figure 49, Figure 50, Figure 51).
- **Projected change (2030s–2050s; SSP2-4.5/SSP5-8.5):** CMIP6 ensembles project further warming and a rise in hot days; heavy-rainfall intensification in many areas; and longer dry spells in parts of the north (Figures 53–74).
- **Exposure & vulnerability:** According to REACH flood-susceptibility mapping and OCHA records, multiple prefectures have high flood exposure, as presented in Section 4.3 and Section 5.2 (Figure 65; Table 32; Table 47Table 52). WASH assets (boreholes, storage, latrines, drainage) and users in these zones face recurrent damage, contamination and outages. Poverty and displacement (Section 1.1.2; Section 5.2) heighten vulnerability.
- **Observed impacts:** OCHA and sector assessments report recurrent flood impacts and disruptions in access to water and sanitation services (Figure 52; Section 2.1; Section 52). Drought-season source depletion and extended service downtimes are reported in northern belts (Table 1, Tables 35–38).
- **Design implications (linked to Section 7.2 activities):** Flood-resilient siting and elevation standards for water/sanitation assets in high-susceptibility zones; (ii) increased storage and solar-pumping duty for longer dry spells; (iii) drainage upgrades in peri-urban floodplains; (iv) enhanced source protection and faecal-contamination barriers in high E. coli areas; (v) O&M contracts and spare-parts strategies that explicitly target service uptime under heat/flood/drought stress (see Section 8.7 and Section 9 MEL).

Climate induced vulnerabilities and impacts on WASH

Translating the causal chain into WASH service reliability

The observed rise in heat extremes (EHF), intensification of very wet-day rainfall (R95pTOT), and longer dry spells in the north together explain the pattern of WASH disruptions documented in Sections 2.1 and 6: (a) flood-related contamination and physical damage to water points, sanitation facilities and drainage in high-susceptibility belts; (b) dry-season source depletion and longer outages in northern/central communes; and (c) heat-amplified mechanical stress and water-quality deterioration. These impacts affect children disproportionately, consistent with UNICEF's Children's Climate Risk Index identifying CAR among countries at "extremely high risk."

Overview of vulnerabilities and impacts

The CAR is ranked 2nd on the composite Notre Dame Global Adaptation Initiative (ND-Gain) index, signifying very high levels of vulnerability and very low readiness. Specifically, the CAR is the 16th most vulnerable country globally, while its readiness capability is ranked 192nd worldwide, the lowest level of readiness.[476]

The Children's Climate Risk Index (CCRI), which ranks countries based on how vulnerable children are to environmental stresses and extreme weather events, finds that children in the CAR are the most at risk globally, along with children in Chad, Nigeria, Guinea, and Guinea-Bissau.[477] Specifically, the CAR's CCRI ranking is "extremely high", the highest possible vulnerability score (Figure 75).

Figure 75. Country ranking on the Children's Climate Risk Index (CCRI). Source: UNICEF (2021).[478]

[476] University of Notre Dame. (2025). *ND-Gain index Central African Republic*. https://gain-new.crc.nd.edu/country/central-african-rep-
[477] UNICEF. (2021). *The Climate Crisis is a Child Rights Crisis: Introducing the Children's Climate Risk Index*. Available at: https://www.unicef.org/media/105376/file/UNICEF-climate-crisis-child-rights-crisis.pdf
[478] Ibid.

Globally, over 90% of disasters are weather-water-related, including drought and aridification, wildfires, pollution and floods.[479] The CAR is already experiencing the impacts of climate change and weather-water related disasters, with changes in seasonal weather patterns and extreme events adversely affecting WASH and other sectors (mainly agriculture and health), primarily through increased temperatures, floods, droughts, and heatwaves. This situation is compounded by the intricate link between climate change and the CAR's fragility, where the two elements mutually reinforce each other, hindering sustainable development and the ability to build resilience.[480] The multiple effects of climate change therefore exacerbate pre-existing WASH vulnerabilities and challenges, which are outlined in Section 2 Sectoral Context.

Climate change, coupled with extreme weather events and cascading effects, is expected to bring about profound changes throughout the CAR. Floods and flash floods, mudslides and landslides, rising temperatures, heatwaves and alterations in the rainfall cycle will exacerbate key vulnerabilities in the nation's infrastructure and socio-economic systems. These vulnerabilities encompass a range of critical areas but are not limited to:
Reduced crop yields and food security, pushing more people into poverty[481]
Increase in climate-sensitive diseases such as malaria, [482] diarrhoea and cholera

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[479] UN Environment Programme. (2024). *Climate Change and Water-Related Disasters. https://www.unep.org/topics/fresh-water/disasters-and-climate-change/climate-change-and-water-related-disasters#:~:text=Climate%20change%20is%20affecting%20the,%2C%20wildfires%2C%20pollution%20and%20floods.*
[480] World Bank Group. (2024). *Central African Republic country climate and development report*. https://openknowledge.worldbank.org/server/api/core/bitstreams/e1553b3b-3ce6-4800-8f93-476e7c89d21b/content
[481] World Bank Group. (2024). *Central African Republic country climate and development report*. https://openknowledge.worldbank.org/server/api/core/bitstreams/e1553b3b-3ce6-4800-8f93-476e7c89d21b/content
[482] World Bank Group. (2024). *Central African Republic country climate and development report*. https://openknowledge.worldbank.org/server/api/core/bitstreams/e1553b3b-3ce6-4800-8f93-476e7c89d21b/content

Unpredictability of water resources which are critical for agriculture, drinking and sanitation, exacerbating water stress and conflict over access[483]

- Reduced urban development from floods and erosion risks[484]
- Reduced economic stability and livelihoods, with disproportionate impacts on vulnerable groups such as women, IDPs and indigenous populations[485]
- Increased climate-driven population displacement[486]
- Decreased schooling from climate-related disasters and resulting socio-economic pressures
- Loss of life.

Without sufficient support and climate adaptation interventions, vulnerabilities will worsen, disproportionately affecting areas with higher exposure to climate hazards.

Water resources

As described above, the CAR's water sources face threats from climate-related stressors such as droughts, rising temperatures, changing rainfall patterns and floods, as well as non-climate stressors such as pollution, deforestation, untreated wastewater and lack of sanitation, which are themselves exacerbated by changing climate conditions.

Rising temperatures in the CAR are projected to increase evaporation rates in the country's surface water bodies.[487] At the prefecture level, increases in average annual temperatures are projected to reduce available water resources in Bangui, Nana-Grébizi, Mbomou and Haute-Kotto, while variations in temperature and evapotranspiration will reduce water availability in Bangui, Mambéré-Kadéi, Ouham, Nana-Grébizi, Mbomou and Sangha-Mbaéré.[488] While higher evapotranspiration could reduce the recharge rates of aquifers, such changes are unlikely to reduce aquifer recharge rates on a large scale.[489] Still, anthropogenic pressures may pose local risks to groundwater, in particular in cities where water supply relies primarily on groundwater resources.[490] In addition, it can reasonably be expected that rising temperatures will create increasing demand for water resources, which could be exacerbated by demographic growth.[491]

While the number and length of dry spells in the CAR is mostly projected to decrease, section 4.3 has demonstrated that specific prefectures (Ouham, Bamingui-Bangoran, Bangui) may experience an increase in dry spell frequency or in the longest dry spell under certain scenarios and timeframes. These trends indicate a continued risk of droughts across the CAR, potentially leading to reduced surface and groundwater levels, including the drying of rivers and increased reliance on already strained water sources. [492]

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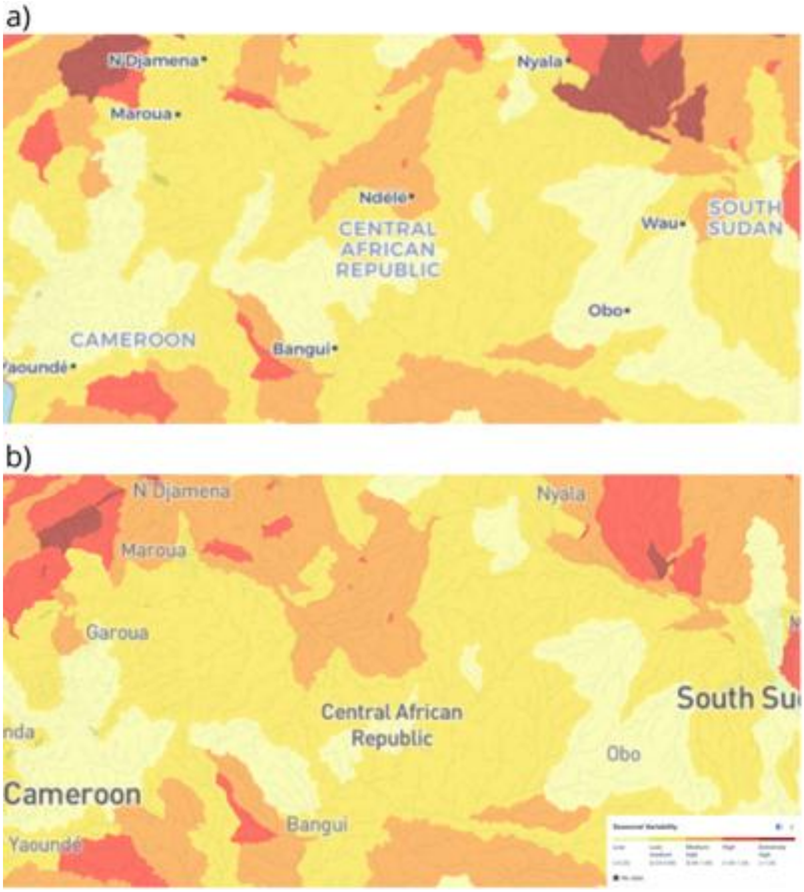
[483] Ibid.
[484] Ibid.
[485] Ibid.
[486] Ibid.
[487] United States Agency for International Development. (2018). Central Africa Regional Program for the Environment (CARPE): Regional Development Cooperation Strategy (RDCS) 2011–2020.
[488] UNICEF/Hydroconseil. (2023). Étude hydrogéologique en République Centrafricaine : Rapport sur les risques du changement climatique en Centrafrique.
[489] Ibid.
[490] Ibid.
[491] Ibid.
[492] Nguimalet, C. R. (2018). Comparison of community-based adaptation strategies for droughts and floods in Kenya and the Central African Republic. *Water International*, *43*(2), 183-204.

The CAR's water resources are susceptible to climate variability, and the country already faces water scarcity challenges in some locations during the dry season.[493] While precipitation is projected to increase across the country, indicating that the total water volume will increase, there is nonetheless a risk that minimum river flows could decrease locally during dry seasons.[494] According to the World Resources Institute Aqueduct Water Risk Atlas (2023), seasonal variability, which is defined as the average within-year variability of available water supply, including both renewable surface and groundwater supplies, ranges from low too high in the CAR for the baseline 1979-2019 (Figure 76). Prefectures where seasonal variability is the highest include Bamingui-Bangoran, Lobaye, Sangha-Mbaéré and Mambéré-Kadéï (Figure 76), where seasonal variability ranges from medium-high to high. Under SSP5-8.5, for the year 2050, areas where the country experiences low seasonal variability decrease, and areas experiencing low-medium variability increase. While seasonal variabilities in the south-west of the country, in the prefectures of Lobaye, Sangha-Mbaéré and Mambéré-Kadéï remains relatively stable, in Bamingui-Bangoran, the area experiencing medium-high seasonal variability expands.

Figure 76. Seasonal variability of water supply in the CAR a) baseline, 1979-2019 b) projection, 2050 Source: World Resources Institute (2023)[495]



[493] Global Water Partnership. (2022). *Central African Republic snapshot on water and climate*. https://www.gwp.org/contentassets/536c7e6e652f410195dfe6c98c419464/car-snapshot-gwlp---web.pdf
[494] UNICEF/Hydroconseil. (2023). Étude hydrogéologique en République Centrafricaine : Rapport sur les risques du changement climatique en Centrafrique.
[495] World Resources Institute. (2023). *Aqueduct Water Risk Atlas*. https://www.wri.org/applications/aqueduct/water-risk-atlas/#/?advanced=false&basemap=hydro&indicator=sev_cat&lat=5.950971842158205&lng=25.996826738119125&mapMode=view&month=1&opacity=0.64&ponderation=DEF&predefined=false&projection=absolute&scenario=optimistic&scope=baseline&threshold&timeScale=annual&year=baseline&zoom=6

In addition to water scarcity and variability, the CAR faces significant challenges concerning water pollution and contamination from floods. Heavy rainfall and flooding lead to run-off that contaminates surface and groundwater with pathogens and pollutes water sources,[496] in particular when combined with poor access to sanitation services.[497] The country's limited integrated sanitation systems, prevalent open defecation in rural areas, and inadequate waste management (including blocked drains, waste dumping, and saturated landfills) significantly amplify the risks of pollution during flood events.[498] In addition, the lack of proper waste management systems in hospitals and other health facilities can lead to medical waste contamination in water resources after flood events. An example of water pollution occurred during the 2019 floods, which polluted CAR's major water sources.[499] Projections indicate that with anticipated increases in flooding, the already strained water resources in the CAR are expected to suffer even greater deterioration in quality.[500] [501]

These water pressures are anticipated to create a cascade of detrimental impacts on CAR's economic sectors, including agriculture. Among other effects, rising temperature and potential droughts can increase reliance on groundwater sources and intensify competition and demand for water, resulting in intensified conflict among agricultural workers.[502] The lack of water resources dedicated to herders and their livestock has already began fuelling conflict in the country:[503] For example, in Bamingui-Bangoran, the International Organization for Migration (IOM) recorded 358 incidents of conflict between transhumant herders and Indigenous communities in 2022, with the majority occurring near water points.[504] Furthermore, the imperative to find water resources is forcing pastoralists to migrate; droughts, land degradation, and desertification in the Sahel and the Lake Chad Basin are compelling transhumant pastoralists to alter their traditional migratory routes, pushing them further south into northern CAR in search of pastureland and water resources.[505]

Water scarcity caused by rising temperatures is anticipated to lower crop yields and livestock productivity,[506] deepen existing food insecurity, and reduce household incomes, in particular for the 80% of CAR's population engaged in agriculture. For example, longer dry periods and increasing heat waves, particularly in the northern parts of the country, threaten staple food crops such as cassava, maize, and banana.[507] These effects could contribute to rising poverty levels across the country.

Rising temperatures and floods will increase the propagation of water and vector-borne diseases in the CAR. The National Adaptation Plan highlights that floods elevate the risk of waterborne diseases due to the increased likelihood of contact with water contaminated by pathogens.[508] For example, urban floods in the southwestern neighbourhoods of Bangui in 2009 exposed residents to malaria and

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[496] UNICEF. (2025). *Analyse du paysage climatique pour les enfants (CLAC) en République Centrafricaine, Rapport provisoire*.
[497] World Bank Group. (2024). *Central African Republic country climate and development report*. https://openknowledge.worldbank.org/server/api/core/bitstreams/e1553b3b-3ce6-4800-8f93-476e7c89d21b/content
[498] UNICEF. (2025). *Analyse du paysage climatique pour les enfants (CLAC) en République Centrafricaine, Rapport provisoire*.

[499] UNICEF. (2025). *Analyse du paysage climatique pour les enfants (CLAC) en République Centrafricaine, Rapport provisoire*.
[500] United States Agency for International Development (2018) Central Africa Regional Program for the Environment (CARPE): Regional Development Cooperation Strategy (RDCS) 2011–2020.
[501] World Bank Group. (2021). *Climate Risk Country Profile: Central African Republic*. https://climateknowledgeportal.worldbank.org/sites/default/files/2021-06/15875-WB_Central%20Africa%20Republic%20Country%20Profile-WEB.pdf
[502] Nguimalet, C. R. (2018). Comparison of community-based adaptation strategies for droughts and floods in Kenya and the Central African Republic. *Water International*, *43*(2), 183-204.
[503] IOM. (2024). *Regional report on the transhumance tracking tool in West and Central Africa.*
[504] IOM. (2023). *Displacement Tracking Matrix (DTM): Survey on the perception of transhumance in the prefecture of Bamingui-Bangoran.*
[505] Huchon, J. et al. (2021). *Transhumant pastoralism and protected areas in Central Africa: From conflict to peaceful coexistence*, eds C. Doumenge, F. Palla and G.-L. Itsoua Madzous, *State of Protected Areas in Central Africa 2020.*
[506] World Bank Group. (2021). *Climate Risk Country Profile: Central African Republic*. https://climateknowledgeportal.worldbank.org/sites/default/files/2021-06/15875-WB_Central%20Africa%20Republic%20Country%20Profile-WEB.pdf
[507] UNICEF. (2025). *Analyse du paysage climatique pour les enfants (CLAC) en République Centrafricaine, Rapport provisoire*.
[508] Ministère de l'Environnement et du Développement Durable. (2022). *Plan national initial d'adaptation aux changements climatiques de la République Centrafricaine*. https://unfccc.int/sites/default/files/resource/CAR-NAP-FR-web.pdf

cholera, among other water borne diseases.[509] In this context, higher air temperatures will increase the propagation and growth of bacteria, including those responsible for cholera.[510] Stagnant floodwaters also create breeding grounds for mosquitoes, increasing malaria transmission, a major cause of child mortality. As communities resort to unsafe water sources due to water scarcity, morbidity and mortality from water- and vector-borne diseases, including diarrhoea, malaria and typhoid, increase.[511] In addition, the practice of handwashing reduces with water scarcity, leading to further increases in diarrhoea, a leading cause of child mortality in CAR.[512]

With fewer reliable water sources, women and girls, who are the primary bearers of the responsibility for water collection, will face disproportionate burdens. As water sources become scarcer due to rising temperatures, evapotranspiration, and droughts, the distances to fetch water increase[513]. Gender impacts are anticipated to include increased physical strain, greater exposure to gender-based violence,[514] [515] economic challenges, and compromised hygiene, including menstrual hygiene. For girls, who collect water four times more frequently than boys in CAR,[516] the long queues, distances and sheer physical efforts required to collect water detrimentally impact school attendance and completion rates, and increases gender-based violence risks.

Table 35. Climate drivers, biophysical impacts, climate impacts and adaptation needs for water resources

Climate driver	Biophysical impact	Climate impacts	Adaptation needs	Project activities addressing needs
Increase in temperatures	Increased evaporation and evapotranspiration rates[517]	Rising temperatures will increase evapotranspiration in surface water bodies,518 and increase demand for water for domestic and agricultural use.[519] Groundwater extraction will increase, and groundwater levels will decrease.520 Water scarcity may increase conflicts	1. Climate-resilient water systems such as digital sensors for real-time monitoring, deep boreholes with solar pumping, elevated storage tanks and HDPE water tanks 2. Cattle troughs in pastoralist areas to reduce competition and conflict	1. Activity 2.1.1: Construction and rehabilitation of climate-resilient water systems, including boreholes with solar pumping, elevated storage tanks, and distribution networks. 2. Activity 2.3.3: Community-led WRM and DRR solutions, specifically providing cattle troughs to

509 GFDRR. (2009). *Central African Republic– 2009– subsequent to floods in Bangui, which left 14,500 people homeless, GFDRR supported a joint needs assessment to assess and mitigate the impacts of recurrent flooding*.[1] https://www.gfdrr.org/en/central-african-republic-2009-subsequent-floods-bangui-which-left-14500-people-homeless-gfdrr
510 DOUKPOLO Bertrand, WATTA Melchycedeck, HARRISON Mike. (2022). *Simulation des températures en Centrafrique au moyen des modèles climatiques et impacts potentiels sur la santé humaine*. Revue Espace, Territoires, Sociétés et Santé, 5 (10), 115-132.
511 Global Water Partnership. (2022). *Central African Republic snapshot on water and climate*. https://www.gwp.org/contentassets/536c7e6e652f410195dfe6c98c419464/car-snapshot-gwlp---web.pdf
512 Soucheray, Stephanie. (2018). *Studies: Diarrheal disease rates vary across Africa, world*. CIDRAP News. https://www.cidrap.umn.edu/public-health/studies-diarrheal-disease-rates-vary-across-africa-world
513 UNICEF. (2025). *Analyse du paysage climatique pour les enfants (CLAC) en République Centrafricaine, Rapport provisoire*.
514 World Bank Group. (2024). *The gendered burden of water collection in Sub-Saharan Africa*. https://www.worldbank.org/en/data/interactive/2024/03/13/gendered-burden-of-water-collection-in-afe-afw-sub-saharan-africa
515 ICRC. (2024). *Central African Republic: Clean drinking water remains a luxury*. https://www.icrc.org/en/article/central-african-republic-clean-drinking-water-remains-luxury
516 Graham, J. P., Hirai, M., & Kim, S. S. (2016). An analysis of water collection labor among women and children in 24 sub-Saharan African countries. *PloS one*, *11*(6), e0155981.
517 Ministry of the Environment and Sustainable Development. (2022). *Third national communication of the Central African Republic*. https://unfccc.int/sites/default/files/resource/TNC%20VF%20ENG.pdf
518 United States Agency for International Development (2018) Central Africa Regional Program for the Environment (CARPE): Regional Development Cooperation Strategy (RDCS) 2011–2020.
519 UNICEF. (2025). *Analyse du paysage climatique pour les enfants (CLAC) en République Centrafricaine, Rapport provisoire*.
520 Global Water Partnership. (2022). *Central African Republic snapshot on water and climate*. https://www.gwp.org/contentassets/536c7e6e652f410195dfe6c98c419464/car-snapshot-gwlp---web.pdf

Climate driver	Biophysical impact	Climate impacts	Adaptation needs	Project activities addressing needs
		between herders and farmers competing for water.521 Crop yields and livestock productivity will decline, exacerbating food insecurity and reducing rural household incomes.522 Warmer temperatures increase the prevalence of malaria.523 Rising temperatures are likely to increase the spread of water-borne (diarrhoea, cholera) and emerging infectious diseases.524	3. Hydrogeological studies to identify areas of highest groundwater potential 4. Train public health sector stakeholders on climate change risk impacts and water resource vulnerabilities 5. Groundwater quality monitoring systems support the identification and mitigation of human health risks 6. Drought resilience, risk preparedness and reduction are integrated into national policies, strategies and technical guidelines 7. Improving hydrological and hydrogeological data systems and impact scenarios for drought risks, including surface and groundwater monitoring 8. Involve local communities and stakeholders in collecting, interpreting, and disseminating surface and groundwater monitoring data 9. Community design	support pastoralist communities and reduce resource-based conflict. 3. Activity 2.3.1: Conduct comprehensive hydrogeological and geophysical studies to identify high-potential groundwater areas and map water resources. 4. Activity 1.3.1: Capacity building for government and stakeholders, which includes training health sector actors on climate-risk impacts on WASH and public health. 5. Activity 2.3.2: Strengthening water resource monitoring systems, including the deployment of water quality testing kits and sensors for real-time monitoring. 6. Activity 1.1.1: Mainstreaming climate resilience into national WASH policies, strategies, and technical standards to include drought risk management. 7. Activity 3.1.2: Strengthening multi-hazard Early Warning Systems (EWS) and improving data collection for

[521] World Bank Group. (2024). *Central African Republic country climate and development report*. https://openknowledge.worldbank.org/server/api/core/bitstreams/e1553b3b-3ce6-4800-8f93-476e7c89d21b/content
[522] World Bank Group. (2024). *Central African Republic country climate and development report*. https://openknowledge.worldbank.org/server/api/core/bitstreams/e1553b3b-3ce6-4800-8f93-476e7c89d21b/content
[523] World Bank Group. (2024). *Central African Republic country climate and development report*. https://openknowledge.worldbank.org/server/api/core/bitstreams/e1553b3b-3ce6-4800-8f93-476e7c89d21b/content
[524] DOUKPOLO Bertrand, WATTA Melchycedeck, HARRISON Mike. (2022). *Simulation des températures en Centrafrique au moyen des modèles climatiques et impacts potentiels sur la santé humaine*. Revue Espace, Territoires, Sociétés et Santé, 5 (10), 115-132.

Climate driver	Biophysical impact	Climate impacts	Adaptation needs	Project activities addressing needs
			and implementation of WRM and DRR solutions to store water for use during drought, benefiting livestock and agriculture 10. Gender-responsive elements are integrated in policy updates to provide safe water access for women and girls 11. DRR plans integrating gender-responsive planning and response consider the differentiated impacts of climate-induced disasters 12. Including women and youth, vulnerable groups and pastoral communities in decision-making processes for early warning systems 13. Engagement of youth groups and community organizations in water management solutions	hydrological and hydrogeological impact scenarios. 8. Activity 3.1.3: Establishing community-based monitoring and response mechanisms where local stakeholders participate in data dissemination and interpretation. 9. Activity 2.3.3: Supporting community-led design and implementation of small-scale Water Resources Management (WRM) solutions like water storage for drought periods. 10. Activity 1.1.2: Supporting the development of gender-responsive national WASH guidelines and policies to ensure safe access for women and girls. 11. Activity 2.3.4: Developing and updating community Disaster Risk Reduction (DRR) and contingency plans with gender-sensitive indicators and response strategies. 12. Activity 3.1.1: Strengthening institutional frameworks for EWS, specifically ensuring the representation of vulnerable groups and pastoralists in decision-making bodies.

Climate driver	Biophysical impact	Climate impacts	Adaptation needs	Project activities addressing needs
				13. Activity 1.3.1 & 2.3.3: Strengthening local governance by engaging youth and community-led organizations in the operation and management of WASH and WRM services.
Dry spells **Increase in the number of dry spells for certain time-periods, under either SSP2 4.5 or SSP5 8.5, in Ouham, Bamingui-Bangoran, Vakaga and Bangui.**	Drought	Droughts cause low groundwater recharge, reducing access to groundwater.[525] Droughts can cause surface water losses, including severe low levels in rivers or their drying up.[526] Communities resort to sinking wells near rivers or drinking borewell water.[527] Water scarcity from droughts forces women and children to fetch water from further away, increasing risks of violence.[528] Water stress on the livelihoods and cattle of the Mboro people drives them to cities, which in turn leads to the overexploitation of urban water points and increases pressure on these already strained resources. Droughts and shortages of water heighten water competition, increasing the risk of conflicts between herders and farmers.[529]		

[525] UNICEF. (2025). *Analyse du paysage climatique pour les enfants (CLAC) en République Centrafricaine, Rapport provisoire*.
[526] Nguimalet, C. R. (2018). Comparison of community-based adaptation strategies for droughts and floods in Kenya and the Central African Republic. *Water International*, *43*(2), 183-204.
[527] Nguimalet, C. R. (2018). Comparison of community-based adaptation strategies for droughts and floods in Kenya and the Central African Republic. *Water International*, *43*(2), 183-204.
[528] UNICEF. (2022). *République Centrafricaine, Analyses des risques climatiques*. Background document.
[529] World Bank Group. (2024). *Central African Republic country climate and development report*. https://openknowledge.worldbank.org/server/api/core/bitstreams/e1553b3b-3ce6-4800-8f93-476e7c89d21b/content

Climate driver	Biophysical impact	Climate impacts	Adaptation needs	Project activities addressing needs
		Droughts contribute to increased food insecurity and poverty by diminishing crop yields and disrupting livelihoods, particularly among the poor and IDPs.[530]		
Heavy or extreme rainfall events	Flood	Run-off from floods contaminates surface and groundwater with pathogens, polluting water sources.[531] Elevate risks of waterborne diseases due to water contamination.[532] Stagnant floodwaters create breeding grounds for mosquitoes, increasing malaria transmission.[533]	1. Disaster preparedness and response plans (contingency plans) support climate-resilient WRM, DRR and WASH planning 2. Enhance institutional capacities on WASH, WRM, disaster management, including local climate risk assessments and risk management response plans. 3. Hydrological data systems and impact scenarios for flood risks are developed 4. Strategic public awareness campaigns on climate-resilient WASH and CLTS training for flood response 5. Improve urban drainage Infrastructure for flood	1. Activity 2.3.4: Support for the development and updating of community-based disaster preparedness and response plans (contingency plans). 2. Activity 1.3.1: Strengthening the capacity of government (national and local) and key stakeholders to manage climate-resilient WASH and disaster risks. 3. Activity 3.1.2: Strengthening multi-hazard Early Warning Systems (EWS) by improving data collection and developing flood impact scenarios. 4. Activity 2.2.2: Community-led Total Sanitation (CLTS) training and awareness campaigns tailored

[530] World Bank Group. (2024). *Central African Republic country climate and development report*. https://openknowledge.worldbank.org/server/api/core/bitstreams/e1553b3b-3ce6-4800-8f93-476e7c89d21b/content
[531] UNICEF. (2025). *Analyse du paysage climatique pour les enfants (CLAC) en République Centrafricaine, Rapport provisoire*.
[532] Ministère de l'Environnement et du Développement Durable. (2022). *Plan national initial d'adaptation aux changements climatiques de la République Centrafricaine*. https://unfccc.int/sites/default/files/resource/CAR-NAP-FR-web.pdf
[533] Norwegian Refugee Council. (2019). *57,000 people affected by severe flooding in Central African Republic*.https://www.nrc.no/news/2019/november/flooding-in-bangui

Climate driver	Biophysical impact	Climate impacts	Adaptation needs	Project activities addressing needs
			prevention, including stormwater drainage networks and pluvial flood risk assessments 6. Equip local stakeholders with water monitoring equipment (e.g. dippers, water quality testing kits) to detect floods and assess contamination 7. Water Safety Plans (WSPs) to ensure a safe water supply from source during flood events	for climate-resilience and flood response. 5. Activity 2.1.2: Construction and rehabilitation of urban drainage systems in Bangui to mitigate pluvial flood risks. 6. Activity 2.3.2: Strengthening water resource monitoring systems by providing technical equipment and training to priority high-risk communities. 7. Activity 2.1.1 & 1.1.1: Implementation of Water Safety Plans as part of the management of resilient water systems and national technical standards.

.1.3 WASH Infrastructure

The state of the CAR's infrastructure is currently insufficient to address the challenges posed by climate change, with water management, sanitation, and drainage systems being unable to withstand most climate shocks.[534]

Water supply infrastructure

Heavy rainfall and flooding in the CAR are anticipated to pose significant risks to water infrastructure.[535] These events can disrupt water service delivery by damaging critical components of the water supply chain, increasing water insecurity and forcing households to rely on unsafe, unimproved water sources. In rural areas, where water systems are generally obsolete and in poor condition, floods have repeatedly severely damaged water supply infrastructures.[536]

Wells are particularly vulnerable, as floodwaters can submerge pumps, introduce debris and sediment, and cause mechanical failures. For instance, the flooding of August 2021 in Bangui, Birao (Vakaga) and Baoro (Nana-Mambéré) resulted in the complete destruction of 112 water wells, while the flooding

[534] World Bank Group. (2024). *Central African Republic country climate and development report*. https://openknowledge.worldbank.org/server/api/core/bitstreams/e1553b3b-3ce6-4800-8f93-476e7c89d21b/content
[535] UNICEF. (2022). *République Centrafricaine, Analyses des risques climatiques*. Background document.
[536] UNICEF. (2025). *Analyse du paysage climatique pour les enfants (CLAC) en République Centrafricaine, Rapport provisoire*.

of July 2022 destroyed 1092 water wells across six prefectures, including Bangui.[537] In 2020, extreme rainfall is reported to have destroyed 80% of water pumps in four localities of Bamingui-Bangoran and their surrounding villages, forcing households to rely on traditional, untreated wells.[538] These damages compromise not only water extraction but also the long-term viability of groundwater sources.

The CAR's water treatment systems often suffer structural failures during floods. In the flooding of 2009, reported impacts in Bangui included the breakage of old asbestos-cement pipes, with potential release of asbestos fibres that can pose significant health risks, and the destruction of two metering pumps at the treatment unit[539]. Floods can also cause road access interruptions and electricity outages from storms, as well as potential overloading, reducing treatment efficacy. Bangui's reliance on hydraulic energy from the Boali River means that any overflow or underflow directly impacts its energy grid. Such impacts therefore interrupt service delivery and increase water insecurity for affected populations. For instance, the flooding of 2009 resulted in a ten-day water outage in Bangui's 6th arrondissement.[540]

Floodings in CAR have the potential to destroy infrastructures in schools and healthcare facilities.[541] As a result, the impact of floodings can reduce school attendance and health services, impacting health, hygiene behaviours and school attendance for girls.

Water scarcity from droughts can also damage water infrastructures. Intensified use of pumps to extract dwindling groundwater can lead to mechanical failures, especially if regular maintenance is overlooked.[542] Shallow wells are most rapidly affected by lowering water tables, which is less often the case for boreholes equipped with a pump or deep boreholes. With lower water tables, water insecurity increases, forcing women and girls to travel greater distances to collect water.

Table 36. Climate drivers, biophysical impacts, climate impacts and adaptation needs for water supply infrastructure

Climate driver	Biophysical impact	Climate impact	Adaptation needs	Project activities addressing needs
Heavy rainfall	Flood	Destruction of water wells, water pipes and water pumps, creating reliance on unsafe water sources.[543] Blockage and overflow of water pipes.[544] [545]	1. National policies, technical standards and regulations integrate climate-resilient WASH and support resilient infrastructure designs such as elevated latrines in flood-prone areas	1. Activity 1.1.1: Support the integration of climate-resilient WASH into national policies and the development of technical standards for resilient infrastructure.

[537] IFRC. (2022). *CAR floods 2022 DREF operation* (MDRCF029). https://go.ifrc.org/emergencies/6257/reports
[538] SI, UNICEF. (2021). *Rapport d'intervention AME-EHA – mécanisme de réponse rapide (RRM) – RCA | Sous- préfecture de Ndélé - préfecture de la Bamingui-Bangoran commune de Dar-El Kouti - axe Ndélé – Miamani -Tiri (du 22 novembre au 30 novembre 2020)*. https://reliefweb.int/report/central-african-republic/rapport-d-intervention-ame-eha-m-canisme-de-r-ponse-rapide-rrm-rca-4
[539] GFDRR. (2009). *Floods 2009 Central African Republic joint needs assessment report*. https://www.gfdrr.org/sites/default/files/GFDRR_CAR_Joint_Needs_Assessment_Report_2009_FR.pdf
[540] GFDRR. (2009). *Floods 2009 Central African Republic joint needs assessment report*. https://www.gfdrr.org/sites/default/files/GFDRR_CAR_Joint_Needs_Assessment_Report_2009_FR.pdf
[541] UNICEF. (2023). *Argumentaire climatique pour l'eau, l'assainissement et l'hygiène en République Centrafricaine*. Background document.
[542] World Bank Group. (2021). *Climate Risk Country Profile: Central African Republic*. https://climateknowledgeportal.worldbank.org/sites/default/files/2021-06/15875-WB_Central%20Africa%20Republic%20Country%20Profile-WEB.pdf
[543] SI, UNICEF. (2021). *Rapport d'intervention AME-EHA – mécanisme de réponse rapide (RRM) – RCA | Sous- préfecture de Ndélé - préfecture de la Bamingui-Bangoran commune de Dar-El Kouti - axe Ndélé – Miamani -Tiri (du 22 novembre au 30 novembre 2020)*. https://reliefweb.int/report/central-african-republic/rapport-d-intervention-ame-eha-m-canisme-de-r-ponse-rapide-rrm-rca-4
[544] IFRC. (2022). *CAR floods 2022 DREF operation* (MDRCF029). https://go.ifrc.org/emergencies/6257/reports
[545] IFRC. (2022). *CAR floods 2022 DREF operation* (MDRCF029). https://go.ifrc.org/emergencies/6257/reports

Climate driver	Biophysical impact	Climate impact	Adaptation needs	Project activities addressing needs
		Destruction of water infrastructures in schools and healthcare facilities,[546] [547] reducing school attendance, access to health care and hygiene behaviours, and increasing diseases such as diarrhoea.	2. Disaster preparedness and response plans (contingency plans) plans support climate-resilient WRM, DRR and WASH planning 3. Enhance institutional capacities on WASH, WRM, disaster management, including local climate risk assessments and risk management response plans. 4. Hydrological data systems and impact scenarios for flood risks are developed 5. Climate-resilient water services which withstand floods 6. Engage local stakeholders in flood risk assessments, including mapping and visiting flood-prone areas and recording historical damage to water supplies 7. Locally-led WRM and DRR solutions such as catchment protection, stormwater drainage, and small-scale water retention structures	2. Activity 2.3.4: Support for the development and updating of community-based disaster preparedness and response plans (contingency plans). 3.Activity 1.3.1: Strengthening the capacity of government and stakeholders to manage climate-resilient WASH and conduct climate risk management. 4. Activity 3.1.2: Strengthening multi-hazard Early Warning Systems (EWS) and developing hydrological data systems/impact scenarios for flood risks. 5. Activity 2.1.1: Construction/rehabilitation of water systems using flood-proof designs (elevated storage, protected well-heads, and solar pumping). 6. Activity 3.1.3 & 2.3.2: Establishing community-based monitoring mechanisms where locals participate in mapping flood-prone areas and recording climate data. 7. Activity 2.3.3 & 2.1.2: Supporting community-led WRM solutions (small-scale retention/protection)

[546] UNICEF. (2023). *Argumentaire climatique pour l'eau, l'assainissement et l'hygiène en République Centrafricaine*. Background document.
[547] ALIMA. (2019). *Central African Republic: ALIMA's mobile clinics care for flood victims*. https://alima.ngo/en/news/car-alima-mobile-clinics-flood-victims/?utm_source=chatgpt.com

Climate driver	Biophysical impact	Climate impact	Adaptation needs	Project activities addressing needs
				and improving urban drainage infrastructure.
Dry spells	Droughts	Mechanical failures from intensified use of pumps to extract dwindling groundwater.[548]	1. Drought resilience, risk preparedness and reduction are integrated into national policies, strategies and technical guidelines 2. Improving hydrological and hydrogeological data systems and impact scenarios for drought risks, including groundwater monitoring 3. Construct and rehabilitate climate-resilient water systems such as deep boreholes with solar pumping, elevated storage tanks and digital sensors for real-time monitoring of water conditions 4. Involve local communities and stakeholders in collecting, interpreting, and disseminating groundwater monitoring data	1. Activity 1.1.1: Mainstreaming climate resilience into national WASH policies, strategies, and technical standards, specifically addressing drought risk management. 2. Activity 3.1.2: Strengthening multi-hazard Early Warning Systems (EWS) and improving data collection for hydrological impact scenarios, including groundwater monitoring. 3.Activity 2.1.1: Construction/rehabilitation of climate-resilient water systems featuring deep boreholes, solar pumping, elevated storage, and real-time digital sensors. 4.Activity 3.1.3 & 2.3.2: Establishing community-based monitoring mechanisms and training local stakeholders to manage and disseminate water resource data.

.1.4 Drainage systems

The CAR's drainage systems often suffer structural failures during floods. As drainage systems are practically inexistant in the majority of CAR's cities,[549] reported impacts on such systems are mostly concentrated in Bangui. In the flooding of September 2022, torrential rains in Bangui, Paoua, Kouango

[548] World Bank Group. (2021). *Climate Risk Country Profile: Central African Republic*. https://climateknowledgeportal.worldbank.org/sites/default/files/2021-06/15875-WB_Central%20Africa%20Republic%20Country%20Profile-WEB.pdf

[549]Ministère de l'Économie, du Plan et de la Coopération Internationale (MEPCI). (2023). *Projet de gouvernance locale et resilience des communautés en RCA (P178699) cadre de gestion environnemental et social (CGES) rapport final*. https://documents1.worldbank.org/curated/en/099062923160035287/pdf/P1786990bc6994020ae2b08d5188a25624.pdf

and Bambaria led to all water pipes being blocked and overflowing.[550] The overwhelming of drainage systems during flooding can damage the systems, spread the flooding further and physically impede access to water. According to a study carried out in 16 prefecture capitals of the CAR, 23 % of the population reported being affected by flooding due to the poor development of the rainwater drainage network.[551] Floods can physically damage drainage systems, for example through the collapse of walls along drainage channels as witnessed in the flooding of 2009 in Bangui,[552] and it can also overwhelm drainage systems, which contributes to spreading the flooding further. The overflowing of sewers and drainage systems with stormwater also further increases risks of pathogen exposure.

Table 37. Climate drivers, biophysical impacts, climate impacts and adaptation needs for drainage systems

Climate driver	Biophysical impact	Climate impact	Adaptation needs	Project activities addressing needs
Heavy rainfall	Flood	Blockage and overflow of drainage systems,[553] [554] increasing risks of pathogen exposure. Physical damage to drainage systems, including collapse of drainage channel walls.[555]	1. Improve urban drainage Infrastructure for flood prevention, including stormwater drainage networks and pluvial flood risk assessments and adequate maintenance of infrastructure (including regular canal cleaning/emptying activities) 2. Hydrological data systems and impact scenarios for flood risks are developed 3. National policies, technical standards and regulations integrate climate-resilient WASH and support resilient infrastructure designs	1. Activity 2.1.2: Construction and rehabilitation of urban drainage systems in Bangui, including the provision of maintenance equipment (e.g., for canal cleaning) and pluvial flood risk assessments. 2. Activity 3.1.2: Strengthening multi-hazard Early Warning Systems (EWS) and developing hydrological data systems and impact scenarios for flood risks. 3. Activity 1.1.1: Support the integration of climate-resilient WASH into national policies and the development of technical standards for resilient infrastructure.

.1.5 Sanitation facilities (latrines)

[550] https://reliefweb.int/disaster/fl-2022-000321-caf
[551] Africa Finance Ministers Meeting. (2020). *République Centrafricaine country overview*. https://www.sanitationandwaterforall.org/sites/default/files/2020-12/2020%20Country%20Overview_CAR_EN.pdf
[552] GFDRR. (2009). *Floods 2009 Central African Republic joint needs assessment report*. https://www.gfdrr.org/sites/default/files/GFDRR_CAR_Joint_Needs_Assessment_Report_2009_FR.pdf
[553] IFRC. (2022). *CAR floods 2022 DREF operation* (MDRCF029). https://go.ifrc.org/emergencies/6257/reports
[554] IFRC. (2022). *CAR floods 2022 DREF operation* (MDRCF029). https://go.ifrc.org/emergencies/6257/reports
[555] GFDRR. (2009). *Floods 2009 Central African Republic joint needs assessment report*. https://www.gfdrr.org/sites/default/files/GFDRR_CAR_Joint_Needs_Assessment_Report_2009_FR.pdf

Heavy rain and flooding have damaged sanitation infrastructures in CAR, for example by submerging pit latrines.[556] Many latrines, especially those in rural areas, are fragile and lack solid slabs, making them particularly vulnerable to destruction by heavy seasonal rains and floods. Autonomous sanitation infrastructures, such as septic tanks and traditional latrines, are submerged by floodwaters in urban areas like Bangui, Boali, Bimbo, and Bria.[557] In rural areas, a significant portion of the population lacks basic sanitation facilities, with data suggesting that only 12.4% of rural households have access to either safely managed or basic sanitation as of 2024.[558] The rate of open defecation is one of the highest in the world, at 38.85% in rural areas,[559] and increases with the physical damage or destruction of sanitation facilities from floods.[560] In addition, runoff from floods can submerge open defecation sites.[561]

This situation exacerbates the existing problem of leachate[562] production from on-site sanitation and open defecation, which contaminates both surface water and groundwater with coliform bacteria and other pollutants from waste decomposition.[563]

Faecal contamination arises when open defecation sites are flooded, as inundation leads to the contamination of both surface water and groundwater resources across urban and rural landscapes.[564] Children, particularly within rural communities where open defecation is common, face the highest risk of exposure to these contaminated water sources.[565]

Flooding therefore precipitates a decline in the quality of both surface and groundwater by destroying latrines and submerging open defecation sites, introducing faecal matter into water resources. This situation is particularly acute in urban areas and regions characterized by poor waste management and inadequate water and sanitation services.[566] For this reason, floods can raise the incidence of waterborne diseases such as diarrhoea and cholera[567] and affect overall water quality, reducing health outcomes and raising morbidity and mortality among affected populations, in particular children. The destruction of latrines also creates significant challenges for menstruating adolescent girls, often leading to school dropouts.[568]

Table 38. Climate drivers, biophysical impacts, climate impacts and adaptation needs for sanitation infrastructure

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[556] United States Agency for International Development (2018) Central Africa Regional Program for the Environment (CARPE): Regional Development Cooperation Strategy (RDCS) 2011–2020.
[557] UNICEF. (2025). *Analyse du paysage climatique pour les enfants (CLAC) en République Centrafricaine, Rapport provisoire*.
[558] WHO/UNICEF. (2024). *Joint Monitoring Programme for Water Supply, Sanitation and Hygiene (JMP).* https://washdata.org
[559] WHO/UNICEF. (2024). *Joint Monitoring Programme for Water Supply, Sanitation and Hygiene (JMP).* https://washdata.org
[560] UNICEF. (2023). *Argumentaire climatique pour l'eau, l'assainissement et l'hygiène en République Centrafricaine*. Background document.
[561] UNICEF. (2025). *Analyse du paysage climatique pour les enfants (CLAC) en République Centrafricaine, Rapport provisoire*.
[562] Contaminated liquid formed in landfills, produced through a combination of water infiltration and the leaching of contaminants from waste.
[563] Nguimalet, C.-R., Balikouzou-Hinna, D. A., Gothard-Bassebe, M.-C. R., & Semballa, S. (2005). *Gestion de la qualité de l'eau, conflits et risques dans la ville de Bangui (République centrafricaine)*. Géocarrefour, 80(4), 325-334. https://journals.openedition.org/geocarrefour/1295
[564] UNICEF. (2025). *Analyse du paysage climatique pour les enfants (CLAC) en République Centrafricaine, Rapport provisoire*.
[565] UNICEF. (2025). *Analyse du paysage climatique pour les enfants (CLAC) en République Centrafricaine, Rapport provisoire*.
[566] World Bank Group. (2021). *Climate Risk Country Profile: Central African Republic*. https://climateknowledgeportal.worldbank.org/sites/default/files/2021-06/15875-WB_Central%20Africa%20Republic%20Country%20Profile-WEB.pdf
[567] UNICEF. (2025). *Analyse du paysage climatique pour les enfants (CLAC) en République Centrafricaine, Rapport provisoire*.
[568] UNICEF. (2025). *Analyse du paysage climatique pour les enfants (CLAC) en République Centrafricaine, Rapport provisoire*.

Climate driver	Biophysical impact	Climate impact	Adaptation needs	Project activities addressing needs
Heavy rainfall	Flood	Damage of sanitation infrastructures, including pit latrines.[569] Increase in open defecation following the physical destruction of sanitation facilities.[570] Increase in the contamination of surface and groundwater with bacteria and pollutants from waste decomposition[571] following the destruction of latrines, putting children at risk of exposure.[572] Increase in waterborne diseases such as diarrhoea and cholera.[573] Destruction of latrines increases school dropouts among menstruating girls.[574]	1. National policies, technical standards and regulations integrate climate-resilient WASH and support resilient infrastructure designs such as elevated latrines in flood-prone areas 2. Strategic public awareness campaigns on climate-resilient WASH and CLTS training for flood response 3. Climate-resilient water and sanitation services which withstand floods, including raised slabs for school latrines and gender-separated latrines in schools with dedicated spaces for menstrual hygiene 4. Training local stakeholders on climate-resilient WASH services, including flood maps for WASH planning and flood contingency plans 5. Equip local stakeholders with water monitoring equipment (dippers, water quality testing	1.Activity 1.1.1: Support the integration of climate-resilient WASH into national policies and the development of technical standards for resilient infrastructure. 2.Activity 2.2.2: Implementation of Community-Led Total Sanitation (CLTS) and hygiene promotion campaigns tailored for flood-prone areas. 3.Activity 2.2.1: Construction/rehabilitation of flood-resilient, gender-separated latrines in schools and health centers with Menstrual Hygiene Management (MHM) facilities. 4.Activity 2.3.4 & 1.3.1: Capacity building for stakeholders on climate risk management and the development of localized flood response plans. 5.Activity 2.3.2: Strengthening water resource monitoring

[569] United States Agency for International Development (2018) Central Africa Regional Program for the Environment (CARPE): Regional Development Cooperation Strategy (RDCS) 2011–2020.
[570] UNICEF. (2023). *Argumentaire climatique pour l'eau, l'assainissement et l'hygiène en République Centrafricaine*. Background document.
[571] Nguimalet, C.-R., Balikouzou-Hinna, D. A., Gothard-Bassebe, M.-C. R., & Semballa, S. (2005). *Gestion de la qualité de l'eau, conflits et risques dans la ville de Bangui (République centrafricaine)*. Géocarrefour, 80(4), 325-334. https://journals.openedition.org/geocarrefour/1295
[572] UNICEF. (2025). *Analyse du paysage climatique pour les enfants (CLAC) en République Centrafricaine, Rapport provisoire*.
[573] UNICEF. (2025). *Analyse du paysage climatique pour les enfants (CLAC) en République Centrafricaine, Rapport provisoire*.
[574] UNICEF. (2025). *Analyse du paysage climatique pour les enfants (CLAC) en République Centrafricaine, Rapport provisoire*.

Climate driver	Biophysical impact	Climate impact	Adaptation needs	Project activities addressing needs
			kits) to detect floods and assess contamination 6. Disaster preparedness and response plans (contingency plan) support climate-resilient WRM, DRR and WASH planning	systems by providing technical equipment and training to priority high-risk communities. 6. Activity 2.3.4: Support for the development and updating of community-based disaster preparedness and response plans (contingency plans).

Operational metrics for design and monitoring, evaluation and learning (MEL)

To ensure the project's design and monitoring explicitly reflect climate stressors, the project will track: (i) asset-level service uptime (%) and mean time to repair (MTTR); (ii) number and duration of climate-related outages (flood, drought, heat); (iii) water-quality non-compliance events during/after heavy-rainfall episodes; and (iv) dry-season storage sufficiency days. These indicators align with the GCF IRMF and will be baselined in priority prefectures (Section 9; Activity 1.2.2).

.1.6 Methods appendix

The computation of hazard indices includes:

- Temperature & heat: ERA5-Land 2-m air temperature (hourly → daily means).[575] EHF[576] computed per Perkins & Alexander methodology with acclimatization baselines; trends reported as 2005–2024 vs 1985–2004 differences.
- Precipitation & drought: CHIRPS daily totals;[577] SPI-12 computed on monthly aggregates following WMO guidance;[578] heavy-rain indices R95pTOT/R99pTOT computed on wet-day (RR ≥ 1 mm) thresholds using a 1985–2014 baseline (ETCCDI definitions).[579]
- Prefecture summaries: Index fields averaged within prefecture boundaries; uncertainty flags added where station density is low (Figure 35, Figure 36).

[575] ERA5-Land https://cds.climate.copernicus.eu/datasets/reanalysis-era5-land
[576] EHF – https://pmc.ncbi.nlm.nih.gov/articles/PMC4306859/ .
[577] CHIRPS https://www.chc.ucsb.edu/data/chirps
[578] SPI (WMO) – https://library.wmo.int/records/item/39629-standardized-precipitation-index-user-guide
[579] ETCCDI indices – https://climate-scenarios.canada.ca/?page=climdex-indices

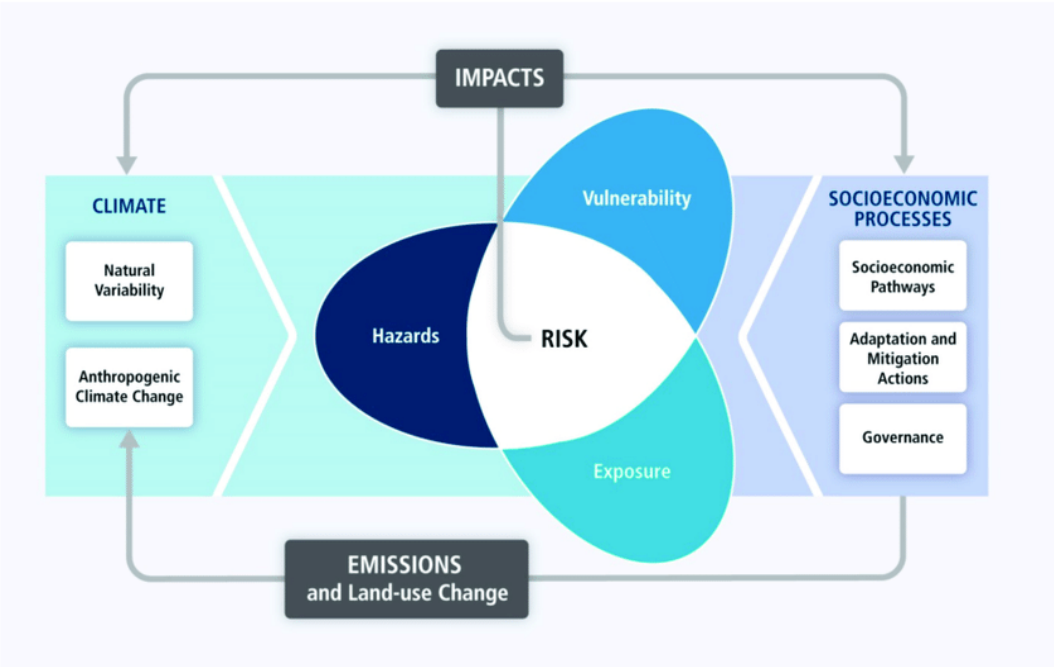
CCRA & Project Area Baseline

Methodology of the CCRA

As part of the project design process, a climate change risk assessment (CCRA) for the prefectures was developed with the main objective of determining the level of vulnerability of each prefecture in the face of projected climate changes, with a focus on the WASH sector.

Following standard practices in climate science[580], climate change vulnerability was defined as a function of three main components: hazard, exposure and vulnerability (Figure 77), while vulnerability is comprised of sensitivity and adaptive capacity. Climate change vulnerability is thus characterized as the extent of climate and non-climate exposures affecting the area, minus its capacity to adapt.

Figure 77. Climate risk framework according to the Intergovernmental Panel on Climate Change: Source: IPCC 2014.[581]



Climate data for the CAR were obtained from the Climate Information Portal on July 2, 2025, in GIS-compatible NetCDF format. The dataset is based on the CMIP6 model ensemble and includes the following climate indicators:

- Average Annual Temperature Anomaly (°C)
- Maximum Annual Temperature Anomaly (°C)
- Average Annual Precipitation Anomaly (mm)
- Number of Dry Spells – Annual Anomaly (%)
- Longest Dry Spell – Annual Anomaly (%)

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[580] *IPCC. (2014). Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. Field, C.B., Barros, V.R., Dokken, D.J., Mach, K.J., Mastrandrea, M.D., Bilir, T.E., Chatterjee, M., Ebi, K.L., Estrada, Y.O., Genova, R.C., et al., Eds. Cambridge University Press: Cambridge, UK; New York, NY, USA.*
[581] Ibid.

Regarding climate projections, the Climate Information service provides climate indicators for future climate change emissions scenarios using an ensemble based on Global Climate Models (GCMs).[582] Time periods selected include 2011-2040 and 2041-2070 for SSP2-4.5 and SSP5-8.5 emissions scenarios to compare medium and high emissions scenarios. The projected changes are taken from the median values over this ensemble of climate models.
The NetCDF files were analysed using QGIS (Quantum Geographic Information System, QGIS Association. http://www.qgis.org) where the files were converted into raster format for spatial analysis. Using the Zonal Statistics tool in QGIS, the mean value of each climate indicator was calculated for each prefecture across the country.

In this analysis, the climate change risk and vulnerability of each prefecture were determined by assessing climate hazards, non-climate exposure, and vulnerability:

Climate Hazards are represented by the anomaly, i.e. differences between historical climate and future climate projection, calculated using temperature and precipitation data projections from global climate models (GCM also known as General circulation models) developed under the Sixth Assessment of the IPCC report and the Coupled Model Intercomparison Project (CMIP6). These models provide insights into expected climatic trends and their impacts on the prefectures.

Climate indicators used in the analysis include:
Temperature (Average) Annual anomaly (°C): This index represents the change in average annual temperature compared to a reference period. Future periods are calculated as the average of daily mean temperatures over a 30-year period, expressed as the difference from the 1981–2010 baseline (i.e., future period minus reference period).

- Temperature (Maximum) Annual Anomaly °C: This index shows how the hottest days of the year are changing compared to a historical baseline. Future periods are calculated as the average of the annual maximum daily temperatures over a 30-year period, expressed as the difference from the 1981–2010 reference period (future minus reference).

Precipitation (Average) Annual anomaly (mm)*: This index measures how average yearly rainfall is expected to change compared to the historical reference period. Future periods are calculated as the average of daily precipitation over a 30-year period, expressed as a percentage change relative to the 1981–2010 baseline using the formula:

100 × (future period - reference period) / reference period
If either the future or reference value is below 0.1 mm/day, the change is considered unreliable and set to missing.

- Number of Dry Spells (Annual) – Relative Change (%): This index tracks how the frequency of prolonged dry periods is changing over time. Future periods are calculated as the number of dry spells (lasting more than 5 consecutive days without significant rainfall) over a 30-year period, expressed as a percentage change from the 1981–2010 reference period using the formula: *100 × (future period -* reference *period) / reference period.*

Longest Dry Spell Annual Anomaly (%): This index represents the longest stretch of consecutive dry days in a given period and how it changes over time. Future periods are calculated as the maximum number of consecutive dry days (with daily precipitation less than 1 mm) over a 30-year period and expressed as a percentage change from the 1981–2010 reference period using the formula: *100 × (future period - reference period) / reference period.*

[582] Climate Information Portal. https://dap.climateinformation.org/dap/

Exposure includes factors that contribute to vulnerability independently of climate conditions, and is defined by the IPCC as the presence of people, livelihoods, species or ecosystems, environmental functions, services, and resources, infrastructure, or economic, social, or cultural assets in places and settings that could be adversely affected.[583] The indicators used to assess exposure by prefecture include:

- Population size as of 2024, from the Institut Centrafricain des Statistiques et des Etudes Economiques et Sociales (ICASEES)[584]

Number of individuals affected by floods from 2021 to October 2024, from the United Nations Office for the Coordination of Humanitarian Affairs (OCHA).[585]

Vulnerability was analysed from the social standpoint, and is defined by the IPCC as the propensity or predisposition to be adversely affected, encompassing a variety of concepts and elements including sensitivity or susceptibility to harm and lack of capacity to cope and adapt.[586] In this analysis, vulnerability is comprised of sensitivity and adaptive capacity.

Sensitivity indicators used for the analysis include:

- Number of children in need (2023):[587] A children-specific sub-set of the “People in Need” indicator from OCHA (2023), which is defined as individuals whose physical security, basic rights, dignity, living conditions or livelihoods are threatened or have been disrupted, and whose current level of access to basic services, goods, and social protection is inadequate to re-establish normal living conditions with their accustomed means in a timely manner without additional assistance.[588]

Number of individuals in WASH-related need (2023):[589] A WASH-specific sub-set of the “People in Need” indicator from OCHA (2023).
Number of individuals in health-related need (2023):[590] A health-specific sub-set of the “People in Need” indicator from OCHA (2023).

- Number of internally displaced persons (IDPs) (2025):[591] Persons or groups who have been forced to flee or leave their homes or places of habitual residence, in particular as a result of or in order to avoid the effects of armed conflict, violence, violations of human rights or natural or human-made disasters, and who have not crossed an internationally recognized State Border, as defined by OCHA (2025).

