



REPUBLIC OF CHAD



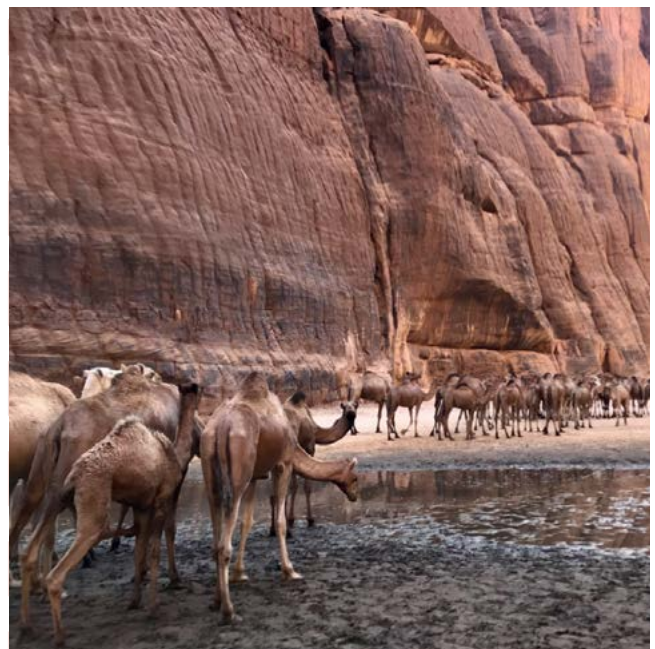
FIRST NATIONAL CLIMATE CHANGE ADAPTATION PLAN OF CHAD



FIRST NATIONAL CLIMATE CHANGE ADAPTATION PLAN OF CHAD



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LIST OF ACRONYMS

Acronym	Definition
AfDB	African Development Bank
BMZ	Federal Ministry for Economic Cooperation and Development
COVID-19	coronavirus disease
ECHO	European Community Humanitarian Office
EDF	European Development Fund
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
GDP	gross domestic product
GEF	Global Environment Facility
GIS	geographical information system
GIZ	German Agency for International Cooperation
ICAT	Initiative for Climate Action Transparency
IDB	Islamic Development Bank
IRC	International Rescue Committee
LWF	Lutheran World Federation
NAP	National Adaptation Plan
NDC	nationally determined contribution
NGO	non-governmental organization
RCP	Representative Concentration Pathway
SDGs	Sustainable Development Goals
UNDP	United Nations Development Programme
UNHCR	Office of the United Nations High Commissioner for Refugees
UNICEF	United Nations Children's Fund
WFP	World Food Programme
WMO	World Meteorological Organization

FOREWORD

Chad is a country particularly vulnerable to climate change. The impacts are significant on the large hydrographic systems, which are the Lake Chad and Niger basins, as well as on natural, agro-sylvo-pastoral, fishery and human systems. To address these challenges, the Government of Chad has ratified the United Nations Framework Convention on Climate Change and the Paris Agreement. These international frameworks guide national climate action.

Climate change adaptation is a priority for the country. Following the implementation of its National Adaptation Programme of Action, which aimed to address urgent adaptation needs, the Government embarked on the National Adaptation Plan (NAP) process in order to address short-, medium- and long-term climate risks; build capacity; integrate climate change into development planning and budgeting processes; and catalyse investments for climate change adaptation. As part of this process, Chad developed its first national climate change adaptation plan in synergy with updates to its nationally determined contribution (NDC).

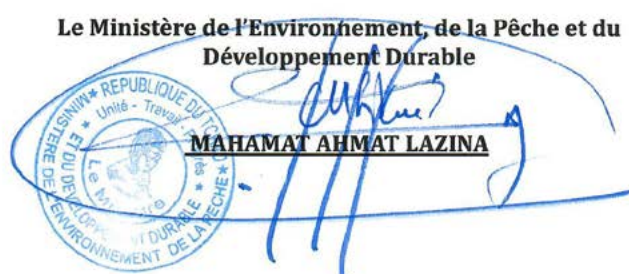
This first NAP is aligned with national priorities and is the primary instrument for adaptation planning in Chad. It is based on existing studies and information gathered through a broad national consultation. The Plan is an important milestone in the preparation of the second NAP by 2023, which will be based on updated or new climate information and will be developed as part of a project financed by the Global Environment Facility (GEF).

The Government of Chad thanks all the stakeholders who contributed to the development of the first NAP. It also thanks the United Nations Development Programme (UNDP) and, through it, the National Adaptation Plan Global Support Programme, managed by UNDP and the United Nations Environment Programme and financed by GEF and Climate Promise, for their technical and financial support.

The first NAP will be implemented in conjunction with the updated NDC for the period 2021–2026. The focus will be on developing investment portfolios for the implementation of adaptation priorities that have mitigation benefits, such as nature-based solutions. The Ministry of Environment, Fisheries and Sustainable Development will coordinate this work through the Directorate of Environmental Education and the Fight against Climate Change in consultation with all stakeholders.

The Government of Chad hopes that these efforts will be supported by technical and financial partners and will contribute significantly to strengthening the country's climate resilience.

**Le Ministère de l'Environnement, de la Pêche et du
Développement Durable**



MAHAMAT AHMAT LAZINA



1

INTRODUCTION

The National Adaptation Plan (NAP) process was established in 2010 by the United Nations Framework Convention on Climate Change as part of the Cancun Adaptation Framework. The process allows parties to the Convention to formulate and implement NAPs to identify **medium- and long-term** adaptation needs and to develop and implement strategies and programmes to address those needs. It is a continuous, progressive and iterative process that follows a national, gender-sensitive, participatory and fully transparent approach. The objectives of the NAP process as defined by the Convention are:

- to reduce vulnerability to the impacts of climate change by building adaptive capacity and resilience
- to facilitate the integration of climate change adaptation, in a coherent manner, into relevant new and existing policies, programmes and activities, in particular development planning processes and strategies, within all relevant sectors and at different levels, as appropriate (decision 5/CP.17, paragraph 1)

In Chad, the NAP process was launched in 2016 with support from the United Nations Development Programme (UNDP) via the NAP Global Support Programme¹ as well as the Global Environment Facility (GEF). It began by identifying adaptation planning needs and gaps. This has resulted in the mobilization of funding and the launch of the GEF-funded NAP Project, the overall objective of which is to integrate climate change adaptation into the planning and budgeting of climate-sensitive sectors.

The NAP process aligns with the “Vision 2030: the Chad we want”, one of the priorities of which is to improve living conditions and reduce social inequalities while preserving natural resources and adapting to climate change. The NAP can also be a tool to better operationalize the integration of climate change, and adaptation in particular, into national development plans. In fact, the 2017–2021 National Development Plan integrates adaptation into its objectives.

The NAP process provides an opportunity to undertake adaptation planning in Chad in a way that responds dynamically and coherently to the country's medium- and long-term needs, which include identifying and addressing key challenges to effective adaptation. The

process also provides an opportunity to create synergies with other processes under the Paris Agreement, the other Rio Conventions and the 2030 Agenda for Sustainable Development, thereby fostering mutually reinforcing actions for sustainable and resilient development.

The implementation of the NAP process is based on the guiding principles defined by the Convention (decision 5/CP.17), which state that action on adaptation should be: continuous, incremental, iterative and country-driven; non-prescriptive and based on country needs; gender-sensitive; and participatory and fully transparent. It should also build on existing adaptation efforts without duplicating them; strengthen coherence between adaptation and development planning; consider and build on the best available science; take into account traditional and indigenous knowledge; and be supported by a thorough monitoring and evaluation process that considers vulnerable groups, communities and ecosystems.

1.1 OBJECTIVES OF THE FIRST NATIONAL ADAPTATION PLAN OF CHAD

For Chad, this first NAP is a strategic document that presents **adaptation priorities** and **reinforces the long-term perspective and links between adaptation priorities, sustainable development needs and the National Development Plan.**

This first NAP seeks primarily to:

1. Identify key gaps and barriers to integrating adaptation into planning.
2. Identify **needs** in terms of **knowledge, capacity and institutional coordination.**
3. Update **priority sectors and interventions for adaptation at the national level.**
4. **Integrate gender considerations in the development and implementation of adaptation measures.**
5. **Provide a process for updating the NAP.**

It is important to recognize that essential activities in continuation of the NAP process, which include addressing aspects specifically related to integrating adaptation into development planning and financing in Chad, are being

¹ The NAP Global Support Programme is managed by UNDP and the United Nations Environment Programme and is funded by the Global Environment Facility.

undertaken through several projects, including the GEF-funded NAP Project. The results of these efforts will be used to update this document, for a more comprehensive version based on updated studies.

1.2 APPROACH TAKEN TO PRODUCE THIS DOCUMENT

Using the Least Developed Countries Expert Group guidelines, a literature review was conducted. The analysed and synthesized documents included several national strategies and plans, specific reports and projects on climate change in Chad, as well as global reports on several climate themes.

In addition, a participatory approach was adopted to involve all relevant actors and partners and collect additional information, particularly concerning gaps and recommendations. A workshop to launch the process was held in June 2021, followed by a technical workshop attended by approximately 60 stakeholders in July. The programme for the latter workshop is presented in annex 1.

Furthermore, three field missions were carried out in three regions of Chad: the southern, central-eastern and central-western zones. Several workshops were held

with local authorities and communities in each region of Chad to collect data on hazards, climate vulnerabilities and adaptation efforts; identify priority sectors and measures for climate change adaptation; and take stock of endogenous adaptation measures. Data from these missions were analysed and presented as a national average. The process ended with a national pre-validation workshop, organized on 28 and 29 September 2021, which allowed national and regional stakeholders to validate and complete the data used in the analyses and the priority adaptation and mitigation actions.

This first NAP of Chad was drafted with the support of the NAP Global Support Programme and the UNDP Climate Promise in collaboration with the UNDP country office in Chad. This document incorporated the results of several studies conducted under the NAP-GEF Project.

It also benefited from the contribution of other partners. The NAP Global Network provided technical guidance to better address gender issues and better structure their presentation in the document. The Sanitation and Water for All team from the United Nations Children's Fund and the Stockholm International Water Institute also provided data and recommendations specific to water, sanitation and hygiene.