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583 IPCC. (2014). Annex II: Glossary. In: Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. Agard, J., Schipper, E.L.F., Birkmann, J., Campos, M., Dubeux, C., Nojiri, Y., Olsson, L., Osman-Elasha, B., Pelling, M., Prather, M.J., Rivera-Ferre, M.G., Ruppel, O.C., Sallenger, A., Smith, K.R., St. Clair, A.L., Eds. Cambridge University Press: Cambridge, UK; New York, NY, USA. https://www.ipcc.ch/site/assets/uploads/2018/02/WGIIAR5-AnnexII_FINAL.pdf
584 Institut Centrafricain des Statistiques et des Etudes Economiques et Sociales. (2024). Population de la RCA par préfecture de 2021 à 2024. https://www.icasees.org
585 OCHA (2025). CAR Données sur les Inondations de 2021 à Octobre 2024. https://data.humdata.org/dataset/republique-centrafricaine-situation-des-inondations
586 IPCC. (2014). Annex II: Glossary. In: Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. Agard, J., Schipper, E.L.F., Birkmann, J., Campos, M., Dubeux, C., Nojiri, Y., Olsson, L., Osman-Elasha, B., Pelling, M., Prather, M.J., Rivera-Ferre, M.G., Ruppel, O.C., Sallenger, A., Smith, K.R., St. Clair, A.L., Eds. Cambridge University Press: Cambridge, UK; New York, NY, USA. https://www.ipcc.ch/site/assets/uploads/2018/02/WGIIAR5-AnnexII_FINAL.pdf
587 OCHA. (2023). Plan de Réponse Humanitaire : République Centrafricaine. https://humanitarianaction.info/plan/1130/population#page-title
588 OCHA. (2024). IM Toolbox: Terminology. https://humanitarian.atlassian.net/wiki/spaces/imtoolbox/pages/488636529/Terminology?utm_source=chatgpt.com
589 OCHA. (2023). Plan de Réponse Humanitaire : République Centrafricaine. https://humanitarianaction.info/plan/1130/population#page-title
590 OCHA. (2023). Plan de Réponse Humanitaire : République Centrafricaine. https://humanitarianaction.info/plan/1130/population#page-title
591 OCHA. (2025). Statistiques des PDIs - Février 2025. https://data.humdata.org/dataset/statistiques-detaillees-des-sites-pdis-en-republique-centrafricaine

Acute food insecurity:[592] Identifies areas and populations with food deprivation that threatens lives or livelihoods. The Integrated Food Security Phase Classification classifies acute food insecurity into Phases 1 to 5, where Phase 1 represents the lowest level of food insecurity, and phase 5 the highest. For this analysis, the average of acute food insecurity over the period 2022-2025 was taken.
Acute malnutrition:[593] Identifies areas and populations with a high prevalence of acute malnutrition accompanied by high or increasing levels of morbidity or individual food consumption gaps. The Integrated Food Security Phase Classification classifies acute malnutrition into Phases 1 to 5, where Phase 1 represents the lowest level of malnutrition, and phase 5 the highest. For this analysis, the average of acute malnutrition over the period 2022-2024 was used.

Adaptive capacity indicators used for the analysis include:
Poverty by prefecture, ranked on a scale of 1 to 5 and aggregated from sub-prefecture-level poverty headcount rates at the overall national poverty line. Figures are taken from the results of the 2021 Enquête Harmonisée sur les Conditions de Vie des Ménages (EHCVM) which are presented in the World Bank Group Central African Republic Poverty Assessment 2023.[594] Poverty rates percentages by sub-prefecture were transcribed into the following scales:

Table 39. Poverty rates by prefecture and associated scales.

Poverty rate by prefecture	Scale
44.1% - 56.1%	1
56.2% - 70.3%	2
70.4% - 76.9%	3
77.0% - 84.6%	4
84.7% - 93.7%	5

Composite Vulnerability Index

In this analysis, the climate change vulnerability of each Prefecture is determined by assessing climate hazards, non-climate exposure, and vulnerability. This method allows for a quantitative composite vulnerability index (CVI) integrating climatic hazards, exposure, and vulnerability in terms of adaptive capacity and sensitivity.

In particular, the CVI was constructed as follows:

$$CVI= [(\Delta T\tilde{}_{SPP2\ 4.5} + \Delta T\tilde{}_{SPP5\ 8.5})\tilde{} + (\Delta Tmax\tilde{}_{SPP2\text{-}4.5} + \Delta Tmax\tilde{}_{SPP5\text{-}8.5})\tilde{} + (\Delta P\tilde{}_{SPP2\text{-}4.5} + \Delta P\tilde{}_{SPP5\text{-}P8.5})\tilde{} + (\Delta PNDS\tilde{}_{SPP2\text{-}4.5} + \Delta PNDS\tilde{}_{SPP5\text{-}P8.5})\tilde{} + (\Delta PLDS\tilde{}_{SPP2\text{-}4.5} + \Delta PLDS\tilde{}_{SPP5\text{-}P8.5})\tilde{} + E\tilde{} + (ES\tilde{} + EAC\tilde{})\tilde{} + (SV\tilde{})\ \tilde{}]\tilde{}$$

where:
- CVI: Composite vulnerability index

$\Delta T\tilde{}$: Normalised Temperature (Average) Annual anomaly (°C) between historical data (1981–2010) and the future scenarios) 2011-2040 and 2041-2070) (ΔT was calculated separately for SPP2 4.5 and SPP5 8.5 scenarios (Model ensemble: CMIP6).

592 Integrate Food Security Phase Classification. (2025). Central African Republic: Acute Food Insecurity Classification. https://www.ipcinfo.org/ipc-country-analysis/en/?country=CAF
593 Integrate Food Security Phase Classification. (2025). Central African Republic: Acute Malnutrition Classification. https://www.ipcinfo.org/ipc-country-analysis/en/?country=CAF
594 World Bank Group. (2023). Central African Republic Poverty Assessment 2023: A Road Map Towards Poverty Reduction in the Central African Republic. https://www.jointdatacenter.org/wp-content/uploads/2024/01/CAR-Poverty-Assessment-Report.pdf

Δ$\tilde{Tmax}$: Normalised Temperature (Maximum) Annual Anomaly °C between historical data (1981–2010) and the future scenarios) 2011-2040 and 2041-2070) (Δ*T* was calculated separately for SPP2 4.5 and SPP5 8.5 scenarios (Model ensemble: CMIP6).
Δ$\tilde{P}$: Normalised Precipitation (Average) Annual anomaly (mm) between historical data and the SPP scenarios ((ΔP was calculated separately for SPP2 4.5 and SPP5 8.5 scenarios) SPP2 4.5 and SPP5 8.5 scenarios (Model ensemble: CMIP6).
Δ$\tilde{PNDS}$: Normalised Number of Dry Spells Annual Anomaly (%) between historical data (1981-2010) and the SPP scenarios ((ΔP was calculated separately for SPP2 4.5 and SPP5 8.5 scenarios) SPP2 4.5 and SPP5 8.5 scenarios (Model ensemble: CMIP6).
Δ$\tilde{PLDS}$: Normalised Longest Dry Spell Annual Anomaly (%) between historical data (1981-2010) and the SPP scenarios ((ΔP was calculated separately for SPP2 4.5 and SPP5 8.5 scenarios) SPP2 4.5 and SPP5 8.5 scenarios (Model ensemble: CMIP6).
$\tilde{E}$: Normalised exposure expressed as the population
$\tilde{ES}$: Normalised ecological sensitivity expressed as deforestation in the CR (% of total area of the CR)
$\tilde{EAC}$: Normalised adaptive capacity expressed as the
$\tilde{SV}$: Normalised social vulnerability

Normalisation was conducted using Min-max feature scaling.

Selection of the target prefectures

The current section presents a complementary climate and vulnerability analysis of the CAR's prefectures to underpin the project's selection of target prefectures and further screen the needs to be addressed by the project.

Climate Hazards

Temperature

Under the CMIP6 SSP5-8.5 scenario for 2011-2040, projections for the CAR show generalized temperature increases, with changes ranging from 0.54 to 0.82°C (Table 40). By 2041-2070, SSP5-8.5 projections indicate that temperature increases could reach more than 2°C in the prefectures of Haute-Kotto, Mambéré-Kadéï, Mbomou, Sangha-Mbaéré and Vakaga, while overall increases for all prefectures are expected to vary from 1.7°C to 2.15°C within the same timeframe (Table 40).

Based on the analysis conducted, temperatures in the CAR are expected to increase under both SSP2-4.5 and SSP5-8.5. Table 40 presents the projected temperature increase for the short-term (2011-2040) and medium-term (2041-2070) for the two SSP scenarios compared to the reference period of 1981-2020.

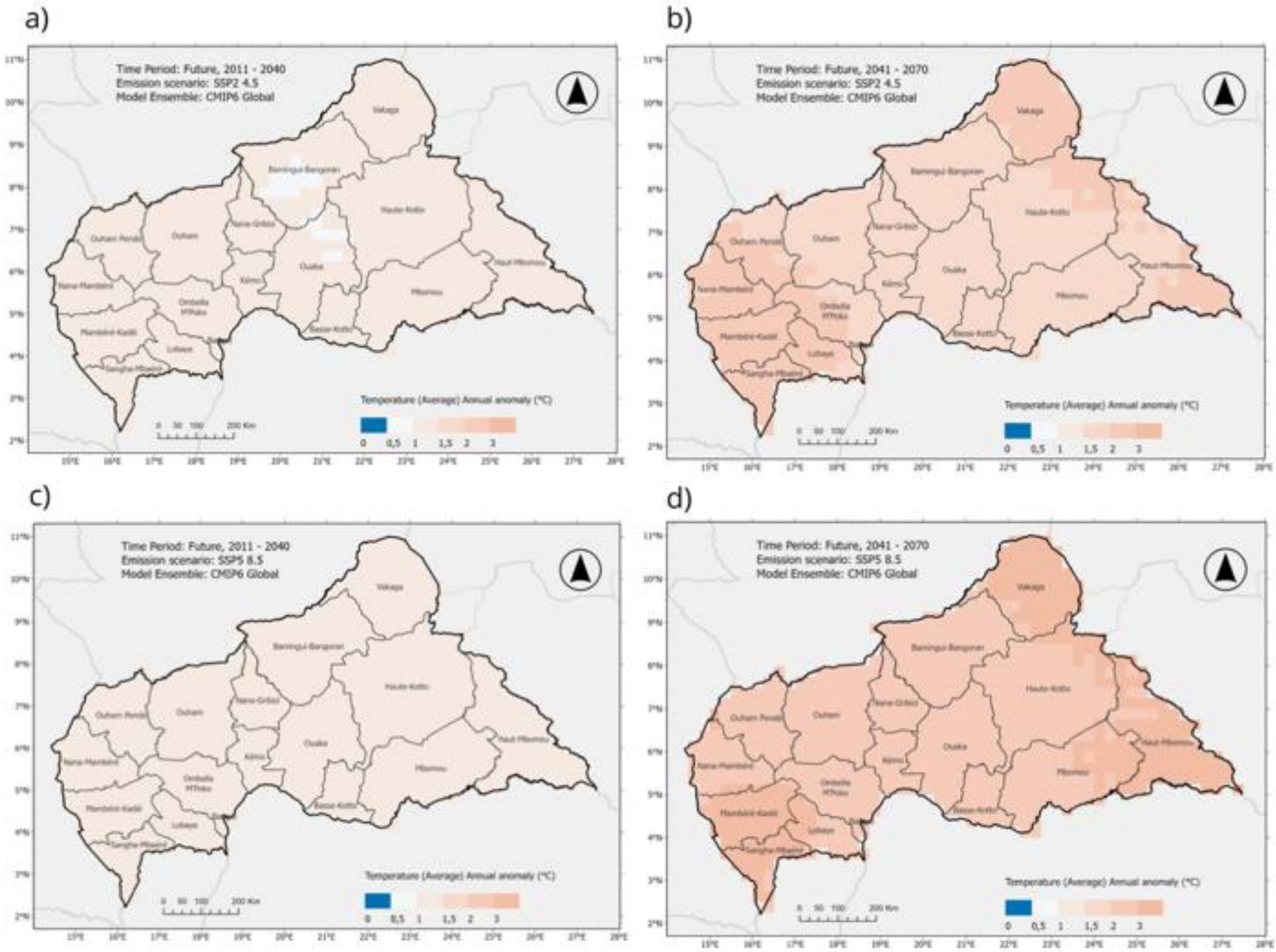
Table 40. Comparison of projected temperature increases for each prefecture for the periods 2011-2040 and 2041-2070 under the SSP2-4.5 and SSP5-8.5 scenarios.[595]

Prefecture	SSP2-4.5		SSP5-8.5	
	2011- 2040	2041-2070	2011- 2040	2041-2070
Bamingui-Bangoran	0.52	1.33	0.63	1.79
Bangui	0.59	1.44	0.61	1.96
Basse-Kotto	0.55	1.31	0.6	1.82
Haut-Mbomou	0.61	1.41	0.7	1.87
Haute-Kotto	0.73	1.52	0.74	2.12
Kémo	0.55	1.32	0.57	1.77
Lobaye	0.62	1.58	0.64	2
Mambéré-Kadéï	0.64	1.62	0.69	2.08
Mbomou	0.59	1.33	0.65	1.92
Nana-Grébizi	0.52	1.23	0.54	1.7
Nana-Mambéré	0.61	1.54	0.64	1.94
Ombella-M'Poko	0.59	1.51	0.59	1.9
Ouaka	0.52	1.28	0.58	1.78
Ouham	0.54	1.35	0.55	1.76
Ouham-Pendé	0.6	1.48	0.6	1.89
Sangha-Mbaéré	0.63	1.67	0.69	2.05
Vakaga	0.65	1.63	0.82	2.15

Figure 78 presents projected average temperature increases at the level of the country for SSP2-4.5 and SSP5-8.5.

595 Own elaboration using data from the GCF/WMO Climate Information Portal, https://climateinformation.org/

Figure 78. Temperature (annual mean) for a) 2011-2040 SSP2-4.5 b) 2041-2070 SSP2 4.5 c) 2011-2040 SSP5-8.5 d) 2041-2070 SSP5-8.5, baseline 1981-2010, Model Ensemble: CMIP6 Global. Source: Climate Information Portal.[596]



Under the CMIP6 SSP5-8.5 scenario for 2011-2040, projections for the CAR show significant maximum temperature increases, with changes ranging from 0.71°C to 1.03°C (Table 41). Moreover, by 2041-2070, SSP5-8.5 projections indicate that maximum temperature increases could reach more than 2.5°C in the prefectures of Bangui, Haute-Kotto, Mambéré-Kadéï, Nana-Mambéré, Ouham, Ouham-Pendé and Sangha-Mbaéré. The overall increases for all prefectures are expected to vary from 2.14°C to 2.82°C within the same timeframe.

Based on the analysis conducted, maximum temperatures are expected to increase across the country under both SSP2-4.5 and SSP5-8.5. Table 41 presents the projected maximum temperature increase for the short-term (2011-2040) and medium-term (2041-2070) for two SSP2-4.5 and SSP5-8.5, compared to the reference period of 1981-2020.

596 Climate Information Portal. https://climateinformation.org

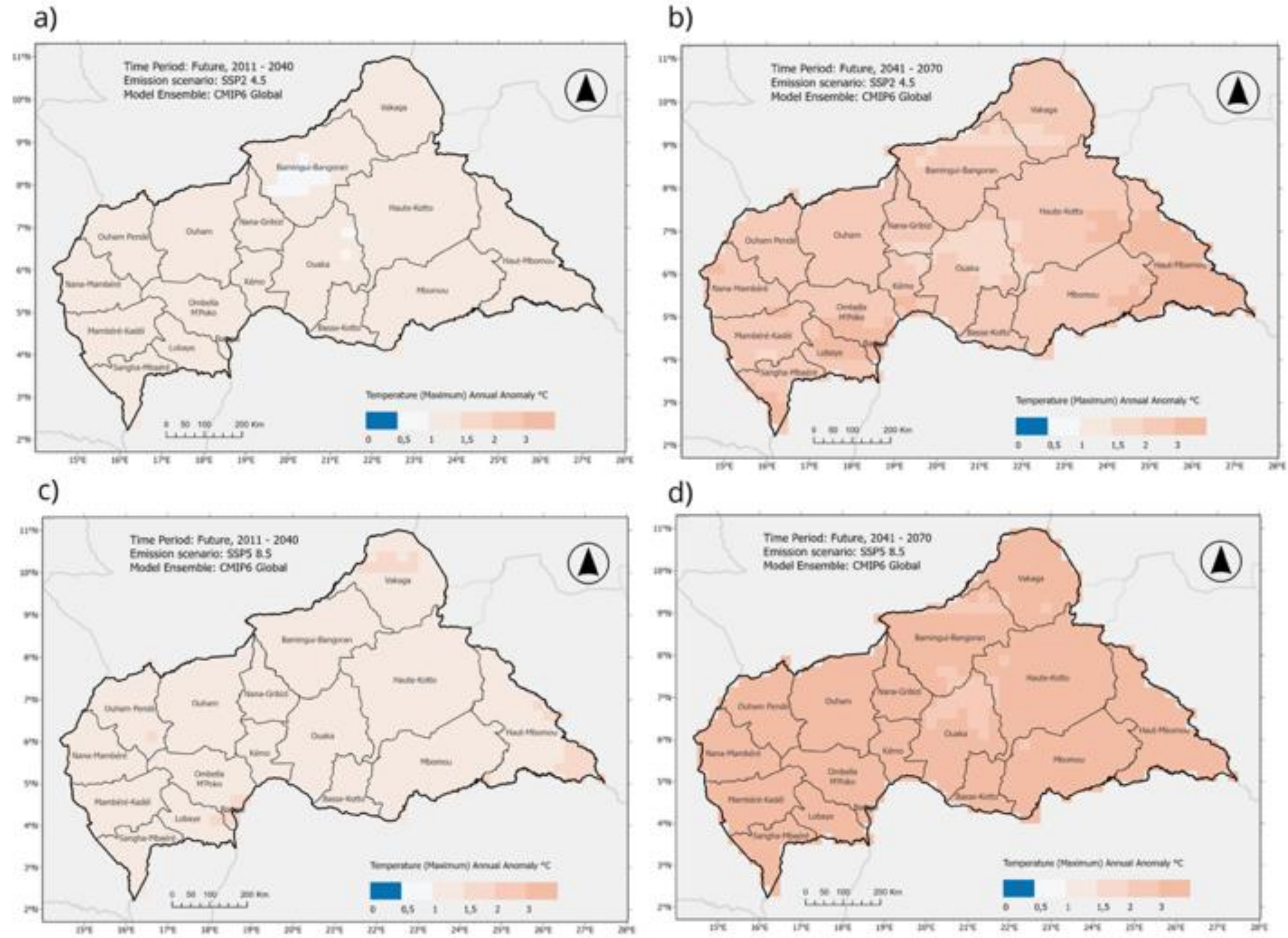
Table 41. Comparison of projected maximum temperature increases for each prefecture for the periods 2011-2040 and 2041-2070 under the SSP2-4.5 and SSP5-8.5 scenarios.[597]

Prefecture	SSP2-4.5		SSP5-8.5	
	2011- 2040	2041-2070	2011- 2040	2041-2070
Bamingui-Bangoran	0.52	1.62	0.73	2.14
Bangui	0.6	2.07	1.03	2.64
Basse-Kotto	0.56	1.7	0.82	2.32
Haut-Mbomou	0.61	1.73	0.74	2.25
Haute-Kotto	0.73	2.25	0.93	2.82
Kémo	0.56	1.77	0.81	2.47
Lobaye	0.62	1.9	0.87	2.41
Mambéré-Kadéï	0.64	1.79	0.78	2.64
Mbomou	0.59	1.78	0.8	2.42
Nana-Grébizi	0.53	1.67	0.71	2.33
Nana-Mambéré	0.61	1.86	0.88	2.6
Ombella-M'Poko	0.6	1.97	0.9	2.43
Ouaka	0.54	1.58	0.77	2.15
Ouham	0.55	1.77	0.77	2.56
Ouham-Pendé	0.6	1.81	0.86	2.67
Sangha-Mbaéré	0.63	1.9	0.83	2.82
Vakaga	0.65	1.71	0.84	2.33

Figure 79 presents projected maximum temperature increases at the level of the country for SSP2-4.5 and SSP5-8.5.

Figure 79. Maximum temperature (annual mean) for a) 2011-2040 SSP2-4.5 b) 2041-2070 SSP2 4.5 c) 2011-2040 SSP5-8.5 d) 2041-2070 SSP5-8.5, baseline 1981-2010, Model Ensemble: CMIP6 Global. Source: Climate Information Portal.[598]

597 Own elaboration using data from the GCF/WMO Climate Information Portal, https://climateinformation.org/
598 Climate Information Portal. https://climateinformation.org/



Precipitation

Under SSP5-8.5, for 2011-2040, projections show significant precipitation increases across all prefectures, with changes ranging from 9.98% to 20.93% (Table 42). For 2041-2070, under SSP5-8.5, projections indicate that precipitation could increase by more than 20% across Bamingui-Bangoran, Ouham, Ouham-Pendé and Vakaga, with changes across all prefectures ranging from 15.03% in Haute-Kotto to 31.82% in Vakaga (Table 42). Projected percentage increases in precipitation for each prefecture are presented in Table 42 below.

Table 42. Projected percentage increases in precipitation for each prefecture for the periods 2011-2040 and 2041-2070 under SSP2-4.5 and SSP5-8.5.[599]

Prefecture	SSP2-4.5		SSP5-8.5	
	2011- 2040	2041-2070	2011- 2040	2041-2070
Bamingui-Bangoran	15.05	15.97	17.23	25.77
Bangui	7.69	11.21	10.76	17.50
Basse-Kotto	9.09	10.93	11.64	19.21

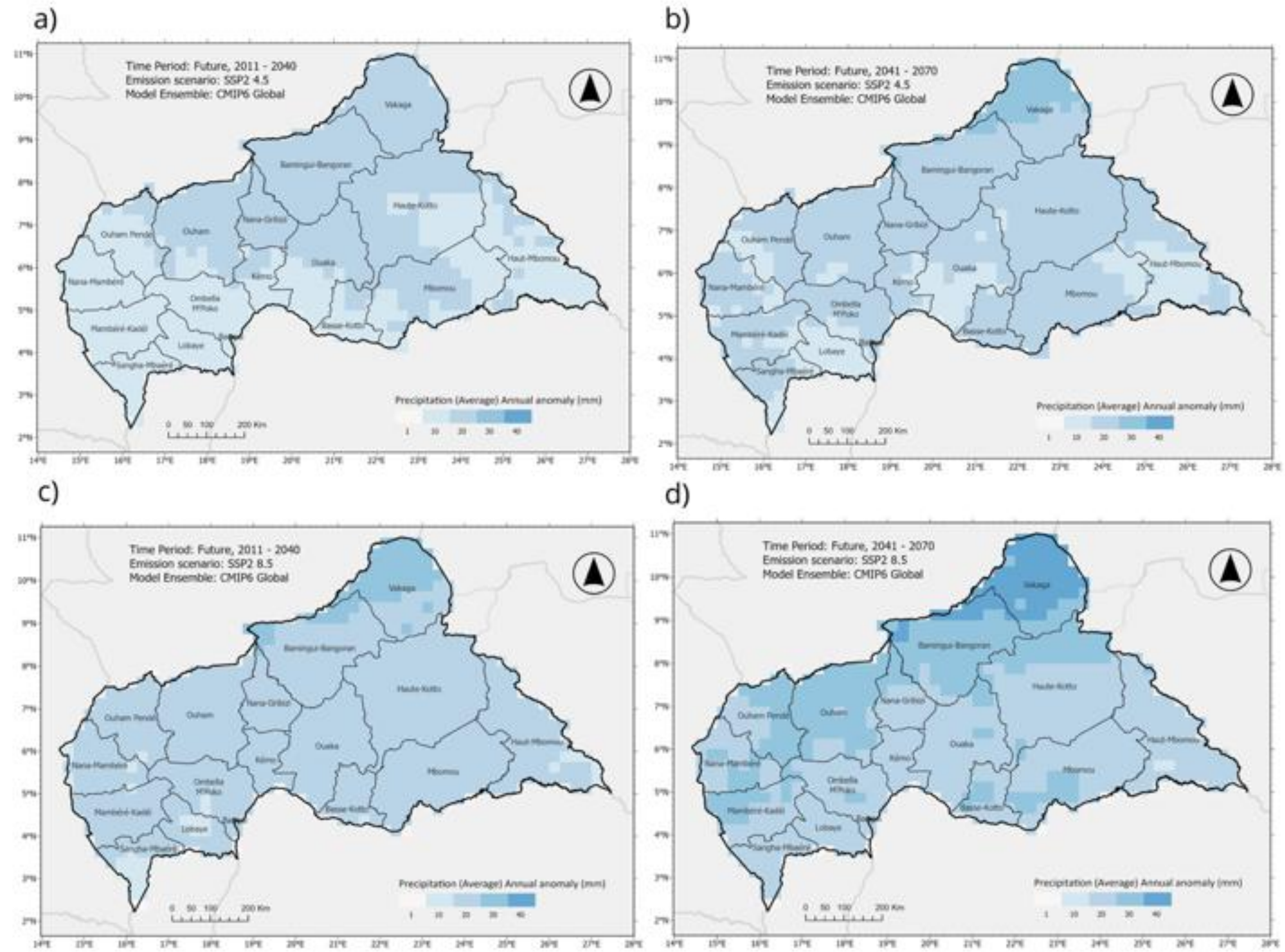
599 Own elaboration using data from the GCF/WMO Climate Information Portal, https://climateinformation.org/

Prefecture	SSP2-4.5		SSP5-8.5	
	2011- 2040	2041-2070	2011- 2040	2041-2070
Haut-Mbomou	10.86	12.67	13.97	19.24
Haute-Kotto	9.15	10.30	11.45	15.03
Kémo	9.25	10.49	12.49	17.75
Lobaye	6.56	8.76	10.61	14.85
Mambéré-Kadéï	7.06	10.91	12.43	19.73
Mbomou	9.90	11.20	12.99	17.67
Nana-Grébizi	12.29	13.64	15.01	19.43
Nana-Mambéré	6.64	10.85	11.15	18.90
Ombella-M'Poko	7.85	11.32	11.63	18.29
Ouaka	10.35	10.11	13.33	18.09
Ouham	11.57	13.96	15.05	22.25
Ouham-Pendé	8.84	12.73	12.42	20.29
Sangha-Mbaéré	6.09	10.65	9.98	15.69
Vakaga	16.98	21.16	20.93	31.82

Figure 80 presents projected precipitation percentage increases at the level of the country for SSP2-4.5 and SSP5-8.5.

Figure 80. Precipitation (annual mean),) for a) 2011-2040 SSP2-4.5 b) 2041-2070 SSP2 4.5 c) 2011-2040 SSP5-8.5 d) 2041-2070 SSP5-8.5, baseline 1981-2010 Model Ensemble: CMIP6 Global. Source: Climate Information Portal[600]

600 Climate Information Portal. https://climateinformation.org/



Dry spells

This section utilizes "longest dry spell" and "number of dry spells" as indicators of drought to provide a quantitative assessment of dry period characteristics within the CAR. The longest dry spell is calculated as the maximum number of consecutive dry days (daily precipitation < 1mm) over a 30-year period, while the number of dry spells is calculated as the number of dry periods for more than 5 days for a 30-year period.[601]

Under SSP5-8.5, for the period 2011-2040, the number of dry spells is projected to decrease across most of the CAR's prefectures, with reductions ranging from 0.06% in Ombella M'Poko to 5.95% in Vakaga (Table 43). Only in Lobaye and Sangha-Mbaéré does the number of dry spells increase for this time period under SSP5-8.5, by 1.23% and 0.41%, respectively. For 2041-2070, under SSP5-8.5, most prefectures are equally projected to experience reductions in the number of dry spells, ranging from 0.36% in Bangui to 3.58% in Vakaga. Only Haute-Kotto, Lobaye and Sangha-Mbaéré experience increase, of 1.02%, 2.1% and 0.45%, respectively.

601 Climate Information Portal. https://climateinformation.org/

Table 43 presents projected changes in the number of dry spells for the short-term (2011-2040) and medium-term (2041-2070) for SSP2-4.5 and SSP5-8.5, compared to the reference period of 1981-2020.

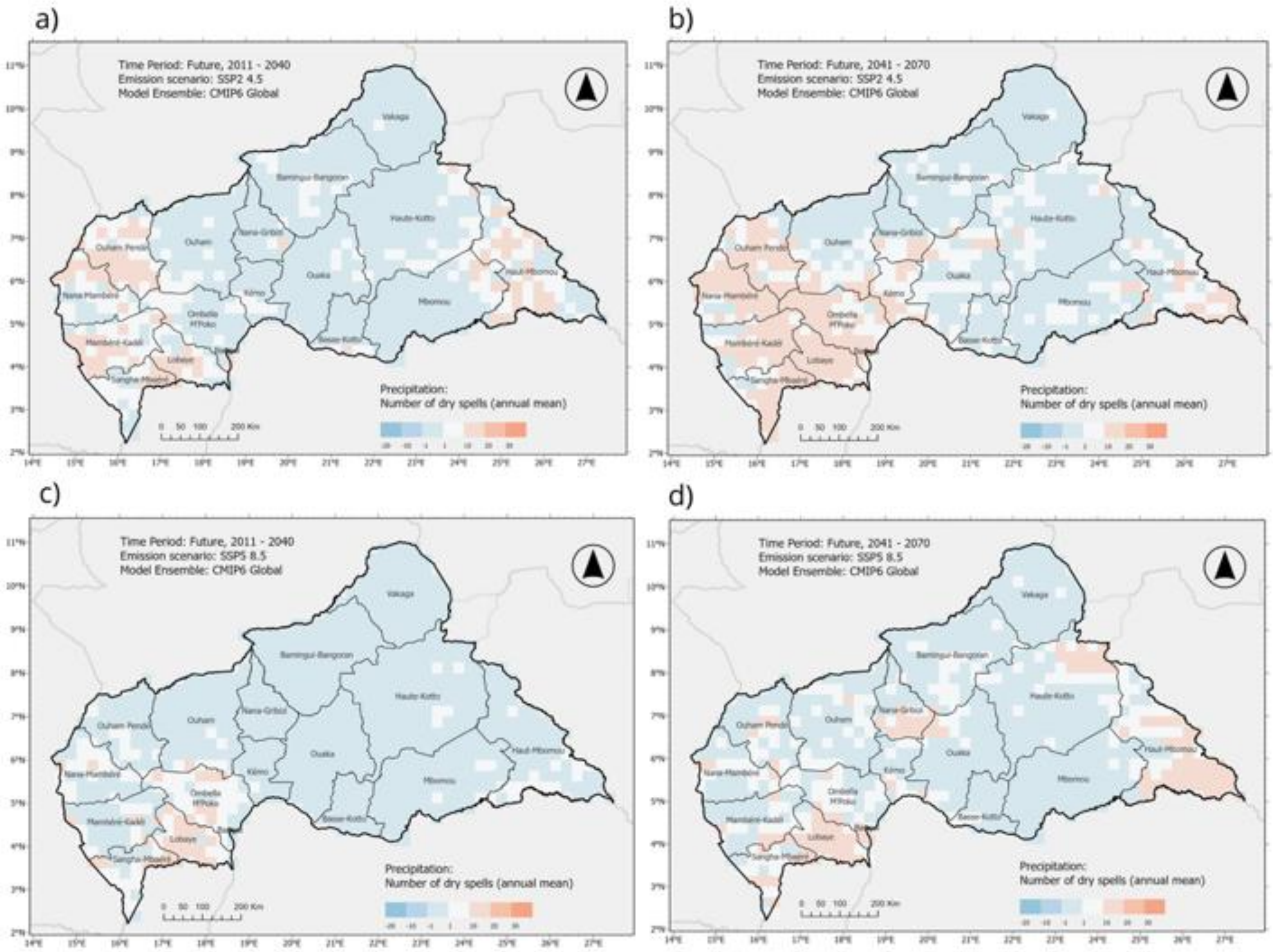
Table 43. Number of dry spells annual anomaly (%) for each prefecture for the periods 2011-2040 and 2041-2070 under SSP2-4.5 and SSP5-8.5.[602]

Prefecture	SSP2-4.5		SSP5-8.5	
	2011- 2040	2041-2070	2011- 2040	2041-2070
Bamingui-bangoran	-2.77	-2.45	-4.77	-2.12
Bangui	-3.17	1.1	-1.2	-0.36
Basse-Kotto	-2.77	-1.48	-5.7	-3.71
Haut-Mbomou	-2.31	-2.28	-3.66	-1.93
Haute-Kotto	0.14	-0.52	-2.25	1.02
Kémo	-2.65	0.87	-3.5	-1.54
Lobaye	0.61	3.77	1.23	2.1
Mambéré-Kadéï	0.69	1.3	-1.38	-1.1
Mbomou	-2.33	-2.17	-3.36	-3.29
Nana-Grébizi	-2.77	-1.69	-4.54	-0.64
Nana-Mambéré	-0.23	2.18	-1.38	-1.39
Ombella-M'Poko	-2.02	1.98	-0.06	-0.48
Ouaka	-3.98	-1.05	-5.13	-2.93
Ouham	-2.45	-1.65	-3.8	-1.68
Ouham-Pendé	1.23	1.5	-2.25	-1.81
Sangha-Mbaéré	-0.01	2.1	0.41	0.45
Vakaga	-4.23	-3.6	-5.95	-3.58

Figure 81 presents projected changes in the number of dry spells at the level of the country for SSP2-4.5 and SSP5-8.5.

Figure 81. Number of dry spells (annual mean), for a) 2011-2040 SSP2-4.5 b) 2041-2070 SSP2 4.5 c) 2011-2040 SSP5-8.5 d) 2041-2070 SSP5-8.5, baseline 1981-2010, Emission scenario: SSP2 4.5, Model Ensemble: CMIP6 Global. Source: Climate Information Portal[603]

602 Own elaboration using data from the GCF/WMO Climate Information Portal, https://climateinformation.org/
[603] Climate Information Portal. https://climateinformation.org/



Under SSP5-8.5, for the period 2011-2040, the longest dry spell is projected to decrease across all of the CAR's prefectures, with reductions ranging from 0.51% in Kémo to 12.62% in Sangha-Mbaéré (Table 44). In addition to Sangha-Mbaéré, high reductions in the longest dry spell are projected in Lobaye (8.58%) and Mambéré-Kadéï (7.75%). For 2041-2070, under SSP5-8.5, the CAR's prefectures are equally projected to experience reductions in the longest dry spell, ranging from -1.46% in Kémo to -11.20% in Sangha-Mbaéré.

Table 44 presents the projected changes in the longest dry spell for the short-term (2011-2040) and medium-term (2041-2070) for two SSP scenarios (SSP2-4.5 and SSP5-8.5), compared to the reference period of 1981-2020.

Table 44. Longest dry spell annual anomaly (%) for each prefecture for the periods 2011-2040 and 2041-2070 under SSP2-4.5 and SSP5-8.5.[604]

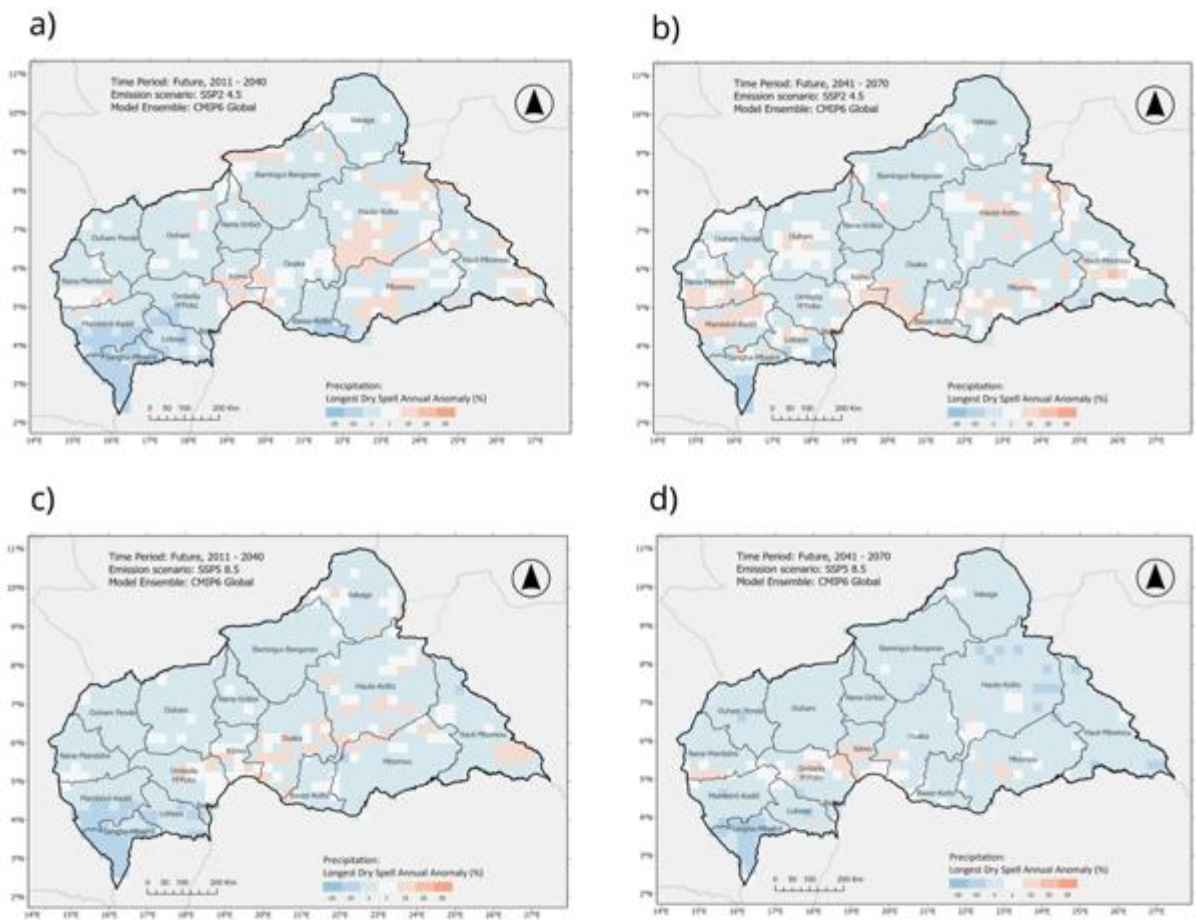
Prefecture	SSP2-4.5		SSP5-8.5	
	2011- 2040	2041-2070	2011- 2040	2041-2070

[604] Own elaboration using data from the GCF/WMO Climate Information Portal, https://climateinformation.org/

Bamingui-bangoran	-2.75	-3.41	-4.10	-5.34
Bangui	-5.71	4.95	-1.79	-2.30
Basse-Kotto	-7.15	-1.73	-3.86	-4.12
Haut-Mbomou	-1.27	-2.12	-3.96	-6.12
Haute-Kotto	-0.80	-1.90	-2.23	-6.16
Kémo	-1.69	-1.02	-0.51	-1.46
Lobaye	-8.98	-4.07	-8.58	-5.65
Mambéré-Kadéï	-6.89	-0.84	-7.75	-5.53
Mbomou	-2.23	-2.47	-3.63	-4.66
Nana-Grébizi	-3.13	-2.66	-2.78	-4.46
Nana-Mambéré	-1.91	-0.53	-4.69	-3.05
Ombella-M'Poko	-5.35	-2.84	-2.87	-2.81
Ouaka	-2.60	-2.89	-1.97	-3.78
Ouham	-2.89	-1.85	-3.34	-5.00
Ouham-Pendé	-3.92	-1.45	-4.12	-5.38
Sangha-Mbaéré	-11.98	-6.85	-12.62	-11.20
Vakaga	-3.03	-2.85	-2.39	-4.92

Figure 82 present projected changes in the longest dry spell at the level of the country for SSP2-4.5 and SSP5-8.5, and the timeframes 2011-2040, 2041-2070.

Figure 82. Longest dry spell (annual mean), for a) 2011-2040 b) 2041-2070, Historical period: 1981–2010, Emission scenario: SSP2 4.5, Model Ensemble: CMIP6 Global.[605]



Composite climate hazard and ranking

To analyse combined climate hazard risks at the prefecture level, normalised anomalies for each climate hazard under SSP2-4.5 and SSP5-8.5, and the timeframes 2011-2040 and 2041-2070, were first combined to obtain a hazard composite. Hazard composites were then normalised to obtain a normalised composite index. The resulting ranking, as detailed in Table 45, indicates that Bangui, Haute-Kotto, Kémo, and Vakaga are among the prefectures with the highest scores for climate hazards.

[605] Own elaboration using data from the GCF/WMO Climate Information Portal, https://climateinformation.org/

Table 45. Hazard composite index, normalised composite index and prefecture rank for climate hazards by scenario (SSP2-4.5, SSP5-8.5) and timeframe (2011-2040, 2041-2070).

Prefecture	Hazard composite				Normalised composite				Prefecture rank			
	SSP2-4.5 2011-2040	SSP2-4.5 2041-2070	SSP5-8.5 2011-2040	SSP5-8.5 2041-2070	SSP2-4.5 2011-2040	SSP2-4.5 2041-2070	SSP5-8.5 2011-2040	SSP5-8.5 2041-2070	SSP2-4.5 2011-2040	SSP2-4.5 2041-2070	SSP5-8.5 2011-2040	SSP5-8.5 2041-2070
Bamingui-bangoran	1.92	1.32	1.91	1.72	0.22	0.19	0.25	0.22	9.00	13.00	12.00	14.00
Bangui	1.62	3.04	2.88	2.96	0.11	1.00	0.79	0.84	15.00	1.00	3.00	2.00
Basse-Kotto	1.31	1.26	1.47	1.51	0.00	0.17	0.00	0.12	17.00	15.00	17.00	16.00
Haut-Mbomou	2.60	1.53	2.06	1.63	0.47	0.29	0.33	0.17	4.00	12.00	8.00	15.00
Haute-Kotto	4.08	2.62	2.91	3.28	1.00	0.80	0.81	1.00	1.00	2.00	2.00	1.00
Kémo	1.83	1.73	1.99	2.19	0.19	0.39	0.29	0.45	12.00	10.00	11.00	10.00
Lobaye	2.15	2.51	2.25	2.63	0.30	0.75	0.44	0.68	8.00	6.00	6.00	6.00
Mambéré-Kadéï	2.59	2.55	2.02	2.90	0.46	0.77	0.31	0.81	5.00	4.00	10.00	4.00
Mbomou	2.24	1.29	2.05	1.81	0.33	0.18	0.33	0.27	7.00	14.00	9.00	12.00
Nana-Grébizi	1.68	1.14	1.47	1.77	0.13	0.11	0.00	0.25	14.00	16.00	16.00	13.00
Nana-Mambéré	2.54	2.61	2.29	2.68	0.44	0.80	0.46	0.70	6.00	3.00	5.00	5.00
Ombella-M'Poko	1.87	2.52	2.55	2.49	0.20	0.76	0.61	0.61	11.00	5.00	4.00	8.00
Ouaka	1.37	0.90	1.63	1.28	0.02	0.00	0.09	0.00	16.00	17.00	15.00	17.00
Ouham	1.88	1.66	1.75	2.17	0.21	0.36	0.16	0.45	10.00	11.00	14.00	11.00
Ouham-Pendé	2.74	2.38	2.12	2.45	0.51	0.69	0.37	0.58	3.00	9.00	7.00	9.00
Sangha-Mbaéré	1.82	2.40	1.80	2.54	0.18	0.70	0.18	0.63	13.00	8.00	13.00	7.00
Vakaga	3.04	2.44	3.25	2.95	0.62	0.72	1.00	0.83	2.00	7.00	1.00	3.00

Exposure

Population

Population data aggregated at the prefecture level shows that the prefectures with the highest population count are Bangui (1,464,921), Ouaka (459,411), Basse-Kotto (393, 276) Nana-Mambéré (371,863) and Lobaye (361,288) (Table 46). Prefectures with the lowest population count are Haut-Mbomou (59,225), Vakaga (89,188) and Bamingui-Bangoran (89,189). Table 46 displays population counts by prefecture, and normalised population counts.

Table 46. Population counts by prefecture (2024) and normalised population counts. Source: ICASEES (2024).[606]

[606] Institut Centrafricain des Statistiques et des Etudes Economiques et Sociales. (2024). *Population de la RCA par préfecture de 2021 à 2024. https://www.icasees.org*

Prefecture	Population count, 2024	Population count, normalised
Bamingui-Bangoran	89,189	0.02
Bangui	1,464,921	1.00
Basse-Kotto	393,276	0.24
Haut-Mbomou	59,225	0.00
Haute-Kotto	144,289	0.06
Kémo	197,538	0.10
Lobaye	361,288	0.21
Mambéré-Kadéï	281,286	0.16
Mbomou	267,647	0.15
Nana-Grébizi	232,205	0.12
Nana-Mambéré	371,863	0.22
Ombella-M'Poko	292,618	0.17
Ouaka	459,411	0.28
Ouham	329,645	0.19
Ouham-Pendé	254,648	0.14
Sangha-Mbaéré	152,674	0.07
Vakaga	89,188	0.02

Population affected by floods

Over the period 2021-2024, the prefectures with the highest number of individuals affected by floods were Ouham (47,952), Bangui (42,143) and Vakaga (35,708) (Table 47). The prefectures where less than 1000 or no individuals were affected by floods include Nana-Mambéré (497), Kémo (145), Haut-Mbomou (0) and Sangha-Mbaéré (0). Table 47 presents the number of individuals affected by floods by prefecture for 2021-2024, and the associated normalised number of individuals affected by floods.

Table 47. Number of individuals affected by floods from 2021 to 2024 and normalised number of individuals affected by floods. Source: OCHA (2025)[607]

Prefecture	Number of individuals affected by floods from 2021 to 2024	Normalised number of individuals affected by floods
Bamingui-Bangoran	19069	0.40
Bangui	42143	0.88
Basse-Kotto	9673	0.20
Haut-Mbomou	0	0.00
Haute-Kotto	8474	0.18
Kémo	145	0.00
Lobaye	10720	0.22

[607] OCHA (2025). CAR Données sur les Inondations de 2021 à Octobre 2024. https://data.humdata.org/dataset/republique-centrafricaine-situation-des-inondations

Mambéré-Kadéï	1415	0.03
Mbomou	25388	0.53
Nana-Grébizi	13635	0.28
Nana-Mambéré	497	0.01
Ombella-M'Poko	21362	0.45
Ouaka	8685	0.18
Ouham	47952	1.00
Ouham-Pendé	29477	0.61
Sangha-Mbaéré	0	0.00
Vakaga	35708	0.74

Composite exposure and ranking

To analyse overall exposure at the prefecture level, normalised results for population count and individuals affected by floods were combined into a composite exposure index. Table 48 below shows the composite exposure, the normalised composite exposure and prefecture ranking. Overall, the prefectures ranking highest on exposure are Bangui (1), Ouham (2), Vakaga (3), and Ouham-Pendé (4).

Table 48. Exposure composite, normalised exposure composite and ranking by prefecture.

Prefecture	Composite exposure	Normalised composite exposure	Ranking
Bamingui-Bangoran	0.42	0.22	10
Bangui	1.88	1.00	1
Basse-Kotto	0.44	0.23	8
Haut-Mbomou	0.00	0.00	17
Haute-Kotto	0.24	0.13	12
Kémo	0.10	0.05	15
Lobaye	0.44	0.23	9
Mambéré-Kadéï	0.19	0.10	14
Mbomou	0.68	0.36	5
Nana-Grébizi	0.41	0.22	11
Nana-Mambéré	0.23	0.12	13
Ombella-M'Poko	0.61	0.33	6
Ouaka	0.47	0.25	7
Ouham	1.19	0.63	2
Ouham-Pendé	0.75	0.40	4
Sangha-Mbaéré	0.07	0.04	16
Vakaga	0.77	0.41	3

Vulnerability

Sensitivity

Number of children in need

As of 2023, the prefectures with the highest number of children in need are Ouham-Pendé (149,977), Ombella M'Poko (120,467) and Bangui (111,876) (Table 49). The prefectures with the lowest number of children in need are Sangha-Mbaéré (7,987) and Haut-Mbomou (11,815). The number of children in need by prefecture, and the normalised number of children in need by prefecture, are presented in Table 49.

Table 49. Number of children in need in 2023. Source: OCHA (2023).[608]

Prefecture	Number of children in need, 2023	Normalised number of children in need
Bamingui-Bangoran	26110	0.13
Bangui	111876	0.73
Basse-Kotto	76320	0.48
Haut-Mbomou	11815	0.03
Haute-Kotto	38293	0.21
Kémo	24875	0.12
Lobaye	43729	0.25
Mambéré-Kadéï	92363	0.59
Mbomou	68827	0.43
Nana-Grébizi	44593	0.26
Nana-Mambéré	56603	0.34
Ombella-M'Poko	120467	0.79
Ouaka	108532	0.71
Ouham	120592	0.79
Ouham-Pendé	149977	1.00
Sangha-Mbaéré	7987	0.00
Vakaga	13268	0.04

Number of people in WASH-related need

The number of people in WASH-related need is highest in Ouham-Pendé (403,883), Ombella-M'Poko (364,527) and Ouham (319,522), and significantly lower in the prefectures of Bamingui-Bangoran (45,089) and Haut-Mbomou (77,173) (Table 50). Table 50 presents the number of people in WASH-related need and the associated normalised number.

Table 50. Number of people in WASH-related need. Source: OCHA (2023)[609]

Prefecture	Number of people in WASH-related need, 2023	Normalised number of people in WASH-related need
Bamingui-Bangoran	45089	0.07
Bangui	262615	0.64
Basse-Kotto	217198	0.52
Haut-Mbomou	33372	0.04

[608] OCHA. (2023). *Plan de Réponse Humanitaire : République Centrafricaine.* https://humanitarianaction.info/plan/1130/population#page-title
[609] OCHA. (2023). *Plan de Réponse Humanitaire : République Centrafricaine.* https://humanitarianaction.info/plan/1130/population#page-title

Haute-Kotto	77173	0.16
Kémo	101962	0.22
Lobaye	171698	0.40
Mambéré-Kadéï	222336	0.53
Mbomou	135462	0.31
Nana-Grébizi	129176	0.29
Nana-Mambéré	203099	0.48
Ombella-M'Poko	364527	0.90
Ouaka	259671	0.63
Ouham	319522	0.78
Ouham-Pendé	403883	1.00
Sangha-Mbaéré	26982	0.03
Vakaga	16813	0.00

Number of people in health-related need

The number of people with health-related needs in the CAR is highest across Ombella M'Poko (490,514), Ouham-Pendé (366,116) and Ouaka (277,143), and lowest in Sangha-Mbaéré (17,501), Bamingui-Bangoran (27,341) and Haut-Mbomou (31,043) (Table 51). Table 51 presents the number of people with health-related needs and the associated normalised number.

Table 51. Number of people in health-related need. Source: OCHA (2023)[610]

Prefecture	Number of people in health-related need, 2023	Normalised number of people in health-related need
Bamingui-Bangoran	27341	0.02
Bangui	236543	0.46
Basse-Kotto	184523	0.35
Haut-Mbomou	31043	0.03
Haute-Kotto	97179	0.17
Kémo	102531	0.18
Lobaye	157138	0.30
Mambéré-Kadéï	198720	0.38
Mbomou	78612	0.13
Nana-Grébizi	97629	0.17
Nana-Mambéré	140812	0.26
Ombella-M'Poko	490514	1.00
Ouaka	277143	0.55
Ouham	259016	0.51
Ouham-Pendé	366116	0.74
Sangha-Mbaéré	17501	0.00
Vakaga	62318	0.09

[610] OCHA. (2023). *Plan de Réponse Humanitaire : République Centrafricaine.* https://humanitarianaction.info/plan/1130/population#page-title

Number of internally displaced persons

The prefectures with the highest number of internally displaced persons are Bangui (186,410) and Ouham (181,702) (Table 52). In remaining prefectures, the number of internally displaced persons ranges from 8,778 in Lobaye to 98,345 in Ouaka. The number of internally displaced persons by prefecture is presented in Table 52 below.

Table 52. Number of internally displaced persons and normalised number of internally displaced persons by prefecture. Source: OCHA (2025)[611]

Prefecture	Number of internally displaced persons, 2025	Normalised number of internally displaced persons
Bamingui-Bangoran	9292	0.00
Bangui	186410	1.00
Basse-Kotto	62706	0.30
Haut-Mbomou	32908	0.14
Haute-Kotto	46364	0.21
Kémo	23060	0.08
Lobaye	8778	0.00
Mambéré-Kadéï	28475	0.11
Mbomou	22120	0.08
Nana-Grébizi	32662	0.13
Nana-Mambéré	40366	0.18
Ombella-M'Poko	38010	0.16
Ouaka	98345	0.50
Ouham	181702	0.97
Ouham-Pendé	33023	0.14
Sangha-Mbaéré	23121	0.08
Vakaga	10298	0.01

Acute food insecurity

Acute food insecurity is highest in Basse-Kotto, Haut-Mbomou, Haute-Kotto, Nana-Grébizi, Ouham and Vakaga, which have a score of 4, the second highest on the scale (Table 53). Bangui scores the lowest in acute food insecurity, with a score of 2, the second lowest on the scale. Table 53 presents acute food insecurity by prefecture and associated normalised values.

Table 53. Acute food insecurity by prefecture. Source: Integrated Food Security Phase Classification (2025)[612]

Prefecture	Acute food insecurity phase classification (average 2022-2025)	Normalised acute food insecurity

[611] OCHA. (2025). *Statistiques des PDIs - Février 2025.* https://data.humdata.org/dataset/statistiques-detaillees-des-sites-pdis-en-republique-centrafricaine

[612] Integrated Food Security Phase Classification. (2025). *Central African Republic: Acute Malnutrition Classification.* https://www.ipcinfo.org/ipc-country-analysis/en/?country=CAF

Bamingui-Bangoran	3	0.50
Bangui	2	0.00
Basse-Kotto	4	1.00
Haut-Mbomou	4	1.00
Haute-Kotto	4	1.00
Kémo	3.5	0.75
Lobaye	3	0.50
Mambéré-Kadéï	3	0.50
Mbomou	3	0.50
Nana-Grébizi	4	1.00
Nana-Mambéré	3	0.50
Ombella-M'Poko	3	0.50
Ouaka	3	0.50
Ouham	4	1.00
Ouham-Pendé	3	0.50
Sangha-Mbaéré	3	0.50
Vakaga	4	1.00

Acute malnutrition

Acute malnutrition is highest in the prefectures of Basse-Kotto and Ouaka, with scores of 4/5 on the acute malnutrition scale, while it is lowest in Bangui (1.5), Kémo (2.3), Lobaye (2.5), Mambéré-Kadéï (2.5), Ombella-M'Poko (2.5), Ouham-Pendé (2.5) and Sangha-Mbaéré (2.5) (Table 54). Table 54 presents the acute malnutrition classification, and the associated normalised value, across the CAR's prefectures.

Table 54. Acute malnutrition classification in the CAR. Source: Integrated Food Security Phase Classification (2025)[613]

Prefecture	Acute malnutrition classification (average 2022-2024)	Normalised acute malnutrition classification
Bamingui-Bangoran	3	0.60
Bangui	1.5	0.00
Basse-Kotto	4	1.00
Haut-Mbomou	3	0.60
Haute-Kotto	3	0.60
Kémo	2.3	0.32
Lobaye	2.5	0.40
Mambéré-Kadéï	2.5	0.40
Mbomou	2	0.20
Nana-Grébizi	3	0.60
Nana-Mambéré	3	0.60

[613] Integrated Food Security Phase Classification. (2025). *Central African Republic: Acute Malnutrition Classification.* https://www.ipcinfo.org/ipc-country-analysis/en/?country=CAF

Ombella-M'Poko	2.5	0.40
Ouaka	4	1.00
Ouham	3	0.60
Ouham-Pendé	2.5	0.40
Sangha-Mbaéré	2.5	0.40
Vakaga	3.5	0.80

Sensitivity composite index

Combining the above indicators, sensitivity is highest among the prefectures of Ouham (4.66), Ouaka (3.89), Ouham-Pendé (3.77) and Ombella-M'Poko (3.76) (Table 55). The prefectures where composite sensitivity is lowest include Sangha-Mbaéré (1.01), Bamingui-Bangoran (1.32), Mbomou (1.64) and Kémo (1.67). Table 55 presents the composite sensitivity index as well as the associated normalised value.

Table 55. Composite sensitivity index and composite sensitivity normalised.

Prefecture	Composite Sensitivity Index	Composite Sensitivity Normalised
Bamingui-Bangoran	1.32	0.09
Bangui	2.83	0.50
Basse-Kotto	3.66	0.73
Haut-Mbomou	1.83	0.23
Haute-Kotto	2.35	0.37
Kémo	1.67	0.18
Lobaye	1.85	0.23
Mambéré-Kadéï	2.52	0.41
Mbomou	1.64	0.17
Nana-Grébizi	2.45	0.40
Nana-Mambéré	2.36	0.37
Ombella-M'Poko	3.76	0.75
Ouaka	3.89	0.79
Ouham	4.66	1.00
Ouham-Pendé	3.77	0.76
Sangha-Mbaéré	1.01	0.00
Vakaga	1.94	0.26

Adaptive capacity

Poverty

Poverty is highest in the prefectures of Basse-Kotto (4.83), Mbomou (4.2) and Ouaka (3.6), and lowest in Bangui (1), followed by Haute-Kotto (2), Sangha-Mbaéré (2) and Vakaga (2) (Table 56). Although Bangui exhibits the lowest overall poverty rate, substantial urban poverty and high inequality within the city are observed, particularly among the lowest quintiles. Table 56 below presents poverty on a scale of 1 to 5 by prefecture and normalised poverty values.

Table 56. Poverty by prefecture on a scale of 1 to 5. Source : 2021 Enquête Harmonisée sur le Conditions de Vie des Ménages (EHCVM), cited in World Bank (2023).[614]

Prefecture	Poverty on a scale of 1 to 5, 2021	Normalised poverty
Bamingui-Bangoran	2.5	0.39
Bangui	1	0.00
Basse-Kotto	4.83	1.00
Haut-Mbomou	2.6	0.42
Haute-Kotto	2	0.26
Kémo	3.25	0.59
Lobaye	3.4	0.63
Mambéré-Kadéï	2.7	0.44
Mbomou	4.2	0.84
Nana-Grébizi	2.5	0.39
Nana-Mambéré	2.8	0.47
Ombella-M'Poko	2.3	0.34
Ouaka	3.6	0.68
Ouham	2.9	0.50
Ouham-Pendé	2.2	0.31
Sangha-Mbaéré	2	0.26
Vakaga	2	0.26

[614] World Bank Group. (2023). Central African Republic Poverty Assessment 2023: A Road Map Towards Poverty Reduction in the Central African Republic. https://www.jointdatacenter.org/wp-content/uploads/2024/01/CAR-Poverty-Assessment-Report.pdf

Composite vulnerability index

Based on the normalised values of the above indicators, composite values integrating vulnerability, exposure and hazard were calculated for each scenario (SSP2-4.5, SSP5-8.5) and timeframe (2011-2040, 2041-2070). The four composite values were used to obtain the average CVI Index, with values between 0 and 3, where values close to 0 represent the least vulnerable prefectures, and values closer to 3 represent high vulnerability. The resulting ranking shows that Ouham, Basse-Kotto, Ouaka and Bangui are the prefectures with the highest CVI scores.

Table 57. Composite CCRA results, Climate Vulnerability Index scoring and ranking for each prefecture.