2 NATIONAL CONDITIONS

The fifth largest in Africa, Chad is a landlocked country in Central Africa consisting of Saharan, Sahelian and Sudanian zones, extending 1,700 km between 7° and 24° North and 1,000 km between 13° and 24° East. It covers 1.284 million km², of which 98.1 percent is land and 1.9 percent is water from five major lakes, including Lake Chad (1,540 km²). It is bordered to the north by Libya (1,055 km), to the east by Sudan (1,360 km), to the south by the Central African Republic (1,197 km) and to the west by the countries with which it shares Lake Chad, namely Cameroon (1,094 km), Niger (1,175 km) and Nigeria (87 km).

The landscape of Chad is rather flat. The average elevation is around 543 m and increases towards the north, where the Massif d'Abo and the Tibesti Mountains are located. The latter contains the highest point in the country, Emi Koussi (3,415 m), an extinct volcano.² The elevation also increases in the east, near the Jef Jef plateau, as well as the Ennedi plateau and Ouaddaï highlands, which are separated from each other by the Mourdi depression. To the south of the Tibesti Mountains and to the west of the plateaus lie the Manga Erg to the west and the Djourab Erg to the east, as well as the Borkou plateaus and the Bodelé depression (with the country's lowest altitude of 181 m). The centre of the country is primarily composed of plains sloping gently down to Lake Chad in the west and the Salamat plain in the south. The Guera plateaus in the east reach 1,500 m. The Salamat plain is largely made up of swamps, totalling 12.405 million ha, which are included on the List of Wetlands of International Importance.

This landscape gives rise to a hydrographic network made up of three distinct basins. The first is the Chari basin, the country's largest river (at 1,200 km long), and its tributary, the Logoné (1,000 km long). Both originate in the Central African Republic. The second is the Mayo-Kébbi basin, a tributary of the Benue river (in Nigeria), which is itself the main tributary of the Niger. The third is the Batha basin, a temporary river that empties into Lake Fitri. There are also other basins that are mostly dried up, since the water only flows during exceptional rains, the largest of which is the Bahr el Gazel. This network also includes five lakes, the most significant of which is Lake Chad, both spatially and ecologically.

The country's geology is based on its four cratons, its five crystalline massifs, where the Precambrian bedrock rises (the

granitoid rock of Ouaddaï and Guéra and the metamorphic rock of Mayo-Kebbi and Tibesti) at the edge of the sedimentary basins to which it belongs (the southern edge of the Koufra basin and the eastern portion of the Lake Chad basin). The Lake Chad basin, in particular, contains several trenches with up to 10,000 m of accumulated sediments containing oil and other deposits.

In addition to the large oil reserves, which were not exploited until the 1990s, the country has considerable mineral resources that have not yet been exploited (e.g. uranium, gold, gemstones and diamonds, copper, tin, tungsten, graphite, marble, limestone, gypsum and natron).

The main types of vegetation, from north to south, are:

- year-round grasslands and shrublands
- year-round woodlands, shrublands and grasslands
- tree and shrub savannahs with year-round and perennial grasslands
- wooded savannahs and open forests dominating a perennial grassy layer

The fauna is very rich: the fauna of the oases, the fauna of the Saharan massifs, crocodiles and endemic species of fish in the Archéï guelta, freshwater fish and birds, hippopotamuses in Lake Chad, manatees in Lake Léré (Mayo-Kebbi) and groups of elephants in the dry season, giraffes and other large mammals in Zakouma National Park. Elephants are also present near Lake Fitri.

Because it is landlocked, Chad shares its biomes with the countries that border it:

- the desert biomes of the Sahara with Libya, Niger and Sudan
- the Sahelian biomes with Niger, Nigeria and Sudan
- the dry savannahs with Cameroon, the Central African Republic, Nigeria and Sudan
- the wet savannahs with Cameroon and the Central African Republic

Similarly, Lake Fitri, which has its own ecosystem (however fragile), lies mainly in Chad as well as Cameroon, Niger and Nigeria.

² Several locations in Tibesti still have active volcanos, such as Toussidé (3,265m) and Tarsoo Voon.
https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKEwifl9PfiOjoAhWcAGMBHawMDSAQFnoECC4QAQ&url=https%3A%2F%2Feuropa.eu%2Fcapacity4dev%2Ffile%2F32971%2Fdownload%3Ftoken%3DO8zCSZTW&usg=AOvWaw1RyibZjw4arMel1vbkf_Aj

2.1 THE ECONOMIC PROFILE

Despite considerable natural resources and significant oil production since 2003, Chad remains among the poorest and least developed countries in the world; its Human Development Index of just 0.398 ranks it 187th out of 189 countries.³

According to the Ibrahim Index of African Governance, Chad ranked 33.9 in 2019, with an improvement of 3.7 points compared to 2010, ranking it forty seventh out of 54 countries.⁴

Although it has become highly dependent on oil since 2003, the economy of Chad also continues to depend on the use of its natural resources, which are dependent on climate variability. Furthermore, “the country is excessively vulnerable to degradation of its natural capital and adverse climatic conditions that it must regularly deal with.”⁵ Soil and vegetation cover degradation, the progressive drying up of Lake Chad and prevailing food insecurity are the most relevant indicators.

By providing new financial resources for the country's development, the exploitation of oil since 2003 has profoundly changed the profile and prospects of the country's economy. As a result, the country experienced a period of rapid growth until 2014. It contributed an average of 4.5 percent of gross domestic product (GDP) from 1990 to 2003, which increased to 9.4 percent between 2004 and 2012 and then reached almost 27 percent in 2014, providing two thirds of budget revenues and a growth rate of 6.2 percent. Even after two years marked by a deep recession (with a growth rate of -5.6 percent in 2016 and -2.4 percent in 2017) owing to a fall in oil prices, an increase in oil and agricultural production allowed growth to recover to 2.4 percent in 2018 and 3.2 percent in 2019. This recovery has also been achieved as a result of consolidating public finances under a programme with the International Monetary Fund in 2018, which improved the budget balance to achieve a positive balance once again in 2018 and 2019 and reduced public debt from its record level of 54.8 percent of GDP reached in 2016 to 44.3 percent in 2019.⁶

Of course, as elsewhere in the world, the impact of the coronavirus disease (COVID-19) pandemic is likely to plunge the country back into a second recession in 2020 and 2021.⁷

The structure of this economy, which is not very diversified, is strongly dominated by the primary sector, which accounted for 61.2 percent of GDP in 2011, of which 39.3 percent came from oil, 10.5 percent from agriculture, 9 percent from livestock and 2.2 percent from mining. As for the secondary sector, the activities of which are becoming more diversified,⁸ its contribution to GDP was limited to 7.7 percent in 2011. The tertiary sector contributed 20.7 percent of GDP in 2011, of which 13 percent came from commercial activities and 10.7 percent from public administration.⁹ The agricultural sector, which is limited to food crops (particularly grains) and cash crops (notably cotton, sugar cane and gum arabic), is extremely vulnerable to climate-related hazards and remains dependent on security conditions.

The private sector is made up of only small and medium-sized enterprises operating mostly in the informal economy. The business environment in Chad remains unattractive, owing primarily to security challenges.

Similarly, the distribution of the workforce by sector remains largely dominated by the agricultural sector, which provides over 75.4 percent of jobs, while the secondary sector provides only 2.1 percent and the tertiary sector 21.6 percent. With regard to employment, it should be noted that the country has a significant shortage of human capital and skills in almost all key sectors of the economy and in many fields, so Chad relies on foreign labour, particularly from Cameroon.

In addition, Chad ranks last in the World Bank Human Capital Index and is ranked 182nd of 190 countries, with a score of 36.9, by the 2020 Doing Business Report.

3 Human Development Report 2019. UNDP and PopulationData.net. http://hdr.undp.org/sites/default/files/hdr_2019_fr_o.pdf

4 2020 Ibrahim Index of African Governance Index Report. Mo Ibrahim Foundation. <https://mo.ibrahim.foundation/sites/default/files/2020-11/2020-index-report.pdf>

5 Republic of Chad: Country Strategy Paper (2015–2020). African Development Bank. 2015. <https://www.afdb.org/fr/documents/document/chad-country-strategy-paper-2015-2020-addendum-90054>

6 <https://www.worldbank.org/en/country/chad/overview#1>

7 The projected contraction of the economy would reduce the pre-pandemic growth rate from 4.8 percent to 0.2 percent.

8 Manufacturing industries based on beer and soft drink production, sugar production, cotton ginning and cement factories.

9 Percentages provided are taken from the National Institute of Statistics for Economic and Demographic Studies.

2.2 THE SOCIAL PROFILE

According to the second general population and housing census in 2009, the population of Chad was 11.1 million, with a population density of 8.6 inhabitants per square kilometre. It has likely now reached 16,844,500 inhabitants,¹⁰ including a significant number of refugees. The average annual growth rate is 3.3 percent, the average mortality rate is 1.4 percent and infant mortality rate is 8.7 percent.¹¹ According to data from the National Institute of Statistics for Economic and Demographic Studies, the population is predominantly rural (76.7 percent) and young. The average age is 17 years, and life expectancy is 52.6 years for men and 55.4 years for women.

Due to its size and regional climatic disparities, the country is sparsely populated. The average density was 8.6 inhabitants/km² in 2009 and is likely around 13.1 inhabitants/km² in 2021 (according to the Institute); however, the distribution is very uneven since densities vary considerably, from 0.1 inhabitants/km² in the north to 52.4 inhabitants/km² in the south. The desert is sporadically occupied by the nomadic Teda and Daza peoples, who represent only 3.4 percent of the total population. The north is very sparsely occupied by the Arabs and Islamic groups (i.e. the Kotoko, Ouaddaï and Kanembu peoples) who are well dispersed. The fertile south is almost overpopulated, occupied by the Sudanese (the Sara, Masa, Mundang and Toupour peoples).¹² Half of the population lives in the southernmost fifth of the country, and only 27 percent of Chadians live in cities.

The population is multireligious¹³ and very polyglottal; over one hundred languages and dialects are spoken in the country, while French and Arabic are the only official languages.

As for the socio-economic characteristics of the population, the unemployment rate is 5.8 percent; the unemployment rate of young graduates, which is very high, increased from 42 percent in 2015 to 60 percent in 2017 as a result of the economic recession. The poverty index decreased from 55 percent in 2003 to 42 percent in 2011 and then rose slightly to 42.3 percent in 2018. The poverty severity index is 5.2

percent. The literacy rate among those aged 15 years and older is 41.5 percent, with a net primary school enrolment rate of 46 percent. Labour force participation is 60 percent for those aged 15 years and older, and the proportion of salaried workers is only 7.9 percent. The percentage of households with access to electricity is 8 percent. The percentage of households with access to drinking water is 62.7 percent; in rural areas, this percentage rose from 21 percent in 2000 to 52 percent in 2014.¹⁴ The percentage of households using gas as their main cooking fuel is 6.1 percent. Lastly, the percentage of people with access to sanitation, including latrines, is 33.5 percent.¹⁵

At the national level, it is important to note the very low level of infrastructure and basic amenities (e.g. roads, electricity, drinking water and health and education facilities), as well as food and nutrition insecurity, which is one of the most recurrent problems. In fact, nearly 3.4 million people suffered from food insecurity in 2016 (according to the Harmonized Framework). According to the Global Hunger Index, the country ranks among those in an “alarming” situation with an index of 46.4 in 2015, placing the country in second-to-last place. The most affected populations are in the country’s Sahelian strip and in areas hosting refugees, returnees and internally displaced persons. In addition, social protection is considered non-existent by nearly 90 percent of experts, given that over 80 percent of the population in rural areas is engaged in agricultural and livestock work and the majority of jobs in urban areas are in the informal sector, where no social protection system exists.

This socio-economic context has been aggravated by a national and subregional context marked by security threats linked to events in the Central African Republic, Libya, Nigeria and Sudan, among other areas, which have strong budgetary implications and hinder the continued promotion of social sectors and productive investments.

¹⁰ United Nations Department of Economic and Social Affairs population figures as of 23 March 2021. <https://countrymeters.info/fr/Chad>

¹¹ Geography of the World, Chad. According to the World Bank, the infant mortality rate, which it estimates to be in the same range (i.e. 8.6 percent), is one of the highest in the world and is exacerbated by the high number of early pregnancies.

¹² Sara 28 percent, Arabs 12 percent, Mayo-Kebbi 11 percent, Kanem-Bornou 9 percent, Ouaddaï 9 percent, Hadjarai 7 percent, Tetjile 6 percent, Gorane 6 percent, Fitri-Batha 5 percent, other 7 percent (World Bank).

¹³ Muslims 53.1 percent, Catholics 20.1 percent, Protestants 14.2 percent, animists 7.3 percent, atheists 3.1 percent, other 2.2 percent.

¹⁴ United Nations Development Assistance Framework (2017–2021) <https://chad.un.org/fr/34340-plan-cadre-des-nations-unies-dassistance-au-developpement-undaf-2017-2021>

¹⁵ ECOSIT (survey on household living conditions and poverty in Chad), 2018, in the National Institute of Statistics for Economic and Demographic Studies. <https://www.inseed.td/index.php/blog-with-right-sidebar/ecosit/110-ecosit-4>

2.3 CLIMATE ZONES AND THE CLIMATE PROFILE

According to the Köppen-Greiger classification, the climate in Chad is divided from north to south into an arid desert zone, an arid Sahelian zone and a tropical savannah zone. The arid desert zone, also known as the Saharan zone, covers 63 percent of the national territory.

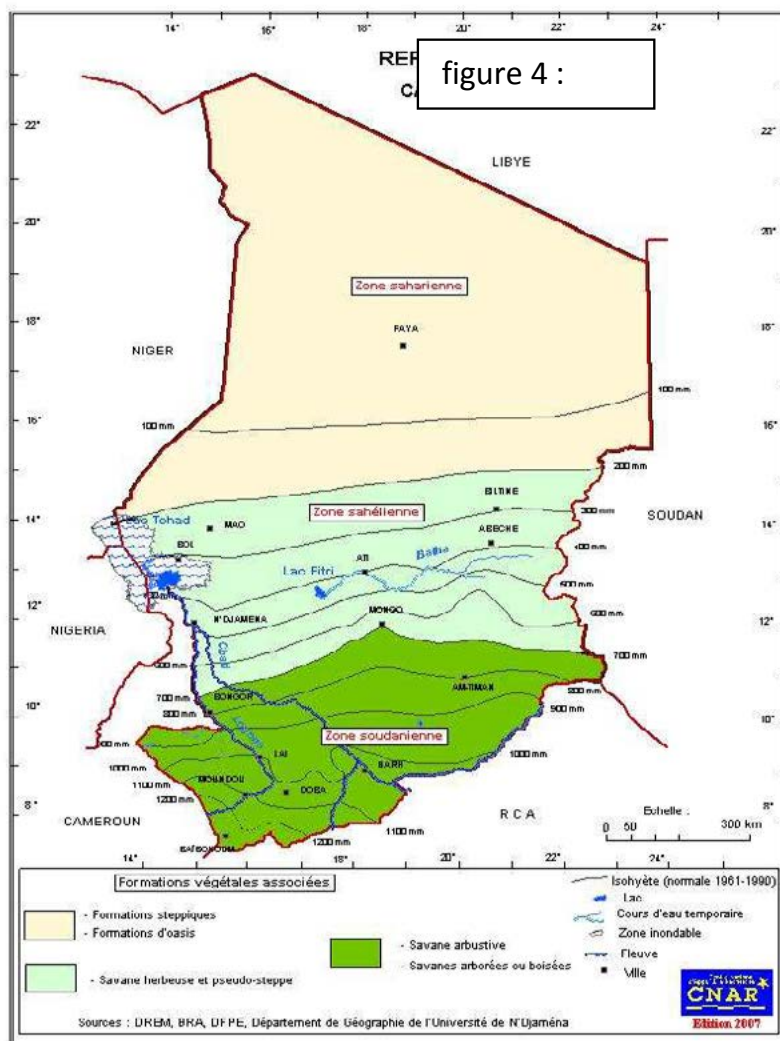
These zones correspond to the bioclimatic zones shown on the map below, namely the Saharan zone, the Sahelian zone and the Sudanian zone. The map also shows the isohyets, which appear more or less parallel to the lines of latitude and mark the boundaries between these zones. As shown on the map, rainfall increases from a few millimetres in the extreme north to over 1,200 millimetres in the extreme south, and the rainy season lasts from two months in the north (almost zero in the extreme north)

to over six months in the extreme south (May–October). As for the temperature in Chad, there is a relatively cold period from December to February (11°C to 22°C) and a hot period from March to June (39°C to 45°C), with a broader temperature range in the Sahelian and Saharan zones than in the Sudanian zone.

More precisely, Chadian climate is divided into six bioclimatic regions:¹⁶ the Saharan region (< 100 mm), the Sahara-Sahelian region (100 to 200 mm), the Sahelian region (200 to 600 mm), the Sudano-Sahel region (600 to 800 mm), the Sudanian region (800 to 1200 mm) and the sub-Guinean region (>1200 mm).

FIGURE 1
BIOCLIMATIC ZONES OF CHAD

(Source : Second National Communication on Climate Change, Chad. Ministry of Urban and Rural Hydraulics, 2012).



16 Direction of Water and Meteorological Research. Meteorological service. 2009.



3

GOVERNANCE, REGULATORY FRAMEWORKS AND RELEVANT POLICIES AND PLANS

The State and stakeholders (e.g. political groups, civil society and the private sector) face significant constraints in promoting good governance, given the challenges of extreme poverty, limited institutional capacity, corruption and real or latent violence.¹⁷ Since Chad entered the oil era in October 2003, a number of concerns have been raised; only good governance will place the country in a position to respond adequately.

At the regional level, the country's geographical position at the juncture between East and Central Africa has led to a proliferation of regional coordination centres.

3.1 GENERAL GOVERNANCE MECHANISMS

With the beginning of the Fourth Republic, a new Constitution was promulgated on 4 May 2018. Under this Constitution, Chad has opted for a highly decentralized unitary State.

The judiciary is independent of the executive and legislative branches (article 146 of the Constitution). There is a single jurisdiction, of which the Supreme Court is the highest court (article 147 of the Constitution). Within the Supreme Court, there is a Constitutional Chamber (which is a non-permanent chamber) to try the President, members of the Government and their accomplices in cases of high treason. There is also a High Authority for Media and Audiovisual Communication.

In accordance with its commitment to promote and prioritize women's rights, Chad has continued the work undertaken since the ratification of the Convention on the Elimination of All Forms of Discrimination against Women. Since then, several laws, programmes and strategies have been adopted to promote and protect women's rights. These include the Constitution of 4 May 2018; Ordinance No. 006/PR/2015 on the prohibition of child marriage, which was ratified by Law No. 029/PR/2015 of 21 July; and Law No. 022/PR/2018 of 5 November 2018, which instituted parity in nominative and elective offices in Chad, among others.

In Chad, the relationship between deconcentration and decentralization is established by the Constitution, which establishes the unity and indivisibility of

republican power in the State and also organizes the territory into decentralized territorial units. The new decentralization arrangements are a sharp contrast to the extensive centralization that has been in place since independence in 1960. This decentralization, enshrined in the Constitution, was adopted as the best alternative to the federal solution while preserving the unitary form of the country. Currently, the Government is taking a progressive approach to drafting a legislative and regulatory framework and to establishing decentralized structures. Under the terms of Ordinance No. 001 issued by the President on 11 February 2019, Chad has 112 departments and 405 municipalities distributed among 23 regions. The administrative positions, which

FIGURE 2
ADMINISTRATIVE MAP OF CHAD

(source : Master Plan for the Energy Sector of Chad).