Prefecture	Composite SSP2 4.5 2011-2040	Composite SSP2-4.5 2041-2070	Composite SSP2 8.5 2011-2040	Composite SSP5 8.5 2041-2070	Average CVI Index	Ranking
Ouham	2.68	2.43	2.82	2.9	2.7075	1
Basse-Kotto	2.34	2.44	2.24	2.33	2.3375	2
Ouaka	2.49	2.01	2.28	2.05	2.2075	3
Bangui	2.07	2.5	2.12	1.5	2.0475	4
Ouham-Pendé	1.88	1.7	2.12	2.25	1.9875	5
Ombella-M'Poko	1.81	1.72	2.18	1.98	1.9225	6
Mbomou	1.77	1.84	1.88	2.12	1.9025	7
Vakaga	1.78	1.19	1.92	1.92	1.7025	8
Haute-Kotto	1.75	1.35	1.51	1.51	1.53	9
Nana-Grébizi	1.7	1.3	1.61	1.46	1.5175	10
Nana-Mambéré	1.49	1.22	1.57	1.78	1.515	11
Kémo	1.71	1.26	1.61	1.47	1.5125	12
Mambéré-Kadéï	1.07	1.23	1.33	1.68	1.3275	13
Lobaye	1.17	1.11	1.37	1.6	1.3125	14
Bamingui-Bangoran	1.34	0.84	1.37	1.31	1.215	15
Haut-Mbomou	1.18	0.96	1.23	1.32	1.1725	16
Sangha-Mbaéré	0.3	0.3	0.3	1.01	0.4775	17

Based on the results of the CCRA analysis, Ouham, Basse-Kotto, Ouaka and Bangui were identified as the four most vulnerable prefectures in the CAR. Based on consultations with the executing office, the CCRA analysis was complemented by a set of criteria reflecting the best enabling conditions for project interventions, considering UNICEF presence, logistical efficiency and security (Table 58).

This table has been redacted in accordance with the GCF Information Disclosure Policy, as the portion is confidential under the disclosure policy of the Accredited Entity.

Table 58. Enabling conditions for project interventions by prefecture.

[redacted]

This selection is grounded in a comprehensive analysis of statistical data, validated through consultations with the NDA and key stakeholders. It is further reinforced by localized input gathered during stakeholder mapping exercises. The prioritization also reflects UNICEF CAR’s operational footprint, leveraging its field presence, contextual knowledge, and cross-sectoral consultations with various UNICEF sections. Moreover, the selection aligns with the strategic direction outlined in the new Country Office CPD, ensuring coherence with institutional priorities. Finally, considerations of security, stability, and access have been fully integrated to guarantee feasibility and sustainability of implementation. The final target prefectures are Ouham, Bamingui-Bangoran, Vakaga, and Bangui, with a clear strategic differentiation in the scope of intervention: rural climate-resilient WASH services will target the northern prefectures (Ouham, Bamingui-Bangoran, Vakaga), while climate-resilient urban drainage infrastructure will be implemented exclusively in Bangui. This selection is supported by the presence of UNICEF offices in Ouham, Bangui, and Vakaga. Bamingui-Bangoran borders Vakaga, which reduces logistics. This decision ensures that project locations are not geographically fragmented for operational efficiency.

Project rationale and barriers

Baseline projects and programmes

This section provides an overview of related projects within the field of climate change adaptation to ensure optimal synergies with the current project. Table 59 provides an overview of on-going, past and planned projects and interventions that are related to this proposal, and their complementarity with the proposal.

Table 59. WASH/Health Projects and Programmes in CAR

Project/ Programme	Funding / Implementing Agency	Description	Complementarity
Increasing the Adaptation Capacity and Resilience of Rural Communities to Climate Change in the Central African Republic **Amount : USD 10,000,000** **Implementation period: (2024-2030)**	AF; International Fund for Agricultural Development (IFAD) as Implementing Entity	Project aims to enhance climate change adaptation and resilience within key agricultural value chains (rice, cassava and maize) and livestock sectors in CAR through implementing concrete adaptation measures and strengthening national capacities and institutions across 4 target prefectures Nana Mambéré, Ouham-Pende, Lobaye, and Ombella Mpoko	The AF project (Increasing the Adaptation Capacity and Resilience of Rural Communities to Climate Change in the Central African Republic) primarily targets climate resilience in the agricultural sector and rural livelihoods. Geographically, the 'Increasing the Adaptation Capacity and Resilience of Rural Communities to Climate Change' project concentrates its interventions in four specific rural prefectures (those being Nana Mambéré, Ouham-Pende, Lobaye, Ombella Mpoko), aiming to enhance the productivity of rice, cassava and maize value chains, diversifying income through fish farming and livestock, and build climate-proofed rural roads. This project, however, is centred on comprehensive WASH systems and urban draining in areas such as Bangui, whereas 'Increasing the Adaptation Capacity and Resilience of Rural Communities to Climate Change' project's 'water and sanitation infrastructure' component is specifically designed for improving rural livelihoods and access where near inexistent. The complementarities include the improved rural water supply and sanitation, combined with enhanced agricultural productivity from the 'Increasing the Adaptation Capacity and Resilience of Rural Communities to Climate Change' project, reducing

			pressure on urban services (thus easing demand on the WASH infrastructure and water security efforts of this project). Both projects' efforts in institutional capacity building for climate risk management pose to mutually reinforce national adaptation planning.
P181561: Additional Financing- CAR Health Service Delivery and System Strengthening Project **Amount: USD25,000,000** **Implementation period: 2024-2027**	IDA Grant (World Bank Group); Implementing Agency: Ministry of Health and Population, Central African Republic, Ministry of Finance and Budget	"To increase utilization of quality essential health services, especially for women and children in targeted areas, and to protect essential social services for the population of CAR." – P181561 focuses on key areas of strengthening health sector governance by delivering essential health services, supporting free healthcare, funding community health workers and aiding gender-based violence survivors. P181561 also aims to enhance community-based health service delivery by improving the national health supply chain and upgrading 15 hospitals. Project management, coordination and monitoring and evaluation are also covered.	(Additional Financing- CAR Health Service Delivery and System Strengthening Project) strongly compliments this project by addressing the human health component of resilience. Both projects share the aim of improving human well-being and basic social service delivery, strengthening system capacities at both national and community levels. While this project aims to prevent water borne diseases and enhance public health through WASH infrastructure improvements, 'Additional Financing- CAR Health Service Delivery and System Strengthening' project builds a robust healthcare system, investing in supply chains, health governance and hospital upgrades.
P176754: Central African Republic (CAR) Emergency Food Crisis Response Project	Crisis Response Window from the IDA (World Bank Group Financing); Implementing agency: Ministry	The project's objectives are to increase food production and improve the resilience of targeted smallholder farmers	Both projects address separate but interconnected aspects of climate resilience in CAR. They have a core similarity and shared objective of enhancing community resilience to climate chocks, particularly floods and droughts, but there is sectoral

Amount: USD50,000,000 **Implementation period: 2021-2026**	of Agriculture and Rural Development	and food-insecure households. It aims to achieve this by distributing agricultural inputs and providing labour-intensive public works. These activities aim to respond to the food crisis exacerbated by conflict and climate shocks.	difference. Their complementarity stems from how the activities reinforce each other. P176754 (Central African Republic (CAR) Emergency Food Crisis Response Project)'s subcomponent of 1.3 contributes foundational data and technical capacity that directly informs this project's ability to implement Activity 1.2.3: "Improve hydrological data systems and impact scenarios for flood and drought risks to inform early warning systems and adaptive planning in the three prefectures of Ouham, Bamingui-Bangoran and Vakaga". Additionally, P176754's investment in rehabilitation and maintenance of drainage infrastructure in Bangui aligns with this project's urban drainage activities — Activity 2.2.1: "Improve and expand Bangui's drainage system"
Improving sustainable access to safe water for returnees and host communities, and responding to humanitarian needs through access to child protection services for children affected by humanitarian shocks **Amount: USD1,500,000** **Implementation period: 2024-2025**	USAID (Bureau for Humanitarian Assistance); UNICEF in collaboration with Oxfam	This project supports the transition from emergency water supply systems serving IDP sites to sustainable solutions for returnees and host communities in Bria and Batangafo. Key activities include rehabilitating existing infrastructure, constructing solar-powered water networks, and transferring management responsibility to local government and community structures.	This project aligns with the current project's focus on transitioning from emergency responses to sustainable, climate-resilient water services. The lessons learned regarding institutional takeover and community-based management in Bria and Batangafo will directly inform the operation and maintenance (O&M) framework for rural and peri-urban WASH infrastructure post-implementation in the northern target prefectures. Synergies will be particularly strong in the use of solar-powered systems and the establishment of water pricing models to ensure long-term financial viability.

Table 60. Climate Change Projects and Programmes in CAR

Project/ Programme	Funding / Implementing Agency	Description	Complementarity
Livestock Support for Climate Change Adaptation and Enhanced Resilience Project **Amount: USD45,231,000** **Stage: Concept Approved 9 Feb 2024**	GEF; International Fund for Agricultural Development as implementing agency	"Strengthen the climate resilience of agro-sylvo-pastoral communities by improving agriculture and livestock systems in eight Prefectures in Central African Republic (target: 25,000 households/150,000 beneficiaries of whom 50% are women and 30% are youth)." The project has three interconnected components: Component 1: Enhancing an enabling environment for resilient livestock farming systems in CAR (review and develop policies to mainstream climate resilience into the livestock sector) Component 2: Strengthen gender-responsive community resilience by improving livestock value chains (at community level) Component 3: strengthening institutional capacity and knowledge management through supporting the development of climate-resilient water resource management practices, providing training to water actors and establishing robust knowledge management/monitoring frameworks.	The Livestock Support for Climate Change Adaptation and Enhanced Resilience Project complements this project by addressing climate resilience, but through the lens of agro-sylvo-pastoral systems rather than WASH and urban infrastructure. Both initiatives share the overarching goal of strengthening community climate resilience with a strong emphasis on institutional capacity building and gender/youth inclusion, and both contribute to reducing drivers of displacement. The Livestock Support for Climate Change Adaptation and Enhanced Resilience Project is complementary as its focus on rural food security and economic stability supports the wellbeing of populations benefitting from this project's WASH services – creating a more holistic adaptation strategy across CAR.
Strengthening the adaptive capacity of communities by up-scaling integrated landscape management and restoration in south-west region of	GEF	"Project Objective: Enhanced resilience of rural communities through the valuation of productive and forest landscapes and inclusive governance mechanisms". It aims to strengthen climate resilience in CAR by promoting sustainable land and forest management practices,	While the Strengthening the Adaptive Capacity of Communities project aims to reduce vulnerability through sustainable forest and land management, this project secures essential water, sanitation and urban drainage services. These differences ensure a holistic national adaptation strategy: healthy

Central African Republic **Amount : USD 20,225,883** **Implementation period: 2024-2028**		particularly in rural landscapes. Also focuses on integrating climate change adaptation into national and local development planning, empowering communities to manage natural resources sustainability and diversity livelihoods through 'climate-smart' nature-based interventions.	ecosystems support water security and urban resilience, and resilient rural communities reduce pressure on urban areas – a mutually reinforcing pathway
10347: Scaling up ecological corridors and transboundary connectivity through integrated natural resources management in the Ngotto Forest landscape and Mbaéré-Bodingué National Park **Amount: USD30,691,500** **Implementation period: 2021-2024**	GEF; The World Bank as implementing agency	"To improve governance and strengthen capacity in the forest and mining sectors in the CAR. Overall Goal of the GEF AF is to improve integrated natural resources management and sustainable rural livelihoods in the Ngotto Forest landscape and Mbaéré-Bodingué National Park"	The GEF project (Scaling Up Ecological Corridors […]) distinctly addresses governance and capacity building in CAR's forest and mining sectors. While this project directly provides essential urban services, 'Scaling Up Ecological Corridors […]' improves the sustainable management of natural resources (including water sources) by enhancing forest and mining sector governance. 'Scaling Up Ecological Corridor's efforts in reducing deforestation, promoting better watershed management and mitigating mining-related water pollution create a healthier environmental foundation, which indirectly supports the long-term viability and quality of water supply for this project.
9452: Technology Needs Assessments - Phase III (TNA Phase III) **Amount (co-financing and funding agency grants + fees total): USD9,544,950**	GEF ; United Nations Environment Programme as implementing agency	"Provide participating countries targeted financial and technical support to prepare new or updated and improved TNAs, including Technology Action Plans (TAPs), for prioritized technologies that reduce greenhouse gas emissions, support adaptation to climate change, and are consistent with Nationally Determined Contributions and national	9452 (Technology Needs Assessments - Phase III (TNA Phase III)) is a strategic, upstream planning initiative designed to identify and prioritise technologies for greenhouse gas reduction and climate change adaptation across various sectors. The complementarity is that while this project is actively deploying specific climate-resilient WASH technologies, 9452 provides the broader

Implementation period: 2018-2022		sustainable development objectives”	strategic framework and analytical basis for identifying and planning for the future deployment of all prioritised climate technologies in CAR.
9291: Promotion of Small Hydropower-based Mini-Grids for A Better Access to Modern Energy Services in Central African Republic **Amount (co-financing and funding agency grants + fees total): USD19,554,275** **Stage: Project Approved for Implementation 30 Jan 2018**	GEF ; United Nations Development Programme as implementing agency	The main objective of the project is to investment in mini-grids using energy from small hydropower plants to provide electricity services in rural areas in CAR in order to "guarantee access to efficient, sustainable and modern energy services to the rural population" by 2030 at an affordable cost" and in a sustainable manner, with minimal negative impact on the environment.”	There is no direct overlap between 9291 and this project. The complementarity lies in the energy project’s ability to provide renewable and climate resilient power sources that can directly support WASH infrastructure. While this project addresses the infrastructure and management of water services, 9291 energy project provides the critical power needed to operate these systems efficiently and sustainably. Additionally, capacity building and policy frameworks developed for 9291 can contribute to a broader enabling environment for resilient infrastructure development in CAR, indirectly benefitting the long-term sustainability of this project’s WASH interventions.
3822:CBSP - A Regional Focus on Sustainable Timber Management in the Congo Basin **Amount (co-financing and funding agency grants + fees total): USD17,226,316** **Stage: Closed 31 Jan 2020**	GEF; United Nations Environment Programme as implementing agency	“To promote a harmonized regional approach to the sustainable management of production forests in the Congo Basin”	There is no direct overlap between the two projects, but the complementarity is found in the critical role of healthy forests in supporting water resources: effective forest management and the reduction of illegal loggings, as perused by 3822, directly contributes to watershed protection. This leads to improved water quality, safeguarding the raw water sources that are vital for the long-term sustainability of the WASH services provided by this project.

00141063: [Developing national capacities to promote the resilience of populations to climate vulnerability in the Central African Republic] **Amount: Total allocated in USD 350000; co-funding by UN agencies is USD 100,000** **Implementation period : 2025-2026**	Joint SDG Fund ; UNDP as 'lead partner' and UNICEF as 'co-lead partner'	Designed to assist CAR in fulfilling its commitments, both domestically and internationally, regarding climate change. A key objective is to support CAR's sift towards electricity systems that produce less carbon. It aims to strengthen the resilience of the government and people through sustainable management of natural resources and the environment. It further aims to improve access for women, children, youth and other vulnerable communities to high quality services in education, health, nutrition, water, sanitation, hygiene, food security and social protection by 2027.	There is no direct overlap between 00141063 (Developing national capacities to promote the resilience of populations to climate vulnerability in the Central African Republic) and this project: 00141063 uniquely focuses on strengthening the electricity sub-sector and promoting renewable energy solutions. The critical complementarity lies 00141063's direct contribution to power water infrastructure. Its planned mini photovoltaic plants will notably supply electricity for water tower pumps on boreholes, directly providing climate-resilient energy for water extraction and distribution. This means 00141063 secures a vital operational component for sustainable water supply, directly helping the long-term effectiveness and resilience of WASH services, creating crucial synergy between energy water security.
[Integrated water resources management and early warning system for climate change resilience in the Lake Chad Basin] **Amount : USD11,665,500** **Implementation period : 2023-2028**	AF ; World Meteorological Organisation as implementing entity ; Lake Chad Basin Commission, Global Water Partnership Central Africa as executing entities	The project aims to enhance the resilience of the Lake Chad Basin population by strengthening the collection, analysis and dissemination of crucial hydro-climatological information ; developing and implementing better systems for predicting floods and droughts to enable timely warnings ; promoting coordination strategies for managing these extreme events ; ensuring that climate-related information and services reach communities effectively, especially the most vulnerable ; and educating	The Adaptation Fund project distinctly focuses on establishing a transboundary hydrometeorological observation network, regional data systems and advanced flood/drought forecasting tools across the entire Lake Chad Basin rather than climate-resilient WASH services and/or urban drainage within CAR. The complementarities between the AF project and this project are that the AF project could provide foundational climate and hydrological data and early warning information which could be vital for robust

communities and strengthening the capacities of regional and national agencies regarding climate-related hazards and appropriate adaptive measures.

climate-resilient water resource management. This regional data and predictive capacity directly informs strategic design and operational resilience of the localised climate-resilient WASH infrastructure and urban drainage systems that this project implements within CAR.

Potential overlaps in three areas:

Firstly, this project's Activity 1.2.3: "Improve hydrological data systems and impact scenarios for flood and drought risks to inform early warning systems and adaptive planning in the three prefectures of Ouham, Bamingui-Bangoran, and Vakaga"

mirrors this AF's project component 1, output 1.1 (Hydromet observation network modernized/established...) and Component 2, output 2.4 (Flood and drought forecasting tools and EWS...) in the sense that both improve hydrometeorological data and forecasting in the same region.

Secondly, in relation to EWS development: this project's Activity 1.3.1: "Strengthen national institutional capacities on climate across the WASH and adjacent sectors" and Activity 2.3.1: "Engage and train local stakeholders in climate risk assessment, conflict-sensitive resilience planning and disaster preparedness"

aligns with the AF's component 2, output 2.1 (A transboundary EWS mechanism designed[...])

			and output 2.4 (Flood and drought forecasting tools and EWS[...]), as well as component 3, output 3.3 (A communication and warning dissemination system set up[...]). Both of these designs, implement and build EWS capacity. Thirdly, there is similarity in regard to capacity building and stakeholder awareness. For example: this project's Activity 2.3.1: "Engage and train local stakeholders in climate risk assessment, conflict-sensitive resilience planning and disaster preparedness" is similar to the AF's component 3, output 3.1 (Awareness raised for decision makers[...]) and output 3.4 (Inclusive warning messages accessed, received, understood and trusted by user communities[...]) as these both train and raise awareness among local groups on climate risks and preparedness.
PREDIRE: Regional Programme to Support the Development of Infrastructure and the Development of Transboundary Water Resources between the Central African Republic and the DRC **Amount: UA195,900,000**	AfDB; Implementing agencies: CICOS (Transboundary Water Resources Component); Ministry of Rural Development (DRC); Ministry of Energy Development and Hydraulic Resources (CAR)	Project aim is to "sustainably improve the socio-economic living conditions and resilience of populations and the ecosystem in the cross-border Oubangui basin"	While there is a shared thematic focus on WASH infrastructure and water resource management, there is a key difference in their primary geographical and strategic emphasis. PREDIRE takes a broader, transboundary basin-level approach, focusing heavily on regional cooperation mechanisms and strengthening regional institutions. PREDIRE outlines substantial hydraulic infrastructure construction and sanitation master planning specifically for the Greater Bangui and other regions in CAR and the Democratic

Implementation period: 2024-2029			Republic of Congo. In contrast, this project targets specific climate-resilient WASH infrastructure and urban drainage interventions within defined regions in CAR. There is complementarity in that PREDIRE has foundational work on basin-level IWRM and master planning which underpins the long-term sustainability of water resources in CAR. While distinct in their specific deliverables, these projects are mutually reinforcing in that they collectively build a more resilient water sector for CAR. Coordination actions are ongoing with the agencies and stakeholders to ensure complementary and avoid overlaps.
PERISA-GB : Projet D'Etude Et de Renforcement Des Infrastructures Et Services D'Assainissement Du Grand Bangui en Republique Centrafricaine. (Project for the Study and Strengthening of Sanitation Infrastructure and Services in Greater Bangui in the Central African Republic)[615] **Amount: -**	AfDB; Implementing agency: The Ministry of Energy Development and Hydraulic Resources (MEDHR)	The project's overall objective is to sustainably improve socio-economic living conditions and the resilience of Greater Bangui's population against climate change effects, particularly flooding. The project aims to strengthen the institutional and legal framework for sanitation, prepare studies for resilient infrastructure and to promote better school attendance for children, especially girls.	While PERISA-GB is not yet in the implementation stage, both PERISA-GB and this project focus on wastewater and stormwater management in Greater Bangui and are highly complementary in enhancing urban climate resilience. While this project targets broader climate-resilient WASH infrastructure and integrated DRM, PERISA-GB concentrates on developing the essential institutional and legal frameworks for sanitation and critical master plans for rainwater and wastewater management in Bangui. PERISA-GB's work in policy and planning can directly inform and strengthen this project's implementation of resilient WASH services and urban drainage. Both projects

[615] This project is complimentary to PREDIRE

Implementation Period: Not Yet Approved			also share the objective of improving social outcomes like school attendance through enhanced sanitation.
Central Africa - Seamless approach to forecasting and warning for meteorological, hydrological and climate extremes **Amount: USD4,850,000** **Implementation period: 2022-2026**	CREWS; with World Meteorological Organisation as lead implementing partner; World Bank, Global Facility for Disaster Reduction and Recovery and United Nations Office for Disaster Risk Reduction as additional implementing partners	The main objective is to enhance the national early warning systems using a multi-hazard, impact-based and seamless approach, supported by strong regional cooperation. It is designed to be a follow-up to the ECCAS Hydromet Forum held in May 2021.	There is complementarity between the two projects despite distinct primary focuses. The CREWS project provides essential upstream foundational climate data, technical guidance and institutional capacities for national meteorological and hydrological services to generate accurate, timely climate and severe weather forecasts. This directly supports Activity 1.2.3: "Improve hydrological data systems and impact scenarios for flood and drought risks to inform early warning systems and adaptive planning in the three prefectures of Ouham, Bamingui-Bangoran and Vakaga", enabling downstream infrastructure and community-resilience efforts; in parallel, Activity 1.3.1 (institutional capacities) and Activity 2.3.1 (community training) build the ability to use and act on these warnings. This this project then ensures this climate intelligence is integrated into WASH planning and infrastructure, the CREWS project strengthens the very systems that produce and disseminate the vital early warnings, including to the community level.
Regional program for integrated water resources management in	GEF, co-financed by AfDB baseline project called 'PREDIRE'; Commission Internationale du	The main objective of the project is to strengthen climate resilience and environmental governance in the Ubangi River basin through community-led	There is no direct overlap between 11906 (Regional program for integrated water resources management in the transboundary basin of the Ubangi River […]) and this

the transboundary basin of the Ubangi River between the Central African Republic (CAR) and the Democratic Republic of Congo (DRC) **Amount: USD67,357,500** **Implementation period: 2025-2030**	Bassin du Congo-Ubangi-Sangha (CICOS), Ministry of Rural Development (DRC), Ministry of Energy Development and Hydraulic Resources (CAR) as executing partners	catchment restoration, institutional capacity-building and transboundary cooperation in order to "enhance the resilience of ecosystems and vulnerable communities to climate change impacts while ensuring the sustainable management of natural resources in the basin in 2030". The project will support inclusive governance, including the elevation of women in basin decision-making, and implement nature-based solutions such as agroforestry and erosion control to address climate risks and pollution.	project. The complementarity lies in the Ubangi Basin's critical role in ensuring the sustainable management and health of shared water resources (i.e., the Ubangi River). 11906's efforts to establish harmonised hydrometeorological data create an observatory for flood risk and water resource monitoring, and pilot pollution control measures directly contribute to maintaining the quality and quantity of source water in the Ubangi Basin. This vital basin-level environmental protection provides essential upstream foundations and early warning systems, enhancing the long-term reliability of this project.
11676: CAR Inclusive and Resilient Cities Project (PROVIR) **Amount: USD10,070,000** **Stage: Concept Approved 20 Dec 2024**	GEF; The World Bank as implementing agency	Main objective is to "Improve access to climate resilient infrastructure and basic services in selected cities" of CAR, specifically Bangui and Berberati. It focuses on two key pillars of intervention: component 1: investing in resilient infrastructure and basic services – physical infrastructure for flood and erosion risk reduction, including grey and green NbS. Supports the rehabilitation of neighbourhood infrastructure, all designed to be resilient to disasters and climate change. Component 2: strengthening capacities and community engagement. Focuses on enhancing capabilities of the state and local government entities in climate-risk informed integrated urban planning and disaster risk	Both projects prioritise addressing the adverse effects of extreme rainfall, floods and erosion in urban areas. There are investments in both projects in Bangui and Greater Bangui. 11676 compliments this project by primarily focusing on broader urban resilience against floods and erosion, directly supporting and enhancing this GCF project's specific WASH and water security objectives. Both initiatives share a critical focus on Bangui and other urban centres, aiming to build climate-resilient infrastructure (stormwater drainage, water retention basins), strengthen institutional capacity for climate-informed urban planning and early warning systems and engage communities.

		management. . It will also place strong mechanisms for citizen engagement and participatory decision-making in urban planning and investments.	This GCF project specialises in climate-resilient WASH services, improved water security and urban drainage — Activity 2.2.1: “Improve and expand Bangui’s drainage system”. It essentially creates a more resilient overall urban environment which goes to protect and optimise the effectiveness of this project’s WASH investments. Coordination actions are ongoing with the agencies and stakeholders to ensure complementary and avoid overlaps.
Strengthening the Preparedness and Response Capacities of Communities, State and Humanitarian Actors, Including Civil Society, in High-Risk Crisis Areas to Mitigate the Impact of Disasters in the Central African Republic (CAR). **Amount: 1,421,052.63** **Implementation period: 2025-2027 (24 months)**	ECHO (European Civil Protection and Humanitarian Aid Operations); Implementing partner: Oxfam, Bria Londo; and the French Red Cross and the Central African Red Cross	The main objective of this project is to strengthen the resilience and autonomy of populations by supporting communities, state and humanitarian actors in developing their capacities to prepare for and respond to disasters in CAR. It is a 24-month initiative in the prefectures of Bangui and Haute-Kotto, and is a consortium composed of Oxfam, its local partner Bria London, and the French and Central African Red Cross.	The complementarity between this project and Oxfam’s ‘Strengthening the Preparedness and Response Capacities of Communities […] ‘project is that this project establishes crucial national policies and institutional capacities for climate-resilient WASH, including improved hydrological data for early warning. This upstream work creates a more resilient foundation, reducing emergency response burdens. Concurrently, the Oxfam project’s focus on establishing Community Early Warning Systems and vulnerability observatories, coupled with crisis preparedness training, provides essential ground-level intelligence and rapid action, operationalising this project’s broader framework. This project builds robust infrastructure and governance, while Oxfam’s project equips communities to react effectively to climate shocks. An additional complementary overlap

exists in their shared aim to strengthen EWSs and DRR capacity building. These link directly to Activity 1.3.1 (national institutional capacities on climate across WASH and adjacent sectors) and Activity 2.3.1 (training on climate risk assessment, conflict-sensitive resilience planning, disaster preparedness).

Barrier analysis

Barriers for this project have been identified through a review of primary and secondary sources, as well as through the stakeholder engagement process. Primary sources include relevant sectoral reports and in-country consultations with relevant experts at national level and provincial level. Consultations were conducted during the CN stage, as well as at the beginning of full proposal development stage. The secondary review included an extensive desktop review, which collated documents from different climate sectors and development sector actors, focusing on climate change issues in CAR and socioeconomic and gender baselines. Additionally, relevant project documents of complementary projects were reviewed to understand the root causes for barriers hindering climate adaptation at a national and local level.

Table 61. Key barriers

Barrier category	Specific barrier	Project interventions to address
Institutional	**There is weak climate change adaptation policy implementation and institutional functioning,[616] which hinders the mainstreaming of climate resilience into WASH strategies and the development of climate-resilient WASH programs**. Despite the establishment of a dedicated environment ministry and a regulatory framework, the CAR's capacity to translate climate change adaptation policies into action and the overall effectiveness of its institutional mechanisms remain limited.[617] The climate governance framework in CAR notably lacks clear accountability, and responsibilities are often scattered across various agencies without precise definitions.[618] This organizational ambiguity leads to inefficiencies and duplication of effort,	Activities contributing to **Output 1.3** will strengthen institutional capacities and governance for CR-WASH and climate adaptation, while activities contributing to **Output 1.1** will integrate climate change adaptation in policies and standards/regulations.

[616] Central African Republic. (2022). *Plan National d'Adaptation (PNA) de la République Centrafricaine*. https://unfccc.int/documents/460795
[617] Ibid.
[618] World Bank Group. (2021). *Climate Risk Country Profile: Central African Republic*. https://climateknowledgeportal.worldbank.org/sites/default/files/2021-06/15875-WB_Central%20Africa%20Republic%20Country%20Profile-WEB.pdf

making it challenging to assign ownership for, monitor the progress of, and ensure the effectiveness of climate-resilient WASH initiatives.	
There is low awareness, understanding and institutional capacity for climate change, climate-resilient WASH and climate-resilient water resource management. A lack of comprehension regarding climate change concepts and tools within governmental and related institutions obstructs the adoption and implementation of relevant policies and practices.[619] This gap inhibits the integration of climate resilience principles into WASH planning, design, and operations.	Activities contributing to **Output 1.3** will strengthen institutional capacities and governance on climate change.
There is inconsistent integration of WASH and climate into sectoral strategies. The mainstreaming of WASH considerations into national climate strategies and plans, and conversely, the inclusion of climate aspects into WASH sectoral documents, is not systematic and often lacks coherence. This fragmented planning means that WASH investments may not adequately account for climate risks, and climate adaptation efforts may overlook critical WASH vulnerabilities.	Activities contributing to **Output 1.3** will strengthen institutional capacities and governance for CR-WASH and climate adaptation, while activities contributing to **Output 1.2** will allow evidence-based WASH, WRM, DRR, and EWS to be informed by improved planning, climate and WASH monitoring information, MEL framework, data integration, and institutionalization of data-related mandates. In addition, activities contributing to **Output 1.1** will update/develop key national climate policies, strategies, technical standards and regulations to integrate adaptation, WASH, WRM, and DRR.
There is limited intersectoral and inter-ministerial coordination,[620] which prevents a unified government response for designing and implementing DRR and climate resilient WASH solutions. The lack of robust collaboration between ministries leads to dispersed responsibilities and a disjointed approach, meaning that efforts to reduce	Activities contributing to **Output 1.3** will improve cross-sectoral governance mechanisms and stakeholder coordination on climate to bridge existing silos. In addition, activities

[619] Central African Republic. (2022). *Plan National d'Adaptation (PNA) de la République Centrafricaine*. https://unfccc.int/documents/460795

[620] Central African Republic. (2022). *Plan National d'Adaptation (PNA) de la République Centrafricaine*. https://unfccc.int/documents/460795

	disaster risk are often separate from climate change adaptation initiatives.[621] A disconnection is observed between WASH programs, water resource management programs, and disaster risk reduction programs.	contributing to **Output 1.1** will update and develop key national policies, strategies, technical standards and regulations to better integrate climate adaptation, WASH, WRM, and DRR.
	There is insufficient local government participation in adaptation,[622] which hinders the development of climate-resilient WASH infrastructure. Despite legal frameworks favouring decentralization, its uneven implementation means that local-level engagement in climate change adaptation is virtually absent, with a top-down approach prevailing. This stifles community-led initiatives and localized understanding of climate risks, which are crucial for tailoring and sustaining climate-resilient WASH interventions effectively at the grassroots level. Sub-national entities, vital for local implementation, are sidelined by a lack of resources, authority, and capacity. This fragmented approach prevents a coordinated and community-centred effort, hindering the successful implementation of climate-resilient WASH policies at the local level where they are most needed.	Activities contributing to **Output 2.1** will develop capacities of local governments to design, operate, maintain, and monitor climate-resilient WASH services. Activities contributing to **Output 1.3** will strengthen national institutional capacities on climate across the WASH and adjacent sectors. In addition, activities contributing to **Output 2.3** will engage and train local stakeholders, including governments, in climate risk assessments, conflict-sensitive resilience planning, and disaster preparedness.
	There is a fragile and conflict-affected context. The project operates in regions with weakened state authority and persistent insecurity, which risks eroding service continuity and complicates long-term planning.	Activities contributing to **Output 1.3** will strengthen institutional resilience to maintain service delivery, and activities under **Outputs 2.1 and 2.3** will foster community autonomy and local ownership, ensuring that WASH infrastructure maintenance remains sustainable even when external support is intermittent.

[621] Central African Republic. (2022). *Plan National d'Adaptation (PNA) de la République Centrafricaine*. https://unfccc.int/documents/460795

[622] Central African Republic. (2022). *Plan National d'Adaptation (PNA) de la République Centrafricaine*. https://unfccc.int/documents/460795

Community and non-state actors	**There is limited community awareness and engagement of non-state actors in climate change adaptation,[623] which prevents effective disaster risk reduction and the development of climate-resilient WASH**. Women, indigenous peoples, and youth are very poorly represented in coordination and consultation related to adaptation.[624] Furthermore, there is a lack of representation for other vulnerable groups, particularly displaced persons and people with disabilities, as well as an absence of private sector engagement.[625]	Activities contributing to **Output 2.3** will engage and train local stakeholders in climate risk assessment, conflict-sensitive resilience planning, and disaster preparedness. In addition, activities contributing to **Output 2.1** will promote CR-WASH and sanitation through climate-adapted community-led total sanitation (CLTS) and nationwide awareness-raising.
Financial	**There is an insufficient allocation of public and IFI financial resources to climate change adaptation and WASH, in particular for the additional costs involved in building, retrofitting and maintaining climate-resilient WASH infrastructures and services**. The CAR faces significant domestic financial barriers to developing climate-resilient WASH, primarily due to its status as a LDC with extremely limited internal resources.[626] The capacity of governments to cover high costs associated with making WASH infrastructure climate-resilient is limited, and funding from development partners is both insufficient and becoming increasingly scarce, creating a critical financing gap for CR-WASH.	Activities contributing to **Output 1.1** will promote increased investment in adaptation and climate-resilient WASH from national budgets and local governments, among other stakeholders. In addition, activities contributing to **Output 2.1** will construct or rehabilitate CR-WASH infrastructure, explore and promote context-relevant, affordable and viable

[623] Central African Republic. (2022). *Plan National d'Adaptation (PNA) de la République Centrafricaine*. https://unfccc.int/documents/460795
[624] Central African Republic. (2022). *Plan National d'Adaptation (PNA) de la République Centrafricaine*. https://unfccc.int/documents/460795
[625] Central African Republic. (2022). *Plan National d'Adaptation (PNA) de la République Centrafricaine*. https://unfccc.int/documents/460795
[626] Ministère de l'Environnement et du Développement Durable, Coordination Nationale Climat. (2020). *Évaluation des Besoins en Technologies: Rapport - Analyse des Barrières et Cadres Propices à la Mise en Œuvre des Technologies d'Adaptation aux Changements Climatiques en République Centrafricaine*.

		financial schemes for climate-resilient WASH services, and support the engagement of local entrepreneurs/ youth-led businesses.
	There is a lack of financial resources for CR-WASH and WASH maintenance among communities. The WASH system in rural areas suffers from communities' low ability and willingness to pay, as rural populations often have very limited financial resources. Poverty is a predominant factor preventing regular payment of contributions for water point maintenance,[627] and households face low capacity to pay for improved latrines. There is a high proportion of broken pumps in rural areas, despite community responsibility for maintenance,[628] pointing to insufficient financial resources.	Activities contributing to **Output 2.1** will explore and promote context-relevant, affordable and viable financial schemes for CR-WASH services and support the engagement of local entrepreneurs and youth-led businesses, and develop the capacities of communities to design, operate, maintain, and monitor CR-WASH services.
Gender	**There is a lack of engagement of women and girls in climate and WASH issues. Women are very poorly represented in coordination and consultation activities related to climate adaptation,[629] including in relevant decision-making bodies.[630] There is a general recognition of the preeminent role women play in the use, management and preservation of water resources,[631] however this potential is currently not fully realized due to poor representation.**	Activities contributing to **Output 2.3** will engage and train local stakeholders, including women, in climate risk assessment, climate resilience planning and disaster preparedness measures.
	The limited access to WASH facilities in schools impedes girls' participation. There is a general insufficiency of WASH facilities in schools, including menstrual hygiene management (MHM) facilities, with only 4% of surveyed schools having adequate facilities for girls' MHM.[632] This situation leads to school absenteeism, with more than half of girls missing school during their periods.[633]	Activities contributing to **Output 2.1** will improve CR-WASH infrastructure in schools, including gender-separated latrines, and dedicated spaces or cubicle for menstrual hygiene management.

[627] URD. (2015). Gestion Sociale de l'eau : Projet d'amélioration de l'accès à l'eau pour les populations vulnérables à l'insécurité alimentaire dans la sous-préfecture de Kabo, Rapport d'étude Février 2015.
[628] GWP. (2010). Rapport RCA: Développement d'une stratégie de financement du secteur de l'eau en Afrique centrale – Etude nationale sur le financement du secteur de l'eau.
[629] Central African Republic. (2022). *Plan National d'Adaptation (PNA) de la République Centrafricaine*. https://unfccc.int/documents/460795
[630] Ministère de l'Environnement et du Développement Durable (MEDD). (2023). Stratégie Nationale Genre et Changements Climatiques de la République Centrafricaine 2023-2030.
[631] Ministère de l'Environnement et du Développement Durable (MEDD). (2023). Premier Rapport Biennal Actualisé de la République Centrafricaine.
[632] Global Education Cluster. (2023). Evaluation conjointe des besoins en matière d'Education et Protection de l'enfance en République Centrafricaine 2023.
[633] Global Education Cluster. (2023). Evaluation conjointe des besoins en matière d'Education et Protection de l'enfance en République Centrafricaine 2023.

Knowledge management and capacity	**Insufficient meteorological and hydrological monitoring, data and analysis hinders effective disaster risk management**. There is no EWS, related institutional mandates and capacities are weak, government authorities and development partners do not coordinate on their respective initiatives and plans. The weak technical and financial capacity of the Directorate of Meteorology and the limited involvement of national research institutions restrict the country's ability to generate accurate, impact-based climate forecasts and projections.[634] Without reliable data, it is exceedingly difficult to adequately plan, design, and site climate-resilient WASH infrastructure, making it vulnerable to future climate shocks.	Activities contributing to **Output 1.2** will allow evidence based WRM, DRR, and WASH planning to be informed by improved planning, climate and WASH monitoring information, MEL framework, data integration, and institutionalization of data-related mandates. Activities contributing to **Output 2.1** will conduct hydrogeological studies to identify areas of highest groundwater potential and inform adaptation planning. Activities contributing to **Output 2.3** will support local stakeholders to strengthen surface- and groundwater quality monitoring to better understand, anticipate, and respond to climate change impacts.
	There is a critical shortage of qualified personnel across the meteorology, WASH, Integrated Water Resources Management (IWRM), Disaster Risk Reduction (DRR), climate, and environment sectors, severely limiting operational capacity. This hinders climate predictions and the effective management of water resources. The situation is dire at subnational and decentralized levels (prefecture, sub-prefecture, and municipality), where water departments often have as few as three staff members - a head and two officers - who frequently lack any WASH qualifications, often being teachers by training. Compounding this deficit is a significant lack of equipment: most prefecture water departments have zero or only one vehicle, along with insufficient motorbikes, laptops, reliable internet access (Wi-Fi or data networks), and even basic mobile phones and phone credit. This pervasive lack of qualified staff and functional equipment hinders the CAR's ability to implement effective climate-resilient WASH initiatives.	Activities contributing to **Output 1.3** will strengthen national institutional capacities on climate across the WASH and adjacent sectors. Activities contributing to **Output 2.1** will develop capacities of local governments, communities, water operators and the private sector to design, operate, maintain and monitor climate-resilient WASH services. Activities contributing to **Output 2.3** will engage and train local stakeholders, including governments, in climate risk assessment, conflict-sensitive resilience planning, and disaster preparedness.

[634] Central African Republic. (2022). *Plan National d'Adaptation (PNA) de la République Centrafricaine*. https://unfccc.int/documents/460795

There is insufficient evidence gathered and/or shared on the impact of climate change and extreme events on WASH services and the communities which depend on these, and on water resources. The country lacks a functional national observation system for climate[635] and water resources,[636] and existing data is often outdated, incomplete, and not systematically monitored or shared. This limited information, combined with poor inter-ministerial coordination and insufficient financial and technical capacity, hinders the ability to assess risks, integrate climate adaptation into national policies, and effectively protect vulnerable populations**.**	Activities contributing to **Output 1.2** will Improve hydrological data systems and impact scenarios for flood and drought risks to inform early warning systems and adaptive planning. Activities contributing to **Output 2.1** will conduct hydrogeological studies to identify areas of highest groundwater potential and inform adaptation planning. In addition, activities contributing to **Output 2.3** will support local stakeholders in strengthening surface and groundwater monitoring to better understand, anticipate, and respond to climate change impacts.
There is insufficient guidance, documentation and exchange/coordination among stakeholders on climate-resilient WASH,[637] which prevents the shift to climate-resilient WASH programming, as well as learning and knowledge sharing.	Activities contributing to **Output 1.1** will update/develop key national climate policies, strategies, technical standards and regulations to integrate adaptation, WASH, WRM and DRR. Activities contributing to **Output 1.2** will adapt and strengthen sectoral and intersectoral MEL to better integrate climate resilience, sustainability and lessons learned into policy and practice and disseminate knowledge. Finally, activities contributing to **Output 1.3** will improve cross-sectoral governance mechanisms and stakeholder

[635] Central African Republic. (2022). *Plan National d'Adaptation (PNA) de la République Centrafricaine*. https://unfccc.int/documents/460795

[636] UNICEF. (2023). Étude hydrogéologique en République Centrafricaine : Rapport sur l'état de connaissance des ressources en eau.

[637] UNICEF. (2023). *WASH Systems Strengthening in Africa: Knowledge and Capacity Mapping* https://www.ircwash.org/sites/default/files/sites-pd-wash-wash_knowledge_unicef-tp012023_wash_systems_strengthening_mapping_knowledge_and_capacities-4.0.pdf

		coordination on climate to bridge existing silos.
Infrastructure	**There is limited water storage capacity to buffer against drought periods and withstand climate change.** Water infrastructure is inadequate, characterized by insufficient production and storage capacity, particularly in urban areas where the distribution network is dilapidated,[638] leading to frequent supply interruptions. Widespread lack of infrastructure for safe water access exists throughout the country,[639] with many systems, such as handpumps, being fragile and poorly maintained. A key exacerbating factor is the absence of climate-resilient design, as the country's water supply systems are not engineered to withstand climate shocks.[640]	Activities contributing to **Output 2.1** will construct or rehabilitate CR-WASH infrastructure, including by installing and scaling up climate-resilient water systems by building, rehabilitating, or retrofitting piped water supply networks. This includes the expansion or installation of water storage facilities.
	There is an over-reliance on climate-vulnerable surface water sources among various sectors and communities. Although groundwater is the primary water source for most communities, certain communities in rural areas and Bangui use surface water from rivers, streams and lakes for domestic purposes.[641] Pastoral communities, agriculture and livestock frequently rely on surface water and are directly affected by the availability and flow of such bodies,[642] which are inherently vulnerable to climate change and extreme weather events such as droughts.	Activities contributing to **Output 2.1** will construct or rehabilitate CR-WASH infrastructure, including climate-resilient water systems. In addition, activities contributing to **Output 2.3** will support local stakeholders in strengthening surface water monitoring to better understand, anticipate, and respond to climate change impacts.
	Sanitation systems are susceptible to flooding and contamination, and not designed to withstand climate change. The existing infrastructure is poorly equipped to manage climate shocks,[643] with intense rainfall and floods frequently overwhelming systems in both urban and rural areas.[644] This leads to the contamination of surface and groundwater with Faecal matter and	Activities contributing to **Output 2.1** will construct or rehabilitate CR-WASH infrastructure, including climate-resilient sanitation systems. Activities contributing to **Output 2.2** will reinforce and expand

[638] UMDF. (2024). Profil Urbain : Elaboration de Plans d'Action des Villes dans le Cadre du Programme Villes Africaines - Lot 4 : Bangui.
[639] UNICEF. (2025). *Analyse du paysage climatique pour les enfants (CLAC) en République Centrafricaine.*
[640] UNICEF. (2025). *Analyse du paysage climatique pour les enfants (CLAC) en République Centrafricaine.*
[641] UNICEF. (2025). *Analyse du paysage climatique pour les enfants (CLAC) en République Centrafricaine.*
[642] Ministère de l'Environnement et du Développement Durable, République Centrafricaine. (2022). *Troisième Communication Nationale de la République Centrafricaine*. https://unfccc.int/sites/default/files/resource/TNC%20VF%20FR.pdf
[643] World Bank Group. (2024). *Central African Republic country climate and development report*. https://openknowledge.worldbank.org/server/api/core/bitstreams/e1553b3b-3ce6-4800-8f93-476e7c89d21b/content

[644] GWP. (2022). Central Arican Republic snapshot on water and climate.

	pathogens,[645] a process that aggravates water stress and poses a significant public health risk. The lack of a functional sanitation network and climate-resilient design results in groundwater pollution, which contributes to the propagation of waterborne diseases like cholera and diarrhoea.[646]	climate-resilient urban drainage infrastructure in Bangui.

Stakeholder consultations and ownership

As part of the project's Stakeholder Engagement Plan (SEP), a comprehensive approach to stakeholder consultations was designed, ensuring inclusive, open and ongoing interaction with all relevant stakeholders throughout the project's phases.
The primary aim of the consultations was to ensure that stakeholders' opinions significantly inform and influence project design, implementation, and monitoring. Key objectives included:

- To create an organized structure for inclusive and ongoing interaction with stakeholders.
- To identify needs, risks, and priorities directly from affected populations and other relevant actors.
- To ensure active engagement from government institutions, civil society organizations, local communities, and vulnerable groups.
- To achieve significant and fair participation, especially from women, Indigenous Peoples, young people, children, individuals with disabilities, and other underprivileged or minority groups, giving them the possibility to actively shape decision-making processes.
- To define procedures for the grievance redress mechanism, ensuring accessible and culturally appropriate channels.
- To align the project with national priorities and local needs, fostering country ownership.

Consultations were built upon internationally recognized principles to ensure meaningful, effective, and ethical participation, including inclusiveness and equity, transparency and accountability, cultural sensitivity, child-sensitive approach, Do No Harm, and Free, Prior and Informed Consent (FPIC). A multi-layered, adaptive and participatory framework was used, combining institutional coordination with community-level inclusion. The methodology included Focus Group Discussions, digital surveys (Kobo Toolbox), community stakeholder workshops, site observations and transect walks, and specific consultations for indigenous people. Table 62 outlines the main stakeholder groups which were consulted during this process, the key inputs gathered through consultations and the primary project design changes made as a result of the consultations. Annex 7 (Stakeholder Engagement Plan) details the general methodology and processes used to identify, report and consult stakeholders so that their opinions significantly inform and influence project design, implementation and monitoring.

A portion of Table 62 has been redacted in accordance with the GCF Information Disclosure Policy, as the portion is confidential under the disclosure policy of the Accredited Entity

Table 62. Stakeholder consultation inputs and projection design changes

[645] GWP. (2022). Central Arican Republic snapshot on water and climate.
[646] UNICEF. (2025). *Analyse du paysage climatique pour les enfants (CLAC) en République Centrafricaine.*

Stakeholder group	Consultation date	Location	Key inputs	Project design changes
National government agencies	[redacted]		- Identification policy and planning gaps, including a lack of climate risk integration in WASH policies and limited inter-ministerial coordination • Offered political guidance, technical expertise, support for community mobilization, and monitoring and data access	- Validation of the project's core design focus on developing climate-resilient infrastructure - Incorporation of activities to ensure policy alignment, regulatory support, and integration with national climate and WASH strategies - Emphasis on strengthening inter-ministerial and inter-agency coordination
Local authorities	[redacted]		• Identified local planning barriers, including low dissemination of local development plans • Identified key local needs, including enhanced knowledge of water resources and community-based EWS	- Validation of project's focus on climate-resilient infrastructure - Activities such as creation of new water points using hybrid systems - Project design solidified to incorporate support for local institutional services
CSOs, NGOs	[redacted]		• Emphasised the importance of equitable access to WASH facilities for women and other vulnerable groups, including gender-separated facilities, features for people with disabilities and menstrual hygiene management components • Identified environmental and social risks and mitigation measures • Emphasised community ownership, leveraging traditional knowledge and local practices	• Prioritisation of inclusive participation, involving women, youth, Ips, and other vulnerable groups in decision-making - Focus on gender-inclusive governance and targeted hygiene promotion • Integration of local ownership, capacity building and training of local communities to manage and maintain WASH infrastructure
UN Agencies,	[redacted]		• Identified potential for project integration with	- Involvement of UN Agencies and development partners

development partners	[redacted]	other donor-funded initiatives • Offered support for monitoring, evaluation and scaling, and capacity building activities	in multiple project activities: contribution to policy development, capacity building, data management, direct implementation, and overall project governance and coordination.
Private sector	[redacted]	- Highlighted opportunities for public-private collaboration (equipment supply, technical services, build-operate-transfer agreements) • Identified risks including security concerns, infrastructure vulnerability, operating costs, regulatory environment - Offered insights into local job creation, technical and logistical capacities to provide CR-WASH infrastructure	- Leveraging private sector for service delivery (supply chain readiness, local delivery capacity) - Involvement in implementation of CR-WASH services and urban drainage infrastructure, technological innovation, community engagement
Academic and research bodies	[redacted]	- Offered support with research and monitoring on climate change impacts on water access, gender and WASH, provision of baseline data on water resources • Identified opportunities for collaboration between academic, public and private sectors for innovation	- Integration in trainings on hydrometeorological equipment capacities and EWS - Capacity-building support to key government agencies on interpretation of satellite imagery - Universities as implementing partners in the creation of an interactive climate event mapping system - Participation in the institutionalization of annual WASH and IWRM sector reviews
Women and adolescent girls	[redacted]	• Emphasised gender-specific issues; disproportionate burden of water collection, limited representation in decision-making,	• Inclusion of gender equality, youth engagement and climate-informed governance as cross-cutting priorities

	[redacted]	sanitation failures and menstrual hygiene, GBV, need for inclusive infrastructure	• Community-based early warning and water resource monitoring systems leveraging women's knowledge as primary water managers - Inclusion of women in management committees - Monitoring framework tracking the frequency and consistency of participation by women and adolescent girls
Children and youth	[redacted]	• Identified critical issues including limited inclusion in decision-making and water governance, limited training and knowledge of the WASH sector, health risks from unsafe water and poor sanitation	- Youth engagement as a cross-cutting project priority - Inclusion of capacity building and training for young people on skills such as plumbing and solar pumping - Commitment to information accessibility for children with school-based outreach campaigns
Indigenous Peoples, Pastoralists	[redacted]	• Identified exclusion from public services, insufficient access to drinking water and sanitation • Noted particular vulnerability to climate impacts on livelihoods through livestock • Identified land tenure insecurity as a key barrier preventing access to permanent WASH facilities • Expressed desire for integration of traditional knowledge in project design and need for culturally adapted communications in local language	- FPIC principles application when engaging with indigenous groups - Cross-cutting priority on inclusiveness and equity - Active involvement of indigenous groups in decision-making - Commitment to building new water boreholes directly within Fulani camps - Integration of traditional knowledge from local leaders into project design - Production of communication and educational materials in indigenous languages

Internally Displaced Persons	[redacted]	• Emphasised limited access to basic services, lack of representation in planning and high vulnerability to climate impacts as critical barriers	- Integration of IDPs as primary stakeholders and key project beneficiaries • Commitment to promoting IDPs participation, access to services and infrastructure, capacity-building and awareness • Inclusion of remote engagement mechanisms (e.g. SMS-platforms) in insecurity settings to ensure engagement with IDPs
People with disabilities	[redacted]	- Highlighted reduced mobility during floods, difficulty accessing emergency services, higher health risks during extreme weather conditions, and limited access to adaptation information as critical challenges • Expressed need for physically accessible facilities, adapted handwashing stations, assistance mechanisms at water points, and accessible project information	• Inclusion of accessible infrastructure designs for WASH facilities (ramps, handrails, assistance mechanisms) •
Elders	[redacted]	• Identified elders as a vulnerable and marginalized group - Highlighted specific vulnerabilities including higher health risks during extreme weather conditions, high social and structural barriers, lack of inclusive facilities and information	- Adoption of pro-active approach to guarantee elders' inclusion in decision-making processes - Age-inclusive grievance redress mechanism (GRM)

Project Information Disclosure Plan

The project is committed to transparency and ensuring that affected and interested stakeholders have access to relevant information. Information will be disclosed in accordance with UNICEF's and the GCF's Information Disclosure Policies. Disclosure of safeguard instruments will occur at least 30 days prior to project decisions. Key project documents will be made available online and in physical locations in French as detailed below.

Table 63. Project Information Disclosure Plan.

Document for Disclosure	Online and Physical Venues	Timing of Disclosure
Funding Proposal & Annexes (redacted summary)	Online: • UNICEF CAR Website: https://www.unicef.org/car • GCF Website: https://greenclimate.fund/projects Physical: UNICEF offices in Bangui, Bossangoa, Ndélé, and Birao.	Simultaneous with submission to the GCF Board.
Stakeholder Engagement Plan (SEP) & Environmental and Social Management Framework (ESMF)	Online: UNICEF CAR Website: https://www.unicef.org/car Physical: • Full documents at project offices. • Summaries shared during all community inception meetings.	Upon project inception, before field activities begin.
Annual Performance Report (APR) Summaries	Online: UNICEF CAR Website: https://www.unicef.org/car Physical: Key findings shared at annual community review meetings.	Annually, following submission to the GCF.
Grievance Redress Mechanism (GRM) Information	Physical & Verbal: • Posters and brochures at all project sites, community centres, and local government offices. • Information will be explained verbally during all community meetings.	Throughout the project lifecycle, starting at inception.

Project design

Theory of change

Based on the barrier analysis presented in Section 6.2, the theory of change has been developed with specific outputs that address these barriers and lead to greater climate resilience of WASH services and communities in the CAR. IF government and community actors in the Central African Republic are equipped, resourced and have the capacity to (i) use climate data for risk-informed planning, (ii) apply and finance standards for climate-resilient water, sanitation and hygiene (WASH) infrastructure, (iii) strengthen water-resources and disaster-risk management, and (iv) operate multi-hazard early warning systems,

THEN households, schools and healthcare facilities in the targeted prefectures will have access to safer, more resilient and reliable WASH services and reduced losses from floods and droughts,

BECAUSE policies, budgets, coordination and capacity will direct investments toward climate risk-appropriate designs, operation and maintenance (O&M) will be funded and enforced, demand for climate resilient WASH services will be created and timely warnings with community engagement will trigger protective actions.

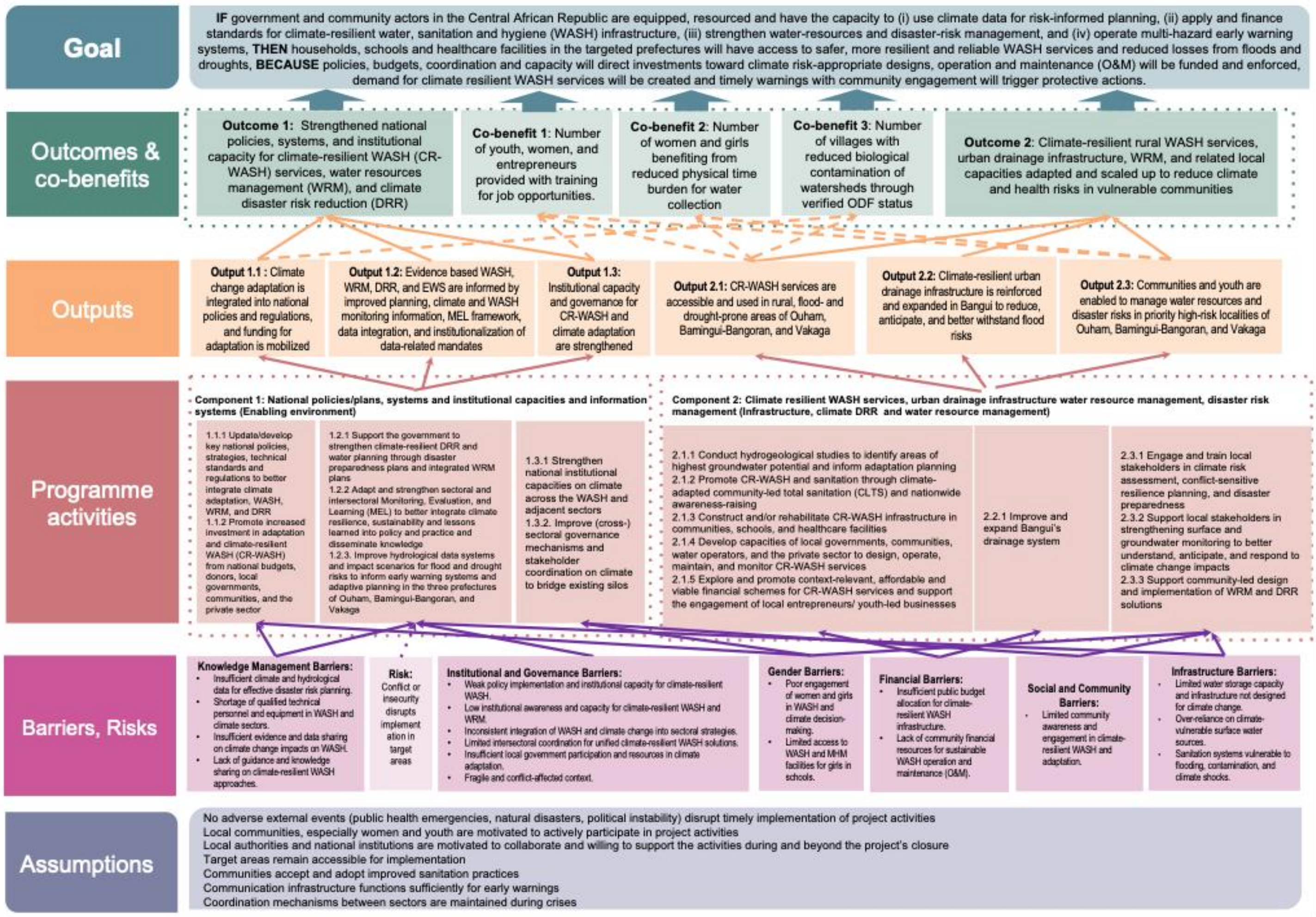
Figure 83 presents the high-level logical pathway with which the project will contribute towards a paradigm shift for climate-resilient WASH in CAR. The project statement presents the causal linkages between the project outputs, outcomes and the goal that the project will contribute towards.

IF government and community actors in the Central African Republic are equipped, resourced and have the capacity to (i) use climate data for risk-informed planning, (ii) apply and finance standards for climate-resilient water, sanitation and hygiene (WASH) infrastructure, (iii) strengthen water-resources and disaster-risk management, and (iv) operate multi-hazard early warning systems,

THEN households, schools and healthcare facilities in the targeted prefectures will have access to safer, more resilient and reliable WASH services and reduced losses from floods and droughts,

BECAUSE policies, budgets, coordination and capacity will direct investments toward climate risk-appropriate designs, operation and maintenance (O&M) will be funded and enforced, demand for climate resilient WASH services will be created and timely warnings with community engagement will trigger protective actions.