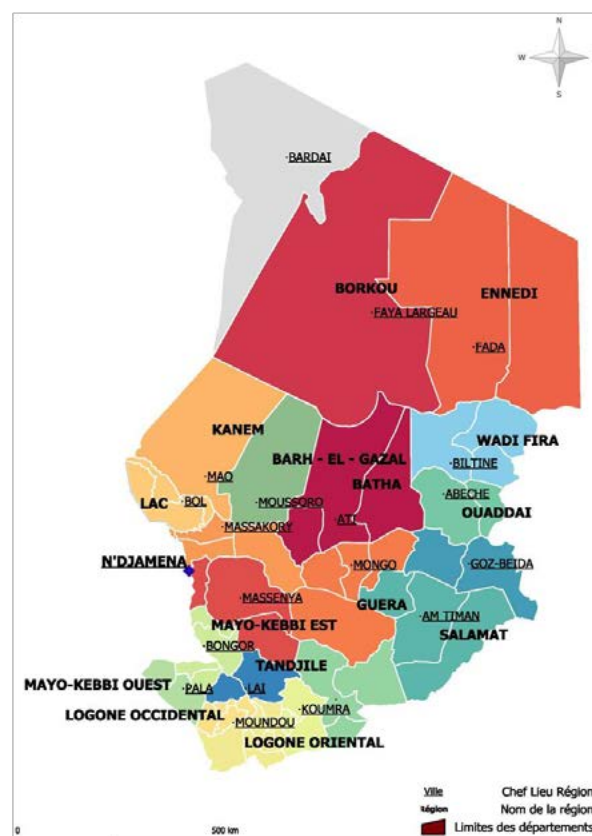


Figure 2-1 : Carte administrative

17 African Development Bank, African Development Fund, UNDP. 2004: Chad Country Governance Profile Report. <https://www.afdb.org/en/documents/document/2004-chad-country-governance-profile-13261>

are deconcentrated intermediary positions, have been abolished. As for rural communities, they will be created based on surveys and studies conducted in the field in order to make them more viable and limit jurisdictional conflicts with traditional and customary authorities. The Chadian administration remains understaffed owing to the size of some administrative districts, inadequate structures and a lack of competent staff and work resources. It should be noted that in the territorial administration, instability in leadership roles and the absence of a master plan further hinder efforts to decentralize the State.

The current decentralization process, i.e. the transfer of power to local communities, provides civil society with new opportunities as well as significant challenges. Deconcentration and decentralization require new partnerships to be established among the different administrative levels as well as among the State, local authorities, the people, civil society organizations, the private sector and development partners. Nevertheless, some local development initiatives have been undertaken by civil society organizations, even in the absence of an appropriate legal and institutional framework (e.g. the absence of laws on decentralization and a master plan). These initiatives represent achievements in the transition to a decentralized cooperation approach. They include the village water programme and the microproject programme supported by development partners.

3.2 REGULATORY FRAMEWORK CONCERNING ADAPTATION

The framework documents for climate change in Chad include the Constitution, which contains clear references to environmental protection (articles 47 and 52).

Law No. 014/PR/98 defines the general principles of environmental protection. It includes 107 articles divided into 8 chapters. It establishes the National High-level Committee for the Environment (chapter II) and provides for environmental management instruments such as a special environment fund. The law also addresses environmental education and the protection of human settlements (chapter III).

In 1992, Chad signed the United Nations Framework Convention on Climate Change and ratified it on 30 April 1993. Chad is a signatory to the Kyoto Protocol to the Convention and the Paris Agreement. It is also a signatory to the other two Rio Conventions: the Convention on Biological Diversity and the United Nations Convention to Combat Desertification in Those Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa.

Chad does not have a framework law on climate change or regulatory tools (decree or other) specific to adaptation or institutional coordination, with the exception of Decree No. 1561/PR/MEEP/2018 of 10 September 2018 on the creation, remit, composition and operation of the National Designated Authority of the Green Climate Fund in Chad.

3.3 ADAPTATION POLICIES, PLANS AND PROGRAMMES

In accordance with its commitments under the Framework Convention on Climate Change, Chad has developed programmatic documents to combat climate change:

- (i) The **first National Communication** on Climate Change in 2001 and the **Second National Communication** in 2013. The third National Communication was submitted to the Convention Secretariat in September 2021 but was being formalized at the time of this document's submission.
- (ii) The **National Adaptation Programme of Action** submitted in 2010.
- (iii) The **nationally determined contribution (NDC)** submitted to the Convention Secretariat in 2015.

In addition, in 2017, Chad adopted two important strategies: the National Environmental Policy and the National Climate Change Strategy.

The objective of the **National Environmental Policy** is to contribute to sustainable development through the rational management of natural resources by following specific objectives: i) effectively combat all factors of environmental degradation (e.g. climate change, desertification and all forms of ecological pollution and natural disasters), ii) promote the conservation and rational use of national biological heritage and iii) guarantee access for all to natural resources, including land, genetic resources and related knowledge.

The **National Climate Change Strategy** aims to build a more climate-resilient economy by 2030 and is part of a development pathway that emits less greenhouse gas. The Strategy's overall objective is to guide and bring together political, institutional, technical, scientific and financial initiatives to address climate change. It identifies five strategic pillars and several priority actions, including:

- Pillar 1: Strengthen the resilience of agro-sylvo-pastoral, fishery and urban systems
- Pillar 2: Promote climate change mitigation actions

- Pillar 3: Prevent and manage extreme climate phenomena and risks
- Pillar 4: Build the capacity of actors and institutions to combat climate change
- Pillar 5: Strengthen the instruments and capacities to mobilize climate financing

Chad has adopted the following strategies related to the other two Rio Conventions (the Convention on Biological Diversity and the Convention to Combat Desertification), all of which have components relevant to adaptation, particularly concerning nature-based solutions:

- The **National Strategy and Action Plan to Implement the Great Green Wall Initiative in Chad (2012–2017)**, the general objective of which is to contribute to combating the advancing desert by focusing on degraded areas within the Great Green Wall in order to combat poverty while ensuring the sustainable management of natural resources. More specifically, in the short and medium term, this initiative aims to: (i) conserve, restore and enhance biodiversity and soils; (ii) diversify farming systems; (iii) satisfy domestic needs and increase revenue by promoting income-generating activities; and (iv) improve and introduce basic social infrastructure. In the long term, it aims to: (i) improve carbon sequestration capacities in vegetation and soils, (ii) reverse migration flows to restored areas and (iii) improve living conditions for local communities.
- The **National Strategy and Action Plan on Biodiversity** (second edition, 2016), the overall objective of which is to preserve the numerous functions of biological diversity and its elements for their sustainable use in order to improve living conditions for households. In particular, this plan aims to strengthen the conservation of threatened and/or significant ecosystems and species, promote the sustainable use of biological resources of known or potential value and ensure fair and equitable benefit-sharing from the use of biological resources. In terms of actions relevant to adaptation and improving the resilience of livelihoods to threats and crises affecting agriculture, the Strategy provides for the fight against destructive natural factors (e.g. flooding and bush fires), disease vectors, the poisoning of ponds, silting and invasive plants.
- The **National Programme of Action to Combat Desertification**, adopted in 2000, the central objective of which is to contribute to combating desertification and mitigating the effects of drought for sustained and sustainable production. Specifically, it aims to protect, restore and develop productive potential; protect and safeguard critical and threatened ecosystems; strengthen national capacities to combat desertification; and manage risks.

Climate change resilience is a significant element of several important documents for development planning in Chad, including:

- **Vision 2030: the Chad we want:** In 2016, Chad embarked on a process of developing a forward-looking vision, the objective of which is to lay the foundation for the country's emergence by 2030. Pillar 4 of the Vision is aligned with improving the quality of life for Chadians and seeks to improve living conditions and reduce social inequalities while preserving natural resources and adapting to climate change. This Pillar is broken down into two subpillars. The first is a healthy environment in which natural resources are preserved. This includes updating and implementing the National Land-use Plan, facilitating the population's access to new and renewable energy sources, implementing a participatory and inclusive policy to combat climate change, controlling and managing natural resources, safeguarding the Lake Chad basin and implementing a prevention and management system for risks, natural disasters and other humanitarian crises. The second is a framework conducive to the fulfilment and well-being of the population. This includes controlling population growth to reverse the current trend; improving the quality, equitable access and supply of basic social services; developing and implementing a gender policy; and implementing and monitoring national strategies for social protection and universal health care.

The Vision 2030 is broken down into three 5-year development plans:

- o the National Development Plan for 2017–2021 (see below)
 - o the National Development Plan for 2022–2026, the preparation for which began in 2021
 - o the National Development Plan for 2027–2030, which will be developed at the end of the previous plan
- The **National Development Plan (2017–2021)** is a multisectoral national plan that stems from the Vision 2030. It is a model for integrating climate change into development policy. It is also linked to the Sustainable Development Goals (SDGs) related to the environment through the implementation of climate change adaptation and mitigation policies. The vision of the document is: "Chad, a peaceful nation, unified in its cultural diversity, resilient through its transformed economy, and offering a pleasant living environment for all."

- The overall objective of Pillar 3 of the Plan is to ***diversify sources of economic growth and boost sectors that generate growth and create decent jobs***. According to the Plan, the economy will be diversified based on the country's comparative advantages, particularly through the development of agriculture, livestock, fishing and mining. It is important to note that most of these sectors are sensitive to climate change and that the targeted structural transformation of the national economy to meet development objectives such as food sovereignty should necessarily include resilience measures, especially for the promising agro-sylvo-pastoral sectors identified in the diagnostic study on trade integration in Chad (i.e. leather, gum arabic, sesame, onions, garlic, wheat, sugar cane, rice, spirulina, textiles, natron, dates, peanuts and shea).

Pillar 4 of the Plan is to create ***a living environment conducive to fulfilment for the Chadian population, while ensuring the preservation of natural resources and adapting to climate change***. For sound natural resource management, the plan proposes the following actions:

- (1) ensure the sustainable management of natural resources and implement climate change adaptation policies
- (2) implement the policy to combat climate change and preserve biodiversity
- (3) implement climate-resilient agricultural practices
- (4) implement a mechanism to prevent and manage natural risks and disasters
- (5) create, restore and safeguard wetland ecosystems and protected areas
- (6) ensure the safeguarding of Lake Chad
- (7) facilitate the population's access to mixed energy sources (new and renewable)

The steering framework of the National Development Plan is structured at both the central and decentralized levels. At the central level, the main bodies are the High-level Interministerial Steering Committee, the highest body under the framework, and the Technical Steering Committee, under whose authority several sub-bodies are placed (e.g. State/Partnership Committee and technical ministries). At the decentralized level, the framework includes, in hierarchical order, the Regional Action and Monitoring Committees, the Departmental Action and Monitoring Committees and the Local Action and Monitoring Committees.

- The overall objective of the **National Rural Sector Investment Plan (2016–2022)** is to make the rural sector an important source of economic growth, ensuring food and nutritional security for the

population in a context of sustainable development. In particular, it aims to:

- o promote the sustainable development of the rural world by improving living conditions for rural producers
- o encourage the rational management of natural resources and the judicious adaptation of local economies to climate-related hazards
- o develop rural infrastructure for the optimal use of land and water resources and to improve access to markets, materials, equipment and financing
- o develop the agro-sylvo-pastoral, fishery and wildlife sectors in a sustainable manner in order to add value to Chadian products and make them more competitive
- o improve the food and nutritional security of rural populations in a sustainable manner, better integrate youth and women into production systems and strengthen the resilience of rural households
- o create the conditions for rural sector development by improving governance and strengthening research, training, expansion and effective participation for all stakeholders

In addition to the aforementioned national strategies and plans, table 1 lists a number of sectoral strategies and plans relevant to adaptation, particularly as entry points for the NAP process.

3.4 RELEVANT PROGRAMMES AND PROJECTS

At the national level, a significant number of initiatives and projects to support adaptation have been carried out in recent years, particularly within the framework of the National Adaptation Programme of Action adopted in 2009, with funding from several technical partners. Chad has also participated in several regional initiatives and projects on adaptation. The portfolio of adaptation projects and initiatives is growing in Chad. In 2019, Chad established a Country Programme with the Green Climate Fund that aims to guide, frame and prioritize the Fund's adaptation investments in the country.

A comprehensive list of programmes and projects funded by major donors in the areas of rural development, resilience and climate change was created by the study Climate Change Adaptation and Resilience-building in Chad, conducted by the Institute of Research and Application of Development Methods for the BRACED Programme (Building Resilience and Adaptation to Climate Extremes and Disasters). It is presented in annex 2. It should be noted

TABLE 1

PRIMARY SECTORAL STRATEGIES IN CHAD

Sector	Sector Development Strategies And Plans
Agriculture and livestock	<ul style="list-style-type: none"> - Agriculture Master Plan (2006–2015) - Five-year Plan for the Development of Agriculture in Chad, 2013–2018 - National Rural Sector Investment Plan, 2014–2020 - National Food Security Programme (2011–2015) - National Livestock Development Programme (2018–2021) - National Locust Risk Management Framework (2014)
Environment and forestry	<ul style="list-style-type: none"> - National Strategy and Action Plan to Implement the Great Green Wall Initiative in Chad (2012–2017) - National Strategy and Action Plan on Biodiversity (second edition, 2016) - Sixth National Report on Biodiversity in Chad - The National Programme of Action to Combat Desertification - The National Environmental Policy - Country Resilience Priorities (food security) (2015–2035) - National Strategy for Non-timber Forest Products - National Bush Fire Management Strategy in Chad (2011)
Water and sanitation	<ul style="list-style-type: none"> - National Sanitation Policy and Strategy (2017) - National Strategy for Water, Sanitation and Hygiene in Schools (2018–2030) - Water and Sanitation Master Plan - National Programme for Drinking Water Supply and Sanitation in Rural Areas
Renewable energy	<ul style="list-style-type: none"> - Nationally Appropriate Mitigation Measures (2010) - Master Plan for the Energy Sector of Chad (2012) - Master Plan for the Development of Renewable Energy in Chad (2018) - Electricity Access Emergency Plan (2021–2023)
Gender and social protection	<ul style="list-style-type: none"> - National Gender Policy (2011) - National Gender Policy Action Plan (2019–2023) - National Strategy to Combat Gender-based Violence - National Youth Policy (2019) - National Social Protection Strategy (2016–2020)
Education	<ul style="list-style-type: none"> - National Strategy for Environmental Education (2015–2020) - Refugee Education Strategy (2030)
Health and nutrition	<ul style="list-style-type: none"> - National Nutrition and Food Policy (2014–2025) - Intersectoral Nutrition and Food Action Plan (2017–2021) - National Food, Nutrition and School Health Policy (2014–2025) - Country Resilience Plan: Global Alliance for Resilience
Aquaculture and fishery resources	<ul style="list-style-type: none"> - Plan to Development Aquaculture in Chad (2010–2025) - Master Plan for the Fishery and Fish Farming Subsector
Risk management, infrastructure and land-use planning	<ul style="list-style-type: none"> - National Action Plan for Capacity-building for Disaster Risk Reduction, Preparedness and Emergency Response (2015–2021) - Action Plan to Implement the National Climate Services Framework (2016–2020) - National Disaster Risk Reduction Strategy and Action Plan of Chad - National Disaster Risk Management Strategy and Action Plan of Chad (2020) - National Policy on Land Use, Urban Planning and Housing (2017) - National Land-use Plan (2019)

that a large part of the international funding received by Chad is dedicated to emergency efforts, primarily related to food security.

The following list summarizes the key initiatives most relevant to adaptation planning:

- The Project **“Adapting to the effects of climate change and developing renewable energies”** (2013–2018), with a budget of 8 million euros, financed by the European Union through the Global Climate Change Alliance. It contains two main pillars:
 - Pillar 1: Improve climate governance by integrating climate change into sectoral policies.
 - The Alliance Project has created a computerized system for the Directorate of Environmental Education and the Fight against Climate Change to monitor adaptation projects at the national level, particularly projects that fall within the priorities of the National Programme of Action.
 - Technical and financial support helped to integrate climate change into the country's 2017–2021 National Development Plan.
 - The Alliance in Chad also supported the development of the National Climate Change Strategy and its adoption by the Council of Ministers in 2018.
 - Pillar 2: Develop pilot projects that encourage climate change adaptation in the agricultural, livestock and natural resource management sectors. It is providing over 4 million euros in financing to four pilot projects taking innovative approaches to adaptation:
 - o The Project to support sustainable and diversified agricultural production adapted to climate change and variability in order to strengthen household resilience by introducing innovative agricultural techniques in the Lac Region (the non-governmental organization (NGO) SOS SAHEL International, Chad).
 - o The Soil Fertility Management Project and support for climate-resilient agriculture in the Mandoul Region (NGO RAPS): Mandoul Action Network of Sharing and Solidarity [Réseau d'Action de Partages et de Solidarité du Mandoul]).
 - o The Project to improve the concerted management of pastoral resources in the Guéra/Salamat plain for integrated and sustainable conservation in the peripheral zone of the Zakouma National Park (NGO ALISEI, Italy).
 - o The Project to improve information, education

and communication among rural and peri-urban populations on climate change adaptation (the International Union for Conservation of Nature, Belgium).

- The second phase of the Alliance + Chad Project is entitled **“Strengthening climate governance and resilience in Chad”**. It is worth 4 million euros and began in May 2020. It aims to achieve the SDGs, in particular Goal 13 on climate action, and to help the country to meet its commitments under the Paris Agreement. The Project's overall objective is to increase resilience to the challenges posed by climate change. Its specific objectives are to ensure that:
 - o Public institutions in charge of climate change and the NDC are more effective in coordinating, implementing and monitoring climate change adaptation and mitigation policies, strategies and plans.
 - o Climate-smart systems of management, financing and agricultural practices are tested at the local/regional level.
- **The National Adaptation Plan** Project, with funding of US\$5.7 million from GEF (the Least Developed Countries Fund), aims to integrate climate change adaptation into medium- and long-term planning and budgeting for climate-sensitive sectors, in line with national and global policies (including Goal 5 on gender equality, Goal 12 on responsible consumption and production, Goal 13 on climate action and Goal 15 on life on land), the United Nations Development Assistance Framework (2017–2021) and the Strategic Plan (2018–2021). By creating climate and socio-economic information systems and building capacity for stakeholders, the Project will strengthen the country's forecasting, preparedness and response efforts while improving the effectiveness of existing adaptation efforts.
- **The Project to improve the resilience of agricultural systems in Chad** was implemented in early 2015 for a period of seven years. It is worth \$36.2 million and co-financed by the International Fund for Agricultural Development, GEF, the Adaptation for Smallholder Agriculture Programme and the Chadian Government.

At the regional level, initiatives include:

- the Lake Chad Basin Sustainable Development Programme (PRODEBALT), financed by the African Development Bank
- the Project to build resilience against food and nutritional insecurity in the Sahel (P2RS), funded by the

- African Development Fund for \$15 million
- the regional Project “Adapting to climate change in the Lake Chad basin”, a German cooperative effort between the Ministry of Economic Cooperation and Development and the German Agency for International Cooperation, covering the period 2013–2018
 - the project “Preservation of Lake Chad: contribution to the Lake Development Strategy” (GEF and the African Development Bank)
 - the Pan-African Agency for the Great Green Wall
 - the Programme for integrated transboundary basin management in Africa, the case of Lake Chad (European Union)
 - the regional Programme to building resilience in the Sahel (\$26 million, the African Development Bank)
 - The regional Programme for sustainable land management and climate change adaptation in the Sahel and West Africa of the Permanent Inter-State Committee on Drought Control in the Sahel (PRGDT) (2011–2016).¹⁸ Funding amounts to 13.25 million euros from the European Union, the French Global Environment Facility, the International Development Research Centre of Canada and the Permanent Inter-State Committee on Drought Control in the Sahel (2011–2016).
 - The eleventh European Development Fund for the period 2014–2020, with a budget of 297 million euros for “food security, nutrition and rural development” and 53 million euros for “the sustainable management of natural resources”.
 - Various possible sources of funding, including GEF, under consideration

¹⁸ See <http://portails.cilss.bf/prgdt/>.



4

NATIONAL ADAPTATION PLANNING

4.1 INSTITUTIONAL ARRANGEMENTS FOR THE NATIONAL ADAPTATION PLAN PROCESS

Despite its willingness to plan and implement programmes and projects on adaptation and climate change, Chad does not yet have sufficient coordination and institutional capacity.

The Ministry of Environment has been responsible for coordinating and leading government action in this regard since 2014. In 2018, it created a **Directorate of Environmental Education and the Fight against Climate Change**.¹⁹ This Directorate, in charge of executing the Government's climate change policy, is responsible for implementing the strategies, action plans and programmes to mitigate and adapt to climate change and for developing research and capacity-building programmes related to climate change adaptation with the relevant departments.

The study conducted by the Institute for Research and Applications of Development Methods in 2019 notes that the Directorate's functional and technical capacities appear weak owing to a lack of material and human resources and a strategic vision. ***"It is therefore struggling to gain acceptance from other ministries on an issue that requires a cross-cutting approach."*** The study also notes an institutional instability, which is incompatible with climate issues, caused by a succession of ministerial reshuffles. Such instability does not guarantee the continuity necessary to oversee the long-term policies that climate issues require.