Figure 83: Theory of Change diagram



The causal pathway for the project focuses on two complimentary intervention streams that in combination will result in the desired impact.

Firstly, the project focuses on strengthening the enabling environment for climate-resilient WASH services in CAR. This includes updating national policies and regulations to integrate climate adaptation, improving financing mechanisms, and building institutional capacities across government sectors and stakeholders to ensure long-term sustainability. These efforts will also promote low-carbon WASH solutions (such as solar-powered systems) contributing to GHG emission reductions and supporting green job creation. Additionally, the project leverages data from intersectoral monitoring, evaluation, and learning systems, as well as EWS, to inform evidence-based planning for water resource management, disaster risk reduction, and delivery of CR WASH services.

Secondly, the project directly improves the climate resilience of WASH services for vulnerable communities. It does so by expanding access to climate-resilient infrastructure, including solar-powered water systems (in replacement of diesel pumps) and rainwater harvesting in rural and climate-prone areas. In urban settings, it supports the rehabilitation and extension of drainage networks to mitigate flooding and protect critical WASH facilities. These infrastructure investments are complemented by community empowerment initiatives, equipping youth and women with the knowledge and skills for local water management and disaster preparedness. This not only ensures the sustainability of interventions but also fosters employment and technical skill development.

Together, the project's interventions in these focal areas combine to ensure that national policies and institutional capacities are directly linked with improvements in community WASH services. By focusing on the enabling environment on the one hand and the infrastructure and community empowerment on the other hand, the project creates an approach where improved governance and planning inform more effective and resilient local-level actions. Ultimately, this will reduce climate-related risks and create more sustainable and widespread access to climate-resilient WASH for vulnerable populations across CAR.

Co-benefits: The project's co-benefit 1 centres on providing youth, women and entrepreneurs with training for job opportunities. This will promote skill development among local communities, thereby improving livelihoods and strengthening the local workforce. Co-benefit 2 addresses the disproportionate physical time burden placed on women and girls, who bear the primary responsibility for water collection in the majority of CAR households. By improving infrastructure access, the project reduces travel time, decreasing exposure to safety and protection risks, such as gender-based violence, while supporting educational and economic opportunities for women and girls. Co-benefit 3 focuses on improving water quality by scaling verified Open Defecation Free (ODF) communities. This mitigates the spread of waterborne diseases like cholera and diarrhoea, especially during flood events, preserving local watershed health.

Risks: The project faces several risks that could affect the success of its interventions. Firstly, political instability is a concern, with changes in government or institutional leadership creating changes in priorities, potentially deprioritizing a focus on climate-resilient WASH. Secondly, conflict or insecurity could disrupt project implementation by preventing access to target communities and locations. The potential for insufficient resources for long-term maintenance could also lead to infrastructure falling into disrepair. The project's success and sustainability depend on community adoption of new infrastructures and practices, and low buy-in could undermine efforts to enhance climate-resilient WASH. Another risk is that diesel-based pumping solutions will be preferred if uncoordinated investments take place leading to increases in GHG emission, and if local labour markets are unable to absorb project-supported training, job creation impacts could be diminished.

Assumptions: The project design is based on the following assumptions: i) No adverse external events (public health emergencies, disasters, political instability) disrupt timely implementation of project activities; ii) Local communities, especially women and youth are motivated to actively participate in project activities; iii) Local authorities and national institutions are motivated to collaborate and willing to support the activities beyond the project's closure; iv) Target areas remain accessible for implementation; v) Communities accept and adopt improved sanitation practices; vi) Communication infrastructure functions sufficiently for early warnings; vii) Coordination mechanisms between sectors are maintained during crises.

Project structure

This section details the outcomes, outputs and activities included in this proposal which contribute to creating a paradigm shift in the WASH sector and in climate-resilient WASH services in the CAR. Project interventions have undergone an options appraisal demonstrating that the interventions are based on credible analysis of alternatives, avoid maladaptation risks, and represent the best fit under the CAR's climate, hydrogeological and institutional context. Technology and service delivery choices have been tested against alternatives for climate robustness, technical feasibility, lifecycle cost, social inclusion and safeguards risks. A detailed options appraisal for project interventions can be found in options analysis.

Outcome 1: Strengthened national policies, systems, and institutional capacity for climate-resilient WASH (CR-WASH) services, water resources management (WRM), and climate disaster risk reduction (DRR)

This outcome aims to strengthen the enabling environment for climate-resilient WASH services in the CAR. This involves improving the policy, governance, and financial frameworks as well as the institutional capacity and knowledge management to better integrate climate adaptation, WRM and DRR. This will be achieved through three outputs:

- Output 1.1**:** Climate change adaptation is integrated into national policies and regulations, and funding for adaptation is mobilized
- Output 1.2: Evidence based WASH, WRM, DRR, and EWS are informed by improved planning, climate and WASH monitoring information, MEL framework, data integration, and institutionalization of data-related mandates
- Output 1.3: Institutional capacity and governance for CR-WASH and climate adaptation are strengthened

Output 1.1: Climate change adaptation is integrated into national policies and regulations, and funding for adaptation is mobilized.

This output primarily seeks to strengthen the policy, regulatory, and financial foundations required for CR-WASH services in the CAR. Its strategic objective is to address systemic barriers—such as the absence of integrated climate considerations in national policies and persistent funding gaps—in order to establish an enabling framework for CR-WASH. By improving the strategic and regulatory environment and mobilizing targeted investment, the output will foster a shared sector vision, guide coordinated stakeholder action, and support the effective delivery of climate-resilient WASH services to vulnerable communities. Activities contributing to output 1.1 are outlined below.

Table 64. Activity 1.1.1

Activity 1.1.1: Update/develop key national policies, strategies, technical standards and regulations to better integrate climate adaptation, WASH, WRM, and DRR	
Baseline	The NDC and NAP address water supply and water resource management with specific objectives and priority projects. However, sanitation and urban drainage are not included in the NAP, even though all stakeholders consider them important. The National Disaster Risk Reduction and Climate Adaptation Strategy, the National Drought Plan, and the current GCF country programme contain little reference to promoting CR-WASH and IWRM. The next iteration of these documents will need to address these gaps. While CAR has developed DRR strategies, they only partly integrate water resources and WASH-related challenges, and implementation faces severe capacity and funding constraints. Climate risks and resilience, gender, and inclusion remain insufficiently integrated into WASH policies, standards, regulations, and financing mechanisms. The Water Policy (2021), the Norms and Guidelines for WASH in Rural and Semi-Urban Areas (2014), and the Practical Guide for CLTS implementation (2021), all developed by the Ministry of Energy Development and Hydraulic Resources, lack explicit climate-resilient provisions and specific considerations for women, children, pastoralists, and

other vulnerable groups/households. This gap concerns WASH infrastructure design (e.g., flood- and drought-resistant water supply systems and sanitation facilities), service management, tariff schemes, and business/financing models, and therefore affects WASH service use and sustainability. Guidelines for WASH in schools do not exist, and those for health care centres are still being finalized. Planned national programmes for WASH, IWRM, large water infrastructure, and sector governance have not been developed.

A comprehensive revision of national policies, strategies, guidelines, and plans is therefore needed to better integrate climate adaptation, gender, inclusion, and WASH/IWRM. Such revisions would help define a shared vision, mobilize additional funding, and guide coordinated action by government and development partners.

Description

This activity will address gaps in CAR's policy and regulatory framework by integrating climate adaptation, DRR, WASH, and WRM into the key national policies, strategies, and technical guidelines mentioned above, ensuring alignment and cross-sectoral coherence. It will mainstream climate-resilient WASH services, WRM, and climate-related DRR, while guiding and improving strategic planning and programming across government entities, subnational and local stakeholders, and development partners for large-scale climate adaptation. The activity will also strengthen the gender, equity, and inclusion lens in key sectoral documents. It is composed of the sub-activities described below.

Sub-activity 1.1.1.1: Developing, revising, and rolling out technical standards and programming guidelines for climate-resilient WASH

The following updates and improvements will be led by UNICEF during the project's first 18 months to integrate climate resilience while strengthening gender, equity and inclusion:

The revised *Norms and Guidelines for WASH in Rural and Peri-Urban Areas* will include:

- Technical norms and standards for climate-resilient WASH and water resource management infrastructure/interventions (boreholes, solar-powered water supply networks, multi-use systems, household latrines, cesspits, protection against floods, small-scale water retention basins and sand dams, etc.);
- Guidelines for technical, hydrogeological, and geophysical studies;
- Guidelines for boreholes construction and their siting and testing;
- Service standards, technical specifications, and performance indicators for delegated water service operators.

The revised *CLTS Practical Guide* will:

- Incorporate the water safety planning approach and guidance for conducting local climate risk assessments as part of the CLTS process;
- Provide revised ODF certification criteria and expand the CLTS process to include a post-ODF resilience and sustainability monitoring and reinforcement phase;

- Introduce sanitation marketing (market development) approaches for experimentation and learning purposes (including training of and support to the local private sector and financial schemes for service providers and client households)

Technical standards and implementation guidelines for climate-resilient WASH facilities in schools and health care centres will be developed or revised to:

- Integrate guidelines for different CR-WASH infrastructure designs adapted to various local contexts and for retrofitting existing infrastructure;
- Include safe water harvesting, treatment, and conservation equipment and arrangements;
- Strengthen gender considerations incl. for menstrual hygiene management;
- Establish operation and maintenance guidelines and guidance for involving schoolchildren (including through ‘WASH and climate’ clubs), parent-teacher associations, and surrounding communities.

These key guidance documents will form a comprehensive and coherent package and inform the implementation of Outcome 2 related activities in the target prefectures.

The process will be led by UNICEF, who will contract seasoned CR-WASH policy and guidelines consultants for drafting and consultation processes. This will involve reviewing documents, consulting stakeholders, and conducting field observations; updating and finalizing the documents; drafting concise, illustrated briefs and summaries for wider dissemination; preparing standard text, illustrations, and annexes for procurement processes; presenting the outputs at the review and validation workshop; and developing training materials and providing training and technical backstopping to government and field partners at the central and prefecture levels for the roll-out phase (similar capacity building at local and community levels will be implemented under Outcome 2). The entire process will foster ownership and systematic, consistent application across the WASH and adjacent sectors. Deliverables including revised norms and guidelines will be led by UNICEF, who will be accountable for the results.

UNICEF will be consulting and collaborating with various entities for the purpose of validation and finalization. The revision process will be guided by regular engagement with relevant line ministries (e.g., Environment, Education, Health, Humanitarian Action) and development partners, including NGOs and CSOs, to ensure alignment, collaboration, and national ownership. For policy and standards content, UNICEF will work closely with MEDHR/DGRH and ANEA. Inclusive, participatory field-level consultations will actively engage marginalized groups—such as youth and children, women, persons with disabilities, the elderly, and pastoralist and Fulani communities—ensuring that gender, social inclusion, disability, and culturally appropriate considerations are fully integrated throughout.

Sub-activity 1.1.1.2: Integrating the experience and lessons learned from the project into the next iteration of policies, strategies, and programmes for the post SDG era

	The National Water Policy, along with selected associated sub-programme documents—including the national programme documents for (climate-resilient) WASH and integrated water resource management—will be updated by UNICEF during project implementation around 2030. Throughout this process, MEDHR will be consulted to ensure alignment, validation and an accurate reflection of the ministry's priorities. This update will support the country's transition to the post-2030 era by incorporating new global development objectives for WASH, WRM, and climate adaptation and DRR (including flood and drought preparedness and risk reduction), and by integrating lessons learned from this GCF project on climate resilience and sustainability. If necessary, the WASH Norms and Guidelines, CLTS Practical Guide, and the technical standards and implementation guidelines for climate-resilient WASH in institutions will also be updated to incorporate the lessons from field implementation and the new post-SDG objectives. As a deliverable, the Water Policy update will be led by UNICEF, who will be solely accountable for its results. For the purpose of validation and finalization, UNICEF will work with MoH and MoE regarding healthcare and school WASH guidelines, and with MESD regarding climate-policy alignment.
EE	UNICEF
Stakeholders involved	Ministry of Energy Development and Hydraulic Resources, ANEA, Ministries of Environment (NDA), Health, Education, Humanitarian Action; UNDP, World Bank, Global Water Partnership (GWP), African Development Bank (AFDB), French Development Agency (AFD), NGOs, CSOs and the private sector involved in climate adaptation, WASH, WRM, and DRR

Table 65. Activity 1.1.2

Activity 1.1.2: Promote increased investment in adaptation and climate-resilient WASH (CR-WASH) from national budgets, donors, local governments, communities, and the private sector	
Baseline	Funding for climate adaptation and WASH in CAR is insufficient. Total funding requirements for climate change mitigation and adaptation measures associated with the NDC have been estimated at $1.764 billion between 2021 and 2030, of which: $1.32 billion for mitigation and $443.87 million for adaptation. For the period from 2004 to 2021, funding effectively mobilized was estimated at approximately $27.8 million, or 0.7% of NDC's investment needs for mitigation and adaptation (CAR Biannual Climate Report 2023 and UNFCCC Biennial Transparency Report 2024[647]). Most funding for capital investment comes from international donors (98%, according to the 2021 national Water Policy). The government and local authorities have very limited budgetary capacity to contribute, while the corporate sector is too weak and climate and WASH not profitable enough to attract private sector investment, especially in rural areas.

[647] Biennial Transparency Reports | UNFCCC

Based on the OECD-DAC CRS database[648], net total ODA received by CAR between 2020 and 2023 in the water and sanitation, environment protection, and disaster prevention/preparedness/reduction sectors—including concessional loans and grants—was approximately USD 111 million, with an annual average of 28 million/year. The total amount in the water and sanitation sector was 36 million (i.e. 9 million/year).

In WASH, DRR, floods management, and EWS, the main donors with significant ongoing or planned projects are the World Bank, AFDB, WMO/GWP, and UNDP. These projects primarily focus on Bangui and secondary urban centres, with limited engagement in rural areas. Other initiatives are either small-scale or poorly documented.

In rural areas, households financially contribute to the operation and maintenance of water supply infrastructure mainly through water tariffs (or ad-hoc payments whenever the water point breaks down), although the local authorities may also contribute whenever necessary since the water tariff effectively collected is usually insufficient to cover operation and maintenance (O&M) costs. Households typically pay the full construction and maintenance cost of their household sanitation facility, except in emergency settings where humanitarian actors operate.

The CDN, NAP, National Climate Change and Gender Strategy 2023-2030, Biannual Climate Report 2023, and National Response Strategy for the Resilient Management of Water Resources 2020 all estimate funding/investment needs, cost planned interventions/activities, identify potential funding sources, and propose a financing or fund mobilization strategy. By contrast, the initially planned national programme documents for WASH, IWRM, large water infrastructure, and sector governance, which were to include an estimation of the required investment and a funding strategy aligned with the SDGs and disaggregated by year and geographic areas, were not developed due to lack of donor funding. Fund mobilization remains a challenge in CAR across all sectors, in the context of shrinking international aid, impeding replication, scaling, and sustainability.

Description

To increase investment in adaptation and climate-resilient WASH in CAR, UNICEF will implement the following actions and sub-activities:

Sub-activity 1.1.2.1 Developing a CR-WASH funding needs assessment, strategy, and monitoring mechanism

UNICEF will commission a funding needs assessment, investment targets and plan (including an associated investment case), and a fund mobilization strategy will accompany the sectoral documents revised under Activity 1.1.1, supporting their effective implementation at scale. UNICEF will ensure these instruments will be updated during the transition to the post-2030 era, alongside the national WASH Policy and its associated programme documents. Expenditure in climate-resilient WASH and IWRM will be tracked through a new, dedicated indicator (spending tracker) within the sector monitoring system established under Activity 1.2.2.

[648] data-explorer.oecd.org/vis

Capacity building on climate finance and fund mobilization will be carried out as part of Activity 1.3.1.

Sub-activity 1.1.2.2 Promoting the project at regional and global levels to raise visibility and additional funding

With the support of the government and in collaboration with UNICEF Centres of Excellence, UNICEF will drive advocacy and resource mobilization efforts to raise the visibility of the project and its approach within CAR and internationally, strengthen partnerships, and mobilize additional funding on an on-going basis. UNICEF will coordinate with MEDHR/DGRH and the Ministry of Finance, who will provide essential sector investment and budget inputs. Donor roundtables will be held in Bangui. Additionally, key personnel from the Ministry of Energy and Water Resources and the NDA, supported by the project and UNICEF co-funding, will participate in regional and global fora and events to present and promote the project and CAR's broader efforts in climate adaptation and CR-WASH. These engagements will also provide opportunities to expand professional networks, disseminate project evidence and lessons learned, and establish new partnerships (linked to Activity 1.2.2). Additionally, the revision of the national Water Policy, its flagship programme documents, and associated guidelines (under Activity 1.1.1) will help channel future financing toward climate adaptation and ensure that upcoming projects progressively increase in scale, number, and alignment with this objective.

Additionally, UNICEF will continuously advocate to the government, local authorities, and private sector to increase investment in climate adaptation and CR-WASH, carried out as a parallel effort to the project (outside GCF funding). UNICEF will advocate to the Ministry of Energy and Water Resources for increased national budget allocations for climate adaptation, CR-WASH, and sustainability, supporting activities such as drainage maintenance, sustainable water service management, monitoring of water providers and CLTS/ODF villages, and upkeep of meteorological and hydrological stations. Additional engagement with the local private sector will promote their role in expanding, operating, and maintaining climate-resilient water supply services and in constructing, repairing, or upgrading climate-resilient latrines.

EE	UNICEF
Stakeholders involved	Ministry of Energy Development and Hydraulic Resources, Ministry of Environment (NDA), Ministry of Planning, Economy, and International Cooperation, Ministry of Finance and Budget, the Climate Coordination Committee, ANEA, other government ministries/entities; UNICEF Centres of Excellence, SIWI, international consultants; UNDP, IFAD, FAO, AFDB, GWP, World Bank, ACTED, and other donors and (I)NGOs.

Output 1.2: Evidence based WASH, WRM, DRR, and EWS are informed by improved planning, climate and WASH monitoring information, MEL framework, data integration, and institutionalization of data-related mandates

This output focuses on strengthening planning, MEL, and hydrological data systems to improve the delivery of climate-resilient DRR, WRM, and CR-WASH services in CAR. By enhancing the government's capacity to collect, analyse, and use integrated data, planning and decision-making will become more strategic and evidence-based. This, in turn, will enable proactive management and response to climate risks, ensure that interventions are targeted and effective, and embed climate resilience systematically into CR-WASH and DRR programming at national and subnational levels. Activities contributing to output 1.2 include:

Table 66. Activity 1.2.1

Activity 1.2.1: Support the government to strengthen climate-resilient DRR and water planning through disaster preparedness plans and integrated WRM plans	
Baseline	Under the lead of the Ministry for Humanitarian Action, the National Strategy for Disaster Risk Reduction and Climate Adaptation in CAR was validated in July 2025. Corresponding subnational action plans underpinned by integrated water resource management plans are needed to operationalize the strategy and effectively reduce climate and water-related risks. Moreover, without an appropriation of different ministries, NGOs and private sectors, the strategy's impact on the infrastructure, effective risk mitigation, and communities is very limited.
Description	This activity aims to address gaps in national DRR and WRM planning for flood and drought risks through disaster preparedness and WRM plans to cover the three prefectures of Vakaga, Bamingui-Bangoran, and Ouham. **Sub-activity: 1.2.1.1: Updating/specifying needs and developing/updating sub-national DRR and WRM plans** Through this activity, UNICEF will support the development of robust, actionable DRR and integrated WRM plans for the three target prefectures through a comprehensive, participatory process. Prefecture-level DRR and integrated WRM plans will guide local authorities in anticipating, preventing, and responding to climate-related hazards such as floods and droughts. Under UNICEF's oversight, the plans will define priority actions, roles, and responsibilities, integrate sectoral and community-level data, and ensure coordinated management of water resources and climate-resilient services, while incorporating gender, social inclusion, and culturally appropriate considerations. UNICEF will hire and manage experienced consultants to provide planning support on Water Resources Management, in close coordination with DGRH/MEDHR, and on DRR emergency planning, in close coordination with DGPC. Consultants will conduct a detailed review of existing documents, field observations, risk analyses, and needs assessments to inform planning. These analyses will serve as critical references for local DRR and WRM actions and guide the implementation of project Output 2.3. The participatory process will engage multiple stakeholders to ensure alignment with the National Strategy for DRR and Climate Adaptation and the national and subnational cross-sectoral priorities, strengthen ownership, and enhance practical application of the plans. Stakeholders will include relevant ministries—in charge of Water Resources, Environment, Humanitarian Action, Civil Protection, Meteorology, Territorial Administration, Decentralization and Local Development, Health, and

	Promotion of Women, Family, and Child—as well as prefectural authorities of Ouham, Bamingui-Bangoran and Vakaga, Prefectural DRR Committees (“Comités Préfectoraux de RRC”), academia, and development partners such as donors, UN agencies, NGOs, and CSOs (including the Red Cross and other humanitarian actors). Meaningful participation of representatives from women’s groups, youth associations, pastoralist communities (including Fulani/Mbororo), and the private sector will ensure that plans reflect the differentiated impacts of climate-related disasters and address the specific needs and priorities of these groups. This will enable gender-responsive, inclusive, and culturally appropriate planning and response measures. The resulting plans will support the prioritization of interventions and clarify roles, mandates, and responsibilities for implementation and emergency response. Additionally, strong advocacy will be undertaken to secure the inclusion of DRR and WRM priorities in national budgets, facilitating the scaling up of prefectural plans to the national level.
EE	UNICEF
Stakeholders involved	Ministries of Environment, Ministry of Energy Development and Hydraulic Resources, Ministries/National Directorates of Meteorology, Territorial Administration, Decentralization and Local Development, Health, Finance, and Promotion of Women, Family, and Child; ANEA; Prefectural DRR Committees; University of Bangui; development partners, NGOs, and CSOs; representatives of local authorities, associations, communities, and vulnerable groups.

Table 67. Activity 1.2.2

Activity 1.2.2: Adapt and strengthen sectoral and intersectoral MEL to better integrate climate resilience, sustainability and lessons learned into policy and practice and disseminate knowledge	
Baseline	According to the national Water Policy (2021), the Ministry of Energy Development and Hydraulic Resources is responsible for overseeing and monitoring policy implementation, developing knowledge and monitoring systems for WASH and water resource management in the context of climate change, and building stakeholder capacity in these areas. However, the current national WASH M&E framework covers only global development indicators (e.g., the percentage of the population using basic water supply and sanitation), typically informed through household surveys, government self-reporting, and administrative data. ANEA, under the Ministry, has developed an Excel-based national water point database, but it lacks full territorial coverage and is not consistently updated with new installations or periodic infrastructure inventories. In addition, while UNICEF, donors, and NGOs collect programmatic data, these datasets are often fragmented, non-harmonized, inconsistently tracked, and rarely shared. The absence of an established set of indicators and regular data collection for WASH and CR-WASH services limits evidence-based planning, leading to

reactive or absent measures to address climate change impacts. Weak linkages and alignment with other sectors such as WRM, DRR, health, environment, and education further complicate data consolidation, cross-sectoral programming, and holistic monitoring of the country's progress and gaps in climate adaptation.

Currently, there is also no centralized mapping or tracking system for government and development partner programs that could support coordination, identify gaps, or guide intervention prioritization and population targeting—except in the humanitarian sector, where OCHA and the WASH Cluster maintain basic monitoring tools (e.g., the "5W" matrix showing who does what, where, when, and for whom).

Establishing a robust monitoring and surveillance system for water resources and WASH services is the second priority for the water and sanitation sector in the NDC and the Response Strategy for Resilient Water Management. The Water Policy outlines the establishment of a full M&E system with four main components:

A National Water (Resource) Information System (SNIEau) that includes performance criteria and indicators, data collection procedures, decentralized inventories, regular monitoring of water infrastructure and pollution control systems, evaluation mechanisms for the state of resources, and a dashboard for analysis.

A WASH M&E system to track actions and progress toward the SDGs, assess water supply and sanitation service performance and governance, complement SNIEau, draw lessons, guide decision-making, foster coordination, and support evidence-based management.

- A dedicated M&E unit within the General Directorate for Water Resources (DGRH), responsible for water supply and sanitation, to coordinate and manage M&E functions.
- Periodic reporting and annual sector reviews to synthesize results and inform strategic planning.

The interministerial National Climate Coordination Committee, established in 2017 under the Ministry of Environment, is responsible for developing and overseeing national climate policies and strategies, including the NDC and NAP. M&E falls under its mandate, in coordination with other relevant ministries/directorates such as Meteorology, Planning, and Humanitarian Action. However, this M&E function remains largely non-operational, with only a fragmented set of indicators (e.g., from the Climate Change and Gender Strategy 2023-2030) and irregular government support.

Despite NDC and NAP commitment to establish robust MEL functions and systems, government allocations, meetings, and data collection remain ad-hoc, often only mobilized during the drafting of key sectoral assessment or strategy documents. Furthermore, there is no systematic mechanism for integrating lessons learned into policy frameworks, which limits progress toward the adaptive, resilient systems envisioned in national climate strategies. This baseline underscores the urgent need for strengthened MEL systems to enable scalable, evidence-based climate adaptation in CAR.

Activity description	This activity, implemented by UNICEF, will support the Ministry of Energy Development and Hydraulic Resources in establishing the M&E and learning system foreseen in the Water Policy to enable evidence-based CR-WASH and WRM

planning, programming, management, and governance. It will be launched in the first months of implementation to ensure early progress.

Sub-activity 1.2.2.1: Developing a climate-lensed monitoring and reporting system and related capacities for the water and sanitation sector

This sub-activity will support the development of a climate-lensed monitoring and reporting system for the WASH and WRM sector. UNICEF will hire and manage consultants to establish the monitoring and reporting system, ensuring it is subsequently validated by the Ministry of Energy Development and Hydraulic Resources. The system will be based on technical recommendations and best practices from other countries, aligned with the current JMP indicators measuring progress towards the SDG, and those of the upcoming global normative framework and monitoring indicators for the Global Goal on Adaptation (GGA) and those for CR-WASH that are currently being developed and piloted by UNICEF HQ and WHO as part of the JMP and GLAAS global initiatives. MEDHR will ultimately host and use the system.

At the community and service levels, in addition to the percentage of the population using basic and safely managed drinking water and sanitation services - using the JMP methodology - data will be collected and reported on service-level indicators such as:

- The number and proportion of WASH infrastructure that are climate resilient;
- The number of people reached with climate-resilient at least basic water supply and sanitation services, and the percentage of the population using such services;
- The functionality rate of water points by type of water supply and by time since they were installed or last rehabilitated;
- The percentage of ODF-certified communities using climate resilient household sanitation by village size and by time passed since the verification or certification (to capture ODF sustainability);

Damage to critical water and sanitation infrastructure attributed to climate related disasters in terms of number of facilities and people affected.

The M&E framework for the WASH sector in CAR will also encompass sector-level indicators covering key aspects such as policy, institutions, finance, capacities, and programming approaches. The set of sectoral indicators informed by the current national Water Policy, the upcoming JMP/GLAAS global indicators on CR-WASH, and the UNFCC on GGA, will cover the following dimensions:

- National adaptation strategies and plans (NDC, NAP, DRR and climate adaptation strategy, national drought plan, etc.) address climate risks to water security water supply, sanitation, and hygiene;
- Inclusion of climate resilience in WASH, IWRM, and environment sector policies/strategies, planning, monitoring, review, and reporting;

Existence and use of national norms and guidelines on climate-resilient WASH design and construction in households, schools and health care facilities and of the climate-adapted CLTS practical guide;

Amount of government and development partners expenditure in (CR)-WASH and IWRM (possibly including related funding/activities under other adjacent sectors such as environment, DRR, climate adaptation, and humanitarian response);

Percentage of WASH and IWRM programmes/projects incorporating a climate adaptation objective or lens (e.g. through resilient water supply infrastructure design, water safety planning, climate-adapted CLTS approach, etc.);

- Number of staff from key institutions and the civil society trained to become a pool of trainers on climate change, climate adaptation, climate-resilient WASH, IWRM, and DRR;
- Degree of integrated water resources management (water use index, territory affected by water scarcity) and level of water stress: freshwater withdrawal as a proportion of total estimated available freshwater resources in the country;
- Early warning systems (technology and associated policies and procedures designed to predict and mitigate the impacts of climate change) account for impacts on WASH services;

Proportion of population reached by / participating in awareness raising and training activities on climate risk, preservation of water resources' quantity and quality and infrastructures, anticipation and adaptation measures.

Indicators will be updated as the global community transitions to the post-SDG era and adopts new goals and indicators.

Indicators will be informed by multiple data sources: the national water and Community-Led Total Sanitation (CLTS) databases; water service providers; the national Statistics Institute (household surveys); and relevant ministries and technical departments (Water Resources, including ANEA; Environment; Meteorology, including DGMN; Health; and Education) and their development partners. Additional inputs will come from installed piezometers, remote sensing, and other components of the national water resource, climate information, and early warning system (see Activity 1.2.3). Climate risk assessment and water resource monitoring data generated at the local and community levels under project activities 2.1.1 and 2.3.2 will also contribute, alongside WASH resilience and sustainability checks (field surveys) conducted biennially with project support (see below).

Lead by UNICEF, the PMU/M&E function will harmonize data, validate results and supports the consolidation of all indicators into a simple, easy-to-maintain online dashboard, which will serve as the backbone of the WASH sector information system. To ensure sustainability, the dashboard will be tailored to the government's limited IT, M&E, and financial capacity and designed to operate without ongoing reliance on external service providers. Once real-time data monitoring equipment for WASH, WRM, and DRR is installed under Activities 2.1.3 and 2.3.2, the system will also be able to trigger maintenance alerts and connect directly to the national early warning system.

The consultants contracted by UNICEF for this sub-activity will carry out a needs assessment and review of best practices and prepare a concise document outlining identified needs and a proposed framework with indicators, definitions, and processes defined. Once validated, data collection tools and reporting templates will be developed, piloted, and distributed to all actors expected to contribute to the annual WASH and climate sector reviews, as well as to the synthesis report produced at the conclusion of these reviews (see Activity 1.3.2). Data generated through this process will be consolidated and presented using the dashboard described above, providing a common basis for discussion during the annual reviews.

In parallel, UNICEF will support tailored training targeting the various stakeholder/user groups, with support from the Ministry of Energy Development and Hydraulic Resources. Consultant follow-up support will remain available on demand to provide technical backstopping during the roll-out phase and in preparation for the first annual sector review.

To ensure sustainability beyond the project, UNICEF will advocate to the highest national authorities for the establishment of a dedicated MEL unit within the Ministry of Energy Development and Hydraulic Resources, as foreseen in the Water Policy—or, at a minimum, for the creation of a government-funded MEL position to be trained and mentored. This institutional strengthening measure is critical to safeguard the functionality and continuity of the system after project closure. Related fund mobilization and capacity-building measures are linked to Activities 1.1.2 and 1.3.1.

Sub-activity 1.2.2.2: Carrying out resilience and sustainability checks for the WASH sector

The objective of the sector-wide, government-led WASH resilience and sustainability checks is to:

- Assess the degree of climate resilience, safety, and sustainability of WASH infrastructure and services supported by the project, supported by other development partners, as well as pre-existing ones;

Measuring service use and beneficiary satisfaction, for different groups of users (incl. poor households, women, pastoralists, elderly people, people living with disabilities, etc.);

Identify the various causes of infrastructure damage and service disruption, and underlying obstacles/enabling factors, predictors, and mitigation measures;

Track and compare progress/evolution over time, by type of infrastructure, by location and by implementing partners to evaluate sector and programme effectiveness and enable benchmarking and cross-learning;

- Document innovations and good practices;
- Provide policy, strategic, and operational recommendations.

This field monitoring exercise will be carried out in the project's year 3, 5, and at project completion. The exercise will be led by UNICEF and managed by the PMU/M&E function. UNICEF has a methodological guidance and tools for sector-wide sustainability checks and a long-standing experience implementing them in sub-Saharan Africa, including in CAR in 2022. They involve a document review, and sample-based field observations and surveys at project and comparable sites in the same or other prefectures, using a harmonized and consistent methodology to allow for data consolidation and comparisons across areas and years to inform and guide the entire sector – not only the project. The sampling approach will reflect the geographical distribution and maturity of interventions, the diversity of beneficiaries in the targeted areas, and the contextual and demographic characteristics of the surveyed populations and sites. It will intend to be as statistically representative as possible (by prefecture, Implementing Partners and year, and type of intervention/infrastructure), while taking security, logistical, and budget constraints into account. Synergies and complementarities will also be sought with other monitoring initiatives such as the WASH severity analysis of ACTED/REACH and OCHA, UNICEF, and WASH cluster humanitarian needs assessments, for wider geographic coverage and utilization.

Government and Implementing Partners' staff will participate for capacity building and ownership, but UNICEF will ensure independent consultants lead the process to ensure objectivity. The typical duration is 8 months from the inception and design phase to the result presentation and final report validation – ideally timed to take place during the annual sector review. Reporting results by location and implementing partners will enable benchmarking and instill a sense of transparency and accountability. Findings will inform sector-wide MEL, corrective actions, and post-implementation reinforcement activities (e.g., CLTS follow-up, water system repairs under the contractor's liability clause, remobilizing/retraining water operators and local authorities, strengthening O&M).

Sustainability and resilience checks will also serve additional purposes, such as documenting initial lessons, innovations, and best practices, independently monitoring/verifying some key, community-based elements of the ESMF and GAAP, and inform the independent mid-term and final evaluations.

Sub-activity 1.2.2.3: Supporting the development and integration of CR-WASH and WRM indicators for cross-sectoral climate adaptation monitoring

The need for improved data and monitoring extends well beyond the water and sanitation sector. The Global Goal on Adaptation (GGA) indicators currently under development by the UNFCCC will offer a list of indicators for national monitoring and reporting, which will be rolled out at the global level, including in CAR. Additionally, indicators should assess the effectiveness of climate adaptation efforts and intersectoral coordination and the degree of climate lens and resilience of sectoral interventions of all relevant sectors. Sectoral M&E systems and national household surveys will need to be adjusted to collect the data and inform these indicators.

UNICEF will work with the government to include WASH and IWRM in the GGA indicator framework for CAR and CR-WASH indicators into other relevant sectoral information management systems (Health, Education, Environment) and nationwide households surveys (e.g. MICS, DHS). UNICEF will carry out this effort in coordination with the national Climate Coordination committee (including the ministries/departments of Environment and Meteorology), the national Statistics Institute, and the WMO-GWP-LCBC project funded by the Adaptation Fund, which is not planning to support such inclusion.

In addition to the ones already listed above, the framework may include cross-sectoral indicators such as:

- The national Climate Coordination Committee is formalized and fully functional, with WASH and cross-sector representation (see Activity 1.3.2);

- The national disaster risk reduction strategy and plans are being implemented, with specific provisions for anticipating and addressing the water and sanitation impacts of climate change (linked to Activity 1.2.1);
- Percentage of geographic areas/basins for which climate risk information, assessment, and water resource monitoring exist (Activity 1.2.3 and 1.3.2);
- A multi-hazard monitoring system, weather and hydraulics stations are operational covering areas most prone to droughts and floods, integrating relevant surface and groundwater monitoring data (Activity 1.2.3);
- Percentage of population reached by bespoke, effective communication of climate risks to prompt behaviour change and adaptive actions, including WASH related behaviours and actions (Activity 1.2.3).

This M&E framework will guide CAR efforts and reporting on climate adaptation while capturing/demonstrating the project's specific contribution and impact.

Sub-activity 1.2.2.4: Generating, sharing, and using knowledge for sector-wide and intersectoral learning and improved adaptation effectiveness

One on-going effort and important achievement of the project will be the generation and centralization of robust data, compelling evidence, practical knowledge and guidance on climate adaptation and CR-WASH in CAR, along with their broad dissemination and use—both within the country (across and beyond the WASH sector) and internationally. Related activities will cover documentation, evaluation, and cross-learning and annual workshops from year 1 to 6; to conduct annual project internal reviews, as well as sharing key learnings among project stakeholders. This effort will help demonstrate adaptation progress and its benefits, support advocacy and fundraising, inform more effective programming, and foster the replication, broader uptake, and institutionalization of successful approaches in national policies and strategies.

The project will support the establishment of a WASH and intersectoral community of practice (CoP) within the Ministry of Energy Development and Hydraulic Resources and the national Climate Coordination Committee, with UNICEF facilitation. The CoP will be built around a dedicated website, which will capitalise on the experience of the rcawashportal.org and best practices in other countries. It will be designed as an open platform to disseminate key strategies and guideline documents (including those produced under Activity 1.1.1) as well as project presentations, implementation materials, and evaluations, share stakeholder and beneficiary testimonies, highlight best practices and lessons learned, and provide public access to information on water security and climate resilience. The platform will foster collective alignment and learning, strengthen institutional memory, reduce fragmentation, and promote transparency and accountability.

The MEL framework and information system described in Activity 1.2.2 will be informed by the CoP and will generate data, evidence, and knowledge which will, in turn, be widely shared and used by the CoP for learning and advocacy. Linkages will be established with other relevant communities of practice and websites related to climate change, adaptation, CR-WASH, DRR, and EWS in CAR and at the regional and global levels.

Stakeholders involved	Ministry of Energy Development and Hydraulic Resources; Ministry of Environment, National Climate Coordination Committee, ANEA, National Meteorology Directorate, national Statistics Institute, OCHA, the WMO-GWP-LCBC project, UNDP, World Bank, NGOs/CSOs (e.g. ACTED/REACH, Oxfam, Water for Good), and other development partners.

Table 68. Activity 1.2.3

Activity 1.2.3. Improve hydrological data systems and impact scenarios for flood and drought risks to inform early warning systems and adaptive planning in the three prefectures of Ouham, Bamingui-Bangoran, and Vakaga	
Baseline	Understanding and monitoring of surface and groundwater, flood and drought impacts, weather forecasting, hydro-climate prediction, and risk anticipation in the Central African Republic (CAR) are limited. This is primarily due to the absence of a comprehensive system, unclear institutional roles, insufficient financial resources, limited equipment, and inadequate technical capacity. According to WMO's four-level scale, CAR and the Chari Basin are classified as having 'basic' (level 1) meteorological, climatological, and hydrological capacities and services (ECCAS 2020; ECOWAS 2018). Water resources monitoring: CAR lacks an operational hydrological data system. The most recent comprehensive mapping dates back to 1987. Surface and groundwater dynamics are poorly understood, and major risks are not effectively monitored. Rainfall, river, and stream flow monitoring equipment is extremely limited: out of 16 hydrometeorological, agrometeorological, and synoptic stations, only three are operational (Bangui, Bossangoa, Berbérati). Political instability and limited government budgets over the past 30 years have degraded the hydrological network, and most stations are non-functional. Groundwater monitoring is restricted to a few NGO-installed piezometers and borehole loggers, with sporadic measurements during borehole construction, which are not systematically centralized in the ANEA water point database (developed with UNICEF support). Remote sensing and satellite imagery remain underutilized, and rural coverage is sparse. Consequently, data are outdated, preventing robust understanding of surface–groundwater interactions and climate vulnerability. No integrated hydroclimatic information system exists for real-time analysis or automated alerts. Regional integration: CAR participates in the Lake Chad Basin Commission (LCBC) and the Congo-Oubangui-Sangha Basin Commission, as well as regional hydrological information exchange networks. Despite this, weather forecasts rely heavily on extrapolation from neighbouring countries and NASA reanalysis data. The National Meteorology Directorate issues bulletins irregularly, primarily via radio and a WhatsApp group (~100 members). A hotline exists for reporting climate events but is not widely known or continuously operational. Policy and institutional context: Key reference documents include the NDC, NAP, National Disaster Risk Reduction and Climate Adaptation Strategy (2020), National Drought Plan (outdated), and the Response Strategy for Resilient Water Management (2024). These documents are not widely accessible or used and do not clearly define mandates across Meteorology, Civil Protection, Humanitarian

Action, Environment, Water Resources, and Health directorates, whose responsibilities often overlap. Institutional leadership and technical capacity remain limited, though all documents highlight the need for improved water resource monitoring, impact scenarios, and early warning systems.

Local stakeholder insights: Consultations in Ndélé and Bossangoa indicate the absence of localized risk scenarios, leading to repeated infrastructure failures (e.g., flooded boreholes in Ouham) and community demands for well-sited, sustainable water supplies and integrated planning to address water conflicts linked to transhumance.

Existing initiatives and gaps: Line ministries, basin commissions, and development partners (WMO, LCBC, Global Water Partnership, World Bank, AFDB, UNDP, Oxfam) have plans to rehabilitate or equip stations, develop early warning systems, and build capacity. However, these efforts are fragmented—often sector-specific, geographically limited (mainly Bangui, except for the WMO-LCBC- GWP project), and focused on single EWS components (e.g., hazard monitoring or drainage infrastructure) rather than integrated multi-hazard preparedness. As a result, a fully operational, integrated, multi-hazard early warning system does not exist, leaving communities vulnerable and limiting early action.

Emerging systems: The Ministry of Health is piloting a community- and event-based health surveillance system that collects data on human and animal health, unusual drinking water quality changes, and environmental hazards (flooding, landslides, earthquakes, gas releases). It relies on SMS and mobile app reports from community health workers and village committees, with training initiated in April 2025. While not yet integrated with meteorological or hydrological hazards, this rollout demonstrates that a well-planned initiative can generate broad support and has the potential to evolve into a national, intersectoral, multi-risk system.

Description

The objective of this activity, aligned with the NDC, NAP, National Strategy for Risk Reduction and Climate Adaptation, and the Sendai Framework for Disaster Risk Reduction, is to improve hydrological and hydrogeological data systems and impact scenarios for flood and drought risks to better monitor hydro-meteorological conditions, detect early signals of climate risks (e.g. droughts, heavy rainfalls, floods), inform early warning systems and adaptive planning, and enable early action and timely responses. It will support well-informed, science-based decision making, helping to reduce loss of lives and damage to physical assets.

Sub-activities have been defined based on consultations with ministries' technical department and development partners listed above (including the upcoming AF-funded WMO-LCBC-GWP project) to ensure complementarity and avoid duplication of efforts. Consultations helped build a shared vision of what the hydro-climate information, monitoring and multi-hazard early warning systems and implementation strategy could look like and how each stakeholder could best contribute. GCF funding (under this project) will contribute in a targeted manner to each element of the system that links risks to sector-specific impacts and response, with a focus on water resources and flood and drought risks. This activity is divided into the sub-activities detailed below.

Sub-activity 1.2.3.1: Strengthening hydrometeorological-related disaster risk knowledge and forecasting through studies, equipment, and improved data collection and monitoring

Through this sub-activity, UNICEF will improve detection, monitoring, analysis, and forecasting of the hydrometeorological hazards and possible consequences in the target prefectures in the Chari Basin (as the Bangui and Oubangui basins will be covered by other projects). UNICEF will design the networks in close cooperation with the National Meteorology Directorate (DGMN) and the National Water Resources Directorate (DGRH), expanding the hydrometeorological network of the targeted prefectures and rehabilitating/equipping weather and hydrological surface and groundwater monitoring stations. In the first 12 months of implementation, UNICEF procures and installs the equipment, both installing existing hydrometeorological equipment and procuring and installing additional equipment. A list of current needs has already been identified by the DGMN (see table below) and will be confirmed or updated during the project inception phase in coordination with the WMO-LCBC-GWP project – which will cover a more limited area within the Ouham prefecture – to ensure synergies and maximum coverage.

Installations will include synoptic, agrometeorological, hydrometric, and rain gauge stations, piezometers, and real-time remote sensing devices will be as low maintenance as possible for increased sustainability. Equipment specifications will be jointly agreed with the Ministry and the WMO-LCBC-GWP project to ensure interoperability and seamless data integration in the national data management and analysis systems. All procurement will take into consideration continuity in the availability of spare parts.

Hydrometric stations		
Prefecture	***Locality / River***	***Intervention characteristics***
Ouham	Bossangoa (Ouham River)	1 hydrometric telemetry station (provision, installation, equipment)
Ouham	Markounda (Nana Barya River)	Installation of staff gauges (limnometric scales) already in stock
Bamingui-Bangoran	Bamingui (Bamingui River)	1 hydrometric telemetry station (provision, installation, equipment)
Bamingui-Bangoran	Bangoran (Bangoran River)	Staff gauges (limnometric scales) already in stock
Vakaga	Birao (Aouk River)	1 hydrometric telemetry station (provision, installation, equipment), omnidirectional antennae for stations in remote areas

Automatic synoptic meteorological stations		
Prefecture	***Locality / River***	***Intervention characteristics***
Ouham	Bossangoa	Central unit, communication equipment, solar generator box for tropical zones, welded support structure, mast with daytime marking, rain gauge, temperature probe, hygrometer, pyranometer, ultrasonic wind sensor with solar power supply (LAN), TERPS barometer, soil temperature probe kit, actinometric probe, observer station, civil engineering, installation and configuration of the station and computer tools, omnidirectional antennae for stations in remote areas, fencing of the stations
Bamingui-Bangoran	Ndélé	
Vakaga	Birao	

Automatic agrometeorological stations		
Prefecture	***Locality / River***	***Intervention characteristics***
Ouham	Bossangoa	Station provision, installation, equipment, omnidirectional antennae for stations in remote areas, fencing of the stations
Bamingui-Bangoran	Ndélé	
Vakaga	Birao	

Piezometers		
Prefecture	***Locality***	***Intervention characteristics***
Ouham	4 around Bossangoa	Installation of observation boreholes and/or telemetric multi parameters piezometers to monitor underground water levels / pressure over time, Temperature and key water quality parameters
Bamingui-Bangoran	4 around Ndélé	
Vakaga	4 around Birao	

Installation of equipment will be conducted under UNICEF’s supervision, with official handover to the Meteorology Directorate (and of the Water Resources Directorate for piezometers) upon completion, who will operate and maintain them. Designated staff will be trained to ensure effective operation, routine maintenance, and long-term sustainability of the systems.

Using real-time data produced by this equipment and the remote sensors installed under Activity 2.1.3, surface and groundwater resources will be assessed at the

Chari River basin level across in the three target prefectures, including precipitation, flows, groundwater levels and seasonality, extraction rates, and infrastructure productivity (additional measures and monitoring will be done locally in selected, high-risk localities under Output 2.3). The resulting data will feed into a nationwide groundwater monitoring system operated by the Ministry of Energy Development and Hydraulic Resources and will be interoperable, shared with the WMO-GWP-LCBC project. Data will be integrated with climate and hydrometeorological models, aquifer vulnerability assessments, surface-groundwater dynamic models, and climate impact scenarios to guide preparedness, DRR, and IWRM planning and local implementation (linked with Activities 1.2.1 and 2.1.1 and Output 3.2). Drawing from feasibility study insights, models will incorporate regional variations (e.g., shallow aquifers in Vakaga prone to contamination) and consultation feedback (e.g., community-reported drying trends in Ndélé).

Capacity-building, operation and maintenance mechanisms, and data support systems (including at the University of Bangui) will be strengthened at the national level to ensure data system functionality and sustainability beyond the project. Lessons and experiences from the three target prefectures in the Chari River Basin will be leveraged to inform nationwide implementation.

Sub-activity 1.2.3.2: Establishing and institutionalising responsibilities and processes for data flow and integration

Through this sub-activity, UNICEF will ensure the functionality, interoperability, and integration of hydrometeorological and groundwater data across line ministries and with the multi-hazard Climate Information and Early Warning System (CIEWS), which will be developed by the government with support from the Adaptation Fund–funded WMO-LCBC-GWP project. For the development of emergency protocols, UNICEF will work closely with the National Directorate of Civil Protection (DGPC).

The sub activity will develop standard operating procedures addressing at least the following:

- specify alert thresholds
- specify decision authority
- define time-bound response actions following alerts
- develop and roll out means of verification (e.g. dissemination and response logs),
- develop and rollout performance indicators including but not limited to “Percentage of extreme weather events where anticipatory WASH protection protocols (e.g., pump shutdown, rapid chlorination) were successfully executed prior to hazard impact in the targeted areas”

UNICEF will support the government in establishing and institutionalising clear mandates and data processes across key agencies, including

- National Meteorology Directorate – responsible for hydrometeorological data collection, analysis, and alerts;
- National Directorate of Civil Protection – responsible for DRR and emergency management;
- Ministry of Humanitarian Action – responsible for humanitarian response and coordination;

- National Water Resources Directorate – responsible for water resources management and information systems;
- Ministry of Health – responsible for epidemiological surveillance and epidemic response;
- Lake Chad Basin Commission (LCBC) – promoting sustainable and coordinated management, development, and conservation of water and related resources across the Lake Chad Basin.

In subsequent phases, UNICEF will also:

- Ensure that hydrometeorological and hydro(geo)logical data from Sub-activity 1, local risk assessments from Activity 2.3.1, groundwater monitoring data from Activity 2.3.2, and pluvial flood risk assessments in Bangui (Output 2.2) are fully integrated into the CIEWS, guiding flood and drought prevention measures across all stakeholders beyond the immediate scope of this project;
- Connect sectors, stakeholders, and initiatives, enabling CIEWS to support informed water demand management at the basin level and facilitate government-led preparedness measures in coordination with other humanitarian response and coordination partners (INGOs, OCHA, other UN agencies);
- Ensure inter-sectoral and inter-system integration, particularly with the community- and event-based health surveillance system currently being rolled out by the Ministry of Health with UNICEF support;
- Organize structured consultations to incorporate local perspectives—including women, youth, pastoralists, and other vulnerable groups—into decision-making processes, thereby enhancing the effectiveness of forecasting and early warning systems.

Sub-activity 1.2.3.3: Contributing to the development and rollout of an effective 'last mile' EWS communication strategy

Information and warnings on water- and climate-related events—including likelihood and potential impacts—must be timely, accurate, and actionable, and disseminated widely to effectively reach people at risk down to the municipal and community level (the "last mile"), as well as all actors involved in preparedness and response.

To support this, UNICEF will synchronize with and complement the AF-funded WMO-LCBC-GWP project by providing strategic inputs to the design and implementation of the EWS stakeholder engagement and communication plan. UNICEF will focus on the prefecture level, collaborating with the AF-funded project to pilot the plan in Ouham, and will leverage lessons learned from this pilot to expand the EWS to the other two target prefectures—Bamingui-Bangoran and Vakaga—which are not covered by the AF-funded project. UNICEF will support the ministries responsible for Meteorology, Water Resources, Civil Protection, Humanitarian Action, and Health:

- Ensure that all relevant stakeholders are actively involved in the development and implementation of the communication plan and materials. This includes the private sector and civil society actors, such as national radio and TV channels, telecom operators for the SMS warning system (a cell broadcast service already exists but is not yet used for early warning purposes), the University of Bangui, volunteers from Civil Protection and the Red Cross, members of the Meteorology Directorate WhatsApp group, parents, teachers, health professionals, and youth and children of different age groups;

- Prioritize targeted prefectures—including Bangui—as particularly climate-vulnerable areas, supporting the implementation of the communication plan and rollout of related materials in these prefectures, starting with Ouham;
- Expand UNICEF's existing partnerships with national, public, private, and local/community radio stations to ensure full coverage of the northern target prefectures and involve these stations in the information and warning system; radios will be a main EWS communication channel;
- Mobilize community-level focal points previously engaged in the UNICEF Rapid Response Mechanism, as well as community health extension workers and village development committees involved in the event-based health surveillance system;
- Engage the 56,635 young people and 139 local committees currently involved as UNICEF U-Reporters, recruit additional participants in the three northern prefectures, and enable use of the RapidPro-enabled communication and survey system to support the CIEWS;
- Involve representatives from water user associations, community sanitation committees, youth and women associations, and other groups mobilized and trained under project Outputs 2.1 and 2.3.
- Ensure that communication channels, materials, and messaging are socially and culturally appropriate and inclusive. This includes a multi-channel approach using the platforms and formats accessed by different target population groups, incorporating schools, healthcare centres, and local/traditional media, translating content into local languages, addressing women's specific needs, avoiding jargon, making messages understandable to children and low-literacy populations, and ensuring accessibility for pastoralist communities.

Sub-activity 1.2.3.4: Strengthening awareness raising, contingency planning, and disaster preparedness at community level

Concurrently, UNICEF will collaborate with the government and the WMO-LCBC-GWP project to strengthen community-level awareness, contingency planning, and disaster preparedness by:

- Designing and rolling out nationwide, ongoing awareness-raising campaigns and community-based activities to ensure that early warning systems (EWS) are effectively deployed and used by at-risk groups, with a particular focus on areas not covered by the AF-funded project, namely Ouham, Bamingui-Bangoran, and Vakaga prefectures;
- Organizing trainings and emergency simulation exercises (including disaster response drills and scenario-based tabletop exercises) with target prefectures, municipalities, and vulnerable communities exposed to sudden-onset extreme weather events;

- Prepositioning contingency supplies in line with UNICEF protocols, including water purification tablets, tarpaulins, hygiene/WASH kits, and other essential items for affected or at-risk communities;
- Supporting 45 high-risk localities in developing and implementing participatory local DRR and WRM plans that integrate traditional and local knowledge and practices (Output 2.3);
- Ensuring strong linkages with UNICEF's ongoing DRR programming and humanitarian coordination mechanisms, to promote consistency, sustainability, and rapid response capacity.

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Sub-activity 1.2.3.5: Supporting capacity building, O&M, and advocacy for CIEWS sustainability

Through this sub-activity, UNICEF will ensure the sustainability, national replicability, and operational effectiveness of the CIEWS for flood and drought resilience. UNICEF will collaborate with the authorities and complementary projects to align operations and maintenance (O&M), capacity-building, and advocacy initiatives across national and sub-national levels, ensuring synergy and avoiding duplication. While the WMO–LCBC–GWP project focuses mainly on the national level and parts of Ouham prefecture, this project will expand coverage to include the entire Ouham prefecture as well as the two other most climate-vulnerable northern prefectures, while strengthening nationwide replicability and long-term sustainability.

O&M needs, initially identified through consultations with the Meteorology, Civil Protection, and Humanitarian Action directorates, will be confirmed and updated during the project's inception phase. UNICEF will assist the Meteorology Directorate in developing a tailored O&M plan and will provide essential equipment and office supplies at national and regional levels, including solar panels, high-speed internet, inverters, voltage regulators, laptops, printers, specialized data software, vehicles, and motorbikes. Priority in the provision of vehicles and motorbikes will be given to remote technical teams operating in hard-to-reach areas, particularly during the rainy season. Security measures will also be introduced to reduce theft risks. Vehicles, motorbikes and laptops will be legally owned by the Ministry of transport and civil aviation for the Meteorology Directorate, and the Ministry of Civil Protection.

UNICEF will procure the initial assessment and training provisions for key government staff from DGMN, DGRH, municipalities, and prefectures covered in the project area, including the University of Bangui (meteorology and water resources labs) and NGOs such as the Red Cross. Targeted capacity-building activities will strengthen the ability of these national and sub-national institutions to use CIEWS effectively for predicting, planning, and responding to floods and droughts. Training will cover data collection, analysis, interpretation, and operational use of early warning information to inform institutional and community-level decision-making.

In addition to clarifying institutional mandates and roles and improving cross-department coordination, advocacy efforts will mobilize predictable, long-term government funding for O&M. Together, these actions will ensure the continuity and

	sustainability of CIEWS beyond the project's lifetime, increase readiness of vulnerable communities to respond to climate hazards, and promote national and regional replication of effective early warning practices
EE	UNICEF
Stakeholders involved	Ministry of Transport and Civil Aviation (National Meteorological Directorate), Ministry of Energy Development and Hydraulic Resources**,** Ministry of Environment, Health, Civil Protection, national Climate Committee, ANEA; the AF-funded WMO-LCBC-GWP project; other relevant development partners (UNDP, World Bank, FAO, IFAD, OCHA, Oxfam, ACTED, REACH, the Red Cross); University of Bangui; TV and radio stations; U-Reporters; community health extension workers, village development committees, water user associations, community sanitation committees, youth and women associations.

Output 1.3: Institutional capacity and governance for CR-WASH and climate adaptation are strengthened

This output aims to improve national capacity for climate-resilient planning and response by strengthening institutional capacities and cross-sectoral governance within WASH and other adjacent sectors and actors (IWRM, Environment, Health, DRR and Humanitarian Action). It achieves this by providing targeted training to government personnel and other stakeholders to enhance their technical and operational skills in climate adaptation, and by developing cross-sectoral coordination mechanisms. By improving professional capabilities and ensuring effective collaboration between different ministries and partners, this output creates a more unified framework for managing climate risks across sectors.

Table 69. Activity 1.3.1

Activity 1.3.1: Strengthen national institutional capacities on climate across the WASH and adjacent sectors	
Baseline	According to the NAP, the limited integration of climate adaptation into development planning and budgeting processes in CAR is due to several factors, including systemic ones such as the lack of institutional and technical capacity and the absence of intersectoral coordination. This is compounded by the low level of awareness among institutions about climate change, and particularly about climate change adaptation, which leads to weak ownership and implementation of related concepts and tools. Strengthening institutional and technical capacities is the third priority for the water and sanitation sector in the NDC. The NAP, the Disaster Risk Reduction and Climate Adaptation Strategy, and the Response Strategy for Resilient Water Management all emphasize the need and propose actions to enhance the technical and material capacities of national and subnational government institutions to improve understanding of adaptation issues and strengthen planning tool proficiency, and to develop the operational, technical, financial, and structural capacities of non-governmental stakeholders, including the private sector, the civil society, and academia. These documents include a (non-exhaustive) list of thematic areas where knowledge and skills of institutions and personnel need

developing. The Water Policy explicitly includes capacity building in the mandate of the Ministry of Water Resources.

Activity description

This activity will strengthen technical, operational, and institutional capacities of government and other key sector stakeholders at national and prefecture levels to understand climate risks and design, plan, implement, and sustain conflict-sensitive CR-WASH, WRM, and related DRR interventions. Capacity building activities at local and community levels will be implemented under Outcome 2.

Sub-activity 1.3.1.1: Developing a capacity building needs assessment and plan for key stakeholders

The capacity building need assessment will be conducted in the first 12-18 months of the project and will encompass the national, prefecture, and local/service levels. This will allow to create and roll out a tailored plan for all relevant stakeholders at each level (indicative list in the table below).

National government entities	***Other stakeholders in Bangui***	***Sub-national and community stakeholders***
Technical departments responsible for Water Resources (incl. ANEA), Environment, Meteorology, Civil Protection, Humanitarian Action, Health, Education, Agriculture and Rural Development, Woman and Child Empowerment, Urban Planning, Infrastructure National Climate Coordination committee Ministry of Economy, Planning, and Cooperation Ministry of Finance and Budget	Prefectures Donors and UN agencies WASH humanitarian agencies, (I)NGOs, CSOs Academia (University of Bangui faculties, laboratories, researchers) Municipalities TV and radio stations	Local authorities Community health workers Community leaders Village development committees Water Users' Associations, Water Management Committees Local Sanitation Committees Civil Protection and Red Cross staff and volunteers WASH private sector service providers/operators Women and youth associations U-Reporters

The capacity building plan will be based on the result of the needs assessment. To avoid duplication and ensure complementarity with other initiatives, coordination will be ensured throughout the needs assessment and plan development process, and in the definition of respective roles, responsibilities, and timelines. The capacity building plan and training support will be developed by consultants, hired and managed by UNICEF.

The main expected training needs and topics include:

- Understanding climate change in CAR and its impacts, risks, and vulnerabilities for water resources and WASH services, including drainage systems;
- Conducting local climate and conflict risk assessments as well as water resources and waterpoint assessments, contributing to the implementation of

Activities 2.1.1 and 2.3.1, and planning appropriate mitigation and adaptation actions;

- DRR and WRM planning, implementation, and coordination for floods and droughts, including managing and monitoring water resources with a climate- and conflict-sensitive approach (linked to Activity 1.2.1 and Output 2.3);
- Integrating WASH interventions with climate resilience, IWRM, environmental management, and DRR, ensuring interventions are conflict-sensitive;
- Designing, operating, maintaining, and supervising climate-resilient WASH services at the community level, with a particular focus on solar-powered water supply systems and household sanitation (linked to Activity 2.1.4);
- Developing projects and mobilizing climate finance, including building and using a theory of change and logical framework; developing a climate rationale; identifying climate funding opportunities and accessing them; project writing; needs assessment and field survey methodologies; local climate risk assessment and conflict analysis approaches and tools; procurement; M&E, and reporting.

Additional training topics are covered under other project components, including: understanding, owning, and applying relevant policies, strategies, plans, and technical guidelines for climate adaptation, WRM, CR-WASH, and DRR (Activity 1.1.1); engaging with and using climate and hydro(geo)logical information and early warning systems (Activity 1.2.3); and monitoring interventions, services, and sector performance, with a focus on continuous learning (Activity 1.2.2).

The capacity-building plan will further refine, specify, and prioritize the key knowledge, skills, and competencies required by each stakeholder group, together with the associated training approach and delivery methods.

Sub-activity 1.3.1.2: Implementing the first phase of the capacity-building plan

While the implementation of the capacity-building plan at national and subnational (prefectural) levels (Year 3 – Year 5) falls under this sub-activity, local and community-level actions will be carried out as part of project component 2. The capacity building plan will be implemented by consultants, hired and managed by UNICEF. Specialized training may also be supported by Higher Education Institutions (HEIs) or other certified providers.

The training design, approaches, and materials will be tailored to address the specific needs of each stakeholder category. Methods are expected to include a combination of:

- Training of trainers and direct training delivery;
- Training sessions in Bangui (typically 2-5 days) and practical, hands-on training with field visits (e.g. direct observation of approved climate resilient WASH designs and of O&M procedures);
- Pre-, post-, and ex-post training participant surveys to assess satisfaction, learning outcomes, and effective improvement in capacities, work processes/tools, and/or behaviours/practices in the month following training completion;

- More continuous on-the-job coaching and on-site and remote assistance (e.g. on borehole siting and construction, solar systems dimensioning);

The project will also support certified training programmes in areas such as hydrogeology, sanitary engineering, climate adaptation, data collection and analysis, climate information and early warning systems (CIEWS), and geographic information systems (GIS). To this end, the project will leverage opportunities offered by the "Climate and CR-WASH" capacity-building initiative for the West and Central African region launched in 2025 by the UNICEF Regional Office, UNESCO-IHE, and the 2iE University, as well as those available through reputable MOOC platforms. Selected personnel will be enrolled in these programmes. The personnel will be technical staff of the respective ministry engaged in the planning and implementation of WASH, WRM, public health, education, and DRR/humanitarian policies and strategies at a national level. The selection of the personnel will be suggested by the respective ministerial governance and validated by the Project Steering Committee, with the aim to apply the tools learned in their respective sectors.

Sub-activity 1.3.1.3: Updating the capacity-building plan and implementing phase two (from 2030 onward)

Following the transition to the post-SDG era, the release and localization of new global goals and priorities will necessitate revisions to national climate adaptation and water-related strategies, systems, and programming and management approaches. Stakeholder knowledge, skills, and practices will need to be updated to align with these changes. In addition, lessons and insights generated during the first phase of the project will be incorporated into subsequent capacity-building efforts to support institutional memory and effectiveness.

The second phase, commencing from 2030 on, will be guided by an updated capacity needs assessment and plan. It will continue to target the same key stakeholders across national and subnational levels, maintaining the coordinated and multi-level approach established in the first phase. This phased approach ensures continuity, reinforces institutional memory, and strengthens the long-term sustainability of climate adaptation and water resource management capacities in CAR.

Turnover of trained staff is a well-recognized barrier to sustainable capacity building. The project will mitigate this risk through a comprehensive, multi-level strategy that combines institutional, technical, and community-level measures:

- *Long-term capacity development strategy*: The capacity-building plan will be implemented over 5-6 years, with annual training cycles and a revised plan after 2030. The second implementation phase will provide refreshed and advanced training sessions to ensure continuity and respond to evolving needs in the post-SDG era.
- *Government continuity and targeting of trained personnel*: Following the upcoming elections in CAR, senior management and technical staff are expected to remain in office for several years, providing stability for institutional capacity. Training will primarily target unit heads, mid-level managers, and technicians at central and subnational levels rather than department heads and directors, whose positions are typically less stable.

- *Critical mass of trained actors*: Given CAR's small size, the project will train nearly the entire WASH sector (approximately 160 people) across all stakeholder groups, not limited to government staff. Training will be delivered jointly or tailored by stakeholder type to ensure sector-wide capacity reinforcement.
- National expertise and ownership: National consultants and CSOs will be systematically engaged, ensuring that skills and knowledge remain locally available and less dependent on external actors (international consultants or INGOs).
- *Multi-level reinforcement*: Capacity building will extend beyond national institutions to include local authorities, community leaders, and community members, creating a multi-level, mutually reinforcing approach that strengthens both governance and community resilience.
- *Institutional capacity through equipment*: Provision of equipment to key government partners will complement training, enabling institutions to apply newly acquired skills and sustain strengthened implementation capacity.

EE	UNICEF
Stakeholders involved	Ministry of Energy Development and Hydraulic Resources**,** UNICEF Centre of Excellence, SIWI, 2IE, Ministries and organizations listed above, international development partners (e.g. the AF-funded WMO–LCBC–GWP project, UNDP, AFDB, WB, EU), researchers/HEIs, NGO practitioners.

Table 70. Activity 1.3.2

Activity 1.3.2: Improve (cross-)sectoral governance mechanisms and stakeholder coordination on climate to bridge existing silos	
Baseline	Climate change and climate adaptation have significant and wide-ranging implications across many sectors and public policies, such as Water and Sanitation, Meteorology, Environment, DRR, Humanitarian Action, Land Planning, Health, Agriculture, Livestock, Education, Energy, and Transport, among others—all of which have their own sectoral strategies, stakeholders, and initiatives. Addressing the climate challenge requires holistic and coordinated action. And interventions in one sector affect other sectors. Yet these sectors and stakeholders largely operate in silos. Even within individual sectors, coordination is often lacking—as in the WASH sector—which undermines the coherence, effectiveness, and efficiency of actions. Several relevant ministries and actors are insufficiently involved or consulted, including the Ministry of Economy, Planning and Cooperation, the Ministry of Finance and Budget, the Ministry of Humanitarian Action, decentralized technical services, prefectures, civil society organizations, international partners, the private sector, women, youth, pastoralist populations, and other vulnerable groups. In light of this situation, the NAP calls for strengthening inter-ministerial and multi-stakeholder coordination, especially among sectors and ministries whose objectives and interventions overlap (e.g., water, agriculture and livestock, food security, health). The NAP also highlights fragmented responsibilities and an inconsistent approach to addressing disaster risk reduction on the one hand, and climate change on the other.

The Technical Committee of the NDA, which was established to fulfil coordination roles, has not delivered on its mandate—particularly its role in inter-ministerial technical coordination. The interministerial national Climate Coordination committee, established by decree in 2017 to lead and coordinate climate-related strategies and initiatives (including the development and monitoring of the NDC and the NAP), convenes irregularly. The committee brings together all the sectoral ministries under the leadership of the Ministry of the Environment.

Within the water and sanitation sector, ministries and development partners rarely meet outside of ad-hoc workshops organized around specific sector documents/initiatives. Both the consultation platform between the government and its water and sanitation international partners and the one among development partners met only once over the past 4 years. INGOs meet separately. WASH and WRM stakeholders and initiatives communicate intermittently and informally, if at all. Coordination between the national and subnational levels and among development and humanitarian/DRR actors is also limited. While humanitarian WASH actions are tracked by the UNICEF-coordinated WASH cluster, this is not the case of development WASH investment. Most humanitarian WASH actors are unaware of WASH development programmes – even when these are large programmes supported by the World Bank, AFDB, the EU, or AFD and implemented in the same areas –, and vice versa.

This fragmented landscape leads to missed opportunities for alignment, complementarity, and cross-learning. Improving sector governance and stakeholder coordination is the first priority for the water and sanitation sector in the NDC and the fifth strategic priority in the national Water Policy. The policy sets out the creation of a national (inter-ministerial) steering committee and the organization, by this committee, of an annual sector review.

Description

UNICEF will launch this activity within the first months of the project and will pursue three complementary objectives: (i) to reduce institutional and sectoral silos by strengthening coordination between the climate, environment, WASH, and IWRM sectors, as well as within the WASH sector itself, including ministries, development partners, and humanitarian/DRR actors; (ii) to mainstream climate adaptation within and across sectors, promoting holistic, coherent, and coordinated planning and action; and (iii) to engage a wider set of stakeholders to enhance alignment, foster complementarity, and improve aid effectiveness, collective learning, and knowledge sharing across interventions.

Sub-activity 1.3.2.1: Revitalizing the National Climate Coordination committee and the WASH development partners' coordination platform

This sub-activity aims to strengthen cross-sectoral coordination for climate adaptation, WASH, and IWRM interventions, addressing gaps in multi-stakeholder engagement and improving alignment and complementarity. Key actions will include:

- Revitalization of the national Climate Coordination committee: UNICEF will revitalize the national Climate Coordination committee, in coordination with development partners (e.g. UNDP) and the Ministry of Environment. This will include organizing biannual meetings, broadening stakeholder participation (including sectoral ministries, key development partners, and NGOs), creating cross-sectoral thematic working groups, and establishing a MEL framework in alignment with Activity 1.2.2.

- Revitalization of the WASH development partners' coordination platform: UNICEF will support the revitalization of the climate/WASH coordination platform. The platform will be institutionalized with clear terms of reference, wider membership, regular meetings, a thematic working group on climate adaptation and CR-WASH, and strengthened linkages with the WASH Cluster, NGO/INGO coordination platforms, and the National Climate Coordination Committee.
- Development of a multi-sectoral mapping/tracking tool: A '5W' matrix (Who does What, Where, When, and for Whom) or dynamic dashboard will be developed to track climate-resilient CR-WASH, IWRM, DRR, and other relevant multi-sectoral climate adaptation and humanitarian interventions. This tool, incorporating the WASH Cluster 5W matrix, will help identify gaps, avoid overlaps, improve actor coordination, inform planning and prioritization, and support reporting to governments, donors, and inter-agency coordination mechanisms. The tool will be owned by the Ministry of Energy Development and Hydraulic Resources and developed by its MEL unit in collaboration with the Ministry of Environment, UNICEF, and the MEL consultant under Activity 1.2.2.

Sub-activity 1.3.2.2: Institutionalizing an annual WASH and IWRM sector review

This sub-activity aims to strengthen sector governance, evidence-based decision-making, and multi-stakeholder alignment through a structured, annual review process. Key actions will include:

- Organization of annual sector reviews: With support from the Ministry of Energy Development and Hydraulic Resources and the Ministry of Environment, UNICEF will anchor annual review processes, calling and organizing annual WASH and IWRM sector reviews. These reviews will gather key stakeholders from central and local governments, development partners, CSOs, academia, the private sector, and relevant humanitarian, climate, and DRR actors.
- Review content and process: Sector progress, gaps, plans, and ongoing and planned initiatives will be presented using established templates and tools. Reviews will also serve for discussing specific topics, share lessons/challenges, building consensus around specific sectoral documents and initiatives, and informing decision-making. They will be the preferred platform for presenting new policies, strategies, technical guidelines, programming guidance, capacity building plans, climate and water resources assessment and mapping, EWS, M&E frameworks and tools, sector indicator data and annual reports, evaluations, and other key initiatives and documents supported by the programme and other actors.

- Participation and duration: Reviews will typically last 2 to 5 days, depending on the agenda, involving 60–120 WASH participants and 20–40 participants from other sectors.
- South-South learning: A study visit will be organized with countries such as Senegal or Burkina Faso, where joint sector reviews are long-established. A core team from the Water Resources Directorate will participate to gain insights on effective sector leadership, stakeholder alignment, climate adaptation integration, and overall sector effectiveness and learning.

UNICEF is well placed to support the CAR government in strengthening both sectoral and intersectoral governance and coordination, while reinforcing government leadership. With its UN status and non-political mandate, it has an official, recognized convening role. UNICEF has been operating in CAR for nearly 45 years, working for, with, and through government institutions. It is the designated lead agency among WASH development partners and for the WASH Cluster. Its programmes span across multiple sectors beyond WASH, including health, education, nutrition, social and behaviour change, protection of children and women, climate action and DRR/emergency preparedness, response, and coordination.

EE	UNICEF
Stakeholders involved	Ministry of Energy Development and Hydraulic Resources **,** Ministry of Environment, national Climate Coordination committee; Ministries/directorates in charge of Meteorology, Urban Planning, Economy, Planning and Cooperation, Finance and Budget, Civil Protection, and Humanitarian Action; decentralized technical services, prefectures; development and humanitarian partners (donors, INGOs, national NGO/CSOs); other relevant stakeholders at the national and subnational levels.

7.2.2 Outcome 2: Climate-resilient rural WASH services, urban drainage infrastructure, WRM, and related local capacities adapted and scaled up to reduce climate and health risks in vulnerable communities

This outcome aims to ensure that WASH infrastructure and services can withstand climate hazards, improve urban drainage systems to reduce flood risks, expand access to climate-resilient water and sanitation services, and strengthen the capacity of communities in rural, flood- and drought-prone areas to adapt to climate change and manage disaster risks effectively. Communities will gain access to CR-WASH facilities informed by detailed hydrological studies, while urban areas benefit from upgraded drainage systems. Local governments, communities, and private sector partners will be equipped with the skills, resources, and financial mechanisms needed to maintain these services, and communities will be supported to lead their own water management and DRR initiatives. This will be achieved through three outputs:

Output 2.1: CR-WASH services are accessible and used in rural, flood- and drought-prone areas of Ouham, Bamingui-Bangoran, and Vakaga

Output 2.2: Climate-resilient urban drainage infrastructure is reinforced and expanded in Bangui to reduce, anticipate, and better withstand flood risks

Output 2.3: Communities and youth are enabled to manage water resources and disaster risks in priority high-risk localities of Ouham, Bamingui-Bangoran, and Vakaga

Under outcome 2, UNICEF retains full fiduciary, procurement, and financial management control over all GCF proceeds. All major expenditures, including infrastructure construction, equipment procurement, and professional service contracts, will be managed and paid directly by UNICEF to the respective vendors and contractors. UNICEF relies on its standard Harmonized Approach to Cash Transfers (HACT) framework to issue operational advances to government entities and NGOs/CSOs. The HACT framework governs these financial transfers, including partner capacity assessments, risk-based assurance plans, financial reporting requirements, spot checks and audits. Government ministries will not receive direct budget transfers. There will be no cash transfers to individual community beneficiaries or households.

Output 2.1: CR-WASH services are accessible and used in rural, flood- and drought-prone areas of Ouham, Bamingui-Bangoran, and Vakaga

This output aims to ensure access and use of CR-WASH services for vulnerable communities in the selected prefectures. This will be achieved by conducting studies to identify the most suitable water sources, construction and rehabilitation of climate-resilient WASH services, and strengthening their affordability, financial viability, and the operational capacity of local governments and communities to manage these services in the long-term. Activities contributing to output 2.1 include:

Table 71. Activity 2.1.1

Activity 2.1.1: Conduct hydrogeological studies to identify areas of highest groundwater potential and inform adaptation planning	
Baseline	Rural communities rely heavily on shallow wells (~14,5%), boreholes (~36,5%) and surface streams (~40%) (MICS 2019), which more often dry up during long dry season (November–April). In the prefectures of Vakaga, Bamingui-Bangoran, and Ouham, boreholes and wells are drilled into weathered and fractured igneous and metamorphic rocks, which makes them more vulnerable to seasonal variability and extreme events. Infrastructure design further limits resilience: almost all boreholes have been fitted with handpumps rather than motorized systems, restricting their capacity to meet increasing demand driven by population growth and climate-induced water variability or stress. Information gaps reinforce this vulnerability and constrain resilience. The ANEA national water point database is incomplete, with limited geographical coverage, outdated entries, and insufficient details on borehole lithology, yield, and functionality. As a result, siting of new boreholes is often based on inadequate information, leading to drilling success rates below 50% in some areas. This situation is exacerbated by limited local technical capacity: only basic geophysical surveys have been conducted in the past, often by untrained contractors, leaving advanced hydrogeological assessments largely absent. The combined effect of weak infrastructure, poor data, and limited technical capacity has already led to major failures. In Bamingui-Bangoran, 80% of boreholes failed during the 2020 extreme rainfall event, while floods in 2021 destroyed 112 wells in Bangui and Birao. In addition to the area-wide data generated through hydrogeological monitoring equipment and aquifer mapping under Activity 1.2.3, robust site-specific hydrogeological assessments are required to reduce borehole vulnerability to climate shocks—whether from prolonged droughts that lower groundwater recharge or floods that contaminate and damage infrastructure. Collecting and applying reliable on-site hydrogeological data to guide borehole siting, drilling, and design is essential to secure reliable, climate-resilient groundwater access and remove a critical barrier to adaptation.
Description	In support of the government of CAR, UNICEF will lead the process of strengthening knowledge of groundwater resources and identifying the most suitable sites for borehole drilling to support the implementation of Activity 2.1.3 and other water supply programmes in the target areas. This will contribute to ensuring access to climate-resilient water services for vulnerable communities, schools, and healthcare facilities. The activity will also provide evidence to guide local WRM solutions under Output 2.3. Site-specific groundwater assessments will be carried out using a combination of methods, including consultations with local governments and communities. This approach will serve as a model that can be scaled up by the government and other partners in different parts of the country and potentially replicated across the region to inform adaptation planning. The assessments will be launched in the very first months of project implementation. UNICEF will procure specialist hydrogeology firms that will provide the studies and assessments upon approval of methods. The National Water Resources Directorate

(DGRH/MEDHR) will accompany UNICEF and the firms with field visits for technical oversight, coordination, and validation of proposed sites within the firms' reports. Additional support on satellite imagery will be provided by the European Union Joint Research Centre (EU-JRC).

Sub-activity 2.1.1.1: Conducting detailed hydrogeological field assessments

In preparation of this activity and the output, pumping tests were conducted by UNICEF and DGRH in October and November 2025 in Ouham, l'Ouham-Fafa, Bamingui-Bangoran and Vakaga. Although it is showing positive results, pumping duration during constant rate tests were limited therefore, this preliminary analysis will be further corroborated by detailed hydrogeological field assessments in appropriate time of the year (around March or April 2026 which correspond to the dry season) to account for seasonal changes in groundwater availability. and sub-activity 2.1.1.2. During the project, specialist firms procured by UNICEF will conduct detailed assessments to map geological formations, identify existing boreholes, and document traditional knowledge on borehole functionality in the context of increasing climate change impacts. These assessments, complemented by community discussions, will provide a clearer understanding of local hydrogeological conditions. Findings will be shared with national and local representatives of the Ministry of Energy Development and Hydraulic Resources, and validated by UNICEF.

The assessments will include:

- Field mapping of proposed areas to identify existing boreholes (cross-checked with the national database), water features, and visible geological structures. The shortlist of potential areas for investigation will be based on the broader hydrogeological assessments conducted under Activities 1.2.1 and 1.2.3.
- Identification of high-yield boreholes in communities, schools, and healthcare facilities already equipped with handpumps that could be upgraded with solar pumping systems.
- Basic field water testing (e.g., conductivity and pH) by hydrogeological experts.
- Community and local government consultations to gather information on water sources, experiences with past drilling, borehole functionality, and testimonies on past climate-related events and impacts.
- Risk assessments of existing boreholes, including exposure to climate hazards, competing abstractions, and land use pressures.

Consistent with standard hydrogeological practice, the assessments will cover more sites (~220) than the number of boreholes planned for drilling or rehabilitation (200). This ensures that reserve options are available in case geophysical surveys or site conditions prove unfavourable.

Sub-activity 2.1.1.2: Conducting pumping tests and camera inspections on existing boreholes identified as viable during the detailed hydrogeological field assessments

Boreholes fitted with handpumps and identified during field assessments as having high-yield potential and the capacity to safely sustain solar-powered water services will undergo a comprehensive assessment comprising pump testing and TV camera inspections. Pump testing will include:

- Removal of the existing handpump;
- Step-drawdown testing (four steps of approximately 6 hours each—e.g., 2, 4, 6, and 8 hours, or as close to these intervals as feasible);
- Constant-rate pumping test of 24 hours (or shorter if water levels stabilize, but not less than 12 hours);
- Recovery test of at least 12 hours (or until water levels have recovered by 95%, but not less than 6 hours);
- Analysis of test results to estimate the sustainable yield of the borehole.

Boreholes deemed viable during field assessments and pumping tests will then undergo TV camera inspections to evaluate their condition and structural integrity, determine suitability for investment and confirm the borehole design. These inspections are particularly important because water analyses indicate low pH, which could cause corrosion if borehole casing and screens are not constructed with corrosion-resistant materials. Borehole condition will be assessed on-site by specialist firms, in consultation with the Water Resource Directorate.

TV camera inspections will include:

- Assessment of the borehole casing to identify any significant pitting, erosion, or other damage;
- Assessment of the borehole screen to identify pitting, erosion, damage, or blockage;
- Confirmation of borehole alignment;
- Verification of borehole design, including actual depth and lengths of screen and casing, regardless of whether original designs exist.

If camera inspections confirm consistent alignment with design specifications and overall good condition, the number of boreholes requiring full assessment may be adjusted downward.

Sub-activity 2.1.1.3: Analysing satellite imagery of the proposed areas of potential to identify structural/geological features

This sub-activity will involve obtaining and analysing satellite imagery of areas identified as potentially suitable during the field assessments to locate geological features indicative of aquifers. This approach provides an efficient method to identify new water sources without relying on widespread, random, and costly drilling.

UNICEF will collaborate with the EU Joint Research Centre (EU-JRC), leveraging its historic partnership and prior experience in providing satellite imagery analysis for hydrogeological purposes in other countries in the region. This collaboration will also include capacity building for the Water Resource Directorate to interpret satellite imagery for long-term hydrogeological planning (linked with Activity 1.3.1).

The satellite imagery sub-activity will include:

- Sharing geolocation references of proposed potential areas with the EU-JRC
- Initial analysis of satellite imagery undertaken by EU-JRC staff
- Online capacity-building sessions for DGRH on interpreting satellite imagery for hydrogeological purposes
- Joint analysis of images by EU-JRC, UNICEF, and DGRH
- Selection of priority areas for subsequent geophysical assessments

The initial analysis will be provided by EU-JRC staff as a free service, followed by joint interpretation with UNICEF and Directorate staff, thereby strengthening national capacity for climate-resilient water resource mapping.

Sub-activity 2.1.1.4: Undertaking consultations with local water government staff and the communities in the prioritised areas, sharing the collected information and agreeing on priority drilling sites

The findings from the three levels of assessment—field assessments (including pump testing), satellite imagery analysis, and geophysical surveys—will be reviewed under UNICEF's lead, with local Water Resource Directorate staff, the engaged specialist firms, and community groups to establish priorities. Data will be analysed, and sites will be ranked in each area according to their groundwater potential.

Local consultations will be conducted by members of the UNICEF project team and field assessment teams, with support from the Water Resource Directorate, These discussions will include all relevant stakeholders—local authorities, village leaders and development committees, elders with knowledge of past events, water management committee members, women, youth, pastoralists, and other vulnerable or indigenous groups. Communities will be informed about the prioritization process and will participate in the selection of viable sites.

This participatory approach serves multiple objectives:

- Enhancing local ownership and engagement, ensuring that communities are invested in the project and in the management of water resources;
- Strengthening governance, providing a framework for the sustainable management of climate-resilient water services;
- Building national capacity, by updating the ANEA database and informing future adaptation planning, including NDC and NAP updates;
- Promoting regional learning and replication, through documentation and sharing of methods and results.

By integrating local knowledge and engaging communities in decision-making, this sub-activity contributes directly to the sustainability and climate resilience of water services while fostering long-term national and regional capacity.

Stakeholders involved	Ministry of Energy Development and Hydraulic Resources**,** ANEA, local authorities, community members

Table 72. Activity 2.1.2

Activity 2.1.2: Promote CR-WASH and sanitation through climate-adapted community-led total sanitation (CLTS) and nationwide awareness-raising	
Baseline	CAR is one of the ten countries with the lowest sanitation coverage. Currently, only 6% of the CAR rural population uses basic sanitation facilities. This means that 94% of the rural population use unimproved or shared latrines vulnerable to floods or defecates in the open (JMP, 2023). Particularly in the Ouham prefecture, only 3.7% of the population is estimated to use basic sanitation facilities. 40% of the rural population defecates in the open. These conditions contribute to outbreaks of waterborne diseases, especially during heavy rains and floods, pollute the environment, degrade water quality, and pose safety risks to women and girls. To address this situation, the Ministry of Energy Development and Hydraulic Resources—supported by UNICEF and national NGOs/CSOs—has been implementing the Community-Led Total Sanitation (CLTS) approach since 2010 as described in the national CLTS Practical Guide. The programme targets small and remote communities across the country, reaching an average of 56,000 people 'triggered' each year – roughly 170 communities with around 330 people per community. Through this highly participatory approach, communities and households are made aware of the risks associated with open defecation and are mobilized to eliminate the practice by constructing their own latrines using locally available materials and techniques. Communities that meet nationally defined criteria are eventually certified as "open defecation free" (ODF). The approach proved successful to change social norms underpinning open defecation and to improve sanitation and hygiene behaviours. The approach has proven effective in changing social norms around open defecation and improving sanitation and hygiene practices. Despite these efforts, major gaps remain—particularly in the Ouham prefecture, where only 3.7% of the population is estimated to use basic sanitation facilities – 13,1% in Vakaga and Bamingui-Bangoran. This highlights the need to scale up CLTS interventions. In addition, the CLTS approach itself must be adapted to account for climate risks and to build resilience into the design and construction of household sanitation facilities, ensuring long-term sustainability. Field experience and quantitative assessments in CAR and other countries have shown that latrines built by households in low-resource settings, particularly in flood-prone areas, are often at risk of collapse over time (e.g. WASH Sustainability Check in CAR, UNICEF 2022; Multi-country ODF Sustainability Study, Plan 2013; CLTS Evaluation Synthesis, UNICEF Evaluation Office 2017). When latrines become unusable and households lack the means—technical or financial—to rebuild or upgrade them, they often return to open defecation. Awareness-raising and behaviour change campaigns on sanitation and WASH have been implemented in the past in some places to complement and support

	community-level interventions, but they have been intermittent or limited in scale and did not address climate change.
Description	This activity aims to increase access to and use of climate-resilient sanitation facilities, while promoting sustainable behaviour change. It will tackle social barriers, stimulate community demand and ownership, support affordability, and build local capacity through a revised CLTS approach, reinforced by a nationwide awareness-raising campaign. UNICEF will design and oversee the approach of this activity, contracting national NGOs and CSOs through formal Programme Documents or service contracts in accordance with UNICEF procedures to deliver the CLTS activities, behaviour change interventions, and awareness campaigns. All activities will be implemented under UNICEF supervision, with UNICEF retaining full accountability for results. **Sub-activity 2.1.2.1: Awareness-raising campaigns on climate adaptation and CR-WASH** This sub-activity will implement national and local awareness-raising and behaviour change campaigns, delivered by contracted NGOs/CSOs, to promote CR-WASH and sanitation, particularly targeting youth. Campaigns will aim to shift social norms, build community ownership, and increase demand for resilient sanitation services. It will be coordinated with the CIEWS communication campaign under Activity 1.2.3. Key approaches: • Multi-channel communication: Radio and SMS (widely used in rural areas), complemented by TV, WhatsApp, and social media for youth engagement; UNICEF's existing partnership with radio stations will be expanded for the purpose of the campaign; • Engagement of change agents: Community and religious leaders, traditional communicators, artists, women's and youth associations, teachers, health personnel, private sector actors, and volunteers; • National-level implementation: Led by UNICEF with support from the Ministry of Energy Development and Hydraulic Resources, leveraging partnerships with radio, TV, and telecom companies, including those established under Activity 1.2.3 (CIEWS); • Local-level implementation: Focused on Vakaga, Bamingui-Bangoran, and Ouham, implemented via local radio, NGOs, and CSOs engaged in CLTS and water supply activities. Messaging will provide practical guidance on CR-WASH and sanitation services and practices, safe handling of water and Faecal sludge, wastewater and waste management (incl. risks associated with using sludge as fertilizer in fields), protection of water sources, handwashing, and the specific needs of women, girls, pastoralist populations, older people, persons with disabilities, poor households, and other groups requiring special attention. Indigenous knowledge will inform messaging; • Communication plan development: A dedicated plan will be piloted with support from specialized consultants, using participatory design involving all

stakeholders and validated in a workshop during the first year of project implementation;

- Campaign implementation will span the full project duration, with sequencing coordinated to seasonal weather patterns, local community calendars, and other government initiatives, ensuring messages are timely and contextually relevant (e.g. the protection of water sources and safe handling of water and Faecal sludge during the rainy or dry seasons; messages on open defecation and sludge management practices during field work and harvest seasons; hygiene and handwashing promotion around religious holidays).

Sub-activity 2.1.2.2: Training national and local government staff and local facilitators on the adapted, climate-sensitive CLTS approach

Key staff from relevant government technical departments at local level (Water Resources, Health, Environment, etc.), target prefectures and municipalities, local health staff and NGOs/CSOs involved in CLTS, will be trained by UNICEF on the adapted, climate-sensitive CLTS approach. Training will use the revised *Norms and Directives for WASH in Rural and Semi-Urban Areas* and the *Practical Guide for Climate-Sensitive CLTS* once validated under project Activity 1.1.1, ensuring alignment with national policies and standards.

Training will combine in-class orientation in Bangui with hands-on, practical sessions to build the capacity of a critical mass of stakeholders and implementers in each target prefecture. Participants will be oriented on the main steps in the revised national CLTS guide, incorporating climate-sensitive enhancements to strengthen resilience and sustainability, including:

- Integration of CLTS with a nationwide awareness-raising campaign to influence social norms and promote climate-resilient WASH behaviour
- Conducting local climate-risk assessments in intervention communities to inform context-specific interventions
- Incorporation of water safety planning and market-based approaches to strengthen long-term service delivery
- Addition of a post-ODF sustainability and resilience monitoring and reinforcement phase to ensure lasting impact

Following the training, UNICEF, with support from the Ministry of Energy Development and Hydraulic Resources and partner NGOs/CSOs, will identify eligible villages for intervention and define activity plans and timelines.

This sub-activity builds national and sub-national capacity, strengthens climate-resilient WASH practices, and establishes a foundation for sustainable, replicable interventions aligned with GCF objectives of enhancing climate resilience and long-term community adaptation.

Sub-activity 2.1.2.3: Implementing the adapted CLTS approach, and supporting local masons and vulnerable households through sanitation market development approaches and post-ODF sustainability and resilience reinforcement

Approximately 650 villages will be ‘triggered’ in successive batches throughout the project period, enabling adaptive rollout and effective scaling. This figure accounts for an estimated 75% ODF conversion rate and a target of 500 ODF villages (~141,000 beneficiaries). Under UNICEF’s oversight, the climate-sensitive CLTS approach is planned to unfold stepwise as follows.

CLTS pre-triggering
To prepare for community-level interventions, trained NGO/CSO facilitators contracted by UNICEF will visit target villages with a community leader to assess existing sanitation and hygiene infrastructure, identify open defecation sites (human and animal), understand local beliefs and practices, and assess climate risks and extreme events. This community climate risk assessment will locate water resources, assess their protection and usage, record past climate events (floods, droughts, heavy rainfall) and associated damages, and identify potential risks to water and sanitation infrastructure (may be undertaken under Activity 2.1.1 depending on implementation location and timing). Demographic data (including pastoralist, fisher, and indigenous populations), soil characteristics, accessibility, local leadership, and the presence of local artisans and masons will also be collected. Validated data collection forms will guide this process. Pre-triggering visits typically last 1–3 hours per village, with total duration depending on the number of facilitators and villages per batch.

Triggering
A five-member facilitation team (lead facilitator, co-facilitator, community mobilizer, materials handler, and rapporteur) will conduct a 2–3-hour community meeting to raise awareness about the dangers of open defecation, emphasizing health, environmental, and climate-related risks. The six CLTS triggering tools—community mapping, shame walk, contamination routes, glass-of-water demonstration, faeces calculation, and medical expenses estimation—will be used to foster collective realization and prompt immediate action.
Community and religious leaders, women, children and youth, fishermen, indigenous/pastoralist and disadvantaged groups, and other key stakeholders will be mobilized to ensure inclusive participation. Communities will publicly pledge to achieve ODF status within a self-determined timeframe, typically 2–3 months, adjusted for seasonal conditions. Pledges will be reaffirmed in area-wide follow-up meetings involving representatives from all triggered villages, technical departments, and local authorities to reinforce collective motivation, mutual support, and climate-resilient practices.

Post-triggering follow-up and water safety measures
Following triggering, facilitators will support the establishment of local sanitation committees, convened by community leaders and including representatives from community and religious leadership, women, youth, indigenous/pastoralist and disadvantaged groups, and other key actors.
Facilitators will provide on-site training to committees to finalize community and climate vulnerability maps and develop climate-resilient sanitation and water safety plans, aligned with DRR and IWRM frameworks and pre-triggering assessments. Training will guide committees on climate-resilient sanitation infrastructure, hygiene practices, water source protection, drinking water treatment, animal management,

and collective initiatives, using low-tech, locally adapted solutions. Progress will be monitored using mobile-to-web technologies.
Household latrines will meet minimum climate-resilient standards, including features such as raised pits, reinforced walls, geodesic slabs, pit covers, solid roofs, and drainage to prevent runoff. The updated *WASH Norms and Guidelines* will provide designs and construction guidance. Post-triggering visits by facilitators will range from every 3 days to every 2 weeks, with committees providing ongoing monitoring and support.

Support to local masons and vulnerable households (Sanitation Market Development)
To ensure sustained use of climate-resilient latrines, the market-based approach will train local masons and artisans on climate risks, resilient designs, construction techniques, and safe sludge management. Committees and artisans will learn to develop marketable, context-specific, and affordable services, including strategies to reach vulnerable households. Training will also support business development and linkages to local financing schemes (in connection with Activity 2.1.5).

ODF status verification and certification
An external verification team—comprising line ministry representatives, the mayor or representative, and a local health official—will inspect villages to confirm ODF status per the CLTS Practical Guide. Sampling will cover 100% of households in villages with fewer than 30 households and 40% in larger villages. Verification will include standard criteria (functional, private latrines, handwashing stations, absence of open defecation) and climate-resilient features (solid slabs, raised platforms, pit lining, protective roofs, latrine maintenance awareness). Achieving climate-resilient ODF status may take longer than the typical 2–6 months.
If the verification outcome is positive, the same team will subsequently organize an official ceremony and formally grant climate-resilient ODF status. Villages will receive certificates, road signs, and hygiene kits during public ceremonies, with initial certified villages receiving extra attention and media coverage. Celebrations will include speeches, skits, and latrine visits, lasting approximately one day.

Post-ODF sustainability and resilience monitoring
A dedicated follow-up phase will support ongoing reinforcement and improvements. Facilitators, in collaboration with committees, health workers, and municipalities, will introduce self-administered observation-based surveys to track ODF slippage and identify gaps in climate-resilient WASH and water security. Reinforcement activities may include:

- ‘Light’ CLTS re-triggering
- Formalizing and training sanitation committees
- Remobilizing leaders and community groups
- Linking neighbouring committees and facilitating peer support
- Advanced technical follow-up for masons and artisans
- Connecting households and artisans to local financial schemes

Additional post-ODF interventions may address: handwashing, safe disposal of child faeces, food handling, livestock enclosure, drinking water protection and treatment, small-scale community water storage, rainwater harvesting, and integration of WASH improvements into local development plans, schools, and

	health programs. This phase may extend up to eight months post-certification and ensures lasting, climate-resilient sanitation and water security outcomes.
EE	**UNICEF**
Stakeholders involved	Ministry of Energy Development and Hydraulic Resources , Prefectures, local authorities and health staff, municipalities, community and religious leaders, natural leaders, local sanitation/WASH committees and health extension workers, local masons and artisans, women and youth associations, national telecom companies, and national and local public, private, and community-based TV and radio stations.

Table 73. Activity 2.1.3

Activity 2.1.3: Construct or rehabilitate CR-WASH infrastructure in communities, schools, and healthcare facilities	
Baseline	Based on the JMP 2023 data, 73% of the rural population lacks access to at least basic water supply: they use unimproved or distant water supplies or surface water vulnerable to climate hazards, particularly droughts and floods. During the 2020 extreme rainfall, 80% of water points were destroyed in four localities of Bamingui-Bangoran. 112 water points were destroyed In August 2021 in Bangui, Birao (Vakaga), and Baoro, and 1,092 in July 2022 across six prefectures. Most existing boreholes are poorly sited and installed, designed for low-yield handpumps rather than motorized systems, which leads to unsustainable yields under climate stress (e.g., drought-induced aquifer depletion). Climate-resilient adaptation requires deeper boreholes engineered for motorized systems to ensure year-round water availability, with precise siting informed by comprehensive hydrogeological data. Larger, motorized piped systems serving single or multiple villages enable more professional management and O&M, achieve higher functionality rates than handpump-equipped boreholes, and improve beneficiary satisfaction. Such systems are scarce in the three target prefectures. Solar-powered water supply systems are preferred to reduce GHG emissions, increase durability, lower operating costs, and support financial viability. Multi-use systems—serving domestic, livestock, and agricultural needs—are critical to meet growing demand and reduce water-related conflicts between farmers, pastoralists, and other user groups. Regarding institutions, 81% of primary schools and 73% of healthcare facilities lack access to basic water supply. In the Ouham prefecture, this is the case of 86% of schools, according to the 2023 Education Statistical Report (no prefecture-disaggregated data available for schools in Bamingui-Bangoran and Vakaga and for healthcare facilities). The 2023 JMP and CAR education and health statistical data highlight that access to basic sanitation in these institutions is also low. Many institutions lack sufficient, functional latrines, which increases the health and environmental risks during floods and droughts. In primary schools, the average latrine/pupil ratio stands at 1:152, far below Sphere standards of 1:30 for girls and 1:60 for boys. 59% of schools lack gender-separated latrines, compromising privacy and increasing gender-based violence risks. Only 2% of health care facilities (nationwide) have access to basic sanitation facilities (improved, usable, sex-separated latrines, adapted for limited mobility, and with at least one cubicle

dedicated for staff). Additionally, medical waste management is poorly developed, with no specific regulations in place. Waste segregation is either not available or inadequately implemented in 72% of facilities.

Description	This activity will provide safe, climate-resilient water and sanitation services to approximately 320,000 people in the prefectures of Ouham, Bamingui-Bangoran, and Vakaga—including vulnerable households, schoolchildren and teachers, and patients and staff in health facilities—in line with the national guidelines for climate-resilient WASH in rural and semi-urban areas, including those for healthcare facilities and schools (see Activity 1.1.1). Implementation will begin following the initial field assessments under Activity 2.1.1 and continue in phased batches until one year before project closure, ensuring sufficient time for consolidation, monitoring, final verification and acceptance of works, and sustainability measures. *Site selection:* Beneficiary communities, schools and healthcare facilities in target prefectures will be selected based on national WASH planning and M&E data, including the current national WASH databases (updated and improved under Outcome 1), education and health statistical data, as well as local climate risk and hydrogeological assessments conducted under Activity 2.1.1. Prioritization and final selection will be done jointly by the ministries of Water Resources, Education (for schools), and Health (for healthcare facilities), and UNICEF. *Climate-resilient infrastructure designs:* The infrastructure will be specifically designed to withstand the twin pressures of droughts and floods, ensuring continuity of essential services under a changing climate (see details below). All water supply systems will use solar pumping. Assets and services will be designed based on the modelled climate projection parameters to withstand the projected climate induced impacts not the historical ones. *Roles and responsibilities:* • *UNICEF* procures and supervises all works contracts and retains full accountability for delivery of infrastructure outputs. Design and implementation are carried out in coordination with relevant government authorities (DGRH/MEDHR, MoH, MoE) for technical validation and alignment with national standards. • *The Ministry of Energy Development and Hydraulic Resources* acts as a co-executing entity for a defined portion of this activity, contributing co-financing through (i) the construction of one water network, and (ii) the deployment of government staff and equipment. This co-execution is formalized through a subsidiary agreement with UNICEF, under which MEDHR is accountable for the delivery of its co-financed inputs and outputs. Furthermore, MEDHR and its technical staff at the prefecture level will participate in and validate site selection; monitor construction progress and compliance; and provide provisory and final approval and organize hand-over to local authorities and the water committee or user association, in collaboration with UNICEF, ANEA, and the field-based third-party monitor. It will also be responsible for updating the national water point database, which will be upgraded and further developed under activity 1.2.2. The Ministry's role will be critical to ensuring national ownership, accountability, and alignment with policy and regulatory frameworks, as well as for providing long-term monitoring and oversight. The Ministry of Energy Development and Hydraulic Resources via

the DGHR will be responsible for taking over the project supported infrastructure that will in turn handover to water users' association and or operators.

- *The Ministries of Education and Health* will be involved in school- and healthcare facility-based infrastructure activities.
- *Local authorities (municipalities), water operators (management committees, user associations, or private operators), and school and health authorities and staff* will participate in on-site progress monitoring. The WASH infrastructure will be handed over to the Ministry of Energy Development and Hydraulic Resources at the end of the construction process, which will in turn handover to water users association and or operators making them the primary owners in line with the CAR decentralisation policy.
- *Private sector:* Experienced water and sanitation infrastructure construction companies (from the local private sector) contracted by UNICEF through competitive tenders. They will remain responsible for construction quality not only during the works but also throughout the one-year contractual liability period, covering any defects. Engineering firms, also competitively selected and contracted by UNICEF, will conduct preliminary studies, prepare technical designs, and provide continuous third-party supervision in the field. Their role of the independent supervisors will be to professionally and continuously monitor progress on-site and ensure full compliance with technical designs, quality and gender standards, environmental and social safeguards.

Sub-activity 2.1.3.1: Constructing/rehabilitating climate-resilient water systems in 200 at-risk communities

This sub-activity focuses on installing and scaling up climate-resilient water systems by building, rehabilitating, or retrofitting 80 piped water supply networks for larger rural communities and peri-urban areas (more densely populated) and 120 small-scale water systems in smaller rural communities. All water supply systems will use solar pumping and include digital sensors for real-time monitoring of water conditions.

The piped water networks ('*adductions d'eau potable*') will be composed of one or more protected borehole(s), elevated tower(s) and HDPE storage tanks, and water distribution kiosks with typically 4 to 6 taps each. The solar-powered pumps will typically have a 30-50m^3/day capacity, 15-year life expectancy, and 5-year manufacturer's warranty. The solar panels (270W units, also with manufacturer's warranty) will be elevated and secured against theft, connected to a control unit with safety sensors (dry-run, overload protection) and data loggers. Water tanks will typically have a capacity of ≥5m^3 and will be fully watertight, roofed for UV protection, and mounted on 4-6m elevated steel towers with lightning protection. Distribution kiosk will be installed on elevated concrete slabs with drainage to prevent stagnation and vector breeding.

The smaller scale water systems ('*points d'eau modernes*') in rural communities will follow the same technical specifications but on a smaller scale: they will be designed for villages of around 500 inhabitants or less, with ~10m³ storage, a simplified solar pumping system, and fewer water stands/taps.

All water supplies will be designed for multi-use. At least one kiosk will be located at or near existing primary school and healthcare facility. Whenever needed and feasible, separate kiosks, taps, or watering trough will be installed for livestock and small-scale agricultural needs - to ease scarcity and reduce water-related conflict. Additional climate-proofing measures such as elevated platforms/structures, protective walls, waterproof materials, and improved drainage will protect systems against flood impacts. Siting will be informed by the local assessments and participatory process conducted under activity 2.1.1. Water quality testing will be carried out at the Lavoisier Institute in Bangui. The digital sensors will transmit real-time data on water flow, conductivity, pH, temperature, aquifer recharge, and seasonal variations. Alerts on groundwater drawdown or abnormal seepage will be transmitted to the Ministry of Energy Development and Hydraulic Resources, enabling proactive management and long-term sustainability.

Rehabilitations may involve modifications to the superstructure, surface improvements, drainage around the water points as well as water quality testing, expansion or installation of water storage and treatment facilities, and installation of solar pumps and solar panels and digital sensors.

Sub-activity 2.1.3.2: Constructing/rehabilitating/adapting sanitation in 100 climate-affected primary schools

This sub-activity will involve the construction and rehabilitation of sanitation facilities in 100 primary schools located in the same target communities prone to flooding and drought. The latrine blocks will be flood-resistant, constructed on raised slabs (at least above the 50-year flood level) with water-proof pits or septic tanks with double-pit septic configuration and deliberate provisions for safe, low-tech desludging, and durable construction materials to ensure failure and damage avoidance under extreme weather. The project will institutionalize a safe manual desludging protocol using alkaline stabilization (lime/chalk method) and strict protective measures. The stabilized material will be transferred to facility-level drying beds or lined, controlled pits designed to prevent leachate, where it will complete drying and undergo further pathogen die-off. Latrines will be gender-separated and accessible, with ramps and handrails for children with disabilities. Depending on the number of schoolchildren and space available in the schoolyard, the standard ratio of one latrine cubicle per 40 girls and 40 boys will be followed, plus two cubicles for teachers (one for women, one for men). In cubicles for females, there will be a dedicated space or cubicle for menstrual hygiene management with a bucket, soap, hanger for cloths, bin, and a door ensuring heightened privacy.

Handwashing stations will be connected to a rainwater harvesting system and storage tank, sized to optimize changing rainfall patterns, and with overflow directed to a pit or the school garden. Rainwater harvesting systems (new or rehabilitated ones) will provide an alternative water source for handwashing, hygiene, and cleaning, reducing dependence on groundwater, including during dry spells. They will not be used for drinking. They will feature resistant gutters and pipes, and HDPE storage tanks sized according to roof surface area and user demand.

Sub-activity 2.1.3.3: Constructing/rehabilitating/adapting climate-resilient sanitation in 100 healthcare facilities

This sub-activity will provide climate-resilient sanitation and hygiene equipment in 100 healthcare facilities (including small 'hospitals' in semi-urban areas). Equipment will comply with the national WASH guidelines for healthcare facilities. It will include latrine blocks, handwashing stations, and a rainwater harvesting system with the same technical, climate-adapted, accessible, and female-friendly features as described above for schools.
Additionally, appropriate infection prevention and control measures and equipment will be supported in every healthcare facility to ensure safe disposal of hazardous medical waste, protect health care workers and patients, and avoid the spread of diseases and environmental contamination. Climate-resilient and safe medical waste management in health facilities will include the installation of WHO-compliant Montfort incinerators with a raised platform, roof, and fence, water-proof ash, sharps and placenta disposal pits with appropriate lining, flood-proof waste storage areas, and associated waste segregation and management procedures.

EE	UNICEF, Ministry of Energy Development and Hydraulic Resources
Stakeholders involved	ANEA, Ministries of Education and Health, local authorities (municipalities), water operators (management committees, user associations, or private operators), school and health authorities and staff, the private sector.

Table 74. Activity 2.1.4

Activity 2.1.4: Develop capacities of local governments, communities, water operators, and the private sector to design, operate, maintain, and monitor climate-resilient WASH services	
Baseline	Over the past five years, UNICEF and other development partners have supported the CAR government in identifying key climate risks to the water and sanitation sector and services, as well as context-relevant solutions. Project activity 1.3.1, described above, will assess and strengthen institutional capacity at the national and prefecture levels. These capacity-building efforts need to be expanded to local and community levels. Currently, local governments, communities, water committees, school and healthcare facility staff, and the private sector have a limited understanding of how to design, implement, operate, and maintain climate-resilient WASH services, and how to monitor their effectiveness. This gap affects the sustainability of WASH services and the resilience of communities. Key barriers include inadequate community awareness of climate-WASH linkages and of climate resilient solutions and behaviours; limited technical expertise (lack of staff and community members trained in climate-resilient design, O&M, etc.); inadequate resources such as guidance, tools, spare parts, and other necessary supplies; and low formal community and private sector engagement in rural areas due to perceived risks and costs.

Description

This activity will strengthen the capacity of all relevant local and community-level stakeholders in each prefecture to develop, operate, maintain, and monitor climate-resilient WASH services. The aim is to ensure that investments remain functional and resilient to climate risks long after project completion, thereby directly addressing one of the GCF's core sustainability concerns. Based on the extensive capacity needs assessment carried out under activity 1.3.1, this activity will include the sub-activities listed below, encompassing community, school, and healthcare facility settings. Implementation will run in parallel with, and continue after, the infrastructure works under Activity 2.1.3.

Sub-activity 2.1.4.1: Delivering capacity-building sessions and strengthening spare part supply chains for climate-resilient and sustainably managed water supply services, including solar-powered systems, in intervention communities

Under UNICEF's management, this sub-activity will help local actors adapt their knowledge, skills, and practices to make water service operation and maintenance more professional, proactive, and inclusive. The project will aim to transform current practices of reactive management, ad-hoc "breakdown" maintenance, and short-term vision into a more preventive, continuous, and climate-resilient approach, thereby improving service quality and long-term sustainability.

UNICEF will contract NGOs to elaborate the capacity-building package, tools, and materials, and to deliver the trainings in the field. Newly established or revitalized water operators (e.g. user associations), local authorities, community leaders, users, and the local private sector (including private water service operators where available and interested, and local repair services and spare part suppliers) will be trained in several areas, including: understanding local climate risks and strengthening the resilience of water supply services and water conservation; designing and monitoring climate-resilient services (mainly for local authorities); building, operating, and maintaining climate-resilient water systems (local governments, water operators, community leaders, and private sector actors); designing, installing, and operating solar-powered systems more specifically (pumps and mini-grids), with emphasis on making these systems climate-resilient; and developing contingency plans for droughts and floods. The module on solar systems will draw on the country's solar experience (documented under activity 1.3.1 through consultations with the private sector) and UNICEF's global expertise (over 11,000 systems installed in the past five years, and a Regional Technical Solar Hub that developed and delivered solar training across West and Central Africa). The National Water Resources Directorate (DGRH/MEDHR) and the National Water and Sanitation Agency (ANEA) will provide and validate the technical content and provide oversight.

In line with the Water Law, the Water Resources Directorate, ANEA, and local authorities will sign formal agreements with water user associations for the operation and maintenance of one or more water supply systems. Existing water management committees will be formalized as, or complemented with, user associations. As mentioned above, private sector participation, not yet well developed in CAR, will be promoted wherever feasible and relevant/viable. Under these two models (user associations and private operators), professional operators manage finances, billing, and technical O&M, while community water committees retain a role in oversight, mobilization, and ensuring equity in access. This management model helps balance financial sustainability with social accountability and community ownership.

Establishing inclusive governance and accountability arrangements will be a key priority. While women's and youth participation in water management and decision-making bodies is already common in many localities, the project will ensure this becomes systematic. Other vulnerable and marginalized groups, including pastoralists, displaced persons, older people, people living with disabilities, and other groups with specific needs, will also be actively engaged (e.g., through representatives in the management body).

Each water user association (or local private operator) will be trained to establish and regularly collect tariffs that cover operation and maintenance costs and ideally generate savings for rapid service restoration after damage or breakdowns. Tariffs will be set through inclusive, community-based processes, informed by Water Law guidelines, while keeping costs affordable and equitable. Fund management and governance will be strengthened to become more rigorous, transparent, and participatory. User associations will be required and trained to maintain management records and share regular information with communities, municipalities, and the Ministry of Energy Development and Hydraulic Resources, ensuring accountability and enabling corrective action when needed.

Artisan-repairers will be trained or retrained and encouraged to conduct regular inspection visits. The spare parts supply chain will be mapped, assessed, and further strengthened, including in remote areas, through the creation and expansion of decentralized shops and depots. This will build on UNICEF's earlier work with ANEA and local repairer associations to establish depots and pre-position key spare parts and tools, particularly in Ouham prefecture (pooled spare parts). Trained technicians and user associations will have direct access to these supplies.

Municipal authorities, who hold responsibility for service delivery, oversight, and follow-up support to local managers, will be reminded of and trained on their duties in monitoring O&M performance, service functionality, climate resilience, and repair needs, and in reporting these to the Ministry to inform decision-making and sector planning.

Training materials will be developed under activity 1.3.1 by UNICEF, with support from UNICEF's WASH Global Practice/Centre of Excellence and consultants. Trainings will include hands-on modules and practical exercises. Training materials will be accessible and culturally appropriate, tailored to different stakeholder groups, adapted to the local context of each prefecture and community, and reviewed annually based on lessons learned and participant feedback. They will also be widely shared with other sector stakeholders (under activity 1.2.2) to support collective learning and coordination.

To maximize reach and cost-effectiveness, local training will prioritize direct community-level delivery. Building on the workshops conducted under activity

1.3.1 in Bangui for Water Directorate staff, partner NGOs/CSOs, and private sector representatives, activity 2.1.4 will have these trained actors—supported by a national consultant where needed—deliver on-site training in intervention communities, with direct participation and oversight from UNICEF.

Additional approaches to management models, O&M, contract arrangements, tariffs, and financial schemes will be explored and promoted under Activity 2.1.5.Together, these measures will strengthen long-term financial sustainability, resilience, and inclusiveness, while fostering private sector engagement and ensuring affordability and equitable access for vulnerable households.

Sub-activity 2.1.4.2: Providing capacity-building sessions and material for climate-resilient and sustainably managed WASH services in intervention schools

This sub-activity will enhance the O&M and sustainability of climate-resilient WASH services in schools by establishing “WASH and climate” school clubs, or revitalizing them where they already exist, training school club members, teachers, and parent-teacher associations, and providing each school with a WASH maintenance kit. It will follow the guidelines for WASH in schools supported by the project as part of Activity 1.1.1.

School club size and composition will be tailored to each school’s size and students’ interest, covering all age groups and aiming for at least 50% female membership. Each club will be organized and supervised by at least one teacher. The clubs will receive training on their roles and responsibilities, operating rules, planning school- and community-based outreach activities (aligned with broader project initiatives and the school curriculum), climate risk identification and management (drawing on the UNICEF-GIZ Toolkit for climate risk assessment and climate-resilient WASH solutions), ongoing operation and maintenance of water supply and sanitation infrastructure, and safe hygiene behaviours. This training will empower students as WASH and climate champions in their schools and communities, fostering a culture of resilience, responsibility, and gender inclusion for current and future generations.

Teacher and parent-teacher association training will focus on understanding local climate risks, strengthening the resilience of WASH equipment in the schoolyard (including the handwashing stations and rainwater harvesting system), and operating, securing, and maintaining them in coordination with community-based water and sanitation management committees. It will also cover developing contingency plans for droughts and floods—including WASH infrastructure protection, water treatment and conservation techniques, and safe hygiene practices—and governance and accountability modalities, with clear roles defined for teachers, parent-teacher associations, school clubs, students, community management committees, local authorities, and local technical departments of the ministries.

Training will be delivered by partner NGOs, with support from the Water and Education ministries, embedding sustainability into school systems and enabling schools to apply robust O&M practices. Additionally, each school will receive one

	maintenance kit containing brushes, brooms, dustpans, buckets, bins, protective gear (rubber gloves and boots), and cleaning products (detergent, disinfectant, and soap) to ensure safe, regular upkeep of facilities. Quantities will depend on the number of classrooms, children, and latrine blocks. School clubs will be responsible for ensuring/monitoring the care, proper use, and replenishment of this equipment. **Sub-activity 2.1.4.3: Providing capacity-building sessions and material for climate-resilient and sustainably managed WASH services in healthcare facilities** This sub-activity, aligned with the national Guidelines for WASH in healthcare facilities, will strengthen the O&M and sustainability of climate-resilient WASH services in health facilities. Training and equipment will be provided to healthcare personnel through the partner NGOs/CSOs contracted by UNICEF, with the support of the Water and Health ministries, enabling health facilities to apply necessary O&M practices. In addition to the topics intended for schools, the training will also include medical waste management—using the provided equipment for safe waste segregation, handling, and disposal—adapted to both normal conditions and drought or flood situations. Each healthcare facility and designated hygienist will also receive a maintenance kit and personal protective equipment (PPE) to ensure safe daily operations.
EE	UNICEF
Stakeholders involved	Ministry of Energy Development and Hydraulic Resources; the ministries of Health and Education; local authorities; water user associations/committees, local sanitation committees, and communities; schoolchildren, parent-teacher associations, school and healthcare facility staff; the local private sector.

Table 75. Activity 2.1.5

Activity 2.1.5: Explore and promote context-relevant, affordable and viable financial schemes for CR-WASH services and support the engagement of local entrepreneurs/ youth-led businesses	
Baseline	WASH services in CAR, particularly in rural areas, face persistent challenges to financial sustainability, which are further amplified for CR-WASH due to higher upfront and operational costs. Domestic budget allocations remain insufficient to cover investment, O&M, major repairs, and long-term service delivery. Water tariffs are generally too low, inconsistently enforced, and rarely sufficient to recover costs. Many rural and low-income households have limited ability or willingness to pay, while informal re-sellers and weak collection mechanisms undermine revenue flows. Geographic dispersion of communities increases per capita costs of infrastructure and maintenance. Transporting spare parts and technicians to remote areas is logistically challenging, costly, and time-consuming, while frequent equipment breakdowns—often due to low-quality parts or poor maintenance—further elevate operational costs. Contingency funds for

emergency repairs are largely absent, leaving services vulnerable to climate-related hazards such as floods and droughts that accelerate wear, damage, and failures.

In addition, limited technical and managerial capacity constrains financial planning and sustainability. Many service providers and local water committees lack the skills, tools, and accountability mechanisms needed to manage CR-WASH systems effectively. Governance is fragmented, with multiple actors working in parallel and weak regulatory enforcement, which contributes to duplication, inefficiencies, and at times misuse of funds, undermining trust.

Finally, access to credit or financial services for small-scale providers, entrepreneurs, and community groups is extremely limited, as WASH businesses are often considered risky and low return by financial institutions. Without viable business models, long-term projections, or risk management mechanisms, most CR-WASH systems remain dependent on short-term donor funding, leaving service delivery fragile and unsustainable.