The Designated National Authority for the Green Climate Fund is located in the Ministry of Environment. The Authority, created by Decree No. 1561/PR/MEEP/2018, is responsible for ensuring that decisions taken by the Green Climate Fund Board of Directors are implemented. It also contributes to mobilizing financing for the public and private sectors, decentralized local authorities, civil society organizations and development partners.

The Government of Chad is primarily seeking to strengthen the institutions in charge of combating climate change in order to mobilize climate financing and ensure the coordination, implementation and monitoring of policies, strategies and plans for climate change adaptation and mitigation in the context of the Paris Agreement, the 2030 Agenda and the climate negotiation process. Some projects (particularly the Global Climate Change Alliance + Chad Project) have specific objectives in this regard.

The coordination of the NAP process as well as climate change activities in general was noted by the stakeholders consulted as one of the main obstacles that should be addressed. Actions on this point have been laid out in the road map.

The weaknesses identified at the central level are further amplified at the regional level. Although the Constitution enshrines the principle of decentralization, the Chadian State remains highly centralized. There is still no decree to specify the distribution of competencies and to organize the transfer of resources from the territorial authorities. The municipalities are very poorly endowed with financial, material and personnel resources.

4.2 OTHER EXAMPLES OF MULTISECTORAL INSTITUTIONAL FRAMEWORKS IN CHAD

The health and nutrition sector has been strongly marked by the recurrence of numerous food and nutrition crises that are multidimensional in nature, as they result from structural factors (e.g. poverty, population growth and inadequate early childhood nutrition practices) as well as situational factors. These crises have led to the implementation of initiatives driven by the international community, resulting in the adoption of a series of multisectoral plans and strategies that contribute to preventing and combating food and nutrition insecurity, which include the National Rural Sector Investment Plan (2016–2022), the National Nutrition and Food Policy (2014–2025), the Country Resilience Priorities of the Global Alliance for Resilience (2016–2021) and the National Social Protection Strategy (2014–2018).

These initiatives and plans have different strategic coordination mechanisms, most of which are chaired or coordinated by cross-cutting departments. For example, the steering committee of the National Rural Sector Investment Plan is under the Minister of Economy and Development Planning, who ensures the coordination and strategic monitoring of the rural sector, and is supported by a technical committee chaired by the Ministry of Agriculture. In the case of the National Nutrition and Food Policy, the National Nutrition and Food Council is chaired by the Prime Minister. It is assisted by a permanent technical committee on nutrition and food development chaired by the Ministry of Health.

¹⁹ Decree No. 1472/PR/MEEP/2018 of 1 August 2018, on the organizational chart of the Ministry of Environment, Water and Fisheries.

TABLE 2

MAIN SECTORAL STUDIES ON CLIMATE CHANGE ADAPTATION IN CHAD

Sector	Sectoral actions/studies related to climate change adaptation
Agriculture and livestock	<ul style="list-style-type: none"> - Food and Agriculture Organization of the United Nations Chad Resilience Analysis (2019) - International Fund for Agricultural Development. 2017. Analysis of the climatic and environmental vulnerability of agropastoral systems in central-western Chad - NAP Project (2021): Vulnerability and adaptation to climate change for the agriculture, livestock, fishery and water resource sectors in Chad
Water and sanitation	<ul style="list-style-type: none"> - Lake Chad Basin Commission. 2015. Lake Chad Climate Development and Adaptation Plan - NAP Project (2021): Vulnerability and adaptation to climate change for the agriculture, livestock, fishery and water resource sectors in Chad
Aquaculture and fishery resources	<ul style="list-style-type: none"> - NAP Project (2021): Vulnerability and adaptation to climate change for the agriculture, livestock, fishery and water resource sectors in Chad
Gender and social protection	<ul style="list-style-type: none"> - Food and Agriculture Organization of the United Nations 2021. National Gender Profile of Agriculture and Rural Livelihoods: Republic of Chad - International Institute for Sustainable Development. Ministry of Environment, Water and Fisheries. 2021. Gender Mainstreaming in the NAP Process in Chad - NAP Project. 2021. Study on mainstreaming gender in the planning and budgeting of the NAP Project of Chad
Risk management, infrastructure and land-use planning	<ul style="list-style-type: none"> - Chad intends to create and operationalize a national scheme with the African Risk Capacity and an observatory to prevent and manage risks and natural disasters resulting from vulnerability to climate change²⁰
Health and nutrition	<ul style="list-style-type: none"> - Some projections for disease and malnutrition trends refer to climate change, but few specific studies assess the quantitative impact of climate change on the sector

4.3 EFFORTS TO INTEGRATE ADAPTATION INTO DEVELOPMENT PLANNING AND BUDGETING

As discussed in the section 3.3 “Adaptation policies, plans and programmes”, efforts have been made to integrate adaptation into development plans, particularly the National Development Plan and some sectoral strategies, including the National Rural Sector Investment Plan and the Country Resilience Priorities of the Global Alliance for Resilience.

A number of sectors and sectoral plans refer to resilience and climate change; however, it is important to note that very few sectors have conducted specific studies on the risks and impacts with a view to informing their development actions. These are listed in the table below.

4.4 KEY GAPS TO INTEGRATING ADAPTATION INTO DEVELOPMENT PLANNING AND BUDGETING

Although Chad has made some progress in integrating adaptation needs into its development planning, there are several significant gaps and barriers. These are summarized in the following table with recommendations for addressing them, which are included in the road map.

²⁰ National Climate Change Strategy in Chad, 2017 <http://extwprlegs1.fao.org/docs/pdf/Cha186306.pdf>

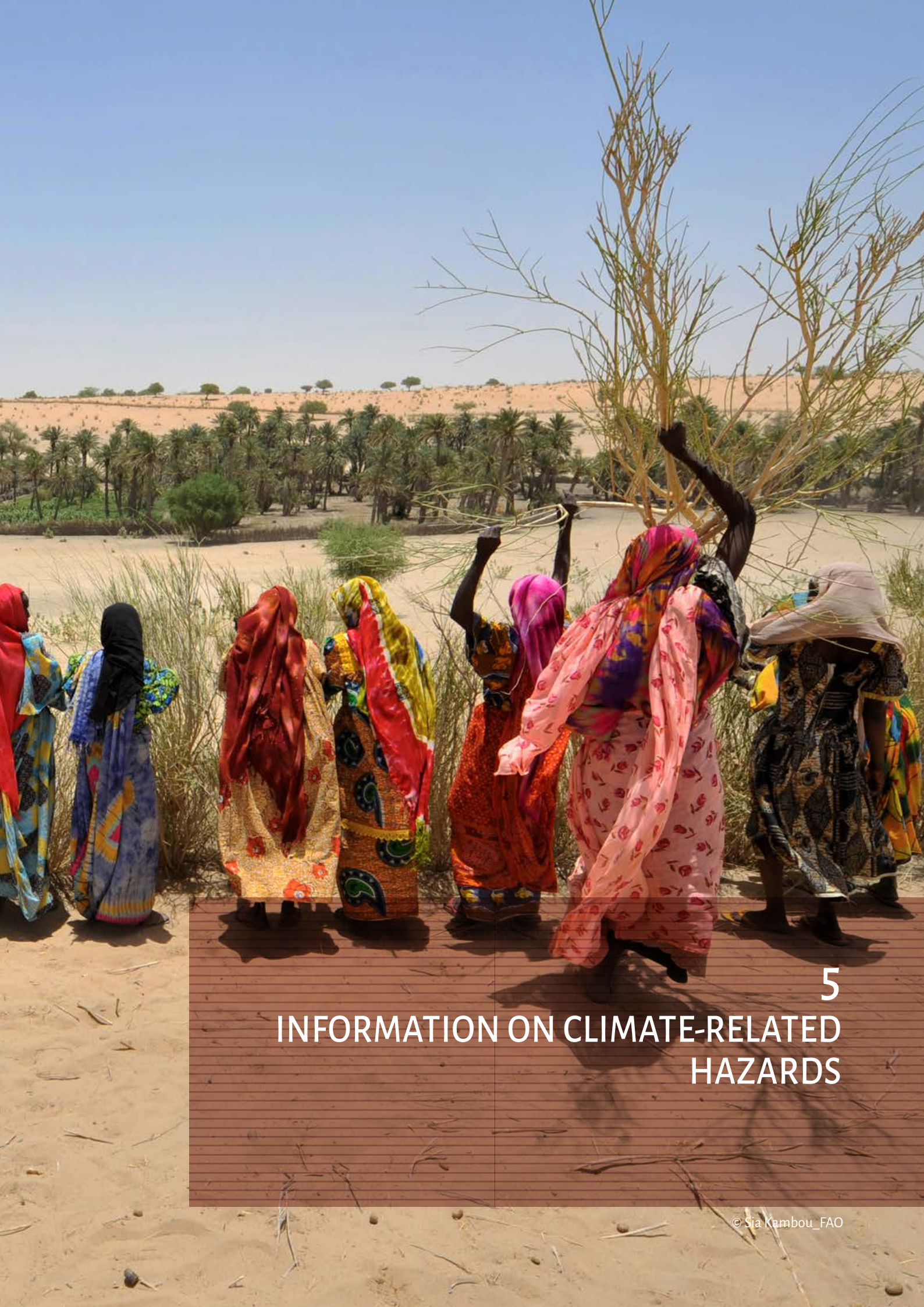
TABLE 3

KEY GAPS TO INTEGRATING ADAPTATION INTO DEVELOPMENT PLANNING IN CHAD.