Description	Affordable and viable financial schemes for CR-WASH services in CAR will be explored and promoted to ensure long-term sustainability, climate resilience, and equitable access for low-income populations. While Activity 1.1.2 focuses on mobilizing additional investment from national budgets, donors, local governments, communities, and the private sector, this activity ensures that service providers and communities can effectively access these resources and combine them with other financial sources to deliver sustainable, resilient, and inclusive WASH services. By doing so, these schemes enable WASH infrastructure and services to be maintained, adapted, and scaled over time without over-reliance on short-term donor funding. Effective financing models will: • Ensure cost recovery while remaining affordable and inclusive for vulnerable households; • Enhance the resilience of WASH infrastructure to climate impacts, including floods and droughts; • Promote community ownership and strengthen local capacity for O&M; • Integrate long-term financial planning and risk management to anticipate and mitigate service disruptions; • Leverage blended financing, combining public, private, and community contributions. These financial mechanisms specifically target household CR-WASH services under Activities 2.1.2 and 2.1.3, and do not apply to schools or healthcare facilities. To uphold the principles of inclusivity and affordability, GCF concessional financing for this infrastructure will be fully passed on to end beneficiaries. Tariffs and user fees collected from communities will be strictly limited to covering O&M costs and not used for CAPEX recovery of assets financed through GCF grants. The activity will begin in parallel with the construction and rehabilitation of CR-WASH infrastructure and the associated capacity-building and O&M strengthening efforts, and will continue throughout the project, including promotion, follow-up support, and monitoring, to ensure long-term service continuity and climate-resilient outcomes. **Sub-activity 2.1.5.1: Assessing context-relevant, affordable, and viable financial schemes for CR-WASH services** UNICEF procures a specialized WASH finance firm to commission a participatory, field-grounded study to identify affordable, viable, and climate-resilient financing schemes for each type of CR-WASH service (water, sanitation, drainage, WRM, DRR) in the project areas. The study will assess barriers and opportunities for financial sustainability and provide actionable, locally embedded recommendations to support resilient service delivery. GRH and ANEA will provide sector oversight and validate the methodology and proposed financial schemes developed by the firm.

The study will review national plans, budgets, and existing WASH funding sources (including donors, INGOs, remittances, and household contributions), recent projects, service models, and financing mechanisms applied in CAR and comparable contexts—such as public-private partnerships, results-based contracts, microfinance, revolving funds, community savings groups, cash-based subsidies, vouchers, blended finance, and contingency or insurance schemes—evaluating their suitability for rural CR solar-powered water systems and latrines, and their alignment with household ability and willingness to pay. Field visits and stakeholder interviews will capture local geographic, social, and technical realities.

Key outputs will include the identification and full conceptualization/design of viable climate-resilient service models and financing schemes suited to local conditions, with defined unit costs, lifecycle O&M costs, and climate resilience benefits; and stakeholder validation and ownership, through workshops engaging ministries, municipal authorities, utilities, NGOs/implementers, financial institutions, donors, private sector actors, and community representatives, ensuring recommendations are endorsed, implementable, and replicable.

The study will be implemented by a team of international and national experts from the procured firm, in partnership with organizations specialized in WASH finance and local universities, promoting knowledge transfer, capacity building, and local expertise development.

Sub-activity 2.1.5.2: Promoting context-relevant, affordable, and viable financial schemes for climate-resilient sanitation services

For rural sanitation, several complementary approaches will be implemented through local CSO/NGO field partners involved in CLTS:

- Connecting local masons and artisans to community-based financial schemes and institutions, such as tontines, village savings and loan associations (e.g., Oxfam-supported VSLAs), and microfinance institutions, enabling access to interest-free or subsidized microloans, with the Ministry and UNICEF providing information and facilitation – but no financial intermediation or transaction role;
- Organizing masons and artisans into associations to improve access to available schemes and strengthen collective bargaining capacity;
- Providing in-kind support to masons serving vulnerable households, such as cement for latrine slabs, iron, or other construction materials, to reduce construction and reinforcement costs;
- Offering technical assistance for the creation or scaling-up of low-cost, community-based financial schemes and income-generating activities, with proceeds reinvested in sanitation improvements or used to mobilize and leverage local resources for resilient sanitation services.

These measures will be delivered through partnerships between UNICEF and a consulting/research firm or NGO/CSO with expertise in sanitation service management and financing. Technical support will extend from the start of field sanitation activities throughout the project duration to ensure sustainability and effective local implementation.

Sub-activity 2.1.5.3: Promoting context-relevant, affordable, and viable financial schemes for climate-resilient water services

Building on the operational and governance capacity developed under Activity 2.1.4, this activity will explore, test, and promote financial schemes, management models, O&M and contract arrangements, and tariff structures for CR solar-powered water systems to enhance community engagement, financial sustainability, resilience, and equitable access. Options may include:

Bundled service contracts:
Where appropriate, multiple solar water systems will be clustered under a single area-wide professional operator, which may be a user association or a private water operator. Each system will contribute a service fee that funds preventive maintenance, spare parts, monitoring, and emergency response. This approach creates economies of scale by spreading fixed costs across multiple systems, improving access to skilled technicians, and streamlining fee collection through mobile payment solutions where relevant. The model also ensures financial sustainability by balancing less profitable communities with more viable ones, establishing equitable and financially resilient management perimeters.

Contracting repairer and technician associations:
Where relevant, associations of local repairers and solar technicians will be contracted to provide dedicated O&M support for community water systems. These contracts strengthen service quality, ensure timely repairs, and reduce reliance on distant suppliers. In parallel, this approach fosters local ownership, supports local market development, and creates skilled job opportunities within the community. This modality complements bundled service contracts by focusing specifically on technicians and spare-part suppliers rather than overall system operators.

Tariff-based cost recovery:
Revenue is generated from household connections, kiosk sales, and small institutional contracts (schools, health facilities, administrative users). Each water user association or local private operator will be trained to establish and regularly collect tariffs that cover operation and maintenance costs, create a small reserve (5–15%) for rapid repairs or service restoration, and ensure financial balance at the system or operator level. Tariffs will follow national guidelines to remain affordable while accounting for the varied contribution capacities of households and communities. Tiered tariffs, cross-subsidies, targeted vouchers, or lifeline volumes can support the poorest users. Tariffs may differentiate basic domestic use (lifeline block) from higher-volume or productive uses (livestock watering, small-scale irrigation, or small businesses) and will be adjusted annually for inflation and cost changes.

Performance-based O&M subsidies:
Operators serving larger areas receive conditional payments per m^3 delivered, linked to KPIs verified by an independent institution (distribution hours, water

quality compliance, preventive maintenance, climate resilience). This incentivizes reliability and resilience in low-demand or low-income areas.

Revolving O&M funds:
Seed capital (grant or donor) will be provided to community- or utility-managed funds to cover routine repairs and spare parts. Revenue from tariffs or service fees will replenish the fund, ensuring continuous maintenance and liquidity. Transparent governance is required, and funds may be managed by an independent local manager. Revolving O&M funds address predictable operational needs and enable cost-sharing across multiple systems.

O&M insurance and contingency mechanisms:
Small surcharges on tariffs (3–5%) will feed insurance premiums or contingency funds to cover major, climate-related repairs (e.g., floods, droughts, lightning). Payouts reduce downtime after extreme events and spread risk across multiple systems or districts. These mechanisms complement revolving O&M funds by addressing rare but high-cost events, strengthening resilience and long-term service continuity.

Most sustainable models combine two or more of these approaches. Initial O&M seed grants (covering 3–6 months) and performance-based guarantees can further de-risk operations and incentivize operators. By building on sub-activity 2.1.4.1, these measures ensure that technical, operational, and financial capacity reinforce each other, creating a fully integrated system of climate-resilient, financially viable, and socially inclusive water services.

The promotion of these schemes will involve supporting relevant stakeholders (public authorities, water operators, municipalities, regulators, water committees, kiosks) to select preferred schemes through consultations and technical meetings based on local challenges and opportunities; receive technical and financial training tailored to water operators, municipal staff, and decentralized Ministry of Energy Development and Hydraulic Resources personnel; and obtain technical assistance to set up and pilot mechanisms, including linking operators with microfinance institutions, VSLAs, or NGOs/CSOs, supporting repair depots, and assisting local authorities in performance monitoring.

At minimum the project will support the development of a water tariff system to ensure the collection of O&M costs. Tariff affordability has been assessed through an affordability analysis presented in Annex 3a and 3b EFA. Nevertheless, to further ensure the sustainability and functionality of the water systems the project will cover O&M costs for transitional period, till the institutional, technical capacity and fiduciary processes in the communities are robust enough to take over the O&M. As different communities will potentially apply different mechanisms (as described above) the project will ensure that there at least a minimum threshold of fiduciary, governance, and safeguard arrangements for any mobilized funds. Eash WUA would at least be supported to develop the basic system described below:

To keep resources protected and dedicated solely to O&M, the governance structure starts with a clear separation of duties. The person who collects the water tariffs (the Collector) will never be the same person with the one who records the payment or authorized the spending (the Treasurer). All collected revenues will be deposited into a dedicated community water bank account, a secure, double-locked cash box where two different committee members will hold separate keys, or a mobile money account (e.g. Orange Money or similar service where available). This will ensure that no single individual has unilateral access to the funds.

The fiduciary and safeguard arrangements rely on a "Triple-Check" accountability mechanism. First, the collector records all water sales in a daily logbook at the kiosk. At the end of the day, the collector submits both the collected cash and the logbook for verification by the treasurer. Second, the WUA will hold monthly public meetings where they disclose the total "Money In" (tariffs) versus "Money Out" (spare parts, chlorine, salaries or tool repairs). Finally, a simple ledger book is kept at a central location, e.g. mairie (municipal office) or village meeting building, available for any community member to inspect. By making the financial status public knowledge, the risk of fund diversion is minimized.

To ensure funds are used solely for O&M, the association will establish a "Maintenance-First" rule. That will require budget to be legally or socially bound to prioritize the purchase of spare parts and technician stipends before any other community investment is considered. These activities will be delivered by a consulting/research firm or NGO/CBO with expertise in water services management and financial schemes through a multi-year technical assistance partnership with UNICEF.

Sub-activity 2.1.5.4: Supporting the engagement of local entrepreneurs / youth-led businesses in climate-resilient WASH services

Engaging local entrepreneurs and youth-led businesses in CR-WASH services is critical for several reasons:

- Rapid, locally accessible technical support: Many rural water and sanitation facilities in CAR break down within 1–3 years. Local businesses can provide on-site maintenance and repairs, reducing service interruptions, increasing autonomy, strengthening climate resilience, and improving reliability and sustainability.
- Economic empowerment and stability: Youth unemployment is high in rural CAR, contributing to poverty and instability. Supporting youth-led climate-sensitive WASH businesses creates jobs, reduces economic vulnerability, and helps deter recruitment into armed groups.
- Community accountability and ownership: Local service providers are embedded in the communities they serve, increasing accountability, enhancing service quality, and fostering solutions tailored to local needs. Their involvement strengthens community governance and ownership of services.

Potential business areas and activities include:
Water:

- Maintenance and repairs: Train and equip youth-led micro-enterprises to provide routine maintenance and small-scale repairs for climate-resilient

	water points, pumps, and solar-powered networks. Technicians may operate independently or through short-term service agreements with ANEA, water operators, or local authorities, ensuring flexible, locally responsive service delivery. • Water selling and distribution: Develop youth-led water kiosk or delivery services (via motorbike, bicycle, or donkey-cart). *Sanitation:* • CR-WASH product manufacturing and sales: Equip and train youth cooperatives to produce and market affordable WASH products, including handwashing stations made from local or recycled materials, reusable sanitary pads (through youth- and women-led sewing enterprises), latrine components (slab molds), and other sanitation equipment. • Hygiene promotion: Support youth-led social marketing teams contracted by NGOs, health districts, schools, or local authorities to conduct climate-sensitive hygiene awareness campaigns, complemented by sales of soap, chlorine, menstrual products, and other hygiene goods to sustain the business. To ensure viability, the project will combine initial equipment provision (tools and materials) and technical and financial capacity building with marketing support and linkages to financing options (e.g., microcredit). Partnerships may be developed with local youth and women groups, CSOs, vocational centres, and ongoing projects to establish WASH business incubators. Digital tools, such as WhatsApp or SMS for service requests and mobile payment platforms, will be promoted to facilitate transactions and business management. These activities will be implemented by the same local consulting firm or CSO/NGO supporting previous activities, through a long-term technical assistance arrangement with UNICEF.
EE	UNICEF
Stakeholders involved	Ministry of Energy Development and Hydraulic Resources**;** ANEA, consulting firm, local authorities, local financial institutions/schemes, community groups, the local private sector, development partners

Output 2.2: Climate-resilient urban drainage infrastructure is reinforced and expanded in Bangui to reduce, anticipate, and better withstand flood risks

This output is focused on strengthening urban drainage infrastructure and improvements to reduce flood risks in Bangui. This is achieved by conducting pluvial flood risk assessments, creating technical designs, and cleaning, rehabilitating, and constructing stormwater drainage networks, including the use of nature-based solutions (NBS).

Table 76. Activity 2.2.1

Activity 2.2.1: Improve and expand Bangui's drainage system	
Baseline	Bangui faces severe stormwater flooding due to rapid, unplanned urban growth, which increases runoff from upstream districts, while low-lying areas near the Oubangui River remain highly flood-prone. Located in a basin between two hills, Bangui is among the seven most flood-affected sub-prefectures in the country, experiencing three major flood events in the past three years (OCHA, 2025). The city's drainage infrastructure is incomplete, covering only part of the arrondissements and leaving 36% of built-up areas—including 60% of informal settlements—exposed to flooding. Critical areas include arrondissements 3, 4, 5, 6, 7, and 8 (World Bank, 2022). Lined channels total only 11 km (AGETIP), while the three main collectors (Aviation, Kouanga, and Bouagba) have just two outlets into the Ubangi River, causing recurrent flooding. Collector capacity is further reduced by erosion, silting, litter accumulation, and weak municipal waste management (AFDB, 2024). Flooding has significant social and economic impacts. In 2009, floods caused damages of 6 million USD and losses of 2.6 million USD. More recently, 22,783 people were affected in 2024, and 6,841 from January to June 2025 (Ministry of Humanitarian Affairs). Floods damage water and sanitation infrastructure, contaminate water sources, and increase risks of diarrhoeal diseases, cholera, and malaria, particularly in dense urban and peri-urban settlements (UNICEF, 2024). They also restrict access to schools and health centres, compounded by limited early warning and preparedness measures. The frequency and severity of floods are exacerbated by climate change, including rising Ubangi River levels and intense rainfall, combined with ongoing uncontrolled peri-urban urbanisation and deforestation of surrounding hills. Planned interventions are fragmented and largely uncoordinated: • World Bank (PROVIR, 30 million USD): Targeting arrondissements 4, 6, 8, and Bimbo 3; feasibility study planned for late 2025; • AFD (PILEGI Phase 2, ~15 million EUR, tentative): Focusing on arrondissement 6 with the creation of a 3km long drainage (which will discharge into the main collector built by the World Bank), following partial updates to the 2009 drainage master plan; • AfDB (PREDIRE, PRO-GIRE, PERISA-GB, ~1.5 million USD): Targeting regulatory frameworks and potential infrastructure improvements; • Oxfam: Conducting community consultations on flood risk and supporting potential community-based initiatives.

Solid waste management gaps compound flooding risks. Services are limited and fragmented, with minimal infrastructure and weak municipal capacity:

- Infrastructure: Few collection points and scattered waste pits, often poorly maintained; no functional transfer stations or nearby controlled landfills. Drains accumulate waste from illegal dumping.
- Services: Municipal collection is ad-hoc, primarily at the start of the rainy season or after floods; resources for continuous service are lacking.
- Actors: Municipal services are constrained by insufficient equipment and fuel. Community committees, volunteers, NGOs, and private micro-enterprises provide sporadic, small-scale collection, while households often dispose of waste directly into drains or open spaces.

Unmanaged waste significantly reduces drainage efficiency, increases public health risks, and amplifies flood impacts, highlighting the urgent need for integrated urban drainage and solid waste management interventions that are climate-resilient, inclusive, and financially sustainable.
To ensure this financial sustainability while protecting vulnerable populations, GCF concessional financing for the resulting infrastructure will be fully passed on to end beneficiaries. Any municipal waste collection tariffs or community user fees introduced to maintain these drainage corridors will be strictly limited to covering operational and maintenance (O&M) costs. Under no circumstances will fees be used for the CAPEX recovery of assets financed through GCF grants.

Description

The activity will support the development and improvement of urban drainage infrastructure in selected, at-risk neighbourhoods of Bangui and introduce nature-based solutions to reduce the risk and impact of floods. Water contamination and the vulnerability of WASH and other infrastructure (schools, healthcare facilities, markets, businesses…) will be reduced. This will have a positive impact not only on health but also on the economic, education, and social development and wellbeing of the population and on wider development indicators.

This activity will be led by UNICEF, who will procure design and works contracts, and supervise implementation, while the Ministry of Urban Planning (MUPH) and the Municipality of Bangui coordinate the urban drainage planning, works, and post-handover O&M. Based on consultations with the Ministry of Urban Planning, the World Bank, AfDB, AFD, and Oxfam, UNICEF will target three priority areas for drainage interventions, designed to complement and fill gaps in other planned or ongoing initiatives:

- Arrondissement 3, complementing earlier AFD-supported works under the PRESU project
- Arrondissement 4, where a secondary drainage network will be required but is not covered by other partners
- Arrondissement 6, with a secondary or tertiary drainage system in Maya Maya district, also not addressed by other projects

These flood-prone downstream areas, located adjacent to the Oubangui River, are particularly exposed to erosion, land degradation, and recurrent flooding.

The proposed interventions would cover approximately 10 km² (out of Bangui's total 67 km²), reducing risks and vulnerabilities for an estimated 100,000 residents. Exact geographic targeting, technical design parameters, and expected results will be determined through detailed feasibility and engineering studies.

To ensure strong coordination and avoid duplication, UNICEF will organize quarterly meetings with all drainage projects in Bangui. These meetings will include progress updates, joint site visits, and harmonization of approaches to maximize efficiency and overall coverage.

Phased implementation approach:

1. Detailed studies (launched in the project's first 6 months): Comprehensive technical, environmental, and social assessments to guide final design and targeting.
2. Priority improvements (starting Year 3): Implementation of high-risk drainage works identified through the studies.
3. Remaining infrastructure works: Gradual scaling up to address wider coverage gaps.
4. Nature-based solutions: Integration of ecosystem-based measures—such as reforestation of hillsides and rehabilitation of wetlands—towards the end of the project to enhance sustainability and resilience.

This sequencing ensures adequate time for post-construction monitoring, O&M support, and adaptive management. Lessons learned from early phases will be applied to refine later interventions, strengthening both effectiveness and cost-efficiency.

Sub-activity 2.2.1.1: Undertaking flood risk assessments and detailed technical design studies

UNICEF will commission comprehensive assessments/mapping and technical feasibility and design studies to guide climate-resilient drainage improvements in Bangui. The work will be initiated in the early months of the project by international consulting firms with proven expertise in urban drainage and, ideally, previous experience in Bangui, and will be carried out under UNICEF's supervision. The studies will confirm and further specify the targeted arrondissements and neighbourhoods, the required improvements, and the sequencing of sub-activities. The studies will provide an updated and integrated evidence base, building on previous, recent work by ACTED-REACH (Flood risk methodology, data, and maps for CAR, including Bangui, 2020), AFD (Drainage plan for arrondissements 1 and 2 of Bangui, 2019; Technical feasibility, design, and implementation studies for the PILEGI project, 2020; Preliminary and detailed design studies for PILIGI Phase II), OCHA (Drainage network and flood-prone areas map of Bangui, 2023), EU (Assessment and mapping of predicted risk of floods in Bangui, 2023), AFDB (PREDIRE Appraisal report and preliminary feasibility study, 2024), and World Bank (PROVIR Technical feasibility study and Environmental and social study, 2025; Topographic study of Bangui and Assessment of Bangui's drainage systems). An update of the 2009 Drainage Master Plan will also be undertaken for the targeted districts, identifying priority gaps and urgent interventions.

The scope of the studies will include:

1. Pluvial flood risk assessments and hydraulic modelling to evaluate vulnerabilities and resilience needs under climate change;
2. Definition and prioritization of interventions at the preliminary design stage;
3. Detailed preliminary designs for priority works, covering new channels and rehabilitation of existing drains, including collectors, canals, gutters, culverts, bridges, and retention basins;
4. Integration of nature-based solutions to increase water retention, reduce runoff, and limit erosion;
5. Preparation of tender documents for the proposed works;
6. An Environmental and Social Impact Assessment, developed in line with national legislation and international standards, ensuring that no population resettlement will be required for this component.

The studies will be validated by the relevant national authorities, including the Ministry of Urban Planning and Public Works and the Bangui Municipality, in concertation with the Ministry of Environment and the Ministry of Gender Promotion, Protection of Women, Family and Children for environmental and social aspects. A validation workshop will be organized to consolidate national ownership and alignment.
The studies are expected to be completed within approximately 15-24 months of the project launch, providing a sound technical and institutional basis for the subsequent implementation phases. It is expected that studies will be completed by local companies in Bangui or internationally and work will follow Labour-Intensive Public Works approach (*'Travaux à Haute Intensité de Main-d'Œuvre'*, THIMO) Methodology. An independent supervision company will be contracted to ensure compliance with technical specifications, environmental and social standards, and proper application of the THIMO approach.

Sub-activity 2.2.1.2: Setting up planning, monitoring, and coordination mechanisms

Effective coordination, planning, and monitoring mechanisms will be established to ensure coherent progress across drainage projects in Bangui and to validate each step with the authorities. Under the leadership of UNICEF, monthly multi-stakeholder meetings will be convened, bringing together representatives from the ministries of Urban Planning, Environment, Infrastructure and Public Works, and Gender Promotion, Protection of Women, Family and Children, as well as the Municipality of Bangui. Development partners including the World Bank, AFDB, AFD, Oxfam, UNICEF, the EU, and UNDP will also participate. These meetings will foster joint planning, knowledge sharing, and harmonization of approaches.

At the arrondissement level, UNICEF and arrondissement authorities will organize monthly review and coordination meetings with the construction and supervision companies. These meetings will strengthen transparency and ensure smooth, accountable implementation of works.

All plans, data, and information generated under the project will be systematically shared with sector stakeholders and integrated into the QGIS-based inventory of drainage structures currently being developed by the Bangui Municipality, ensuring alignment, institutional learning, and long-term accessibility.

Sub-activity 2.2.1.3: Rehabilitating and constructing/expanding stormwater drainage networks in target neighbourhoods

Following the finalization and approval of technical and design studies, and the establishment of planning, monitoring, and coordination mechanisms by national authorities, UNICEF will launch tenders in accordance with its procurement procedures to contract local construction and engineering firms for the rehabilitation, construction, and expansion of stormwater drainage networks in the targeted neighbourhoods. Infrastructure works will follow validated designs and include secondary drainage channels, retention basins, culverts, interlocking pavements, and other complementary features. Designs will follow a watershed approach, leveraging natural topography and restoring natural waterways to maximize gravity drainage, reduce maintenance requirements, and enhance resilience.

Contracts will include robust worker protection measures, fully compliant with national labour legislation, and will implement a Labour-Intensive Public Works approach (*'Travaux à Haute Intensité de Main-d'Œuvre'*, THIMO) for suitable works. This approach will provide income opportunities for unskilled local labourers, particularly youth and vulnerable groups, while fostering community ownership, cohesion, and long-term resilience. THIMO implementation will be guided by:

- A clear operational framework set by UNICEF, with oversight by the engineering supervision firm;
- Training and contractual support for local firms to apply THIMO methods;
- Engagement of local authorities, neighbourhood committees, and community leaders to ensure transparent recruitment, dispute resolution, and community participation;
- Short, targeted training for workers on THIMO procedures, safety, financial literacy, and basic business skills.

Construction will be seasonally planned, occurring primarily between November and April to align with dry periods. Environmental and social safeguards identified in the Environmental and Social Impact Assessment will be applied throughout implementation to minimize risks.

Upon completion, the infrastructure will be technically reviewed, approved, and handed over to the Ministry of Urban Planning, the Municipality of Bangui, and arrondissement authorities, who will be strengthened to ensure effective operation and maintenance. Construction firms will remain responsible for warranty and remediation for a defined period post-completion.

Sub-activity 2.2.1.4: Implementing nature-based solutions to prevent or mitigate flood effects

Given that parts of the targeted arrondissements are rapidly developing, nature-based solutions (NbS) will be integrated with grey infrastructure through community co-design and grassroots participation. Reforestation of hillsides, particularly in arrondissement 4 where bare soil has become unstable, will complement drainage channels to address environmental degradation and flood risks. Deep-rooted trees and shrubs will stabilize soil, reduce erosion from heavy rainfall, and mitigate flash floods in downstream communities, while also regulating microclimates and acting as natural barriers to wind. Restoring native forest cover enhances water infiltration, reduces surface runoff, and lowers the likelihood of landslides. Beyond environmental benefits, reforestation activities will engage local communities, generating employment and fostering stewardship of natural resources.

UNICEF will contract specialized local NGOs to ensure the integration of NbS. UNICEF will mobilize at least two local, youth-led NGOs with relevant experience in Bangui. Technical support will also be provided by an international consultant experienced in NbS for flood-prone urban areas, assisting with assessment, implementation, and ongoing guidance. The implementation timeline will be coordinated with seasonal conditions, and the schedule of drainage works to allow adequate execution, testing, adjustment, and follow-up.

Sub-activity 2.2.1.5: Mobilizing communities, raising awareness of risks and behaviour change needs, and ensuring social and environmental measures

This sub-activity will ensure that communities and national institutions are actively engaged in the project, fostering ownership of both the works and the broader objectives of climate-resilient urban drainage. It will promote awareness of climate change adaptation, flood risk reduction, and environmentally sustainable behaviours, while supporting municipalities and local communities in preventive strategies. Local NGOs will be mobilized to implement a range of activities across the project lifetime, with focus shifting over time:

- Community mobilization and awareness raising: Conduct information, education, and communication activities on climate resilience, flood risk prevention, environmental protection, WASH best practices, and solid waste management.
- Organization and capacity building of local committees: Establish and train local committees, provide tools and kits, and support community-led environmental initiatives that contribute to rainwater management and flood risk reduction.

- Participation in project governance: Facilitate community contributions to planning, monitoring, and coordination mechanisms, and support the implementation of THIMO and other community engagement measures.
- Gender and youth empowerment: Ensure strong involvement of women and youth throughout all project phases, in line with UNICEF's strategies on gender and youth engagement. UNICEF intends to engage with associations of university students involved in environmental protection activities to develop and deliver related awareness-raising initiatives. These youth-led groups will develop a community awareness project focused on drainage management and routine maintenance practices to avoid the need for frequent and heavy cleaning operations.

The social component will evolve over the project timeline, starting with planning, coordination, and community mobilization; followed by capacity building and behaviour change initiatives related to drainage and solid waste management; and concluding with ongoing monitoring, follow-up, and evaluation to reinforce sustainable practices and community ownership.

Sub-activity 2.2.1.6: Strengthening O&M capacity

Upon completion and inauguration of the drainage network, all infrastructure will be formally handed over to national authorities, specifically the Bangui Municipality and its technical departments, in collaboration with the relevant arrondissement authorities. MUPH and the Municipality of Bangui will coordinate this post-handover O&M. These institutions currently lack sufficient resources and capacities to carry out the necessary O&M activities. This sub-activity will provide targeted support to ensure that local authorities are equipped and trained to manage the drainage infrastructure effectively. Support will include:

- Capacity building: Training of municipal and arrondissement technical staff in O&M best practices, monitoring, and preventive maintenance. Staff participation during construction supervision will further reinforce skills, ownership, and operational familiarity.
- Equipment provision: Supply of essential tools and machinery (e.g., trucks, small machinery) to enable timely maintenance and operational efficiency. Before maintenance equipment is provided, the project will verify that the municipality has a functioning roads/works department and a clear equipment management policy.
- Financial sustainability mechanisms: Establish cost-recovery or income-generating systems to fund O&M activities, such as dedicated municipal budget lines, local taxation on markets or other economic activities, and environmental fines for illegal dumping or unsafe waste disposal, in line with the polluter-pays principle.

Community mobilization and improved solid waste management will complement these measures, protecting the drainage infrastructure and enhancing public health. Key actions include:

- Stakeholder coordination: Establish a working group including the municipality, target arrondissements, neighbourhood development committees, relevant ministries, NGOs, and local private operators to define roles and align activities with drainage works timelines.

- Community and private initiative support: Organize existing local community and youth groups and private sector (*'groupements d'intérêts économiques'*) in identifying strategic locations for small waste collection points along rehabilitated drainage lines and improve transport of collected waste to disposal sites planned by the city and other initiatives.
- Service organization: Engage local enterprises, associations, and cooperatives for door-to-door waste collection and transfer to collection points, with oversight by municipal or arrondissement authorities. Neighbourhood development committees will support community awareness and the collection of small service fees where applicable.
- Community mobilization and awareness: Conduct campaigns to highlight the link between waste management and flood prevention, including public works days to encourage local participation in maintaining functional drainage systems.
- Operational management and monitoring: Establish clear collection schedules, ensure funding through municipal budgets and cost-recovery mechanisms, and implement monitoring systems with neighbourhood development committee involvement to track cleanliness and identify illegal dumping points.
- Sustainability measures: Strengthen municipal waste management capacity through training, provision of equipment, and partnerships with community initiatives, NGOs, or recycling programs to reduce waste volumes and maintain long-term functionality of drainage infrastructure.

This integrated approach ensures that drainage systems remain operational, resilient, and community-supported, while enhancing local ownership, environmental protection, and public health outcomes.

EE	UNICEF
Stakeholders involved	Ministry of Urban Planning; Ministries of Water Resources, Environment, Territorial Administration, Decentralization and Local Development, Municipality of Bangui, neighbourhood development committees, local authorities and leaders, construction and engineering/supervision companies, WB, AFDB, AFD, EU, UNDP, international and national private companies.

Output 2.3: Communities and youth are enabled to manage water resources and disaster risks in priority high-risk localities of Ouham, Bamingui-Bangoran, and Vakaga

This output aims to empower local stakeholders, youth, women, and pastoralist communities in the prefectures of Vakaga, Bamingui-Bangoran, and Ouham to assess, plan for, and monitor local water-related climate and conflict risks and implement solutions to reduce or mitigate these risks and improve water resources management.

Table 77. Activity 2.3.1

Activity 2.3.1: Engage and train local stakeholders in climate risk assessment, conflict-sensitive resilience planning, and disaster preparedness	
Baseline	Since the adoption of the 2023 National Community Engagement Policy, important progress has been made—over 160 local development committees have been operationalized and nearly 2,000 frontline actors trained. More than 3.7 million people have been reached through structured dialogue and social and behaviour change tools. Despite these advances, community engagement remains uneven and only partially integrated into climate resilience, DRR, WRM, and WASH interventions. Most initiatives continue to operate in silos, with limited behavioural data, weak intersectoral coordination, and underutilization of subnational governance platforms. In climate and WASH sectors, critical behavioural gaps persist. Risk perception of environmental hazards remains low, and community-led preparedness and resilience planning is limited. Existing community structures are not yet systematically leveraged to co-create, implement, monitor, and scale local solutions. At the same time, local authorities and community actors—including schools and health centres—have insufficient capacity to assess risks, plan effectively, and respond in a coordinated and inclusive manner. Bridging these gaps requires stronger local capacity and a shift toward locally owned, data-informed, and multi-actor engagement processes. Priorities include strengthening local risk assessment and dialogue structures, institutionalizing participatory monitoring, and embedding climate and WASH priorities into local action plans. This approach will unlock community potential, ensure long-term impact, and provide a scalable, sustainable pathway to enhance resilience, promote behaviour change, and align grassroots efforts with national and global development targets. The target prefectures of Vakaga, Bamingui-Bangoran, and Ouham face additional challenges linked to fragility and conflict. Competition over scarce water resources among pastoralists, farmers, displaced populations, and host communities have intensified social tensions and raised the risk of conflict. Without conflict-sensitive planning, project activities risk being disrupted or undermined, and poorly designed WASH, WRM, or DRR interventions could exacerbate existing inequalities and grievances. Conversely, when implemented with a conflict-sensitive lens, interventions can reduce tensions, strengthen social cohesion, and contribute to peacebuilding. UNICEF's experience in CAR demonstrates that addressing water scarcity, improving resource management and monitoring, and ensuring equitable service delivery are central to preventing conflict and building resilience in this long-running crisis.
Description	This activity, led by UNICEF, will target rural communities in the prefectures of Vakaga, Bamingui-Bangoran, and Ouham. It will identify high-risk communities, engage and train local stakeholders to assess climate risks and plan water-related DRR and resilience-building measures, with a conflict-sensitive lens. T hroughout this process, the National Water Resources

Directorate (DGHR/MEDHR) will ensure coordination, provide technical insights, and conduct field visits.

Sub-activity 2.3.1.1: Conducting participatory local climate and conflict risk assessment

The project will conduct rapid, community-level, gender- and age-sensitive climate risk and conflict-sensitivity assessments in all target communities concurrently to Output 2.1 implementation (CR-WASH infrastructure and services). These assessments will identify and analyse climate risks, vulnerabilities, and water-related conflict drivers, while also mapping opportunities to strengthen resilience, social cohesion, and peace.

Under UNICEF's oversight, the community-based climate risk assessment will be informed by hydrological and hydrogeological analyses at basin, prefecture, and sub-prefecture levels, as well as field-level assessments under activity 2.1.1. In communities, it will consist in mapping and visiting flood-prone areas, deforested slopes, degraded catchments, etc., recording past pollution and damage to water supplies and WASH infrastructure, identifying seasonal water flow paths, documenting traditional knowledge of flood and drought behaviours, and listing existing coping mechanisms as well as any historical mitigation interventions, using simple tools (e.g., sketch maps, GPS, photo documentation). The assessment will encompass households, fields, and surrounding areas, as well as schools, health care facilities, markets, and other public spaces.

The conflict-sensitivity assessment will apply UNICEF's *WASH for Peace: Conflict Sensitivity and Peacebuilding Guidance and Tools for the WASH Sector (2024)*. It will:

- Proactively reduce risks of exacerbating local tensions, inequalities, and grievances;
- Integrate "do moregood" measures that actively foster conflict resolution, social cohesion, and peacebuilding;
- Limit potential conflict-related disruptions to project activities and strengthen the resilience of services, infrastructure, and behaviours to shocks;
- Reinforce anticipative, absorptive, preventive, and adaptive capacities across communities, local authorities, and civil society actors.

The analysis will be facilitated by trained NGO/CSO staff contracted by UNICEF (including those involved in output 2.1 implementation) in a participatory process with community and religious leaders and representatives of diverse groups (water and sanitation committees, farmers, pastoralists, displaced people, women, youth, elderly, health workers, school staff, and others). Depending on the context, meetings will involve neighbouring communities, relevant municipal or prefectural actors, staff from the ministries in charge of Water Resources, Environment, Civil Protection, Humanitarian Action, Territorial Administration, and Women Empowerment. Together, participants will map causes, actors, influencing factors, trends, and triggers; identify vulnerabilities and connectors; and agree on "do no harm" adaptations alongside opportunities for social cohesion and peacebuilding (“do more good”).

Outcomes will be formalized in each community through a context-specific plan that is actionable, realistic, measurable, and timebound, and linked directly to planned project activities. The village micro-plan will outline priority measures, locations, timelines, and responsibilities, and Integrate gender and social inclusion (incl. women and pastoralist input). Where relevant, agreements will be signed and publicly displayed to reinforce accountability. The findings of these assessments will be systematically applied across project activities, including:

- Design and implementation of community water supply and safety and sanitation/CLTS (activities 2.1.2 and 2.1.3);
- Development of prefecture/local DRR preparedness and contingency plans, and local/basin-level IWRM planning (activity 1.2.1);
- Youth and community engagement, awareness-raising, and capacity-building activities (activities 2.1.2, 2.1.4, and Output 2.3).

Based on these results, around 45 priority high-risk communities will be selected across the three prefectures for in-depth engagement, training, and action planning (under sub-activity 2). This ‘short-list’ of priority communities will be undertaken using clearly agreed criteria in terms of climate risks, as well as community engagement and feasibility and viability of local interventions.

Sub-activity 2.3.1.2: Supporting awareness, engagement, training, and planning in high-risk, priority communities, schools, and health care facilities

In each of the ~45 priority high-risk communities, field partner NGOs contracted by UNICEF (involved in output 2.1 implementation) will conduct inclusive, context-adapted sensitization and training for community and religious leaders, water and sanitation committees, women’s and youth groups/CSOs, health workers, school staff and clubs, local entrepreneurs, and representatives of vulnerable groups (e.g., women, farmers, pastoralists, displaced people, elderly people). Training topics will include climate risk assessment, resilience planning, disaster preparedness, and water resource management. The sessions will include participation and guidance from the ministries of Water Resources, Environment, Civil Protection, Humanitarian Action, Territorial Administration, Women, and Youth.

Tailored awareness campaigns will also be delivered through trusted local channels and “agents of change” such as community radios, health workers, teachers, school clubs, and Kundukwa groups. These wider campaigns will disseminate key messages on climate and conflict resilience, DRR, inclusive participation, and collective action. Accessible training methods and school- and health-centre–based activities will ensure broad and lasting knowledge dissemination.

Training sessions will serve as a platform for participatory co-development of localized climate resilience, DRR, and WRM plans. These plans will combine traditional knowledge, climate and conflict risk assessments, and context-specific adaptation priorities. Depending on community needs, they may cover: protection and improvement of local water supply and sanitation systems (linked to output 2.1 activities), identification of flood safety areas, emergency measures for water and sanitation infrastructure, contingency stocks, and other priority actions. Plans will be endorsed by village development committees—working alongside water and sanitation committees—and reviewed by the ministries of Water Resources and Environment before validation by the Ministry of Humanitarian Affairs. Implementation will be carried out under project sub-activities 2.3.2 and 2.3.3 and output 2.1 activities by water and sanitation committees, youth and women's associations, other community members, and UNICEF Implementing Partners.

This approach aligns with UNICEF's social and behaviour change initiatives, building on established community platforms such as village development committees, Kundukwa groups, and U-Reporters. By strengthening these structures and actively engaging women, youth, and vulnerable groups in conflict-sensitive climate risk assessments, awareness-raising, training, and action planning, the project will reinforce social cohesion, peacebuilding, and local resilience while fostering lasting ownership of the promoted practices and actions.

Sub-activity 2.3.1.3: Facilitating coordination, progress monitoring and learning meetings at prefecture level

Periodic meetings (biannual or more frequent as needed) will bring together decentralized technical services (water, environment, humanitarian affairs, territorial administration), municipalities, community representatives, and partner NGOs. These meetings will foster coherence and synergies in community planning and implementation, ensure alignment with local plans and national frameworks (NDC, NAP, DRR, WASH, and IWRM strategies/plans), and strengthen cross-sectoral collaboration. They will also track progress, highlight and disseminate successes, challenges, and good practices, facilitate peer learning across communities and institutions, and feed results into the national WASH sector M&E and learning system (activity 1.2.2). Key outcomes, lessons, and good practices across project areas will be documented and used to:

- Inform the future development or revision of national policies, strategies, plans, technical standards, and programming guides to better integrate climate resilience and conflict sensitivity (activity 1.1.1);
- Support the integration of CR-WASH and conflict-sensitivity modules into trainings and capacity-building (activity 1.3.1 and others);
- Generate evidence and knowledge on CR-WASH, conflict, and peace (activities 1.2.2 [MEL]);
- Strengthen governance and alignment across sectors by government, WASH, and humanitarian actors in CAR, through harmonized analysis,

	systematic application of “do no harm”/“do more good” approaches, and shared early warning signals.
EE	UNICEF
Stakeholders involved	Ministry of Energy Development and Hydraulic Resources**;** ANEA, Ministries of Civil Protection, Territorial Administration, local authorities, religious leaders, women's and youth representatives, health and education staff, community radio networks (e.g., NDeke Luka), and other medias.

Table 78. Activity 2.3.2

Activity 2.3.2: Support local stakeholders in strengthening surface and groundwater monitoring to better understand, anticipate, and respond to climate change impacts	
Baseline	Despite the existing initiatives and partial monitoring systems described above, surface and groundwater monitoring in CAR remains severely limited—particularly in rural areas. While the Ministry in charge of Water Resources and the Ministry of Meteorology are formally responsible for water monitoring, both institutions continue to face chronic underfunding and insufficient staffing, constraining their capacity to collect, analyse, and disseminate data. Currently, only a few hydrometeorological stations are operational (mostly on the Ubangi River), and groundwater monitoring is largely ad hoc, project-driven, and concentrated near urban centres. In the target prefectures of Vakaga, Bamingui-Bangoran, and Ouham, groundwater monitoring focuses primarily on static and dynamic water levels, with very limited attention to quality parameters such as conductivity. Observation boreholes remain scarce, and available data are rarely shared or made accessible to communities, local authorities, or ministries. As a result, stakeholders lack the actionable information needed to assess the impacts of climate change on groundwater availability and quality, leaving communities exposed to unmanaged risks of depletion, water insecurity, and potential resource-related conflicts. Local communities are largely absent from monitoring processes and often unaware of the state of their water resources. Without access to relevant information on trends, projections, and vulnerabilities, they are less able to understand climate risks or implement appropriate adaptation measures at household, school, health facility, or community levels. In other words, even where some hydroclimatic data exist (as noted in the initiatives outlined above), their limited accessibility, geographic coverage, and usability constrain effective decision-making and adaptive action. Meeting these challenges requires expanding monitoring networks and ensuring timely, actionable, and accessible information on climate-induced changes, including aquifer recharge, flood and drought risks, and water quality variations (as detailed in project activities 1.2.3 and 2.1.1). Strengthening community awareness and capacity (activity 2.3.1) and directly involving local populations in water resource monitoring will reinforce national systems, improve climate resilience, and foster local ownership of

	WASH services, integrated water resources management (IWRM), and disaster risk reduction (DRR) measures. By mobilizing communities in monitoring and data collection, the project will generate dual benefits: enhancing the coverage and quality of the national surface and groundwater monitoring system while creating strong local demand for, and stewardship of, climate-resilient water resources and services.
Description	This activity builds on project activities 1.2.3 and 2.1.1 and immediately follows activity 2.3.1. It will target and actively involve the selected 45 high-risk communities, together with local stakeholders, in collecting, interpreting, and disseminating surface and groundwater monitoring data. This participatory approach will support the continuous identification of locally led solutions to adapt to climate risks. **Sub-activity 2.3.2.1: Identifying gaps and local needs in water resource monitoring** Priority gaps in surface and groundwater monitoring (e.g. flows, quality, levels, coverage, data quality, and accessibility) will be identified in the 45 high-risk communities through technical mapping and consultations with ANEA, local authorities, NGOs (e.g. Oxfam, ACTED, Water for Good), and communities. This process will build on information from activities 1.2.3 and 2.1.1. The Ministry of Energy Development and Hydraulic Resources (MEDHR) will identify these priority gaps and lead the gap assessment. MEDHR's role in identifying monitoring gaps and validating technical approaches constitutes a defined co-execution function, formalized through a subsidiary agreement with UNICEF. UNICEF and partner NGOs/CSOs or consultants will provide support, while local authorities and CSOs will facilitate community consultations. Women's groups, youth associations, and pastoralist representatives will be engaged to ensure inclusive participation and local ownership. **Sub-activity 2.3.2.2: Providing technical training and equipment for priority high-risk communities** Building on the gaps identified under sub-activity 1, approximately 450 key stakeholders from priority high-risk communities—previously trained under activity 2.3.1—will receive further training alongside decentralized technical staff. The training will focus on practical skills for basic hydrological and hydrogeological monitoring, including observing, measuring, and reporting water levels, flows, quality, and seasonal variations. Participants will also learn how to properly use and maintain water monitoring equipment. UNICEF will source local partners, such as NGOs, to design the training for the communities. MEDHR will validate the training materials and equipment, and will conduct the training sessions with technical and logistical support from UNICEF and its partner NGOs/CSOs. These sessions will encompass members of water committees (or user associations and private operators),

community health workers, and representatives of women, youth, and pastoralist groups, ensuring broad and inclusive participation.

UNICEF will procure and distribute water monitoring equipment (e.g. dippers, rain gauges, water level loggers, water quality testing kits) to meet the needs of the 45 communities based on specifications jointly agreed with the Ministry. Selected stakeholders will receive the equipment alongside training. Ministry staff at decentralized level and partner NGOs/CSOs (those involved in output 2.1 implementation) will provide several months of follow-up support to ensure accurate use, measurement, and reporting.

Refresher and capacity-strengthening sessions will be organized as needed, covering topics such as gender- and equity-sensitive monitoring, U-Reporting through RapidPro, and data quality and reporting.

Sub-activity 2.3.2.3 Enabling data integration, sharing, and use

Once equipment is installed and monitoring teams demonstrate their ability to collect and analyse data, monitoring protocols and sharing mechanisms will be developed to connect locally collected data with formal monitoring systems. These mechanisms will involve target communities, Water Resources Ministry staff, and concerned NGOs to record, analyse, and disseminate information they own, ensuring that data from different sources is shared with key stakeholders and integrated into relevant information systems and decision-making processes.

The protocols will specify: frequency of data collection; where information is recorded; who receives it; and actions to be taken. Draft protocols and mechanisms will be prepared by the Water Resources Ministry at the national level, with UNICEF support, and adapted to local contexts by decentralized Ministry staff. This feedback mechanism will allow local data to feed into:

- the climate information and early warning system (activity 1.2.3),
- the waterpoint database and WASH sector M&E system (activity 1.2.2), and
- national policy updates (activity 1.1.1, toward/after 2030).

It will enable evidence-based decisions, such as adjusting water use during droughts or triggering flood alerts. Technical assistance will also be provided for data analysis, IT, and logistical issues.

Local stakeholders will meet every six months with national institutions responsible for situation monitoring and risk management (e.g., Ministry of Energy Development and Hydraulic Resources, ANEA, Ministries of Meteorology and Civil Protection). These meetings will be convened by Water Resources Ministry staff at the prefecture level, with UNICEF support. Data, meeting minutes, and feedback from across prefectures will be consolidated and shared with Ministries in Bangui and UNICEF to strengthen the WASH sector MEL system (1.2.2), EWS (1.2.3), and other platforms. They will also be shared with the University of Bangui for research needs,

	and also communicated back to local decision-makers and communities to improve awareness and guide WRM/DRR planning. Locally led solutions for adapting to climate risks and improving water resource management will be implemented under the next activity 2.3.3.
EE	UNICEF, Ministry of Energy Development and Hydraulic Resources
Stakeholders involved	ANEA, ministries/directorates of Meteorology, Civil Protection, and Environment, local/community stakeholders, other development partners involved in climate adaptation, WASH, WRM, and DRR

Table 79. Activity 2.3.3

Activity 2.3.3: Support community-led design and implementation of WRM and DRR solutions	
Baseline	While small-scale, community-identified WRM and DRR solutions can help mitigate and adapt to the main climate risks—floods and droughts—such measures have not yet been implemented at scale in the priority high-risk areas. In the target prefectures of Vakaga, Bamingui-Bangoran, and Ouham, implementation remains minimal, leaving communities, water resources, WASH infrastructure, and livelihoods highly vulnerable to climate shocks, particularly floods and droughts, as well as to related diseases, tensions, and conflicts over water. Support is therefore needed for community-led WRM and DRR measures—such as catchment protection, stormwater drainage, and small-scale water retention structures—to protect water resources and WASH infrastructure, manage excess water during heavy rainfall, and store it for use during droughts, livestock, and small-scale agriculture.
Description	This activity, led by UNICEF, will confirm the feasibility of solutions identified under activities 2.3.1 and 2.3.2, define implementation modalities, and carry them out with community participation—building on the awareness and capacities already developed. This approach strengthens engagement and ownership, contributing to long-term adaptive capacity and reduced vulnerability to climate extremes. By integrating both natural and engineered solutions tailored to local conditions and grounded in local knowledge, communities will enhance resilience through sustainable water resource management and other disaster risk reduction measures. UNICEF's support to the most at-risk communities and to the government of CAR will be critical for the effective design, siting, O&M, and monitoring of these measures. Importantly, the activity offers strong potential to replicate solutions and good practices across prefectures and in other countries of the region. To ensure these measures remain sustainable and accessible to all community members, GCF concessional financing for infrastructure will be passed on to end beneficiaries. Where applicable, any community tariffs and user fees

(where applicable) will be strictly limited to covering O&M costs and not used for CAPEX recovery of assets financed through GCF grants.

Sub-activity 2.3.3.1: Organizing participatory solution design

UNICEF will contract NGOs/CSOs to deploy technical assistance and facilitate participatory design and governance. In the 45 selected high-risk communities, stakeholders mobilized and trained under activities 2.3.1 and 2.3.2 (including the village development committee, water management/user associations, and volunteers from youth, women, and pastoralist groups) will be engaged by partner NGOs, with oversight from UNICEF. Communities will be reminded of earlier plans and commitments, including:

- Why the community was selected;
- The agreed solutions and plan, and the steps involved (linking with other related activities);
- The importance of community engagement at all stages (design, training, implementation, operation/maintenance, monitoring) for success and sustainability;
- Proposed roles and responsibilities and the support available through the project;
- The role of community leaders throughout the process.

The adaptation solutions and plans (identified in activity 2.3.1 and, where relevant, 2.3.2) may address the whole community, specific water supplies or WASH infrastructure, or a subset of households, schools, health facilities, markets, fields, or public spaces. They may include one or more actions to manage and store excess water during periods of high rainfall, reduce flood risks, enhance water security, and preserve ecosystems (solutions for one risk, such as flooding, can also reduce the impact of another, such as drought). Examples include:

- WRM: catchment and source protection, chlorination of existing wells, small-scale water retention structures (sand dams, check dams in seasonal streams), temporary and permanent storage (ponds, reservoirs, rainwater harvesting), arrangements supporting the use of water for small-scale local farming and livestock, agreements on sharing and use of water supplies.
- DRR: stormwater management (drainage channels, micro-drains, vegetated swales, infiltration pits, earth ditches, overflow paths, inlet/outlet control points with stone or vegetative filters), slope stabilization and terracing, stormwater gardens around schools/health posts, protective reinforcement of WASH infrastructure (well lining, raising wellheads/parapets), deepening/diversification of water supplies (to ensure backup options), and promotion of community- and household-based water treatment.

These measures range from:

- No-cost agreements (e.g. rules on water use, catchment protection);
- Low-cost interventions (tree planting, infiltration pits, well chlorination, promotion of household treatment);

- Higher-investment measures (retention basins, sand dams, well deepening, rainwater harvesting systems).

Depending on the nature, complexity, and cost of the intervention, as well as the number of similar measures in the same area, implementation may mobilize one or a combination of approaches: NGO facilitation, local mason/artisan/entrepreneur, construction company, community cash-for-work managed by the NGO or entrepreneur. Communities and youth/women's associations will co-design these solutions.

The feasibility, siting, and timing of the solution, as well as the implementation modality, will be collectively reviewed and adjusted, as necessary. Specific designs will also be developed in a participatory manner based on local conditions and available resources.

The implementing NGO, with support from UNICEF, will establish bills of quantities, cost estimates, and operation and maintenance requirements (where applicable). They will also facilitate the development of a step-by-step workplan (breaking activities into a detailed plan per community, with clear allocation of responsibilities and endorsement by community leaders or the village development committee, as appropriate). Finally, the NGO will provide guidance on implementation (preparation, supplies and tools, labour and works organization, construction process), as well as on operation, maintenance, and monitoring of the infrastructure through frequent check-ins (daily, weekly, or monthly depending on the nature and duration of the measure).

Sub-activity 2.3.3.2: Implementing the selected small-scale DRR and WRM measures

This sub-activity will support the construction and installation of locally appropriate WRM and DRR measures through the following participatory and inclusive process. UNICEF will coordinate the procurement and support for this sub-activity, providing technical supervision and materials.

Capacity building and technical preparation:

- Provide hands-on training to local builders, community labour groups, and/or volunteers to ensure quality standards, safety, and sustainability of works.
- Source local materials wherever possible (stone, sand, wood, seedlings, cement, iron, etc.), ensuring affordability and local ownership.
- Mobilize in-kind contributions from communities, such as labour, hosting of workers, and security arrangements.
- Pre-position essential tools (hoes, shovels, wheelbarrows, watering cans, protective gear) to facilitate timely implementation.

Community participation and fair engagement:

- Depending on the type of solution, the level of complexity, and the scale of construction works, support may be provided in the form of cash for work. This approach will follow transparent, fair, and inclusive processes to maximize community benefits.

- Participation in cash for work schemes will be rotated among eligible volunteers to give a broad range of households' access to opportunities.
- All participants engaged in these schemes will receive short, practical training prior to works and will benefit from close, ongoing technical supervision to ensure safety and quality.

This approach ensures that infrastructure is constructed to standard while strengthening local skills, enhancing community ownership, and generating short-term livelihood opportunities. It also promotes sustainability by embedding knowledge and practices directly within the community.

Sub-activity 2.3.3.3: O&M training, and peacebuilding and governance integration

The project will establish community operation and maintenance protocols through a collective process where community members will agree on access, usage, and maintenance rules. Village leaders, development committees, water management committees (or water user associations), and other stakeholders will be assigned clear roles and responsibilities for operation and maintenance. They will develop and implement simple inspection and repair routines, such as monthly checks, cleaning schedules, and the use of reporting tools. Local committees and entrepreneurs will receive training in the management, repair, and maintenance of the installed measures to ensure long-term functionality.

To strengthen governance and promote equitable access, community structures will be reinforced to ensure inclusive decision-making, prevent tensions between different groups, and foster social cohesion. Youth and women's groups, as well as farmers, pastoralists, and displaced populations, will be actively involved in the management of water infrastructure such as ponds for irrigation or livestock use. Inclusive dialogues will be facilitated between user groups—for example, between farmers and herders during droughts and floods—to reduce the risk of disputes. These locally agreed protocols will be integrated into broader peacebuilding and disaster risk reduction frameworks.

Under activity 2.3.2, community members will be trained to monitor rainfall, water storage levels, and the condition of infrastructure using simple data collection tools, thereby creating a community-based monitoring system. Under activity 2.3.1, lessons from monitoring will feed into knowledge-sharing processes through documentation of successes and challenges, inter-village exchanges, and regional workshops organized by Prefectures. Communities will also be connected with national WASH and climate adaptation platforms and GCF reporting systems to ensure local experiences inform national planning and learning.

EE	UNICEF
Stakeholders involved	Ministry of Energy Development and Hydraulic Resources, ANEA, Ministry of Environment, local contractors, community stakeholders

Paradigm shift potential

Paradigm Shift Overview

This project represents a fundamental transformation in how the Central African Republic (CAR) manages its WASH sector. The current approach is largely reactive and dependent on humanitarian aid, addressing crises as they occur without building long-term resilience. This project seeks to shift that model to a proactive, sustainable, and government-owned system. By integrating climate risks directly into national planning, financing, and community-level management, it ensures that solutions are not temporary fixes but enduring assets. The core of this paradigm shift is the move from simply providing infrastructure to embedding climate resilience into the country's policy and technical frameworks, which ensures that the benefits of the project extend far beyond its initial implementation phase and contribute to sustained, long-term development.

From Isolated Projects to Scalable Solutions

The project's design intentionally moves beyond the limited impact of small-scale pilot projects. While past initiatives may have demonstrated individual successes, they lacked a clear pathway for widespread implementation. This new approach develops robust proof-of-concept models in the northern prefectures and the capital, Bangui, that are specifically designed for national-level scale and replication. The construction of 200 solar-powered water systems and the upgrading of climate-resilient WASH infrastructure in 200 schools and healthcare facilities will serve as tangible examples of what is possible. Beyond the physical assets, the project will reinforce these solutions with a comprehensive national ecosystem that includes policy directives, legal frameworks, resource mobilization strategies, and capacity-building initiatives. This integrated approach ensures that the knowledge and experience gained are not confined to the project areas but are codified and made available to support extensive rollout across the country, long after the GCF's initial involvement.

From Weak Capacity to Institutionalized Knowledge

A key component of this paradigm shift is the focus on building systemic readiness to support long-term sustainability. In the current context, institutional knowledge is fragmented and often lost after a project ends. This initiative will create a new system by establishing a climate-integrated Monitoring, Evaluation, and Learning (MEL) framework and a Community of Practice (CoP). These mechanisms will systematically document and disseminate lessons learned and best practices. By institutionalizing this knowledge, the project empowers a wide range of stakeholders—including government bodies, local authorities, water operators, and communities—to manage, maintain, and replicate climate-resilient WASH services. This approach transforms project participants into knowledgeable stewards of a new, resilient system, ensuring that the country's capacity for adaptation is strengthened from the ground up and at the highest levels of governance.

From Fragmented Policies to a Coordinated National Strategy

The project directly addresses the current fragmentation in CAR's policy landscape. By strengthening the national enabling environment, it will integrate climate adaptation and early warning systems (EWS) into critical national policies, such as the Water Policy and WASH norms. This process is crucial for aligning the project's successful models with official government guidelines and standards, which ensures their adoption in future programs nationwide. Furthermore, a new climate-resilient WASH funding strategy will be developed to attract resources from national budgets, donors, and the private sector, thereby securing financial sustainability beyond the project's duration. By linking the project's evidence and lessons learned to national information systems, it will directly inform the update of programming guidelines for the post-SDG era, creating a virtuous cycle of evidence-based policy making and continuous improvement in the WASH sector.

From Low-Tech to Innovative and Context-Relevant Solutions
The project is a catalyst for innovation, moving away from outdated, often unsustainable, low-tech solutions. It will introduce and scale up innovative, context-relevant technologies that are more durable and resilient to climate-related stresses. These include multi-use solar-powered water systems that reduce reliance on fossil fuels, remote sensing for better climate data and water resource management, and a climate-adapted Community-Led Total Sanitation (CLTS) approach. Crucially, the project will also foster a new, local economy by training entrepreneurs and artisans. By equipping them with the skills to market and build climate-resilient solutions, it helps create a sustainable market that ensures these innovations are accessible and affordable, leading to their widespread adoption and long-term viability.

Overall Contribution to Climate-Resilient Development
This project's integrated approach makes a significant and lasting contribution to CAR's climate-resilient development trajectory. By enhancing water security, mitigating flood risks, and improving sanitation, it directly tackles key vulnerabilities identified in the country’s National Adaptation Plan and other climate strategies. The project’s emphasis on sustainable, low-carbon solutions, particularly through the use of solar power and community-led models, aligns perfectly with a forward-thinking development pathway. By building resilience at multiple levels—from national policy to community action—it protects livelihoods, improves public health, and reduces the potential for conflict over scarce resources. This holistic approach paves the way for a more stable and resilient CAR, offering a better future for all its people, especially the most vulnerable.

Alignment of Paradigm Shift to Project Design
The entire project design is explicitly aligned to achieve this paradigm shift, as reflected in the project's Theory of Change (B.2a.1) and the GCF Integrated Results Management Framework (IRMF). The project outputs (1.1–1.3 and 2.1–2.3) are specifically engineered to drive progress against the IRMF adaptation core and outcome indicators, such as people supported by adaptation solutions (A-E.1), people covered by climate information (A-E.3), and institutions with strengthened adaptive capacity (A-E.5). Baselines, targets, and methods for measuring this progress are clearly defined in Section E, ensuring that the project's activities are directly contributing to the intended transformational change. This clear alignment ensures that the project is not just a collection of activities but a cohesive strategy for creating a more resilient CAR.

The project contributes to a paradigm shift through three assessment dimensions, including scale replicability and sustainability. The paradigm shift potential of the project across these dimensions is presented in Table 79.