Note: These points were identified following the situation analysis and consultations with stakeholders for the development of this first NAP.²¹

Gap	Recommended solution
<p>There is a lack of socio-economic vulnerability analyses, a lack of understanding of climate risk and impact on sectors (e.g. in terms of number of people affected, economic losses and social impact) and a lack of integration with development scenarios. This is a major obstacle to integrating adaptation into planning.</p> <p>In general, most sectoral assessments are quantitative (and rarely semi-quantitative); very few have taken into account spatial variation, geographical information system (GIS) risk mapping.</p>	<p>Invest in improved analyses of climate change exposure and vulnerability for priority economic sectors, using quantifiable and mappable indicators where possible. It is imperative that the analyses provide better socio-economic indicators to inform sector development planning (e.g. estimated economic losses and quantified impacts on employment and production).</p>
<p>The systematic data collection system is weak, and data are scattered across a number of previous projects, often in isolated reports.</p>	<p>Process and centralize all sectoral assessments in a database (preferably in a GIS system) that becomes the reference for climate risk assessments in the country and develop a system for the systematic collection of key adaptation data.</p>
<p>There are no in-depth assessments of individual and/or institutional capacity needs to improve climate change adaptation in Chad.</p>	<p>Conduct a capacity needs assessment of key actors and establish a baseline to compile key gaps and needs identified through relevant initiatives and direct requests, taking into account complementarity with ongoing initiatives on climate change capacity development by the Green Climate Fund and technical and financial partners.</p>
<p>Lack of capacity is cited in all studies and strategies as one of the most limiting factors. The World Bank has assessed Chad "as being significantly inferior in terms of capacity to conduct a risk and impact assessment and plan and implement adaptation measures, as well as in terms of adaptive capacity."²¹</p>	<p>Create a capacity development strategy, with tailored performance indicators to build and improve the capacity of technical staff in public planning and financing institutions at the national and regional levels with regard to climate change adaptation; hazard, vulnerability and risk assessments; financial assessments of climate impacts and disaster risks; adaptation planning; and adaptation budgeting tools, particularly to support investment in and the implementation of adaptation options.</p>
<p>Linking actions at different levels and addressing the lack of capacity and resources among local authorities remains a major challenge for planning adaptation actions at the local level.</p>	<p>Provide specific support in terms of capacity-building and financial and human resources for actors at the local level.</p>

²¹ World Bank. 2015. Systematic Country Diagnostic. Chad. Systematic Country Diagnostic - World Bank Consultations <https://consultations.worldbank.org/materials/d...>



5 INFORMATION ON CLIMATE-RELATED HAZARDS

5.1 AVAILABILITY OF CLIMATE SERVICES IN CHAD

The National Meteorological Agency is the primary structure in Chad in charge of producing meteorological and/or climatological data and services and making them available to users and partners. This structure falls under the Ministry of Environment, Water and Fisheries and fulfils this role—not without difficulty—thanks to a multidisciplinary working group, with support from the World Meteorological Organization (WMO) and regional centres such as the Regional Training Centre for Agrometeorology and Operational Hydrology and their Applications, the African Centre of Meteorological Applications for Development and others. The Agency should be strengthened by implementing the National Framework for Climate Services,²² the multidisciplinary approach of which should be advocated. In addition, other partners should be involved, including, first and foremost, the network of early warning systems (e.g. the Famine Early Warning Systems Network, the Vulnerability Analysis and Mapping of the World Food Programme, the European Civil Protection and Humanitarian Aid Operations, etc.), the network of NGOs supporting local development initiatives and teaching and research institutes (i.e. universities).

The meteorological and/or climatological products and services developed and made available to end users and partners by the National Meteorological Agency are:

- decadal agro-meteorological bulletins and seasonal forecast bulletins (cumulative rainfall for the months of July, August and September) for agro-meteorological monitoring of agropastoral campaigns
- agro-meteorological assistance to producers, through agro-meteorological advice and operational calendars of sowing dates
- weather watch and assistance to the general public, through daily weather forecast bulletins and climatological studies

At the same time, it provides training for volunteer observers of rainfall, agro-meteorological and climatological stations. It also organizes travelling seminars for farmers and ranchers throughout the country.

In 2013, the meteorological network had 22 synoptic stations, 8 climatological stations, 28 agro-meteorological stations and 153 rainfall stations.²³ The meteorological information derived from them includes temperature, rainfall, winds, humidity, atmospheric pressure and visual measurements such as dust and cloud types. The resulting meteorological data are exchanged in real time at the global level through the WMO Global Telecommunication System. Nevertheless, these different stations did not have all the required instruments and, according to the June 2015 and January 2016 mission reports of the National Meteorological Office, at least two stations are closed each year owing to a lack of equipment and/or observers. In 2018, there were only 18 synoptic stations, 1 climatological station, 4 agro-meteorological stations and 87 rainfall stations. Currently, with the support of several technical and financial partners, the Agency has expanded its facilities with over a hundred automatic synoptic weather stations in which data on over a dozen climatic parameters are automatically transmitted to a server at the central level. In addition, over 200 direct reading rain gauges are provided.

The spatial distribution of these stations, as seen in the following figure, is such that their network, which was already very uneven, does not provide adequate coverage for the national territory and does not meet the needs of users in terms of the meteorological data necessary to prevent and warn of climate-related disasters such as droughts and floods in the fields of agriculture, water, health and the prevention of hydro-meteorological disasters. Indeed, many significant regions and populations that are vulnerable to climate-related disasters are not covered by this network at all.

It is noted that the collection of observed meteorological data is poor, often intermittent and incomplete by station; therefore, it can only result in fragmented and unreliable data series. The financial capacities allocated hardly allow for consistent, reliable records.²⁴

²² As outlined in the Implementation Plan for the Global Framework for Climate Services, adopted in October 2012 by the Extraordinary Session of the World Meteorological Congress, in the Action Plan to Implement the National Climate Services Framework in Chad (2016–2020). <https://www.fao.org/faolex/results/details/fr/c/LEX-FAOC173478/>

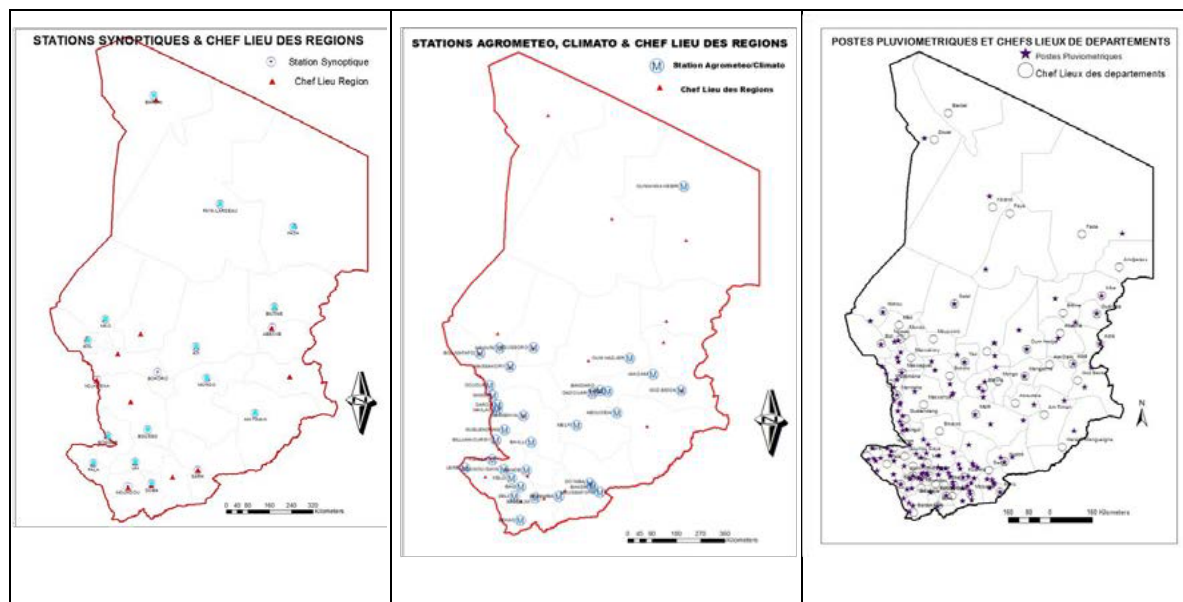
²³ National Climate Services Framework.

²⁴ Information on the vertical profile of the atmosphere is provided only periodically by a radio sounding and only on the synoptic stations of N'Djamena and Sarh; spare parts for the maintenance of equipment are unavailable; and weather radars acquired under the Operation Cloud Seeding Project were not installed until 2016, for financial reasons.

FIGURE 3

THE METEOROLOGICAL WEATHER NETWORK BY TYPE OF STATION

Source : Action Plan to Implement the National Climate Services Framework of Chad (2016–2020)



5.2 OBSERVED CLIMATE

Numerous scientific studies²⁵ on climate in the subregion have shown a continuous increase in temperature and increased variability in rainfall since the 1990s.

Indeed, with regard to precipitation, after a sequence of wet years covering the 1950s and 1960s, followed by a sequence of dry years in the 1970s and especially dry years in the 1980s (but with a general downward trend), inter-annual variations have become more irregular since the 1990s, but with relatively better rainfall. Since 2000, there have been periods of heavy and intense rainfall. The figure below shows the change in the national index of annual rainfall totals from 1950 to 2016.

In addition to high inter-annual variability, precipitation has been above average over several years since the 1990s, particularly in the Sahelian zone, compared to a decrease in precipitation trends during the rainy season.

Similarly, the spatial distribution of precipitation has also seen changes, as shown by the change in isohyets for the periods 1951–1980 and 1971–2000 and the normal period

1961–1990. Indeed, the 300 mm isohyet, slightly above the fourteenth parallel (figure 6a) has retreated to the thirteenth parallel, except in the east (figure 6c); the 1,200 mm isohyet, which is near the eighth parallel during the period 1951–1980, is adjacent to the country's southern border during the period 1971–2000.

As with all Sahelian countries, Chad has suffered a near-persistent drought since the 1960s that continues in the north while moving southward at a rate of 3 km per year.²⁶

With regard to changes in temperature, as shown in the figures below, the average minimum and maximum temperatures, ranging from 19°C to 21°C and 34°C to +37°C, respectively, have recorded respective increases of 0.5°C to 1.7°C and 0°C to 1.34°C since the 1950s, depending on the station. These increases are almost double that of the average global temperature in the 20th Century (i.e. 0.6°C).²⁷

25 Intergovernmental Panel on Climate Change, 2007 and 2014; AGRHYMET/CILSS (Ly et al., 2013; Alhassane et al., 2014; Sarr et al., 2015; in Country Programme, Republic of Chad, Green Climate Fund, 2019).

26 Global Facility for Disaster Reduction and Recovery, 2017.

27 Duma et al., 2005 and Intergovernmental Panel on Climate Change, 2001, in the second National Communication on Climate Change, Chad, Ministry of Urban and Rural Hydraulics, 2012.