Table 80. Paradigm shift potential

Assessment Dimension	Current state (baseline)		Potential target scenario (description)	How the project/programme will contribute (Description)
	Description	**Rating**		
Scale	In the CAR, WASH services are not designed to be climate resilient. Existing CR-WASH initiatives remain limited to isolated pilot projects, active in only 8 out of 71 sub-prefectures. For instance, only one solar-powered water system exists across the three northern prefectures.	Low	The country’s most climate-vulnerable communities targeted by the project in the rural, peri-urban, and urban areas are less exposed and more resilient to climate-related hazards.	The project will contribute to scaling-up climate resilient WASH programming through two interconnected and mutually reinforcing results: development of locally adapted, climate resilient WASH solutions in the northern prefectures of Ouham, Bamingui-Bangoran and Vakaga, while simultaneously strengthening the national enabling environment to

Coverage of water and sanitation services are extremely limited. As per UNICEF and WHO JMP report (2024): 63.5% of the national population do not have access to at least a basic drinking water service, which is defined as water from an improved source collected within a 30-minute round trip. In rural areas, this increases further to 72.6%. This includes people who collect water from surface water sources, sources which are unimproved and where it takes more than 30 minutes to collect water. All of these factors are vulnerable to climate change.
The situation for sanitation is even worse. Nationally, 69.4% of the population openly defecate or use unimproved latrines, which can be destroyed, and pose risks for water resources. Again, the rates are even worse for rural areas, where 87.5% of the population do not have access to a limited sanitation facility.
The lowest level of service which UNICEF WASH programmes aim for is at least basic, with progressive programming to achieve safely managed services. Currently, globally, the calculations for basic or safely managed do not consider climate risks, but this is being addressed in the next year or so.
In Bangui, early warning systems and drainage infrastructure are still in their infancy, leaving communities, infrastructure, and livelihoods highly vulnerable to recurrent floods and droughts

System-wide, there is a lack a coordinated national strategy to scale-up climate resilient technologies. Climate-sensitive policies, programming, financing and sectoral capacities for

In the three northern prefectures: (1) the majority of the population benefits from climate-resilient, solar-powered water systems, while 40% use improved latrines that safely contain excreta and are climate-resilient (contributing to a significant reduction in open defecation practices); (2) A functional EWS has been launched, serving approximately 500,000 people,

Bangui's drainage infrastructure has been expanded, offering improved flood protection to around 100,000 at-risk women, men, and children.

These advances represent substantial progress across households, schools, health facilities, businesses and public spaces, and are fully aligned with the country's NDC, NAP, Water Policy and SDGs objectives.

support future scale-up across the CAR.
1. The locally adapted solutions (Outcome 2) will serve as proof-of-concept models for replication. They will combine (i) construction of solar-powered water systems (80 large-scale piped networks and 120 smaller systems) benefiting approximately 320,000 people, (ii) sensitization on, and demand creation for, climate resilient sanitation through climate informed CLTS interventions in 500 villages reaching 141,000 beneficiaries, (iii) construction or upgrading of climate resilient WASH infrastructure in 200 schools and healthcare facilities, (iv) building capacity of local governments, water operators and communities to manage and maintain climate resilient WASH services, (v) promoting context-relevant financial schemes and (vi) supporting local entrepreneurs and youth-led businesses to make CR-WASH solutions more accessible and affordable. Specifically In Bangui, the urban drainage system will be rehabilitated and expanded to protect flood-prone neighbourhoods, demonstrating scalable urban resilience approaches. Finally, in 45 high-risk localities, experience will be gained on community-led WRM and EWS, enhancing sensitivity and understanding to risk-based community level planning, action and learning.
2. In parallel, the project strengthens the national enabling environment (Outcome 1). Climate adaptation and hydrological EWS will be integrated into key national policies and technical standards, including the Water Policy, WASH norms, and CLTS guidelines. A CR-WASH funding strategy will be developed to mobilize resources from national budgets, donors, and the private sector and a climate-integrated MEL framework and CoP will be established to document and disseminate lessons learned Institutional capacity, governance and coordination will be reviewed. These efforts will ensure that the experience gained from pilot areas

	adaptation are virtually absent.			is captured, institutionalized, and used to inform future programming. By implementing all activities concurrently, the project builds both practical experience and systemic readiness, positioning CAR to replicate and scale CR-WASH solutions nationwide but also informing broader regional efforts across Central and West Africa with the support of UNICEF.
Replicability	Prefectures and communities that fall outside the current project scope face similar challenges to those observed in the targeted areas. These issues are also prevalent across many countries in Central and West Africa. This underscores both the urgent need and strong potential for replication of climate resilient WASH solutions. The weak enabling environment prevailing in the WASH sector hinders replication efforts: fragmented policy frameworks, limited funding, poor coordination, inadequate sectoral capacity, lack of technical knowledge, limited demonstrated examples of climate resilient solutions and practical experience resulting in the absence of operational guidance on climate resilient WASH approaches.	Low	By the end of the project, the core elements are in place to support the scaling of CR-WASH solutions across the country : (1) the country has established robust enabling environment and gained substantial experience in climate adaptation and CR-WASH; (2) National strategies, standards, and technical guidance are adopted; (3) sufficient funding is mobilized; (4) there is adequate institutional capacities and evidence; (5) Innovative and context-specific technologies and approaches are adopted and operational in communities, schools, and healthcare facilities; (6) the EWS is fully functional in the northern prefectures ; (7) Government institutions and national stakeholders are well-coordinated and aligned around a shared agenda and are fully equipped to replicate and scale these interventions; (8) a learning platform and cross-sectoral knowledge-sharing	The project is designed to ensure replicability of CR-WASH solutions across the CAR by combining field-level innovation with system-level transformation. As the first holistically designed CR-WASH initiative funded by the GCF in CAR and the region, the project will establish a CR-WASH intervention model and introduce or scale up innovative solutions and tools (e.g., solar, multi-use water systems, remote sensing, rainwater harvesting, climate-adapted CLTS approach, climate-proof latrine models, biennial sustainability and resilience checks) that are context-relevant, feasible, cost-effective, and therefore replicable to other prefectures and countries. Replicability is incorporated into the project design through an intentional approach. To initiate a real paradigm shift, Outcome 1 will mainstream these models and innovative approaches in relevant policies, technical standards, programming guidelines, and stakeholder training, so they can be owned and used by the government and development partners, integrated into future programs, and scaled up nationwide. Activities 1.1.2 and 2.1.5 will promote the project and catalyse finance at the national and local levels, respectively, particularly from the government, development partners, communities, and the private sector for climate adaptation and CR-WASH, to support upscaling efforts. The project will join forces and coordinate efforts with other

			mechanisms ensure that lessons learned and best practices inform future policies and programming. The experience of the country is solid enough to contribute to resilience across the broader Central and West African region with the support of UNICEF.	development partners, complementing other planned urban drainage (WB, AfDB) and EWS (AF-funded WMO-GWP-LCBC project) initiatives, leveraging existing funding and expertise for increased effectiveness and reach. Activities 1.2.2 and 1.3.2 will gather, document, and disseminate experience and knowledge gained from implementation, promote harmonization of approaches and collective learning through a climate-lensed national WASH MEL framework, a website, a community of practice, cross-sectoral information sharing and stakeholder coordination mechanisms, and joint annual reviews. UNICEF is well positioned to play this role. It is a long-standing, trusted partner of the CAR government, the lead agency for WASH among development partners, and implements multi-sectoral programming. Its normative and convening mandate as a UN agency, recognized role as a knowledge broker, regional presence, and support from its 'Centre of excellence' enable it to engage in larger scale advocacy, build multi-stakeholder alliances, and replicate similar approaches and lessons regionally and globally.
Sustainability	The sustainability of rural WASH services and urban drainage systems in CAR remains critically weak due to a combination of systemic, technical, financial and social barriers. At the national and sectoral levels, capacity for climate-sensitive policy and planning, adequate budgeting, and the development and enforcement of adapted technical norms and designs is limited, as is the ability to effectively implement them. Coordination across WASH, WRM, DRR, and climate adaptation sectors is weak, leading to fragmented approaches that fail to	Low	By the end of the project, CR-WASH and drainage services are demonstrably more sustainable than elsewhere in the country. Systemic, technical, financial, and social barriers have been lifted, with stronger institutions, viable financing strategies, and professionalized service management in place. Communities, authorities, and the private sector jointly uphold reliable water and sanitation	The project will strengthen climate adaptation, CR-WASH, WRM, and DRR capacities and their integration at both national and local levels (under Outcomes 1 and 2, respectively), engaging all relevant stakeholders, including vulnerable groups and the private sector. Policies, plans, and programming guidelines will be revised to integrate climate resilience for long-term sustainability (Activity 1.1.1), while advocacy will promote adequate national and local government funding strategies and budget allocations for climate-sensitive investments and O&M (Activity 1.1.2). Complementary funding sources and mechanisms will also be explored and promoted to

integrate climate risks or incorporate appropriate conflict-sensitive WRM and DRR measures to protect WASH services from external shocks.
Among communities, NGOs/CSOs, and the private sector, skills for quality construction, durable infrastructure, and sustainable O&M are limited. Many rural water supply systems are inadequately sited or built, powered by fragile handpumps or fuel, and designed with little consideration for water resource availability, quality, and seasonality, or for future accessibility risks linked to drought and climate change. This results in frequent breakdowns and intermittent service. O&M capacity at the local level is weak: water tariffs are often not applied, enforced, or sufficient to cover recurrent costs; community water management committees are informal, voluntary, and rarely trained or supported; financial management is poor; and technical assistance is largely absent. Spare parts supply chains remain at small-scale pilot stage, leaving communities without reliable options to repair systems, which contributes to widespread infrastructure failure and prolonged downtime.
Women and youth are often, but not systematically represented in water committees, and their engagement in climate-sensitive WASH remains uneven. Other vulnerable or socially marginalized groups such as pastoralists and displaced populations are rarely involved. Accountability to these groups and the broader user community and local authorities is minimal. Market development and private sector participation in

services, reinforced by climate-sensitive policies, inclusive governance, and sustained behaviour change. Rural, climate-vulnerable communities, schools, health facilities, and urban neighbourhoods benefit from infrastructure that is better maintained, more resilient, and owned locally. Evidence from the project is captured in national systems, shaping policies and programming, and paving the way for more sustainable livelihoods and development.

support local and household investments in CR-WASH and ensure affordability (Activity 2.1.5). Sustainability is also embedded in field-level WASH interventions. Under Output 2.1, water infrastructure—all solar-powered and multi-use— will be handed over to local authorities and communities, and managed by formal, trained, and professionalized water user associations. These associations will apply collectively agreed tariffs designed to cover recurrent O&M costs, with additional contributions from local and national budgets, where necessary, through the Ministry of Energy Development and Hydraulic Resources and ANEA. Maintenance will be reinforced through a pool of locally trained technicians and decentralized spare parts depots, ensuring more timely and reliable repair services.
For sanitation, a climate-sensitive community-led total sanitation (CLTS) approach will foster household ownership, promote flood-resistant latrines, encourage social norm change, and reinforce long-term sustainability. Local masons and artisans will be trained to market their services, assist poor households, and support the progressive upgrading of latrines in line with demand. CR-WASH infrastructure development will also cover schools and health care facilities.
All stakeholders will receive training to understand, plan, and integrate contingency planning as well as conflict-sensitive DRR and WRM measures to reduce risks of WASH service disruption (Outputs 1.2 and 2.3). At the central level, coordination among these sectors will be strengthened through dialogue platforms, communities of practice, and joint reviews (Activity 1.3.2). At the local level, the participation of women, youth, schoolchildren, health workers, and other vulnerable or marginalized groups will ensure broad engagement, responsiveness to diverse needs, and inclusive,

water service management are virtually non-existent, constrained by unclear profitability pathways. In rural sanitation, household latrines are typically self-constructed or built with donor support. These facilities are often of poor quality, highly vulnerable to heavy rains and drought, and households lack the financial means to repair or rebuild them regularly. The high perceived cost of climate-resilient latrines, combined with low prioritization, further hinders uptake. Entrenched social norms sustaining open defecation continue to impede progress in rural sanitation and sanitation markets.

When infrastructure is built, schools and health care facilities are often overlooked, limiting the systematic promotion of safe conditions, hygiene behaviours, and a healthy living environment for communities and children. In Bangui, the urban drainage system suffers from only partial coverage, weaknesses in design, a lack of cleaning and maintenance, low community ownership, and poor solid waste management, resulting in frequent obstruction of stormwater runoff collectors. Finally, data and knowledge on resilient and sustainable solutions remain very limited, while monitoring of results and sustainability is weak. As a result, policies and programmes are not evidence-based, do not integrate sustainability or contingency planning, and weaken both advocacy and fundraising efforts to support climate-resilient WASH and urban infrastructure.

accountable decision-making (Output 2.3).

Nationwide awareness-raising campaigns will contribute to shifting mindsets and creating a critical mass of climate and CR-WASH champions. Active participation of youth, children, women, and caregivers is key to sustaining behaviour change over time and embedding it across generations (Activity 2.1.2 and Output 2.3).

Bangui's drainage system will be reinforced and expanded through local leadership, community participation, information campaigns, and training, thereby fostering ownership and long-term maintenance (Output 2.2).

Complementarity with other initiatives on drainage, solid waste management, and early warning systems (EWS) for planning, investment, and O&M will ensure a more comprehensive, coordinated, and mutually reinforcing approach.

Finally, a newly established, climate-lensed MEL framework with resilience metrics and biennial field sustainability and resilience surveys ('checks')—integrated into national information systems and contributing to a broader cross-sectoral adaptation monitoring framework (Activity 1.2.2)—will generate the data, knowledge, and lessons needed to inform policies and programming guidelines. These guidelines, planned to be updated for the post-SDG era with project support (Activity 1.1.1), will enable adaptive management, alignment with state-of-the-art knowledge and practices, and continuous improvement in aid effectiveness and long-term impact.

Feasibility assessment

Options analysis

The proposed project interventions were selected based on an options' appraisal utilising a multi-criteria analysis (MCA). This framework ensures that each selected technology and service delivery model represents the "best fit" for the CAR's unique hydrogeological and institutional landscape. Options were scored across six core dimensions: climate robustness (resilience to shocks), technical feasibility (proven functionality in fragile contexts), lifecycle cost (balancing capital expenditure with sustainable O&M), inclusion and accessibility (targeting women, children, IDPs, and persons with disabilities), safeguards risk (environmental and social protections), and institutional feasibility (governance and spare-part availability).

This appraisal process was informed by an integrated evidence base designed to foster a paradigm shift toward climate-resilient WASH services. Data and strategic insights were drawn from the project documentation, including the current document, Annex 7 - Stakeholder Engagement Plan, Annex 6 – ESMF, the Annex 3b - Economic and Financial Analysis and were corroborated by external sources[649]. The options were also assessed to ensure that they were aligned with national climate strategies such as the NDC and NAP. By synchronising these technical and social inputs, the project establishes a robust enabling environment for long-term water resources management and disaster risk reduction.

Table 81: Option analysis. Project proposed interventions are highlighted in bold characters

Option / Intervention	Climate Robustness	Life-Cycle Cost	O&M Feasibility	Inclusion (Gender/IP/ Disability)	Safeguards Risk	Replicability	Total
Deep boreholes with solar pumps	**5 (with hydro tests)**	**2 (high upfront, medium O&M)**	**3 (needs spare-parts funds)**	**4 (Design and siting that is Gender/IP / Disability sensitive)**	**3 (water table risk)**	**4 (technology available and replicable)**	**21/30**
Deep boreholes with conventional (diesel) pumps	2 (GHG emissions)	1 (high upfront, high O&M)	3 (needs spare-parts funds)	4 (Design and siting that is Gender/IP/ Disability sensitive)	3 (water table risk)	4 (technology available and replicable)	**17/30**
Water Harvesting and Storage with solar pumps	2 (limited capacity)	3 (Low upfront, low O&M)	3 (needs spare-parts funds)	4 (Design and siting that is Gender/IP/	4 (no water table risk)	4 (technology available and replicable)	**20/30**

[649] World Bank (2025). Central African Republic: Additional Financing for the Bangui City Resilience Project (PROVIR). World Bank Press Release.
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Option / Intervention	Climate Robustness	Life-Cycle Cost	O&M Feasibility	Inclusion (Gender/IP/ Disability)	Safeguards Risk	Replicability	Total
				Disability sensitive)			
Urban drainage in Bangui (Grey and NbS)	**4 (Provision of multiple ecosystem services)**	**3 (High upfront, medium O&M)**	**4 (Requires imported equipment and local engagement)**	**4 (Design and siting that is Gender/IP/ Disability sensitive)**	**3 (medium – low risks for affecting hydrology)**	**4 (replicability : medium, high)**	**22/30**
Urban drainage in Bangui (NbS only)	4 (Provision of multiple ecosystem services)	4 (low upfront, low O&M	2 (requires frequent maintenance to be effective)	4 (Design and siting that is Gender/IP/ Disability sensitive)	3 (low risks for affecting hydrology)	3 (replicability: medium)	**20/30**
Urban drainage in Bangui (Grey interventions only)	2 (Protects from floods, does not provide additional ecosystem services)	3 (High upfront, high but less frequent maintenance)	2 (Requires imported equipment, High risk of failure due to lack of specialized machinery/parts)	4 (Design and siting that is Gender/IP/ Disability sensitive)	2(Potential changes in hydrology)	4 (replicability: high)	**17/30**
Rainwater harvesting (schools/health posts)	**3 (Increases water availability during dry spells)**	**4 (Low upfront, low O&M)**	**3 (O&M gaps)**	**4 (Design and siting that is Gender/IP/ Disability sensitive)**	**4 (minimal works and equipment installed, no changes in hydrology)**	**4 (technology available and replicable)**	**22/30**
Connection of schools/health posts with boreholes through water networks	5 (Ensures water availability during dry spells)	1 (high upfront, high O&M)	2 (high technical and financial requirements)	4 (Design and siting that is Gender/IP/ Disability sensitive)	2 (requires extensive works)	4 (replicability: high)	**18/20**
Community ODF sanitation	**3 (risk of flood failure)**	**4 (Low upfront, low O&M)**	**4 (O&M gaps that will be addressed)**	**3 (No direct impact to design)**	**2 (minimal works and equipment installed, no safeguards at the household level)**	**4 (technology available and replicable)**	**21/30**
Community Public Latrine Blocks with raised slabs and double-pit septic configuration	**4 (protects during floods, avoids contamination)**	**2 (high upfront, high O&M)**	**3 (some technical and financial requirements)**	**4 (Design and siting that is Gender/IP/ Disability sensitive)**	**1 (tank effluent processing not available)**	**4 (technology available and replicable)**	**18/30**
Pit Latrine with Slab	2 (minimal protection from floods)	4 (Low upfront, low O&M)	4 (O&M gaps that will be addressed)	1 (provides minimal safety and accessibility)	1 (high potential for contamination)	5(very highly replicable)	**17/30**
Ventilated Improved Pit	2 (minimal protection from floods)	4 (Low upfront, low O&M)	4 (O&M gaps that will be addressed)	1 (provides minimal safety and accessibility)	2 (some protection for contamination)	4 (highly replicable)	**17/30**

Option / Intervention	Climate Robustness	Life-Cycle Cost	O&M Feasibility	Inclusion (Gender/IP/ Disability)	Safeguards Risk	Replicability	Total
Small piped schemes / network rehabilitation	**4 (protects during floods, avoids contamination)**	**3 (high upfront, medium O&M)**	**3 (some technical and financial requirements)**	**4 (Design and siting that is Gender/IP/ Disability sensitive)**	**3 (substantial works)**	**4 (highly replicable)**	**21/30**

Risk assessment and mitigation measures

The comprehensive evaluation of risks is a part of funding proposal development and in the context of this project, in total, seventeen risks were pinpointed. The main project risks, probabilities, impacts and mitigation measures are detailed in Table 81 below:

Table 82. Risk factors and mitigation measures

Selected Risk Factor 1: Persistent insecurity disrupting implementation

Category	Probability	Impact
Technical and operational	Medium	Medium

Description

Ongoing insecurity could disrupt project implementation in Bangui, Bamingui-Bangoran, Ouham or Vakaga, causing delays or halting activities and limiting the achievement of project objectives.

Early-warning indicators: UNDSS alerts, access denials >14 days, incident rate >2/month, contractor security incidents. Risk owner: Project Manager (PMU), Security Focal Point.

Mitigation Measure(s)

The project will maintain a proactive approach to security management by leveraging UNICEF's extensive field presence, particularly in Bangui, Ouham and Vakaga, and conducting continuous security assessments in close coordination with UN, government, and international forces. This systematic monitoring will allow for adaptation of project activities and ensure the safety of personnel. The project will also partner with and consult with local NGOs to ensure effective implementation in high-risk areas. It will leverage on local partners' deep understanding of community dynamics and ability to operate in volatile environments.

Additional controls: (i) UNDSS-compliant security plans per site; (ii) remote implementation/MEL SOPs (phone surveys, photo/time-stamped media, meter logs, satellite imagery) when access is constrained; (iii) flexible bills of quantities and time extensions built into contracts; (iv) a 5–10% contingency line for security-related costs; (v) quarterly security reviews at PSC (vi) Sub-area security assessment will be done prior to implementation for all investments. Residual risk: Low (with controls). OM cross-ref: Annex 2 – Section 8.7, 6b.

Selected Risk Factor 2: Weak institutional frameworks, lack of transparency and risk of funds mismanagement may delay or hinder implementation

Category	Probability	Impact
Prohibited practices	Low	Medium

Description

Weak institutional frameworks and limited transparency can lead to the mismanagement of funds, potentially causing delays or hindering the project's implementation. MEDHR's and local institutions' lack of robust financial controls and oversight within could prevent the efficient disbursement and utilization of resources, hindering the achievement of project objectives. Risk owner: UNICEF HACT focal point.

Mitigation Measure(s)

The Steering Committee will ensure strategic coordination and high-level supervision of project activity implementation, promoting transparency and accountability. To directly address the risk of fund mismanagement, UNICEF will keep full fund management and oversight responsibility, applying rigorous, risk-based UN Harmonized Approach to Cash Transfers (HACT) procedures. To mitigate the risk of fund mismanagement, the HACT framework employs a multi-stage process that begins before any funds are transferred. Initially, Implementing partners undergo a mandatory due diligence verification and, for those receiving over $100,000, a micro-assessment to evaluate their financial management capacity and assign a risk rating. Based on this risk rating, UNICEF selects the safest cash transfer modality, opting for lower-risk methods like direct payments to vendors or reimbursements for partners rated as "significant" or "high-risk". After disbursement, a layered system of assurance activities is used to verify that funds are used correctly; this includes programmatic monitoring for all partners receiving over $2,500, mandatory on-site spot checks of financial records for partners reporting over $50,000 in expenditure, and formal audits for selected partners. Additional controls: HACT micro-assessments for partners ≥USD100k; risk-tiered assurance (spot checks, programmatic visits, audits); FACE forms; partner capacity-building; quarterly financial dashboards; segregation of duties in VISION; special-audit clause in PCAs/contracts. Residual risk: Low.

Selected Risk Factor 3: Geographic remoteness and accessibility of project locations

Category	Probability	Impact
Technical and operational	Low	Low

Description

The geographic remoteness of certain project locations, together with poor road conditions and reduced security, poses a risk to project implementation, particularly in Bamingui-Bangoran where the rain season affects the roads resulting in a very limited road access for 4 to 5 month per year. These factors could lead to significant delays in the delivery of services, hindering progress and increasing operational costs. Early-warning indicators: missed delivery windows; road closures >10 days; unit-cost spikes >15%. Risk owner: Project Manager/UNICEF Supply Officer (PMU)

Mitigation Measure(s)

The project will implement a strategic planning approach including careful site visits and construction activity planning, ensuring that implementation schedules take into account local seasonal changes, such as the rainy and dry seasons, to guarantee access to project locations. The project will leverage UNICEF's long-standing presence, field offices, and dedicated security team to gain local knowledge and logistical expertise. The involvement of NGOs and local stakeholders will be crucial for managing the complex logistics of reaching and operating in remote areas, providing essential support and local insights to ensure the continuous delivery of project activities. To provide coverage in Bamingui-Bangoran, the project will leverage the existing UNICEF field offices in the neighbouring prefectures of Vakaga and Ouham.

Additional controls: framework agreements with regional suppliers; pre-positioning of critical spares; alternative routing; rainy-season buffers; periodic market-price checks to avoid gouging. Residual risk: Low.

Selected Risk Factor 4: Slow recruitment process for contractors, delaying infrastructure development

Category	Probability	Impact
Technical and operational	Low	Medium

Description

A slow and protracted procurement process for contractors could delay the start of infrastructure development and construction activities. This would lead to project implementation falling behind schedule as well as potential increases of overall project costs. Early-warning indicators: procurement cycle time >90 days; bid participation <3; repeated failed tenders. Risk owner: UNICEF Supply Officer (PMU).

Mitigation measure(s)

The project mitigates the risk of delays by planning to engage private contractors for infrastructure construction, an area in which UNICEF has extensive experience and expertise. The tendering processes and contracts will be owned and managed by UNICEF, and will include clear deadlines, robust legal clauses, and penalties for non-compliance. This rigorous approach is designed to ensure accountability and prevent delays in the recruitment and implementation phases of infrastructure development. Residual risk: Low.

Selected Risk Factor 5: Rising market prices for construction materials and equipment

Category	Probability	Impact
Technical and operational	Low	Low

Description

Sudden increases in the market prices of essential construction materials, equipment, and related services could exceed the project's allocated budget. This could necessitate a reduction in the scope of planned infrastructure activities, potentially limiting the number of water systems or sanitation facilities that can be built or rehabilitated. Risk owner: UNICEF Supply Officer (PMU).

Mitigation measure(s)

To mitigate the risk of rising market prices, the project will implement a rigorous procurement process. This involves ensuring sourcing from reputable suppliers in CAR, regionally or internationally and giving preference to contractors with proven experience in similar contexts, which helps secure competitive pricing and reliable supply chains. All procurement will be carried out in strict accordance with UNICEF's established procurement policies, procedures, and regulations. Additional controls: market sounding; price-adjustment clauses where justified; value-engineering options pre-approved; 10% contingencies; alternate technical specs (equivalents). Residual risk: Low.

Selected Risk Factor 6: WASH infrastructure degradation due to poor design/inadequate maintenance

Category	Probability	Impact
Technical and operational	Low	Medium

Description

Weak or inadequate design and a lack of proper maintenance pose a risk of WASH infrastructure degrading prematurely. With degradation, the new water and sanitation systems may not provide safe and reliable services, especially when faced with climate shocks. This would undermine the long-term sustainability and impact of the project’s interventions. Early-warning indicators: uptime <90%; >30-day repair times; spare-parts stockouts; tariff collection <70% (where applicable). Risk owner: Technical Lead (PMU); Local Authority.

Mitigation measure(s)

To mitigate the risk of WASH infrastructure degradation, the project will conduct climate risk assessments and use the findings to inform the development of climate-resilient technical standards and guidelines. This will ensure all infrastructure is built to withstand climate shocks. The project also places a strong emphasis on capacity building and training for various local stakeholders to ensure the sustainable and climate-resilient management of WASH services and DRR measures. Among other interventions, the project will provide training sessions and materials to community members and water operators, including 760 personnel/associations and 80,000 local actors. This training will cover the operation and maintenance of infrastructure, climate risk assessments, and the promotion of financial schemes to support affordability and sustainability. By equipping community stakeholders with these skills, the project aims to foster local ownership and long-term viability of WASH infrastructure. Additional controls: signed O&M contracts before handover; O&M support; warranty clauses & performance-based maintenance; asset register; affordability checks (OPEX vs budget) with corrective actions. Residual risk: Low. Cross-ref: Annex 2 – Section 8.7

Selected Risk Factor 7: Insufficient interest from the private sector

Category	Probability	Impact
Other	Medium	Low

Description

Insufficient interest from the private sector poses a risk to the project's sustainability and scalability. Without private sector engagement, the project may struggle to expand its impact beyond initial funding, leaving a gap in services which cannot be filled by the government or communities alone. Risk owner: UNICEF Partnerships Manager (PMU).

Mitigation measure(s)

The project will actively mitigate this risk by focusing on broad private sector engagement, seeking out partnerships with a large variety of private companies. The project will also work to create and share evidence on demand creation. This involves demonstrating the tangible benefits and commercial viability of providing WASH services, which can incentivize the private sector to invest. Residual risk: Low.

Selected Risk Factor 8: Limited community interest in climate-resilient WASH

Category	Probability	Impact
Other	Low	High

Description

Limited community interest in climate-resilient WASH services poses a risk to the project's long-term impact: if communities do not see the value in these services, they may be unwilling to adopt new behaviours or contribute to the operation and maintenance of the infrastructure. Early-warning indicators: user committee inactivity; tariff refusals (where applicable); vandalism; hygiene slippage. Risk owner: Gender, IPP and Social Inclusion Officer (PMU); Implementing partners

Mitigation measure(s)

~~To mitigate the risk of limited community interest,~~ the Project community level consultations have highlighted the interest of communities to resilient WASH (Annex 7). To further mitigate the risk of limited community interest, the project will conduct prior stakeholder consultations to ensure that interventions align with community needs, and foster local ownership from the outset. The project will also include several initiatives and campaigns designed to create and strengthen community interest, understanding, and demand for climate-resilient WASH services. These efforts will span various levels, from direct engagement and training to broader awareness campaigns and the promotion of sustainable financial schemes. For example, the project will conduct Social and Behaviour Change Communication (SBCC) campaigns to assess existing community knowledge, attitudes, and practices on WASH. The findings from these surveys will then inform targeted campaigns to promote the adoption and maintenance of climate-resilient infrastructure. Overall, the project aims to engage and train around 80,000 local actors, including community leaders, women, youth, teachers, and healthcare workers, to understand and assess climate risks, design resilient WASH interventions, and implement disaster preparedness measures. Additional controls: FPIC processes where relevant; water-safety planning; GRM accessibility; inclusion of women/youth/people with disabilities in governance. Residual risk: Low.

Selected Risk Factor 9: Integrity—AML/CFT, Prohibited Practices & Sanctions

Category	Probability	Impact
Financial & fiduciary	Medium	High

Description

Risk of money laundering (ML), terrorist financing (TF), fraud, corruption, collusion or sanctions breaches across procurement, partner cash transfers and vendor payments. Risk owner: Project Manager (PMU)/UNICEF Finance & Compliance Lead (AML/CFT Focal).

Mitigation Measure(s)

Project-specific AML/CFT controls: KYC/beneficial-ownership project controls; PEP/sanctions screening at onboarding and periodically; payment thresholds; whistle-blower channels; 72-hour Suspicious Activity escalation to UNICEF corporate oversight functions; partner clauses accepting special audits and record access. Staff and Implementing Partners capacity building. Due diligence: UNGM/vendor screening; HACT micro-assessments; conflict-of-interest disclosures for PMU/procurement. Residual risk: Low. Cross-ref: Annexes 10, 20, 2 – Section 8.7.

Selected Risk Factor 10: SEAH/GBV & Child Protection incidents

Category	Probability	Impact
E&S (safeguards)	Low	High

Description

Allegations of Sexual Exploitation and Abuse (SEA) and Sexual Harassment (SH) or child protection violations linked to project workers or activities. Risk owner: Gender, IPP and Social Inclusion Officer (PMU)/UNICEF SEA/SH/GBV Focal Points (survivor-centred pathway).

Mitigation Measure(s)

Annexes 6 ESMF and 8 GAAP include clear provisions for survivor-centred SEA/SH SOPs, Codes of Conduct embedded in all contracts, mandatory training for staff/contractors, safe GRM entry points, confidential referrals via GBV and SEA/SH clusters/networks, information-sharing protocols, no-retaliation policy, exclusion of case details from routine reports. Residual risk: Low. Cross-ref: SEP/ESMF; OM, SEA/SH SOP.

Selected Risk Factor 11: Land access/FPIC & Voluntary Land Donation (VLD) disputes

Category	Probability	Impact
Natural resources/land	Low	Medium

Description

Disputes over land access or inadequate FPIC/VLD documentation delaying works. Risk owner: Gender, IPP and Social Inclusion officer and ESS officer (PMU)/UNICEF Safeguards Lead.

Mitigation measure(s)

"Site-Readiness Packet" (FPIC record + VLD form + GPS + local disclosure + GRM) required before any works/disbursements; works halted upon dispute until resolution; IPP-specific GRM operational. Residual risk: Low. Cross-ref: OM—Disbursement/Readiness Checklist; ESMF/IPP.

Selected Risk Factor 12: FX/currency & banking controls (BEAC)

Category	Probability	Impact
Financial	Medium	Medium

Description

Exchange-rate volatility and regional FX controls may affect contract values, import timings and supplier liquidity. Risk owner: UNICEF CO Finance Manager.

Mitigation measure(s)

FX clauses; early import planning; use of reputable banks; compliance with BEAC notifications; maintain 5–10% contingencies. Residual risk: Medium→Low.

Selected Risk Factor 13: Environmental & Social (E&S) non-compliance

Category	Probability	Impact
E&S (safeguards)	Low	Medium

Description

Non-implementation of ESMF/ESMPs (e.g., waste, occupational health and safety, chance finds, community safety) causing harm or delays. Risk owner: ESS officer (PMU) / UNICEF Safeguards Focal Point.

Mitigation measure(s)

Site-specific ESMPs; contractor ESMPs and supervision; chance-find procedures; traffic and community safety plans; monthly E&S supervision reports; stop-work authority for serious non-compliance. Residual risk: Low.

Selected Risk Factor 14: Data quality & IRMF reporting

Category	Probability	Impact
MEL/compliance	Medium	Medium

Description

Inconsistent baselines/methods or weak verification could undermine APR credibility and iTAP confidence. Risk owner: WASH Monitoring, learning, and reporting Specialist (PMU).

Mitigation measure(s)

IRMF Indicator Dictionary; routine data-quality assessments; third-party verification spot checks; remote MEL; annual MEL refresher training; corrective-action logs; APR QC checklist. Residual risk: Low. Cross-ref: OM (Annex 21) and Annex 11.

Selected Risk Factor 15: Dependencies outside FP scope (municipal O&M, co-projects)

Category	Probability	Impact
Strategic/dependency	Medium	Medium

Description

Results depend on municipal O&M or complementary investments (e.g., city drainage maintenance) that may not materialize. Risk owner: Project Manager (PMU).

Mitigation measure(s)

MOUs with local authorities; O&M contracts; design “no-regret” stand-alone functionality; phased benefits not contingent on third-party capex; escalate dependency risks in PSC. Residual risk: Low.

Selected Risk Factor 16: Post-implementation O&M affordability gap

Category	Probability	Impact
Financial/sustainability	Medium	High

Description

Insufficient lifecycle OPEX may reduce uptime and benefits. Risk owner: Project Manager (PMU)/ designated Infrastructure/O&M Lead.

Mitigation measure(s)

Affordability analysis; tariff/subsidy policies (context-appropriate); budget earmarks; performance-based maintenance; trigger corrective actions if O&M execution <80% plan. Residual risk: Low. Cross-ref: Annex 2 – Section 8.

Selected Risk Factor 17: Beneficiary eligibility & distribution controls (cash/commodities)

Category	Probability	Impact
Financial/operational	Low	Medium

Description

Risk of fraud/abuse in any direct distributions (e.g., materials, vouchers). Risk owner: Supply Officer (PMU) /Project Manager (if non-supply)

Mitigation measure(s)

At present, the project does not envisage direct cash transfers to households. If any benefits in kind or vouchers are introduced, controls will include: eligibility criteria; KYC/ID checks; duplication checks; inventory controls; four-eyes issuance; beneficiary feedback through GRM; post-distribution monitoring; anomaly analytics; escalation to AML/CFT focal point as needed. Residual risk: Low.

Environmental and social risk assessment

The project has undergone an initial environmental and social risk screening and has been assigned a category I-2 (equivalent to IFC Category B) in accordance with the GCF's Environmental and Social Policy. In general, the project is anticipated to have a positive environmental and social impact by enhancing climate resilience and WASH services for communities in the CAR. Potential adverse impacts are expected to be primarily site-specific, largely reversible, and can be effectively mitigated through the application of mitigation measures.

To manage these risks, an Environmental and Social Management Framework (ESMF) was developed, which is provided in Annex 12. The ESMF establishes the screening procedures, mitigation measures, institutional roles, monitoring frameworks, and stakeholder engagement strategies to be adopted throughout the project lifecycle in order to manage environmental and social risks. This framework is complemented by site-specific Environmental and Social Management Plans (ESMPs) for moderate-risk activities, a Labour Management Procedure (LMP), and a Stakeholder Engagement Plan (SEP) to ensure continuous and inclusive community consultation. Additionally, a dedicated Grievance Redress Mechanism (GRM) and a Sexual Exploitation, Abuse, and Harassment (SEA/SH,) Prevention and Response Protocol have been established to address sensitive and high-risk social issues. The project’s main environmental and social risks and associated mitigation measures are outlined in Table 82.

Given UNICEF’s role as the Accredited Entity and Executing Entity (AE & EE), the project does not involve financial intermediation, and due diligence is handled directly at the activity level through the ESMF. UNICEF has the requisite institutional capacity and technical expertise to implement the ESMF and ESMPs. Compliance will be ensured through a monitoring and reporting system, with UNICEF's safeguards focal points conducting regular site inspections and audits.

A Grievance Redress Mechanism (GRM) will provide a safe and accessible platform for stakeholders to raise concerns, particularly vulnerable groups such as children, women, Indigenous Peoples, and persons with disabilities. The mechanism includes channels available at the community level (e.g., complaint boxes, hotlines), a central registry established by the PMU, and an institutional level where it interfaces with UNICEF’s broader accountability systems. It includes specific, survivor-centred protocols for SEA/SH complaints and respects confidentiality. A summary of grievances received, resolved, and pending will be shared with the GCF Secretariat in annual progress updates.

The project’s design was informed by initial stakeholder consultations with national authorities, civil society organizations, and community representatives during the preparation phase. This will be continued throughout implementation via the Stakeholder Engagement Plan (SEP). The SEP ensures continuous dialogue through community meetings, focus group discussions with vulnerable groups, and traditional leadership engagement. Key safeguards reports, including the ESMF and ESMPs, will be publicly disclosed on UNICEF and government websites, and disseminated via radio and local meetings, in accordance with GCF's disclosure policy.

In recognition of potential impacts on Indigenous Peoples, particularly pastoralists communities such as the Mbororo and forest-dependent and mobile groups such as the Aka communities, the project will implement a process for Free, Prior, and Informed Consent (FPIC). This process will be triggered for any activity that may affect their Indigenous Peoples lands, resources, territories, or cultural heritage. It will be conducted in a culturally appropriate and linguistically accessible manner, before any final project decisions are made or works are commenced. Where consent is withheld, no project activities will proceed in the affected area. The process will be documented and validated by Indigenous Peoples leaders and civil society observes.

Table 83. Overview of environmental and social (E&S) risks and impacts, and mitigation measures

Theme (Reference Mapping)	Key Risks & Impacts	Mitigation / Management Measures	Instruments & Responsibility
Assessment & Management of E&S Risks (UNICEF ES; IFC PS1 / WB ESS1)	Policies/systems may miss vulnerable groups; uneven safeguard application; contractor non-compliance	Inclusive risk screening; site-specific ESMPs; mandatory Contractor ESMPs; monthly E&S supervision; stop-work authority for serious non-compliance; dated ESAP with time-bound actions and budget	ESMF, ESMP templates, ESAP (Annex 12/12a); PMU E&S Specialist; Supervising Engineer; Contractors
Labor & Working Conditions; SEA/SH & Child Protection (PS2 / ESS2)	OHS incidents; child/forced labour risk; SEA/SH	LMP; Codes of Conduct with SEA/SH clauses; worker GRM; OHS Plan (PPE, training, incident register); induction & refresher training; zero tolerance for child/forced labour; random site checks	LMP, CoC, OHS Plan; PMU Gender, IPP and Social Inclusion officer; Contractors; IPs
Resource Efficiency & Pollution Prevention (PS3 / ESS3)	Construction waste/sludge; spills; noise/dust; groundwater depletion	Site Waste & Pollution Prevention Plans; spill kits; noise/dust suppression; groundwater abstraction limits; water-quality monitoring for E. coli/turbidity where relevant	Waste/Pollution Plans, Water Monitoring SOP; Contractors; PMU E&S; Local Labs
Community Health, Safety & Security (PS4 / ESS4)	Traffic & trench hazards; community exposure to works; emergency response gaps	Traffic & Community Safety Plans; trench shoring/guarding; fencing/signage; community briefings; site emergency response; complaints QR/phone posted in French/local language; sustainable yield tests and groundwater monitoring	Traffic & CHS Plans; Contractors; PMU E&S; Municipalities
Security & Conflict-Sensitivity (ESS4 extension / UNDSS)	Restricted access; flare-ups affecting sites and workers/community	UNDSS coordination; access plans; do-no-harm training; adaptive scheduling; local liaison; incident escalation protocol	Security & Conflict-Sensitivity Note (Annex 6b); PMU; UNDSS; IPs
Land Access; FPIC & VLD (PS5 / ESS5 & ESS7)	Disputes over land access; insufficient FPIC/VLD documentation	“Site-Readiness Packet” required before any disbursement/works: FPIC record, VLD form (if used), GPS map, local disclosure note, GRM contacts; halt works upon dispute until resolution; GRM operational	FPIC Protocol; VLD Due Diligence; OM Site-Readiness Packet; PMU Safeguards focal; Local Authorities; Indigenous Peoples representatives
Hydrology & Drainage (PS3/4 / ESS3/4)	Disruption of local drainage; downstream flood risk	Pre-works hydrological assessment; climate-resilient designs; no-regret siting; drainage maintenance plans with sub-national authorities	Hydro Study TOR; Design Standards; Design Consultants; PMU; Authorities
Biodiversity & Invasive Species (PS6 / ESS6)	Habitat disturbance; planting of non-native/invasive species	Micro-siting to avoid sensitive habitat; restoration after works; mandatory native/naturalized species only; verify nurseries; prohibit invasive species	Biodiversity Checklist; Species List; PMU E&S; Contractors
Cultural Heritage / Chance Finds (PS8 / ESS8)	Unintended disturbance of cultural heritage	Chance-find Procedure: stop work, secure area, notify authorities/community, expert review, resume only after clearance	Chance-Find procedure; Contractors; PMU; Authorities
Indigenous Peoples (PS7 / ESS7)	Impacts on Indigenous Peoples lands/resources/cultural heritage	**Culturally appropriate engagement; FPIC prior to decisions; IP-tailored benefits; GRM; no activities where consent is withheld	IPP/FPIC Protocol; PMU; Indigenous Peoples leaders; CSOs
Stakeholder Engagement, Disclosure & GRM (incl. SEA/SH) (ESS10; GCF IDP; IRM)	Exclusion of women/IDPs/PwD; weak feedback loops; low awareness of IRM	**SEP with women/youth/IP focus groups; 30-day pre-Board disclosure for I-2; public posting of GRM and GCF IRM access; anonymous complaints; data protection (minimum data, role-based access); SEA/SH-safe channels	SEP; Disclosure Plan; GRM SOP; SEA/SH SOP; PMU; NDA; IPs; Communities
Monitoring, Reporting & Learning (IRMF) (GCF IRMF)	Inconsistent baselines/methods; weak verification	IRMF Indicator Dictionary; baseline & target protocol; routine DQAs; third-party spot checks; corrective-action log; quarterly E&S supervision feeding APRs	MEL Plan; DQA Checklist; PMU M&E

.3 Justification of GCF funding request

The CAR is one of the world's poorest and most fragile nations, which limits the country's financial resources for climate change projects, particularly those related to adaptation.[650] Almost all of the CAR's investment expenditure is provided by external financial partners through grants or low-interest loans, with public development aid being the primary source of funding.[651] CAR's fiscal limitations, caused by economic stagnation, low tax revenue and external shocks (including COVID-19, conflict, reduced aid due to the Ukraine war), inhibit public investment in climate resilient WASH services, and are further constrained by high debt and conflict-related expenditures. For this reason, the country's current climate budget priorities include securing additional climate funding and operationalizing the Fonds National pour le Changement Climatique (FONACAR). The private sector has to date been reluctant to invest in climate resilient WASH due to CAR's fragility classification, high political risk perceptions, extended payback periods and perceived insufficient commercial returns. Recurring crises in the country have made investment complicated and high-risk, dissuading private sector engagement and long-term climate initiatives.

The CAR faces exceptional challenges in accessing climate finance which makes GCF grant funding essential for this project. To date, no single-country proposal has been approved for CAR by GCF. Despite a $443.87 million climate adaptation need outlined in its 2021 NDC, only a fraction has been secured, primarily through a $70 million World Bank grant. WASH programmes funded by traditional development donors often fail to include climate resilient approaches, leaving a funding gap. Recent cuts in USAID assistance and other donors (e.g. EU, KfW) have impacted WASH service funding, and remaining bilateral support rarely covers the premium for climate-resilient infrastructure. In addition, existing climate finance granted to the country has so far been directed mostly to the realization of studies, rather than concrete projects on the ground.[652] Studies carried out since the Initial National Communication and within the framework of the NAPA have not resulted in the formulation of bankable priority projects in the field of climate change.[653]

GCF funding is crucial to bridge the climate resilience financing gap, covering additionality-related costs and driving systemic change beyond the reach of public or private investment. The grant funding will avoid high-interest loans for CAR, crucial due to its economic challenges, and provide stable funding, preventing delays from liquidity constraints.

The GCF's support will enable transformation by embedding climate-resilient services within an enabling environment for long-term change. The project aims to transform CAR's approach to WASH and climate adaptation from reactive, fragmented, and underfunded efforts to a proactive, integrated, well-resourced, and resilient system. It will do so by improving strategic planning, MEL and cross-sectoral collaboration across various government and community stakeholders, integrating climate-resilience into policy frameworks, mobilizing increased and diversified investment and empowering local communities to contribute to climate-resilient WASH. The funding will also foster innovation by

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[650] Ministere de l'Environnement et du Développement Durable, UNEP, and Enda Energies. (2020). *Analyse des barrières et cadres propices à la mise en œuvre des technologies d'adaptation aux changements climatiques en République Centrafricaine*.
[651] Ministère de l'Environnement et du Développement Durable. (2022). *Plan national initial d'adaptation aux changements climatiques de la République Centrafricaine*. https://unfccc.int/sites/default/files/resource/CAR-NAP-FR-web.pdf
[652] Ministère de l'Environnement et du Développement Durable, République Centrafricaine. (2022). *Troisième Communication Nationale de la République Centrafricaine*. https://unfccc.int/sites/default/files/resource/TNC%20VF%20FR.pdf
[653] Ministère de l'Environnement et du Développement Durable, République Centrafricaine. (2022). *Troisième Communication Nationale de la République Centrafricaine*. https://unfccc.int/sites/default/files/resource/TNC%20VF%20FR.pdf

enabling the introduction of new methodologies, technologies, financial mechanisms, and collaborative frameworks across various sectors in the CAR. This includes technological and infrastructural innovations (advanced hydrogeological studies, climate-resilient designs, multi-use networks, flood-proofing and waste management), data, monitoring and EWS innovations (integrated hydrological systems, multi-hazard EWS, 'last mile' communication, youth engagement, participatory local monitoring, digital platforms for MEL) and community-led adaptation and capacity building innovations (co-design of resilience plans, community-led solutions, social and behaviour change (SBC) approaches, trainer-of-trainers model). Additionally, the GCF funding will ensure scalability by developing a model that integrates local interventions with national-level transformations, which will allow for the expansion of local actions to other regions and further mobilization of the private sector. Updated national policies and strategies, viable financial schemes, new technical and infrastructural models, capacity building initiatives and improved data, monitoring and EWS will all serve to extend the project's approaches and benefits beyond its initial intervention areas and duration.

The project aims to scale up sustainable financing by employing a multifaceted approach. It will develop a dedicated funding strategy for climate-resilient WASH, integrate it into national policies, and target mobilizing new funding by the project's end. By orienting key stakeholders on available climate finance opportunities and engaging in global advocacy, the project aims to attract a broader range of investors, including government and private sector partners, to address the current funding shortfall. The project will also implement context-relevant financial schemes at the local level, assess financial challenges and design instruments including performance-based subsidies, revolving funds, and microfinance for sanitation. The project aims to empower local entrepreneurs and youth-led businesses with the technical and financial capacity to manage and maintain services, which will create jobs, increase service reliability, and ensure that systems can recover quickly from climate shocks. The initiative is designed to have a strong demonstration effect, creating successful models that are likely to attract future investments from government entities, development partners, and the private sector.

Counterfactual ("without project") trajectory

Without GCF investment, WASH and drainage systems in CAR will remain highly climate-exposed. Historical records show that less than 55% of water points in rural areas are functional at any given time.[654] Flood events such as those of 2019 and 2022 resulted in service outages lasting weeks, damage to more than 200 boreholes, and contamination of drinking water supplies in Bangui and Ouham. Drought periods, most recently in 2021, caused seasonal source depletion affecting over 400,000 people.[655] In a "without project" scenario, these recurrent disruptions will intensify under projected climate change, with economic losses estimated at USD 8–12 million annually from avoided services, disease outbreaks, and emergency water trucking.

With project intervention, the introduction of climate-resilient standards and WASH services will:

- Provide 320,000 people with access to safe drinking water through the construction of 80 large-scale and 120 small-scale solar-powered water systems
- Certify 141,000 people in communities as Open Defecation Free (ODF) through a climate-sensitive Community-Led Total Sanitation (CLTS) approach, reducing their exposure to diseases

Benefit 100,000 residents in Bangui by rehabilitating and expanding urban drainage networks, reducing their exposure to climate-induced floods and associated health risks

[654] UNICEF WASH monitoring, 2022
[655] OCHA CAR situation reports

- Improve sanitation and hygiene for schoolchildren and healthcare facility users through the installation of 200 rainwater harvesting systems and the construction of climate-resilient sanitation facilities in 100 schools and 100 healthcare facilities

Benefit 18,000 people across 45 communities through community-led WRM and DRR interventions, such as catchment protection and small-scale water retention structures, which they will help design and implement

Benefit 266,305 people in targeted prefectures directly through improved Climate Information and Early Warning Systems (CIEWS) disseminated through radio and other channels, reducing their exposure to climate-induced disasters

- Benefit 4.9 million people (90.7% of the population) indirectly through improved national policies and institutional governance that mainstream climate adaptation into the WASH and DRR sectors

Choice of Instruments and Concessionality

The grant funding represents the minimum required to overcome market failures while ensuring benefits reach vulnerable populations. It is justified by the public good nature of the project, as climate resilient WASH provides benefits that cannot be fully captured through market mechanisms, and the CAR's high vulnerability context, with communities lacking the resources to contribute to capital costs and facing severe climate risks. In addition, it is justified by the project's transformational potential, through its ability to catalyse systems change across institutional and community levels that commercial financing would not prioritize.

Financial and economic assessment

Incremental benefit of GCF financing

The **counterfactual baseline** assumes that national and local governments will continue to fund routine rehabilitation at current levels (~USD 3–4 million per year), supported by humanitarian partners. This baseline financing is sufficient for emergency response but **insufficient for systematic climate-proofing of infrastructure, O&M cost recovery systems, and flood-risk reduction works**. Without GCF support, adaptation investments will remain fragmented, short-term, and reactive.

With GCF investment, the project will catalyse:

- Revision of national WASH standards to integrate climate risk analysis (Section 7.2).
- Up-front capital investment in solar-powered water systems and flood-resilient sanitation infrastructure.
- Establishment of revolving O&M funds, performance-based subsidies, and tariff frameworks that ensure sustainability.
- Institutional strengthening for climate risk management, early warning, and disaster response.

Additionality of GCF resources arises in three forms:

1. **Financial additionality** – GCF resources provide concessional grant financing that enables investments with high adaptation value but low immediate financial returns, which neither national budgets nor humanitarian partners can fund at scale.
2. **Institutional additionality** – GCF support allows CAR to mainstream climate risk analysis into national WASH policies and standards for the first time, aligning with the National Adaptation Plan (2021) and revised NDC (2021).

Developmental additionality – By targeting the most climate-vulnerable prefectures (Bangui, Ouham, Bamingui-Bangoran, Vakaga), the project directly reduces risk for children, women, and internally displaced persons, groups consistently identified as disproportionately vulnerable to climate shocks.[656]

Economic case (avoided losses): A comprehensive cost-benefit analysis has been conducted to assess the project's economic viability, considering both the implementation period and a differentiated estimated investment lifetime based on the type of the investments. The analysis reveals that overall, the project is justified in economic terms with positive Economic Internal Rate of Return (EIRR) of 13%, and Economic Net Present Value (ENPV) USD 85.5 million, at a 5% discount rate. The project has significant positive externalities and avoided losses due to its interventions that include storm-water drainage, WASH infrastructure for water safety, elimination of open defecation in communities, and rainwater harvesting in health centres and schools. The substantial societal benefits underscore the importance of GCF investment in delivering climate resilience, water security, and environmental sustainability. A more detailed presentation of the project's financial and economic assessment can be found in Annex 3a and Annex 3b, Economic and Financial Analysis.

Exit strategy and sustainability

The project is designed to ensure that its results and benefits are sustained well beyond the implementation period, progressively shifting ownership and management responsibilities to national institutions, local governments, and communities. The exit strategy is rooted in strengthening institutional frameworks, embedding resilience standards into national policies, and building community-level systems for the operation and maintenance of climate-resilient WASH infrastructure.

Institutional and policy integration: By the end of the project, climate-resilient standards and guidelines for WASH infrastructure and service delivery will be fully adopted by the Government of the Central African Republic. The revised National Water Policy, WASH Norms, and CLTS guidelines will include climate risk management, gender-sensitive standards, and resilience provisions. These updated regulatory instruments will ensure that future investments by government and partners automatically incorporate climate-resilient approaches, thereby extending the project's impact beyond its lifetime. The Ministry of Energy and Water Resources, supported by the Ministry of Health and other line ministries, will institutionalize monitoring systems for climate-resilient WASH. This provides the policy and financial framework for sustained implementation after the project's exit. In addition, the project will promote national and local government funding strategies and budget allocations for climate-sensitive investments and O&M, while also exploring and promoting complementary funding sources and financial schemes to support local and household investments in CR-WASH. Asset owners and O&M payers are clearly identified for each type of system, with preventive maintenance, service-level standards, and spare parts/vendor logistics embedded in national and decentralized frameworks.

Operations and maintenance of infrastructure: Water user associations, masons and other local climate-resilient WASH providers will be established and trained to manage daily operations and maintenance of boreholes, solar piped systems, and sanitation facilities. The project will provide toolkits, training, and governance frameworks that ensure equitable participation of women, youth and pastoralist communities in management structures. For larger localities, contractual arrangements with delegated operators and municipal authorities will be piloted to create financially viable service models that can attract future investment. The introduction of cost-recovery mechanisms, including affordable household tariffs and institutional contributions (from schools, health centres, and local authorities), will

[656] UNICEF Children's Climate Risk Index, 2021

support sustainable O&M financing. Where tariffs cannot fully cover costs, national and local budget allocations will provide targeted subsidies, ensure continuity of services while protecting affordability for vulnerable households. For sanitation, the climate-sensitive community-led total sanitation (CLTS) approach will tackle underlying social norms and build full ownership, complemented by on-going, nationwide, multi-channel awareness-raising campaigns to sustain behaviour change.

Longer-term ownership and scaling: Government ownership is ensured through its role as chair of the Project Steering Committee and main project implementation partners, and by embedding the project within the National Development Plan, NDC, and NAP priorities. By project completion, the national climate and water sectors will have both the technical standards and institutional capacity and planning, monitoring, and learning system to expand resilient WASH interventions nationwide. The establishment of a Community of Practice and documentation of lessons learned will support replication in other prefectures and inform regional initiatives. The project will also apply a community-driven and conflict-sensitive approach to water resource management and disaster risk reduction, ensuring that resilience is embedded in local-level systems and decisions.

Role of civil society and private sector: Civil society organizations, community-based groups, and NGOs will continue to play a central role in sanitation and hygiene promotion, climate-risk communication, and social accountability. Their continued engagement after project closure will reinforce behavioural change and community ownership. Opportunities for private sector participation, particularly in solar-powered systems supply chains, spare parts distribution, and sanitation, will be developed during implementation to ensure market-driven sustainability.

Capacity building: The capacity-building plan under Activity 1.3.1 will be implemented in phased cycles, with on-going training programmes, on-the-job coaching, and refresher sessions extending beyond 2030. To mitigate turnover risks, training will target mid-level managers and technicians, while creating a critical mass of trained actors across government, CSOs, academia, and private operators. National and international consultants and CSOs will be systematically engaged so that knowledge remains locally available. Covering institutions, local authorities, and communities will ensure that strengthened skills, systems, and institutional memory are sustained well beyond the project lifetime. In addition, three resilience and sustainability checks will be conducted during the project, enabling adaptive programming and ensuring that lessons are used to improve project resilience and sustainability on an ongoing basis.

Operation and Maintenance Framework

The following tables outline a comprehensive Operations and Maintenance (O&M) framework designed to safeguard the technical and financial sustainability of the project's key assets throughout their intended lifespans. Central to this framework is a robust governance structure that clearly defines the roles and responsibilities of national ministries, local municipalities, and community-based water user associations to ensure assets remain compliant with regulations and fully functional long after the project implementation period. By establishing formal Responsibility Sharing Agreements and Memorandums of Understanding between legal bodies and local stakeholders, the project transitions asset ownership and oversight to mandated entities, thereby embedding the infrastructure within the national institutional fabric. This institutionalisation is critical for maintaining the appropriate technical and financial capacity for the operation and maintenance of the supported assets.

The project acknowledges that ensuring the maximum utility requires the proactive resolution of technical and financial issues for the final handover. Technically, the framework addresses the "last mile" of service delivery by among others ensuring spare-part supply chains, training of operations and maintenance personnel, and identifying the necessary provisions for monitoring of infrastructure. Furthermore, this O&M framework clarifies the ESS provisions during and beyond the project implementation.

Table 84: Operation and Maintenance for the Hydrometeorological Equipment (Output 1.2) , Rural/Peri-Urban WASH (Output 2.1), Bangui Drainage infrastructure (Output 2.2).

Infrastructure/ Equipment	Hydrometeorological Equipment (Output 1.2)

Relevant key stakeholders	• **Ministry of Transport and Civil Aviation** (Ministère des Transports et de l'Aviation Civile)
	  ○ **National Meteorology Directorate**, (Direction Générale de l'Aviation Civile et de la Météorologie), will be responsible for Hydrometric and meteorological equipment that will be installed by the project.
	• **Ministry of Energy Development and Hydraulic Resources** (Ministère du Développement de l'Energie et des Ressources Hydrauliques).
	  ○ **General Directorate for Water Resources** (Direction Générale des Ressources Hydrauliques – DGRH), will be responsible for the piezometers that will be installed by the project.
	• **WMO** (Implementing Entity) and **Global Water Partnership Central Africa, Lake Chad Basin Commission** (Executing Entities of the Integrated water resources management and early warning system for climate change resilience in the Lake Chad Basin Adaptation Fund Project
	• Data users including among others:
	  ○ **Ministry of Civil Protection**: Responsible for using the resulting data for Disaster Risk Reduction (DRR) and emergency management.
	  ○ **Ministry of Humanitarian Action:** Responsible for humanitarian response and coordination, informed by the early warning system.
	The project will engage with above stakeholders and formalise appropriate agreements as mentioned in the responsibilities section bellow to ensure the Hydrometeorological Equipment supported in Output 1.2.

Regulatory Framework and compliance with environmental and social safeguards.	**During project implementation:** • **ESMF provisions** will be applicable, as it is considered more stringent than the national regulatory framework. **Post project implementation:** • **National regulation:** See Annex 6.
Ownership, Governance and Institutional Arrangements for O&M	• **UNICEF** will lead and facilitate O&M activities during the project implementation phase to ensure initial operational stability. • Once installed, all meteorological and hydrometeorological equipment will be officially handed over to the **Ministry of Transport and Civil Aviation**, which then entrusts it to the **General Directorate of Meteorology** for operational deployment and maintenance. This includes the Operation & Maintenance in terms of specific SOPs, Emergency and Contingency Planning, Preventive Maintenance (Routine), Corrective Maintenance (Repair), Calibration and Testing, Spare Parts and Inventory Management, and system monitoring and supervision post-project. Post-project responsibilities will be formally transferred to the National Meteorology Directorate and DGRH with an agreed O&M plan, including financial sustainability provisions.

Responsibility Sharing Agreements	**Activity 1.2.3** ensures that all equipment will be transferred to government ownership and placed under the institutional responsibility of the **National Meteorology Directorate.** For an indicative agreement between UNICEF and the relevant country institutions please see Appendix A: Indicative agreement for the handover of infrastructure, including operation and maintenance provisions
Standard Operating Procedures (SOPs)	Currently, the National Meteorology Directorate does not have a fully developed or operational Standard Operating Procedures (SOPs) for the hydrometeorological systems that they are managing. **Activity 1.2.3** will develop a tailored O&M plan for the hydrometeorological system, including providing capacity building. The O&M plan will include day-to-day operational processes, ESS processes, Emergency and Contingency Planning, Preventive (Routine) Maintenance, Corrective Maintenance (Repair), Calibration and Testing, Spare Parts and Inventory Management, Monitoring and reporting and will include specific training material for all of the above.
Emergency and Contingency Planning	**Activity 1.2.3** will develop protocols and provide training as part of the O&M plan.
Maintenance Strategy / Preventive Maintenance (Routine)	**Activity 1.2.3** will develop protocols and provide training as part of the O&M plan.
Maintenance Strategy / Corrective Maintenance (Repair)	**Activity 1.2.3** will develop protocols and provide training as part of the O&M plan.
Maintenance Strategy / Calibration and Testing	**Activity 1.2.3** will develop protocols and provide training as part of the O&M plan.
Spare Parts and Inventory Management	**Activity 1.2.3** will develop protocols and provide training as part of the O&M plan. Moreover, all procurement will take into consideration continuity in the availability of spare parts.
Asset Specifics and Lifespan	**Automatic Synoptic Meteorological Stations:** 3 stations (Locations: Bossangoa, Ndélé, Birao) – Lifespan: 10 years **Automatic Agrometeorological Stations:** 3 stations (Locations: Bossangoa, Ndélé, Birao) – Lifespan: 10 years **Hydrometric Telemetry Stations:** 3 stations (Rivers: Ouham, Bamingui, Aouk) – Lifespan: 10 years **Limnimetric scales:** at 2 locations (Nana Barya River, Bangoran River) – Lifespan: 15 years **Piezometers:**12 observation boreholes equipped with telemetric multi-parameter sensors (monitoring level, pressure, temperature, quality) - – Lifespan: 15 years
Capacity Building and Training	The General Directorate of Meteorology already has **a training programme** in place for data collection, archiving, bulletin drafting, and information dissemination, that ensures the operational capacity for the project supported equipment. **Activity 1.2.3** will provide technical training for day-to-day operational processes, ESS processes, Emergency and Contingency Planning, Preventive (Routine) Maintenance, Corrective Maintenance (Repair), Calibration and Testing, Spare Parts and Inventory Management, Monitoring and reporting.
Manuals and Knowledge Management	**Activity 1.2.2** will ensure all relevant material developed in 1.2.3 is appropriately documented, disseminated, and communicated.
Financial Sustainability	The Ministry is under negotiation with the government for a **dedicated budget line for installation and maintenance** of hydroment equipment, while the salaries of the General Directorate of Meteorology staff (264) are already secured in the ministerial budget. **Activity 1.2.3** will ensure that the formal agreement includes specific provisions to ensure the financial sustainability of the project-supported equipment.

	The O&M plan (Activity 1.2.3) will include a detailed financial sustainability section.
Monitoring and Reporting	Monitoring and Reporting of the O&M will be the responsibility of the • National Meteorology Directorate • General Directorate for Water Resources

Infrastructure/ Equipment	Rural/Peri-Urban WASH (Output 2.1)
Relevant key stakeholders	• **Ministry of Energy Development and Hydraulic Resources** (MDEHR) ○ **General Directorate for Water Resources (DGRH):** Responsible for water resources management, monitoring, and the national water information system. • **ANEA (National Agency for Water and Sanitation):** Responsible for rural water and sanitation policies, the national water point database, and supporting rural water service delivery. • **Municipalities (Mairies):** Local government bodies responsible for service delivery oversight, O&M monitoring, and validation of community interventions. • **Water User Associations (WUAs) / Associations d'Usagers de l'Eau:** Formalized community bodies responsible for the financial and technical management of water systems. • **Water Management Committees (Comités de Gestion):** Volunteer committees responsible for oversight, financial and technical management and mobilization in smaller communities. The project will engage with above stakeholders and formalise appropriate agreements as mentioned in the responsibilities section bellow to ensure the “Rural/Peri-Urban WASH” supported in Output 2.1.
Regulatory Framework and compliance with environmental and social safeguards.	**During project implementation:** • **ESMF provisions** will be applicable, as it is considered more stringent than the national regulatory framework. **Post project implementation:** • Activity 1.1.1 ensures compliance with the national regulatory framework is ensured through activities to revise and roll out **technical standards and regulations for CR-WASH**, including the *Norms and Guidelines for WASH in Rural and Peri-Urban Areas* and the *Practical Guide for CLTS implementation*.
Ownership, Governance and Institutional Arrangements for O&M	• **UNICEF** will lead and facilitate O&M activities during the project implementation phase to ensure initial operational stability. Post-project O&M transitions to the Ministry of Energy Development and Hydraulic Resources, and Water User Associations. **National/Regional Government Authorities:** • **Ministry of Energy Development and Hydraulic Resources - DGRH:** Ownership of the supported infrastructure will be transferred by UNICEF to the Ministry of Energy Development and Hydraulic Resources which in turn will pass ownership to local authorities. Ministry of Energy Development and Hydraulic Resources - DGRH is the main Institutional Lead responsible for overall sector leadership, policy oversight, and coordination, including providing provisory and final approval and organising the hand-over to local authorities and the water committee or user association, in collaboration with UNICEF, ANEA. Post-project arrangements regarding O&M are defined under an existing Framework Pact Engagement for O&M (Pacte d’engagement) by the MEDHR. • **ANEA (National Agency for Water and Sanitation):** Responsible for rural water and sanitation policies, the national water point database,

	and supporting rural water service delivery. Will be responsible to monitor the project supported rural WASH interventions. **Local Committees:** • **Water User Associations (WUAs) / Associations d'Usagers de l'Eau:** Formalized community bodies responsible for the financial and technical management of water systems. Post-project arrangements will be formalized through formal agreements between DGRH/ANEA and Water User Associations or delegated operators governing technical and financial O&M. • **Water Management Committees (Comités de Gestion):** Volunteer committees responsible for oversight and mobilization in smaller communities.
Responsibility Sharing Agreements	**Activity 2.1.3** ensures that Rural and peri-urban WASH infrastructure will be handed over to local authorities through a formal agreement between UNICEF and the Ministry of Energy and Hydraulic Resources via the DGHR that in turn will handover to water users association and or operators. **Activity 2.1.4** ensures that **ANEA** and **local authorities** will sign formal agreements with **water user associations** for the operation and maintenance of one or more water supply systems. **Water User Associations (WUAs)**: Newly established or revitalized groups that will be formalized to manage and operate one or more water supply systems. They will manage finances, billing, and technical O&M. The **Ministry of Energy Development and Hydraulic Resources - DGRH** will be responsible for providing provisory and final approval and organising the hand-over to local authorities and the water committee or user association, in collaboration with UNICEF, ANEA, and the field-based third-party monitor. For an indicative agreement between UNICEF and the relevant country institutions please see Appendix A: Indicative agreement for the handover of infrastructure, including operation and maintenance provisions
Standard Operating Procedures (SOPs)	**Activity 2.1.4** will develop Standard Operational procedures and tools, and provide technical capacity to the equipment operators in terms on day-to-day operational processes, ESS processes, Emergency and Contingency Planning, Preventive (Routine) Maintenance, Corrective Maintenance (Repair), Calibration and Testing of digital data loggers, Spare Parts and Inventory Management, Monitoring and reporting.
Emergency and Contingency Planning	**Activity 2.1.4.** will develop protocols and provide training to operators. **Activity 1.2.3** will support prepositioning contingency supplies such as water purification tablets, tarpaulins, and hygiene/WASH kits for disaster preparedness at community level.
Maintenance Strategy / Preventive Maintenance (Routine)	**Activity 2.1.4**
Maintenance Strategy / Corrective Maintenance (Repair)	**Activity 2.1.4**
Maintenance Strategy / Calibration and Testing	**Activity 2.1.4**
Spare Parts and Inventory Management	**Activity 2.1.4** . The spare parts supply chain will be mapped, assessed, and further strengthened, including in remote areas, through the creation and expansion of decentralized shops and depots. This will build on UNICEF's earlier work with ANEA and local repairer associations to establish depots and pre-position key spare parts and tools, particularly in Ouham prefecture (pooled spare parts). **Activity** 2.1.5 Will assess different financial schemes such as bundled service contracts and revolving fund for O&M to increase availability of spare parts.
Asset Specifics and Lifespan	The solar pumps have a typical **15-year life expectancy**. The **national water point database (ANEA)**, updated by the Ministry of Energy Development and Hydraulic Resources, serves as the asset register.
Capacity Building and Training	**Activity 2.1.4** will provide technical capacity to the equipment operators in terms on day-to-day operational processes, ESS processes, Emergency and Contingency

	Planning, Preventive (Routine) Maintenance, Corrective Maintenance (Repair), Calibration and Testing of digital data loggers, Spare Parts and Inventory Management, Monitoring and reporting. Training targets local governments, **water operators (user associations)**, community leaders, and the local private sector (artisan-repairers).
Manuals and Knowledge Management	**Activity 1.2.2** will ensure all relevant material developed in 2.1.4 is appropriately documented, disseminated and communicated though the **WASH and intersectoral Community of Practice (CoP)**.
Financial Sustainability	**Activity 2.1.5** will establish context-relevant, affordable, and viable financial schemes for the supported infrastructure. Indicatively, these could be: • Tariff-based Cost Recovery • Bundled Service Contracts • Performance-based O&M Subsidies • Revolving O&M Funds • O&M Insurance and Contingency Mechanisms The activity will capitalise on previous experience of UNICEF in similar projects including but not limited to "Improving sustainable access to safe water for returnees and host communities, and responding to humanitarian needs through access to child protection services for children affected by humanitarian shocks" and interventions in Ethiopia and Uganda[657], Afghanistan[658], and Nigeria[659].
Monitoring and Reporting.	**Data collection:** All newly installed system will be equipped with Real-Time Digital Monitoring. Operators i.e. Water User Associations (WUAs) or local private operators will be responsible for data collection and reporting to the Municipalities and ANEA. **Data consolidation:** ANEA (National Agency for Water and Sanitation) will be responsible for maintaining a national level water point database., Activity 1.2.2 will ensure data consolidation in the online dashboard.

Infrastructure/ Equipment	**Rural/Peri-Urban WASH – Schools and Health Facilities (Output 2.1)**
Relevant key stakeholders	• **Ministry of Energy Development and Hydraulic Resources** (MDEHR) ○ **General Directorate for Water Resources (DGRH):** Responsible for water resources management, monitoring, and the national water information system. • **ANEA (National Agency for Water and Sanitation):** Responsible for rural water and sanitation policies, the national water point database, and supporting rural water service delivery. • **Ministry of National Education**: Policy oversight for school WASH standards. • **School Management Committees** (SMCs) and Parents' Association (APE): Day-to-day cleaning and minor repair. • **Ministry of Health:** Policy oversight for healthcare WASH and waste management • **Head of the nearest Health Center (Chef de Centre)**: Responsible for the clinical supervision of health posts • **COGES (Management Committee of community members):** Responsible for the daily financial oversight and representing the

[657] Pearce, Joseph & Verstraete, Lavuun & Mutswenje, Mark & Katsi, Luckson & Magara, Peter & Goyol, Kitka & Butterworth, John & Mondorf, David & Klau-Panhans, Daniela. (2024). Water supply for refugees and their host communities in protracted situations: costs and financing options for sustaining services in Ethiopia and Uganda. Journal of Water, Sanitation and Hygiene for Development. 14. 1260-1268. 10.2166/washdev.2024.150.
UNICEF (2020) ONEWASH PLUS PROGRAMME – Welenchiti experience: Climate-resilience systems approaches for small town WASH services in Ethiopia
[658] UNICEF (2020) Improved Operation and Maintenance and Revenue Collection from Metered Water Supply Systems: Lessons from Rural Afghanistan
[659] Khan, Niang, Jurji & Mahato (2018) Ensuring sustainability and improving functionality of water supply facilities through Village Level Operation and Maintenance. in Nigeria – from pilot to national strategy, 41st WEDC International Conference

	village's interests and ensuring the health worker is present and performing their duties Under Output 2.1 the project will engage with above stakeholders and formalise appropriate agreements as mentioned in the responsibilities section below.
Regulatory Framework and compliance with environmental and social safeguards.	**During project implementation:** • **ESMF provisions** will be applicable, as it is considered more stringent than national regulatory framework. **Post project implementation:** • Activity 1.1.1 ensures compliance with the national regulatory framework is ensured through activities to revise and roll out **technical standards and regulations for CR-WASH**, including the *Norms and Guidelines for WASH in Rural and Peri-Urban Areas* and the *Practical Guide for CLTS implementation* which include provisions for schools and health facilities.
Ownership, Governance and Institutional Arrangements for O&M	• **UNICEF** will lead and facilitate O&M activities during the project implementation phase to ensure initial operational stability. Post-project O&M transitions to the Ministry of Energy Development and Hydraulic Resources. **National/Regional Government Authorities:** • **Ministry of Energy Development and Hydraulic Resources - DGRH:** Ownership of the supported infrastructure will be transferred by UNICEF to the Ministry of Energy Development and Hydraulic Resources which in turn will pass ownership to the Ministry of Health and Education Respectively, while the operation and maintenance responsibilities will be handed over to hospital director or head of Health Centre, and the school management committees and Parents' Association. The main Institutional Lead responsible for overall sector leadership, policy oversight, and coordination. Responsible for providing provisory and final approval and organising the hand-over to the hospital director or head of Health Centre, and the school management committees and Parents' Association, in collaboration with UNICEF, ANEA. In particular, DGRH is the recipient and legal owner of the water and sanitation infrastructure once it has been technically validated by UNICEF and DGRH. After this validation and official handover, DGRH becomes responsible for ensuring the proper management and sustainability of the system. To do so, DGRH selects and mandates an operator to run the service. This operator may be a water users' association, a private operator, or, in the case of health facilities, the management committee of the health centre or hospital itself. Post-project arrangements regarding O&M are defined under an existing Framework Pact Engagement for O&M (Pacte d'engagement) by the MEDHR. • **ANEA (National Agency for Water and Sanitation):** Responsible for rural water and sanitation policies, the national water point database, and supporting rural water service delivery. Will be responsible to monitor the project supported rural WASH interventions. • **Ministry of National Education**: Policy oversight for school WASH standards. • **Ministry of Health:** Policy oversight for healthcare WASH and waste management. **Local Actors :** • **School Management Committees** (SMCs) and **Parents' Association (APE)**: Day-to-day cleaning and minor repair. • **Hospital Director** (*Directeur d'Hôpital*) and the **Hospital Management Team** are responsible for ensuring that waste management protocols (including incineration) are followed • **Head of the nearest Health Centre (Chef de Centre)**: Responsible for the clinical supervision of health centres.

	• **COGES (Management Committee of community members):** Responsible for the daily financial oversight and representing the village's interests and ensuring the health worker is present and performing their duties
Responsibility Sharing Agreements	**Activity 2.1.3** ensures that school and health facilities WASH infrastructure will be handed over to the respective custodian through a formal agreement between UNICEF and the Ministry of Energy and Hydraulic Resources via the DGHR that in turn will handover to the School Management Committee (SMC) and the Head Doctor and COGES in collaboration with UNICEF**.**
Standard Operating Procedures (SOPs)	**Activity 2.1.4** will develop Standard Operational procedures and tools, and provide technical capacity to health professionals and members of School Management Committees (SMCs) and Parents' Association in terms on day-to-day operational processes, Emergency and Contingency Processes, Preventive (Routine) Maintenance, Corrective Maintenance (Repair).
Emergency and Contingency Planning	**Activity 2.1.4.** will develop protocols and provide training to health professionals and members of School Management Committees (SMCs) and Parents' Association **Activity 1.2.3** will support prepositioning contingency supplies such as water purification tablets, tarpaulins, and hygiene/WASH kits for disaster preparedness at community level.
Maintenance Strategy / Preventive Maintenance (Routine)	**Activity 2.1.4**
Maintenance Strategy / Corrective Maintenance (Repair)	**Activity 2.1.4**
Spare Parts and Inventory Management	**Activity 2.1.4** . The spare parts supply chain will be mapped, assessed, and further strengthened, including in remote areas, through the creation and expansion of decentralized shops and depots. This will build on UNICEF's earlier work with ANEA and local repairer associations to establish depots and pre-position key spare parts and tools, particularly in Ouham prefecture (pooled spare parts). **Activity 2.1.5** Will assess different financial schemes such as bundled service contracts and revolving fund for O&M to increase availability of spare parts.
Asset Specifics and Lifespan	Rainwater Harvesting Systems, Gender-segregated Latrines and Incinerators following WHO standards have a **15-year life expectancy**.
Capacity Building and Training	**Activity 2.1.4** will provide technical capacity to the equipment operators in terms on day-to-day operational processes, Emergency and Contingency processes, Preventive (Routine) Maintenance, Corrective Maintenance (Repair)
Manuals and Knowledge Management	**Activity 1.2.2** will ensure all relevant material developed in 2.1.4 is appropriately documented, disseminated and communicated though the **WASH and intersectoral Community of Practice (CoP)**
Financial Sustainability	The SMCs are responsible for funding consumables (soap, buckets) and minor repairs through the school capitation grant or PTA fees. Health Facility infrastructure operation and maintenance will be funded through the facility's cost-recovery (drug sales/consultation fees).
Monitoring and Reporting.	**Data collection:** School Management Committees (SMCs) and Parents' Association will be responsible for collecting data in schools and the Head Doctor for Health Facilities. **Data consolidation:** ANEA (National Agency for Water and Sanitation) will be responsible for maintaining a national level database. Activity 1.2.2 will ensure data consolidation in the online dashboard.

Infrastructure/ Equipment	**Bangui Drainage infrastructure (Output 2.2)**
Relevant key stakeholders	• **Ministry of Urban Planning and Housing** (Ministère de l'Urbanisme et de l'Habitat): Responsible for defining urban development policies, zoning, and the master plans that dictate drainage requirements.

	• **Ministry of Public Works and Equipment** (Ministère des Travaux Publics et de l'Équipement): Oversees the technical standards, construction, and rehabilitation of major infrastructure, including primary drainage canals (e.g., the "Grand Collecteur") • **Ministry of Territorial Administration:** Oversees the Municipality of Bangui and decentralization efforts. • **Municipality of Bangui** (Mairie de Bangui): Responsible for the day-to-day operation and routine maintenance of secondary and tertiary drains for all arrondissements. . • **Local Arrondissements** (District Councils): Work with the Municipality to mobilize communities for neighbourhood cleaning and basic maintenance of arrondissement secondary and tertiary drains. The project will engage with above stakeholders and formalise appropriate agreements as mentioned in the responsibilities section bellow to ensure the Hydrometeorological Equipment supported in Output 2.2.
Regulatory Framework and compliance with environmental and social safeguards.	**During project implementation:** • **ESMF provisions** will be applicable, as it is considered more stringent than national regulatory framework, but in alignment with the national regulatory framework. **Post project implementation:** • **National regulation:** See Annex 6.
Ownership, Governance and Institutional Arrangements for O&M	• **UNICEF** will lead and facilitate O&M activities during the project implementation phase to ensure initial operational stability. Post-project O&M transitions to the Municipality of Bangui. **National/Regional Government Authorities:** • **Ministry of Urban Planning and Housing** (Ministère de l'Urbanisme et de l'Habitat): Ownership of the Bangui Drainage infrastructure will be passed to the Ministry of Urban Planning and Housing from UNICEF which in turn passes ownership and O&M responsibility to the respective municipalities (in this case Bangui Municipality). The Ministry remains responsible for providing provisory and final approval and organising the hand-over to the Municipality of Bangui, in cooperation with UNICEF • **Ministry of Public Works and Equipment** (Ministère des Travaux Publics et de l'Équipement): Validating technical standards. **Local Government Authorities:** • **Municipality of Bangui** (Mairie de Bangui): Assumes the final ownership of the infrastructure from the Ministry of Urban Planning and Housing and is responsible for the day-to-day operation and maintenance of secondary and tertiary drains. Post-project arrangements will be formalized through formal agreements between the Ministry of Urban Planning and the Municipality of Bangui defining operational and financial responsibilities. • **Local Arrondissements** (District Councils): Work with the Municipality to mobilize communities for neighbourhood cleaning and basic maintenance of arrondissement secondary and tertiary drains. • **Local Committees:** • Local committees are engaged for small scale clean-up of drainage infrastructure, reducing O&M costs.
Responsibility Sharing Agreements	**Activity 2.2.1** ensures that all assets will be transferred to government ownership and formal agreements detailing responsibilities will be signed with the Ministry of Urban Planning, the Municipality of Bangui, and arrondissement authorities according with their respective mandates. To avoid interdependency risk between the primary and project supported drains, the project will include a condition precedent that the Ministry cleans the primary canal before project drains are connected.

	For an indicative agreement between UNICEF and the relevant country institutions please see Appendix A: Indicative agreement for the handover of infrastructure, including operation and maintenance provisions
Standard Operating Procedures (SOPs)	**Activity 2.2.1** will develop tailored O&M plan for the supported drainage infrastructure. The O&M plan will include day-to-day operational processes, ESS processes, Emergency and Contingency Planning, Preventive (Routine) Maintenance, Corrective Maintenance (Repair), Inventory Management, Monitoring and reporting and will include specific training material for all of the above.
Emergency and Contingency Planning	**Activity 2.2.1**
Maintenance Strategy / Preventive Maintenance (Routine)	**Activity 2.2.1**
Maintenance Strategy / Corrective Maintenance (Repair)	**Activity 2.2.1**
Spare Parts and Inventory Management	**Activity 2.2.1**
Asset Specifics and Lifespan	To be defined under Activity 2.2.1. Includes fixed assets: Tertiary drainage Green drainage
Capacity Building and Training	The **national water point database (ANEA)**, updated by the Ministry of Energy Development and Hydraulic Resources, serves as the asset register.
Manuals and Knowledge Management	**Activity 1.2.2** will ensure all relevant material developed in 2.2.1 is appropriately documented, disseminated and communicated.
Financial Sustainability	**Activity 2.2.1** will ensure financial sustainability community engagement (for small scale drainage cleaning) and establishing cost-recovery or income-generating systems to fund O&M activities such as dedicated municipal budget lines, local taxation on markets or other economic activities, and environmental fines for illegal dumping or unsafe waste disposal, in line with the polluter-pays principle.
Monitoring and Reporting	Monitoring and Reporting of the O&M will be the responsibility of the Municipality of Bangui. Supervision will be the responsibility of the Ministry of Urban Planning and Housing.

Regulatory Approvals, Licenses or Permits

As far as we are aware, No licenses, permits or other authorizations may be required for the transfer of funds from GCF to UNICEF as Accredited Entity at the time of drafting this annex.

The anticipated applicable approvals, permits or licenses for the project are listed below: For infrastructure works, the following approvals will be secured: (i) environmental approvals from the Ministry of Environment and Sustainable Development; (ii) water abstraction/drilling permits and WASH works clearances from the Ministry of Energy and Water Resources; and (iii) authorizations for urban drainage from the Ministry for Habitat, Social Housing and Urbanism[1]. A permit matrix (issuing authority, trigger, and expected timing) is provided below.

Approval/permits required	Issuing authority	Expected date of issuance	Expected expiration	Party responsible	legal and administrative risks
Environmental approval	MEDD	prior to works commencement (Law No. 07.018). Second half of 2027	As defined under applicable national regulations	UNICEF	start date and create delays of the works

Borehole/drilling	MEDHR	prior to site mobilization (Water Code (Law No. 06.001) Second half of 2027	As defined under applicable national regulations	UNICEF	start date and create delays of the works
Right-of-way/works authorization (drainage)	Ministry for Habitat, Social Housing and Urbanism	prior to mobilization (Urban Planning and Construction Code) Second half of 2027	As defined under applicable national regulations	UNICEF	

Mitigation measures in place from a legal and contractual perspective (beyond operational safeguards)

As the project will include key line ministries—Ministry of Environment and Ministry of Energy and Hydraulic Resources—within the Project Management Unit (PMU), these ministries will be responsible for issuing the required permits in a timely manner and ensuring that all other relevant ministries collaborate efficiently throughout implementation. In advance of project inception This approach builds on existing cooperation agreements between UNICEF and relevant ministries, including facilitation of administrative processes where applicable.

To further reduce administrative bottlenecks, the infrastructure works will be divided into separate lots, enabling permit requests to be staggered across different timelines and geographic areas. This phased approach minimizes simultaneous requests to the same ministry and reduces the risk of delays in the issuance of authorizations required for construction and environmental compliance.

Project impacts and benefits

Climate change adaptation benefits

The principal beneficiaries of this project are vulnerable populations in the four target prefectures (Bangui, Bamingui-Bangoran, Ouham, and Vakaga) who are highly exposed to the impacts of climate change on water, sanitation, and hygiene. The project will also benefit the national population through strengthened policies and institutional capacities.

Direct beneficiaries are defined as individuals, households, and institutions that directly participate in or receive adaptation benefit from project activities. This includes community members gaining access to new WASH infrastructure, government staff receiving training, and schoolchildren in facilities upgraded by the project.

Indirect beneficiaries are those who benefit from the project's broader impacts, such as improved national policies, enhanced early warning systems, and the positive spill-over effects of a more resilient WASH sector on public health and environmental quality.

Participation in community-level activities will be voluntary. To ensure equitable distribution and avoid double-counting, participation will generally be limited to one member per household for specific interventions, while ensuring benefits like safe water access are available to all household members.

Table 85. Beneficiaries mapping and project adaptation benefits[660]

Beneficiary	Rationale	Involvement / Benefits
Vulnerable Communities and Households	Communities in the target prefectures face extreme vulnerability due to a combination of climate shocks (floods, droughts), widespread poverty, and some of the world's lowest access rates to safe water (6%) and sanitation (14%). Flooding regularly destroys infrastructure and contaminates water sources, while droughts intensify water scarcity. This leads to high rates of waterborne diseases, disproportionately affecting children, and places a severe burden on women and girls who are primarily responsible for water collection. Without intervention, these communities will remain trapped in a cycle of climate-induced poverty and poor health.	Vulnerable households will directly benefit from improved and reliable access to climate-resilient WASH services. This includes: ● 320,000 people gaining access to safe drinking water through the construction of 80 large-scale and 120 small-scale solar-powered water systems (Output 2.1). ● 141,000 people in communities becoming certified as Open Defecation Free (ODF) through a climate-sensitive Community-Led Total Sanitation (CLTS) approach, reducing their exposure to diseases (Output 2.1). ● 100,000 residents in Bangui benefiting from rehabilitated and expanded urban drainage networks, reducing their exposure to climate-induced floods and associated health risks (Output 2.2).
Schoolchildren, Teachers, Patients, and Health Workers	Schools and health facilities in CAR have critical deficits in WASH infrastructure. Over 81% of primary schools and 71% of healthcare facilities lack basic water supply. This situation compromises hygiene, increases the risk of disease transmission, and disrupts education, particularly for adolescent girls who may miss school due to inadequate menstrual hygiene facilities. Climate shocks like floods and droughts further damage what little infrastructure exists, forcing closures and reducing access to essential education and health services when they are needed most.	The project will directly improve the learning and health environments for thousands of children and patients. These beneficiaries will gain access to safe and resilient WASH facilities, reducing their vulnerability to climate-sensitive diseases and ensuring service continuity during extreme weather events. Benefits include: Schoolchildren and healthcare facility users benefiting from improved sanitation and hygiene through the installation of 200 rainwater harvesting systems and the construction of climate-resilient sanitation facilities in 100 schools and 100 healthcare facilities (Output 2.1). Training will be provided to school WASH clubs and health personnel on the operation, maintenance, and management of these new facilities (Output 2.1).

[660] Across all beneficiary groups, the project generates explicit co-benefits of GHG emission reductions (through solar-powered systems replacing diesel pumps) and job creation/green skills (at least 378 new jobs). These are cross-cutting and apply to Outputs 2.1–2.3.

National and Sub-national Government Staff	Government institutions in CAR have weak capacity to implement climate change adaptation policies, particularly within the WASH sector. There is a critical shortage of qualified personnel in meteorology, water resource management (WRM), and disaster risk reduction (DRR). Limited technical skills, a lack of reliable data, and poor inter-ministerial coordination hinder the ability to plan, design, and manage climate-resilient infrastructure and early warning systems effectively.	The project will significantly strengthen the institutional and technical capacity of the government to lead climate action in the WASH sector. This will create a more sustainable enabling environment for long-term resilience. This includes: ● 160 key staff from national and sub-national government bodies will receive targeted training on climate risk assessment, climate-resilient WASH planning, IWRM, and DRR (Output 1.3). ● Institutional frameworks will be strengthened through the revision of key national policies and technical standards to integrate climate resilience (Output 1.1). ● Technical capacity for data collection and forecasting will be improved through the rehabilitation of hydrometeorological monitoring stations and the establishment of improved data systems (Output 1.2).
Local Community Leaders, Women, and Youth	Community engagement in climate adaptation and DRR is limited due to a lack of awareness, resources, and structured participation mechanisms. Women and youth, despite being heavily impacted by climate change, are often excluded from decision-making processes related to water management and disaster preparedness. This lack of local ownership and capacity prevents the development of tailored, sustainable, and effective community-led adaptation solutions.	The project will empower communities to take an active role in building their own climate resilience. This will ensure that interventions are locally owned and sustainable beyond the project's lifespan. This includes: ● 18,000 people across 45 communities will directly benefit from community-led WRM and DRR interventions, such as catchment protection and small-scale water retention structures, which they will help design and implement (Output 2.3). ● Local stakeholders, with a strong focus on including women and youth, will be trained in climate risk assessment, resilience planning, and disaster preparedness, empowering them to manage local water resources and respond to climate shocks (Output 2.3).
The Entire Population of CAR (Indirect Beneficiaries)	The entire population of CAR is affected by weak national policies, fragmented governance, and the absence of effective early warning systems for climate-related disasters. In a business-as-usual	Nearly all citizens will indirectly benefit from a strengthened national framework for climate resilience and disaster preparedness. The project's systemic interventions will create a safer and more

scenario, 94% of the population will continue to lack access to safely managed water, and all citizens remain exposed to the escalating risks of floods and droughts without timely alerts, leading to preventable loss of life, livelihoods, and economic assets.	secure environment for the entire country. Benefits include: ● 2.5 million people (47.1% of the population) will indirectly benefit from improved national policies and institutional governance that mainstream climate adaptation into the WASH and DRR sectors (Outputs 1.1 & 1.3). ● 266,305 people in targeted prefectures will directly benefit from improved Climate Information and Early Warning Systems (CIEWS) disseminated through radio and other channels, reducing their exposure to climate-induced disasters (Output 1.2). The reach of these systems will expand over time, benefiting a larger portion of the population.

The target scenario foresees a paradigm shift in the CAR, promoting the development of an enabling environment in terms of practice, policy, and finance to support the mainstreaming of climate-resilient WASH services. The project is therefore expected to contribute to the following GCF Adaptation Results Areas (ARAs) and IRMF indicators:

- **ARA 1: Most vulnerable people and communities**
  - Core indicator 2: Direct and indirect beneficiaries reached
  - Supplementary indicator 2.4: Beneficiaries (female/male) covered by new or improved early warning systems
- **ARA 2: Health, well-being, food and water security**
  - Core indicator 2: Direct and indirect beneficiaries reached
  - Supplementary indicator 2.3: Beneficiaries (female/male) with more climate-resilient water security
- **ARA 3: Infrastructure and built environment**
  - Core indicator 2: Direct and indirect beneficiaries reached
  - Supplementary indicator 2.6: Beneficiaries (female/male) living in buildings that have increased resilience against climate hazards
  - Core indicator 3: Value of physical assets made more resilient to the effects of climate change and/or more able to reduce GHG emissions

The table below provides an output-wise breakdown of estimated beneficiaries, assumptions, and applicable result areas. A comprehensive list of numerical assumptions, alongside with sources, can be found in Annex 23b.

Table 86. Beneficiaries by output and result area

	Methodology and assumptions per beneficiary type and benefits	Direct beneficiaries				Indirect beneficiaries				Results area
		Male individual	Female individual	Children	Total	Male individual	Female individual	incl. Children	Total	
Outcome 1: Strengthened public sector capacity, policy and operational planning for Climate-resilient WASH services, water resources management (WRM), and climate disaster risk reduction (DRR).										
Output 1.1: Climate change adaptation is integrated into national policies and regulations, and funding for adaptation is mobilized	**Beneficiaries** - National population that do not have access to climate resilient, safe, reliable WASH. Policies will provide an adaptation benefit through the acceleration of safe WASH access 27% of the rural population uses a basic water supply and 6% uses basic sanitation (WHO/UNICE	0	0	0	**0**	1228012	1336062	1 435 881	**2 564 074**	**ARA 2**

	F JMP 2023). None of the country's rural population has currently access to both basic water supply and sanitation, that are climate-resilient.									
Output 1.2 Evidence based WASH, WRM, DRR, and EWS are informed by improved planning, climate and WASH monitoring information, MEL framework, data integration, and institutionalization of data-related mandates	**Beneficiaries** - National population that do not have access to climate resilient, safe, reliable WASH. Policies will provide an adaptation benefit through the acceleration of safe WASH access 27% of the rural population uses a basic water supply and 6% uses	0	0	0	**0**	1228012	1336062	1 435 881	**2 564 074**	**ARA 2**

	basic sanitation (WHO/UNICEF JMP 2023). None of the country's rural population has currently access to both basic water supply and sanitation, that are climate-resilient. (overlap with Output 1.1)									
Output 1.3: Institutional capacity and governance for CR-WASH and climate adaptation are strengthened	**Beneficiaries -** Population with access to EWS notification in rural locations, through radios they have reduced exposure to climate induced disasters. Assumptions - Population with access to radio in the rural prefectures will receive information and make informed decisions.	127,541	138,764	149,131	**266,305**	18 443	20 065	21 565	**38 508**	**ARA 1**

	Of which not overlapping with CR-WASH beneficiaries in rural communities	0	0	0	**0**	0	0	0	**0**	
Outcome 2: Climate resilience of WASH services for the vulnerable communities enhanced through improved water and sanitation services, flood and drought preparedness and resilient drainage infrastructure to reduce climate risks and sensitive diseases.										
Output 2.1: CR-WASH services are accessible and used in rural, flood- and drought-prone areas of Ouham, Bamingui-Bangoran, and Vakaga	Beneficiaries - community members with access to climate resilient WASH services - 80 large water system network (80*3250 persons) AND 120 small scall network (120*500 persons) : directly targeted by project activities and receive an adaptation benefit through improved access to safe water - Rainwater	153,258	166,742	179,200	**320,000**	0	0	0	**0**	**ARA2**

	harvesters in 100 schools and 100 health facilities - 300 school children, and 1500 healthcare facility users: directly targeted by the project activities and have an adaptation benefit as they have reduced vulnerability to climate sensitive diseases from improved sanitation. (Partial overlap with open defecation free communities:)									

Beneficiaries - 141,000 total, (including 84,600 / 300 villages not already counted under Water Supply beneficiaries), individuals are members of open defecation free communities: directly targeted by the project activities and have an adaptation benefit as they have reduced vulnerability to climate sensitive diseases from improved sanitation. Assumptions based on 200 intervention villages located in the more densely	67,529	73,471	78,960	**141,000**	0	0	0	**0**	**ARA2**

population Ouham prefecture, with an average 330 people per villages (this is the average size of past CLTS intervention villages in CAR, based on the national CLTS database) 300 villages located in the less densely populated prefectures of Bamingui-Bangoran and Vakaga, with an average size of 250 ppl/village. Size of villages based on available, indicative local population data (Partial overlap)									

	Of which not overlapping 84,600 / 300 villages not already counted under Water Supply beneficiaries	40,517	44,083	47,376	**84,600**	0	0	0	**0**	**ARA2**
Output 2.2: Climate-resilient urban drainage infrastructure is reinforced and expanded in Bangui to reduce, anticipate, and better withstand flood risks	Beneficiaries: - 100,000 recipients of drainage networks infrastructure in Bangui : directly targeted by a project activity and have an adaptation benefit of reduced exposure to climate induced floods	47,893	52,107	48,000	**100,000**	420 957	457 996	421 897	**878 953**	**ARA 3**
Output 2.3: Communities and youth are enabled to manage water resources and disaster risks in priority high-risk localities of Ouham, Bamingui-	Beneficiaries: - 2.3.3: 18000 people and 45 communities benefitting from WRM and DRR interventions: directly	8,621	9,379	10,080	**18,000**	0	0	0	**0**	**ARA 2 & ARA 3**

Bangoran, and Vakaga	targeted by a project activity and have an adaptation benefit of reduced exposure to climate induced floods (overlap with CR-WASH beneficiaries in rural communities)									
	Of which not overlapping with CR-WASH beneficiaries in rural communities	0	0	0	**0**	0	0	0	**0**	
ARA1 beneficiaries		127,541	138,764	149,131	**266,305**	18 443	20 065	21 565	**38 508**	**ARA1**
ARA2 beneficiaries[661]		193,775	210,825	226,576	**479,000**	1 228 012	1 336 062	1 435 881	**2 564 074**	**ARA2**
ARA3 beneficiaries		47,893	52,107	48,000	**118,000**	391 506	425 954	443 462	**817 461**	**ARA3**
Total beneficiaries		241,668	262,932	274,576	**504,600**	1 228 012	1 336 062	1 435 881	**2 564 074**	**All**

[661] ARA2 beneficiaries without double-counting add up to 404,600

Project co-benefits

The project's co-benefits will generate significant positive results beyond those outlined in section 9.1 Climate change adaptation benefits:

Co-benefit 1 (Job creation and green skills development): Through co-benefit 1, the project will provide essential training to create new employment opportunities, with a specific focus on empowering youth, women, and entrepreneurs. In the mid-term, the co-benefit aims to reach 95 individuals, with a final target of 378 individuals.

Co-benefit 2 (Reduced time burden for water collection): Through co-benefit 2, the project will increase the number of women and girls benefiting from reduced physical time burden for water collection. In the mid-term, the co-benefit aims to reach 5,995 women and girls, with a final target of 25,469 women and girls.

Co-benefit 3 (Reduced contamination of watersheds): Through co-benefit 3, the project will increase the number of villages with reduced biological contamination of watersheds through verified ODF status. In the mid-term, the co-benefit aims to reach 125 villages, with a final target of 500 villages.

Project implementation

Implementation structure and lines of accountability

The project will be implemented with the United Nations Children's Fund (UNICEF) acting as the Accredited Entity (AE)

Executing Entities ("EEs"):

The Executing Entities for the Funded Activity are:

- UNICEF, acting through its Central African Republic Country Office; and
- The Government of Central African Republic through its Ministry of Energy Development and Hydraulics Resources Development ("MEDHR"),

together, the "Executing Entities". The Executing Entities will be responsible for the implementation of the Funded Activity as further described in the following table:

Activity	Executing Entity	Executing Entity Responsibilities for Results
1.1.1	UNICEF	Adopted or updated national policy, norms and guidelines for climate-resilient WASH
1.1.2	UNICEF	CR-WASH funding needs assessment and strategy
1.2.1	UNICEF	DRR and WRM plans developed
1.2.2	UNICEF	Monitoring frameworks, WASH resilience and sustainability checks, CR-WASH website and community of practice
1.2.3	UNICEF	Hydrometeorological equipment and stations, process and capacities for data flow, EWS communication system, O&M
1.3.1	UNICEF	Capacity building needs assessment and action plan, training workshops
1.3.2	UNICEF	Coordination platform, WASH and IWRM joint sector reviews
2.1.1	UNICEF	Hydrogeological assessments, boreholes tested and inspected, drilling/rehabilitation sites identified/confirmed
2.1.2	UNICEF	Awareness-raising strategy, multi-channel campaign, CLTS training and implementation
2.1.3	UNICEF and MEDHR	Climate-resilient water supply systems, sanitation services and rainwater collectors in schools and healthcare facilities. UNICEF procures and supervises all works contracts and retains full accountability for delivery of infrastructure outputs. Design and implementation are carried out in coordination with relevant government authorities (DGRH/MEDHR, MoH, MoE) for technical validation and alignment with national standards. MEDHR acts as a co-executing entity for a defined portion of this activity, contributing co-financing through (i) construction of one water network, and (ii) deployment of government staff and equipment. This co-execution is formalized through a Subsidiary Agreement with UNICEF, under which MEDHR is accountable for the delivery of its co-financed inputs and outputs.
2.1.4	UNICEF	CR-WASH training and support
2.1.5	UNICEF	CR-WASH financial schemes study, training and support
2.2.1	UNICEF	Technical design studies, improved drainage infrastructure
2.3.1	UNICEF	Communities trained and engaged in DRR, WRM and resilience plan development

2.3.2	UNICEF and MEDHR	Monitoring equipment purchased and distributed, stakeholders trained, equipped and supported to monitor water resources and transmit data. UNICEF procures suppliers and contracts local partners such as NGOs to design training to communities. MEDHR will identify priority gaps in current surface and groundwater monitoring and validate training materials/ equipment and conduct the trainings. MEDHR's role in identifying monitoring gaps and validating technical approaches constitutes a defined co-execution function, formalized through a Subsidiary Agreement with UNICEF.
2.3.3	UNICEF	Communities benefiting from WRM and DRR solutions

UNICEF through its Central African Republic Country Office will be the EE for all activities. UNICEF will also maintain reporting channels to the Ministry of Environment and Sustainable Development (the NDA) to maintain and increase the country's project ownership.

The **MEDHR will serve as a government Executing Entity** for specific activities. Its role reflects its technical mandate and co-financing contribution. MEDHR will provide co-financing (e.g., Activity 2.1.3 water network); deploy staff and technical inputs; identify sector priorities (e.g., groundwater monitoring gaps under Activity 2.3.2); and validate outputs within its mandate.

Flow of funds

The Accredited Entity may request disbursements from GCF in accordance with the terms of the FAA and will then transfer funds to MEDHR for the implementation of Activities 2.1.3 and 2.3.2 of the Funded Activity in accordance with the FAA and the Subsidiary Agreement respectively.

- In the case of Activities 1.1.1, 1.1.2, 1.2.1, 1.2.2, 1.2.3, 1.3.1, 1.3.2, 2.1.1, 2.1.2, 2.1.3, 2.1.4, 2.1.5, 2.2.1, 2.3.1, 2.3.2, 2.3.3, UNICEF will procure contractors and suppliers with payments made based on verification of deliverables.
- In the case of Activities 2.1.2, 2.1.4, 2.2.1, 2.3.1, 2.3.2 and 2.3.3, completed by NGOs, UNICEF will make payments to NGOs based on contracts in accordance with its HACT framework.
- In the case of Activities 1.1.1, 1.1.2, 1.2.1, 1.2.2, 1.2.3, 1.3.1, 1.3.2, 2.1.1, 2.1.2, 2.1.4, 2.1.5, 2.2.1, 2.3.1 and 2.3.3, UNICEF will use cash advances or reimbursements for specific small-scale activities (e.g., travel, workshops), including to government counterparts where necessary, subject to strict controls and reconciliation.
- No GCF Proceeds will be transferred to the Final Beneficiaries.
- UNICEF, acting as EE, will manage all funds through its corporate financial systems and disburse directly to the contractors and suppliers as described above.

Legal & Contractual Structure

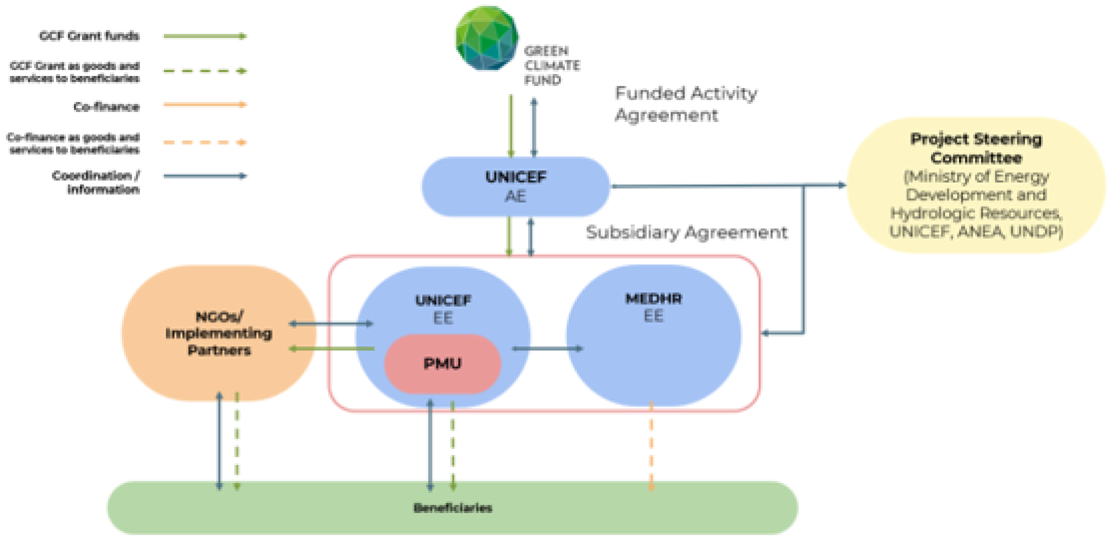

Figure 84. Implementation arrangements

Subsidiary Agreement

UNICEF, in its role as Accredited Entity, shall enter into a project agreement with the Government of the Host Country, represented by MEDHR (the "Subsidiary Agreement"). The Subsidiary Agreement shall be legally binding and shall set out the roles and responsibilities of MEDHR as the Executing Entity for the implementation of the Funded Activity, as well as the terms and conditions governing the transfer of funds from UNICEF to MEDHR. It shall reflect all applicable requirements of the FAA and AMA relevant for MEDHR as the Executing Entity for the implementation of the Funded Activity.

In addition, the Subsidiary Agreement shall formalize the co-financing to be provided by MEDHR, including its scope, timing, and reporting, in accordance with the Funded Activity Budget.

The MEDHR will serve as Executing Entity for Activities 2.1.3 and 2.3.2, as set out in the Executing Entities table referenced above, including the roles, responsibilities, and expected results described therein.

CAR government ministries, contractors and suppliers, and NGOs/CSOs will participate in project implementation and will be engaged as set out below:

- Implementation arrangements for other CAR Ministries: Other CAR ministries, as applicable, will be engaged by UNICEF in accordance with its applicable policies and procedures and in accordance with UNICEF's obligations under the FAA and AMA. These entities may support workshops, coordination, policy validation, and technical advisory functions, but will not have managerial or decision-making authority over project implementation.
- Implementation arrangements for contractors and suppliers: All contractors and suppliers, including Technical Service Providers, Hydrogeological Assessment Firms, Civil Works Contractors, and Small and Medium-sized Enterprises (SMEs), will be engaged by UNICEF in accordance with its procurement framework and in accordance with its obligations under the FAA and AMA. These entities will deliver goods, works, and services under contracts managed by UNICEF and will not have managerial or decision-making authority over project implementation. Implementation arrangements for NGOs and CSOs: All NGOs and CSOs will be engaged by UNICEF in accordance with its applicable

partnership and cash transfer procedures, including the HACT framework where applicable, and in accordance with its obligations under the FAA and AMA. These entities will implement specific activities under agreements managed by UNICEF and will not have managerial or decision-making authority over project implementation. Implementation agreements with NGOs and CSOs (each an “Implementation Agreement”) shall be legally binding, shall set out the roles and responsibilities of each NGO and CSO (as applicable), and shall reflect all relevant requirements of the FAA and AMA for the implementation of the Funded Activity as if the NGO/CSO were an Executing Entity. For the avoidance of any doubt, Implementation Agreements will not be considered as Subsidiary Agreements for the purpose of the AMA and/or FAA.

Governance (strategic oversight). A **Project Steering Committee**, co-chaired by the **Ministry of Energy Development and Hydraulic Resources and UNICEF**, provides high-level oversight and alignment with national policy. Members include **MESD (NDA)**, **DGMN (meteorology)**, **DGPC (civil protection/DRR)**, **MUPH (urban planning & housing)**, **MoH**, **MoE**, **ANEA**, the **Municipality of Bangui**, and selected partners. The PSC approves annual work plans and budgets, reviews performance and safeguards, and brokers inter-ministerial coordination.

Execution (day-to-day management). A **Project Management Unit** hosted by **UNICEF** manages planning, procurement, financial management, safeguards, monitoring and reporting; it serves as PSC secretariat. The PMU will be responsible for:

- Planning, procurement, budget execution NGO and supplier contract management, accounting and reporting
- Safeguards management: ESMF/ESMP implementation, IPP/FPIC/VLD, SEA/SH survivor-centred mechanism quarterly safeguards reporting to PSC (Annex 6; Annex 6a; Annex 7; Annex 8).
- MEL leadership: IRMF-aligned monitoring with indicator owners in government; biennial resilience and sustainability checks and data QA/QC (logframe).

Reporting lines. Implementing partners, MEDHR(EE) → **PMU** (technical/financial) → **PSC** (oversight) → **UNICEF AE** (consolidation) → **GCF** (APR/PPMS). Site-level “readiness packets” (ESMF/IPP/SEP evidence) are cleared by PMU safeguards prior to any works disbursement (Annex 6; Annex 6a; Annex 7/8)

Monitoring, supervision and learning

Indicator framework. The logframe (Section E) sets IRMF-aligned outputs/outcomes (Core 2, 3, 5, 6, 8).

Data systems. EWS/hydromet feeds (DGMN), WRM/groundwater readings (MEDHR/DGRH), Implementing Partners and contractor reports (FACE/PD) flow to the PMU MEL system. **Biennial resilience and sustainability checks** verify functionality, climate-proofing and O&M (Annex 2 – Section 8.7).

Supervision

UNICEF Project Management Unit (PMU). The PMU provides day-to-day supervision: plans site missions, reviews contractor workplans, and verifies delivery. It authorizes site mobilization only after the “readiness packet” is complete—permits, FPIC/VLD where relevant, GRM posting, ESMP measures and signed O&M commitment contracts. Before any payment, it runs disbursement checks against FAA/Operations Manual covenants and procurement milestones (Annex 10). The PMU maintains the IRMF matrix, consolidates partner data, conducts biennial resilience and sustainability checks, submits APR inputs, updates the risk register, and applies AML/CFT screening with a 72-hour SAR escalation when red flags arise (Annex 8).

Project Steering Committee (PSC). The PSC provides strategic oversight and policy alignment It approves annual workplans/budgets and material scope or schedule changes; reviews IRMF/budget performance and safeguard/GRM dashboards (including non-PII SEA/SH summaries); issues time-bound directions; and commissions special reviews when risks arise. Meeting at least twice yearly, it records decisions and action trackers, enforces conflict-of-interest rules for members linked to bidders/procured parties, and escalates issues beyond its delegation to AE management.

Technical Review Panel (TRP). Convened by the PMU, the TRP ensures competitive selection of NGO/CSO partners and key consultancy/engineering assignments (Annex 10). Using pre-published criteria, it scores capacity, methodology, cross-cutting issues and value for money. Members sign COI/confidentiality declarations. The TRP issues a ranked report; the PMU checks procedure; the PSC reviews and endorses; UNICEF procurement awards per rules/thresholds. The TRP also recommends improvements to TORs.

Assurance and quality control. Financial control for cash transfers is ensured through a multi-layered system of assurance: HACT micro-assessments for partners receiving over $100,000 annually to assess internal controls.cFACE Forms submitted quarterly for fund requests and expenditure reporting. Financial assurance: Periodic spot checks and scheduled audits.cProgrammatic assurance: Programmatic visits (field monitoring) take place to correlate information provided in reporting, including financial reporting.cFindings trigger corrective actions for the PMU, tracked by the PSC, ensuring all expenditures remain under UNICEF fiduciary control.

How roles connect. The PMU supervises and certifies readiness; the TRP secures capable partners and service providers; the PSC sets direction and commissions deep dives; and assurance adds independent fiduciary/compliance checks—ensuring direct and accountable management by UNICEF.

Institutional capacity and AE track record: **Country presence and staffing.** UNICEF has operated in CAR since **1986**, with **five field offices** and a **Bangui** country office. The PMU will be based in Bangui with field presence in **Ouham** and **Vakaga.**

Scale and relevance. The 2024 Country Programme budget is **USD 104 million**; UNICEF manages multi-year WASH/DRR portfolios in fragile settings, with recent CAR WASH programming **exceeding USD 6.5 million/year**. UNICEF’s systems (VISION ERP; HACT; PCAs/PDs; procurement systems), safeguards (ESMF/ESMP; IPP/FPIC; SEA/SH SOPs) and GAAP/SEP provide the controls required by GCF under AMA terms (Annex 6; Annex 7; Annex 8; Annex 10). UNICEF is a global lead in climate resilient WASH as evidenced in its programming guidance (the Climate Shift); advocacy for climate resilient WASH services (here) and overview of results (here).

Institutional assessments. Implementing Partners undergo **HACT macro/micro-assessment** and risk tiering; assurance plans (spot checks, audits, programmatic visits) follow risk level. Government capacity and role mapping are set in **ESMF** and

Annex 2 – Section 8.7, with targeted capacity-building (Output 1.3) sized to gaps identified in the Feasibility Study (Annex 2).

Procurement and integrity
All procurement follows **UNICEF rules** (methods/thresholds) per **Annex 10**. Contracts incorporate **ESHS**, **SEA/SH**, data-protection, anti-fraud/AML clauses (Annex 6; Annex 8; Annex 10; Annex 20;). A **Technical Review Panel** (PMU-convened) scores proposals against pre-disclosed criteria; PSC reviews and endorses ranked selections; award decisions are taken under UNICEF procurement authority levels (Annex 10).

AE–EE role differentiation

Although UNICEF serves as both **AE** and **EE**, **roles are clearly separated** operationally:

- **AE:** portfolio-level oversight, compliance and reporting to GCF;
- **EE/PMU:** implementation, procurement, financial execution, site supervision;
- **Segregation** is enforced via decision thresholds, distinct documentation trails and PSC oversight. This meets GCF expectations on avoiding conflicts of interest while leveraging efficiency.

Post-implementation arrangements and O&M
Annex 2 – Section 8.7 details post-implementation arrangements: asset registers; handover protocols; named custodians; **signed O&M commitment contracts with budget lines**; service-level standards; spare-parts/service contracts and bundled service contracts; capacity building and follow-up support; monitoring cadence for functionality. For urban drainage, O&M responsibilities sit with **MUPH/Bangui Municipality**, supported initially with equipment, training and cost-recovery arrangements (Annex 2 – Section 8.7). For institutional WASH, **MoH/MoE** assume custodianship per handover packages and school/healthcare facility O&M guidance (Annex 2 – Section 8.7). Community assets use committee/operator models with supply-chain support (Annex 2 – Section 8.7).

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Appendix C: Sample Commitement Letters

Village Committee Letter of Commitment – Water Point (GCF Programme)

Subject: Community Letter of Commitment – Proper use, user fees, preventive maintenance and prevention of borehole pollution risks (GCF Programme)

I, the undersigned, [Full name], acting as [Position] on behalf of the Village Committee of [Village name], confirm that I represent the beneficiary community of the water point (borehole) constructed/rehabilitated under the Green Climate Fund (GCF) programme implemented by UNICEF.

Through this letter, the Village Committee, on behalf of the community, commits to:

1. Use the water point properly and ensure that all users comply with the agreed rules (cleanliness, orderly use, protection of equipment, and avoidance of practices that may contaminate the source).

2. Accept and apply a standard and affordable water tariff/user fee, agreed with the water committee/associations, and ensure user contributions to cover operation, maintenance and repair costs, to guarantee service sustainability.

3. Carry out preventive maintenance tasks and routine upkeep as requested by the water point management committee (Water Committee) / operator, including community mobilisation, regular follow-up, and prompt reporting of breakdowns.
4. Implement the identified preventive measures to protect the water point and related structures in case of flood risks or other climate events (heavy rainfall, runoff, etc.), in coordination with local authorities and technical services when needed.
5. Prevent borehole pollution risks and protect the surroundings (including maintaining a protection zone, avoiding waste dumping and locating latrines or animal pens near the water point, and reporting any potential source of contamination).

Done at [Place], on [Date]
For the Village Committee of [Village]
Name: ____________________________
Title: ____________________________
Signature: ________________________

UNICEF – Programme Manager
Name: ____________________________
Signature: ________________________

Schools Operation and Maintenance Agreement – GCF Programme

Operation and Maintenance Agreement for
Double-pit Masonry Latrines & Rainwater Harvesting System (Impluvium)

This agreement is made between the Green Climate Fund (GCF) project implemented by UNICEF and the representative of the School Management Committee (SMC):

Name of representative: ________________________________
Name of school: ____
Village: ____
Sub-prefecture: ____
Prefecture: ____

Commitments:

1. Ensure regular maintenance of the double-pit masonry latrines.
2. Maintain the rainwater harvesting system (impluvium) in proper working condition
3. Establish a local hygiene committee responsible for monitoring the facilities.
4. Provide local materials and labor for minor repairs.
5. Regularly sensitize students on proper use of WASH facilities and good hygiene practices.
6. Take preventive measures to protect the school and sanitation facilities in case of flooding risks or meteorological hazards following early warning alerts.
7. Use the infrastructure exclusively for school needs.

Declaration:

I, the undersigned representative of the SMC, commit to ensuring proper operation and maintenance of the WASH infrastructures installed by UNICEF under the GCF programme.

Name: ____________________
Position: ________________
Signature: ________________ Date: ____ / ____ / 2026

UNICEF Programme Manager – Signature: ___________________________

Health Centers Operation and Maintenance Agreement – GCF Programme

Latrines & Showers, Waste Management Zone, Rainwater Harvesting System
This agreement is made between the Green Climate Fund (GCF) project implemented by UNICEF and the representative of the Health center committee.
Name of representative: ________________________________
Name of health center ____
Village: ____
Sub-prefecture: ____
Prefecture: ____

Commitments:
1) Ensure regular maintenance of latrines and showers.
2) Maintain the rainwater harvesting system in proper working condition.
3) Operate and maintain the climate-resilient waste-management zone.
4) Establish a hygiene committee for WASH and waste monitoring.
5) Provide local materials and labour for minor repairs.
6) Sensitize staff, patients and caretakers on WASH and hygiene.
7) Take preventive measures to protect the health center and sanitation facilities in case of flooding risks or meteorological hazards following early warning alerts.
8) Use all infrastructures exclusively for health-center needs.

Declaration:
I, the undersigned representative, commit to ensuring proper operation and maintenance of the WASH infrastructures installed under the GCF programme.
Name: ____________________
Position: ____________________
Signature: ____________________
Date: ____ / ____ / 2026

UNICEF Programme Manager – Signature: ___________________________