FIGURE 4

CHANGES IN THE NATIONAL ANNUAL CUMULATIVE RAINFALL INDEX FROM 1950 TO 2016

Source: National Meteorological Office, 2017; in Country Programme, Republic of Chad, Green Climate Fund, 2019.

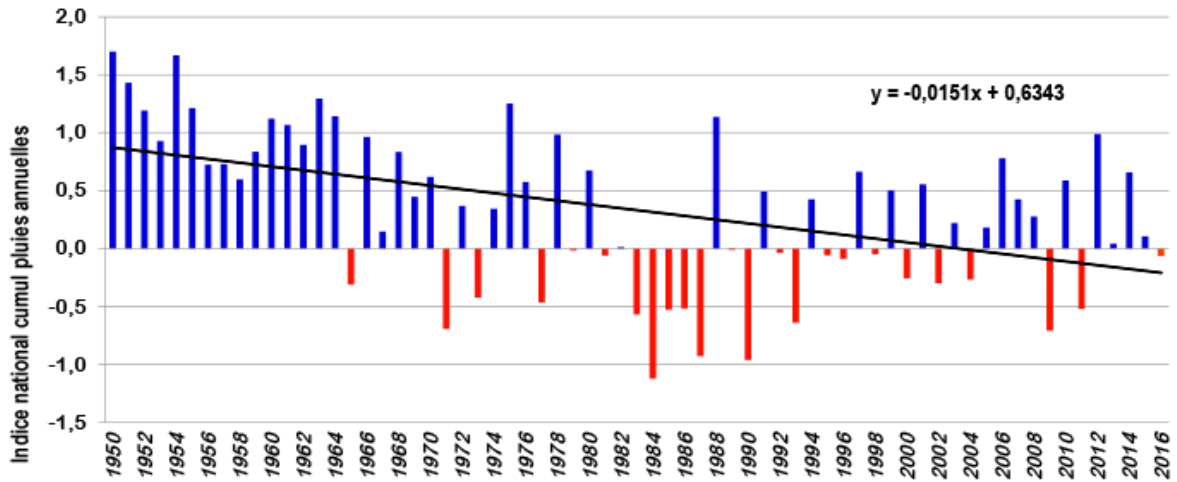


FIGURE 5

CHANGES IN THE PRECIPITATION INDEX FROM 1932 TO 2006 AT THE N'DJAMENA STATION

Source : Second National Communication on Climate Change, Chad, Ministry of Urban and Rural Hydraulics, 2012.

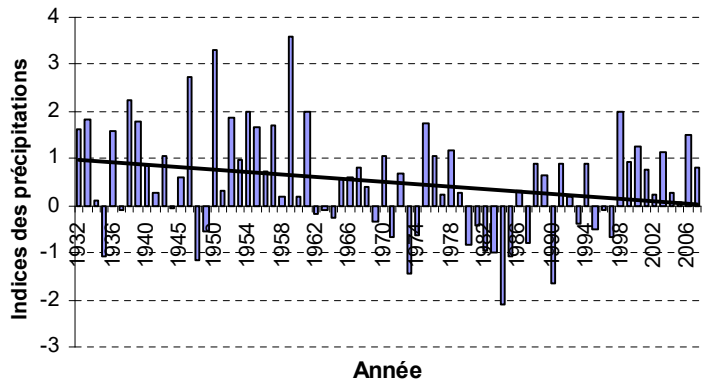


FIGURE 6

CHANGE IN AVERAGE ISOHYETS BETWEEN 1951 AND 2000

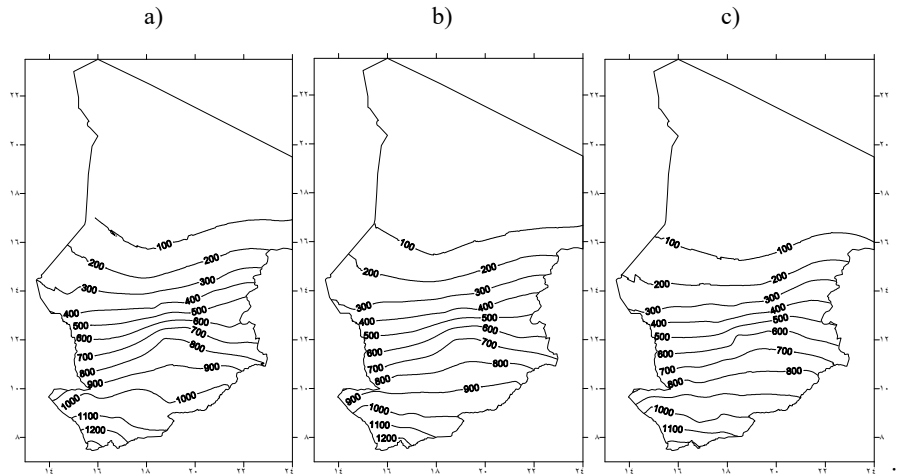


FIGURE 7

MAXIMUM TEMPERATURE INDEX AND REGRESSION LINE FOR N'DJAMENA

Source : *Second National Communication on Climate Change, Chad, Ministry of Urban and Rural Hydraulics, 2012.*

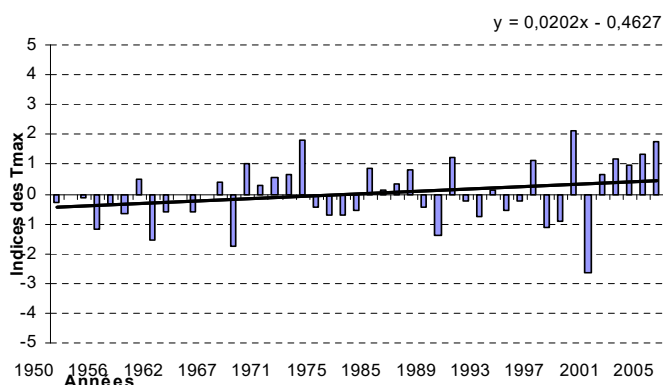
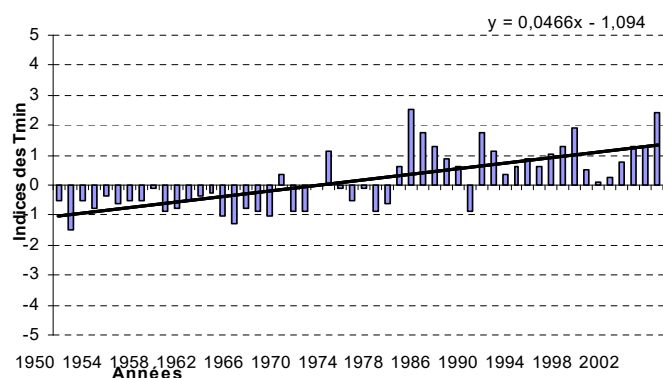


FIGURE 8

MINIMUM TEMPERATURE INDEX AND REGRESSION LINE FOR N'DJAMENA

Source : *Second National Communication on Climate Change, Chad, Ministry of Urban and Rural Hydraulics, 2012.*



The other climate variables that are most often measured and monitored for the country are characterized as follows:

- The relative humidity in the air over the entire country remains between 10 percent and 95 percent. It registers the lowest values between November and February and the highest values between May and September, with a peak in August. It therefore experiences a seasonal change identical to that of the precipitation.
- Evaporation varies highly by location, with a strong gradient between arid and humid areas and a seasonal variation that follows that of air temperature. Its annual values range from 2,000 mm to 3,000 mm in the Sahelian zone and approximately 2,000 mm in the Sudanian zone.
- The sunshine duration experiences little variation from November to May, when its value is close to 9 hours per day on average. The minimum is about 6–7 hours per day and is observed in August.

Among extreme weather events, the National Disaster Risk Management Strategy and Action Plan of Chad, adopted in 2020, highlights drought and flooding as the most significant. They are often the cause of recurrent disasters with considerable impacts on the population and the environment.

It is clear from table 4 that droughts impact a much larger number of people. Nevertheless, the frequency and impacts of floods have been increasing in recent years, according to data from the United Nations Office for the Coordination of Humanitarian Affairs.

TABLE 4

HYDROMETEOROLOGICAL DISASTERS BETWEEN 1969 AND 2016 (SOURCE: NATIONAL DISASTER RISK MANAGEMENT STRATEGY AND ACTION PLAN OF CHAD).

TYPE OF DISASTER	DATE	MAIN REGIONS AFFECTED	NUMBER OF PEOPLE AFFECTED
Drought	October 1969	Kanem, Tibesti, Borkou, Ennedi (East and West), Lac, Bahr el Gazel, Batha, Ouaddaï, Wadi Fira, Sila, Guéra, Hadjer-Lamis, Mayo-Kebbi (East and West)	900,000
Drought	November 1981	Kanem, Tibesti, Borkou, Ennedi (East and West), Lac, Bahr el Gazel, Batha, Ouaddaï, Wadi Fira, Sila, Chari-Baguirmi, Hadjer-Lamis, Guéra, Tandjilé, Mayo-Kebbi (East and West)	1,500,000
Drought	1984–1985	Sahelian and Sudanian band	1,458,000, of which 948,000 were in the Sahelian zone and 510,000 were in the Sudanian zone
Flooding	1988	Lac, Mayo-Kebbi (East and West), Moyen-Chari, Tandjilé, Logone (Eastern and Western), Ouaddaï, Sila, Salamat, Guéra, Kanem	47,000
Drought	December 1993	Kanem, Tibesti, Borkou, Ennedi (East and West), Lac, Bahr el Gazel, Batha, Ouaddaï, Wadi Fira, Sila, Chari-Baguirmi, Hadjer-Lamis, Guéra, Tandjilé, Mayo-Kebbi (East and West)	800,000
Flooding	1995	Lac, Mayo-Kebbi (East and West), Moyen-Chari, Tandjilé, Logone (Eastern and Western), Ouaddaï, Sila, Salamat, Guéra, Kanem	81,000
Drought	1997	Kanem, Tibesti, Borkou, Ennedi (East and West), Lac, Bahr el Gazel, Batha, Ouaddaï, Wadi Fira, Sila, Guéra, Hadjer-Lamis, Mayo-Kebbi (East and West)	356,000
Flooding	August 1999	Chari-Baguirmi, N'Djamena, East Mayo-Kebbi, Tandjilé, Logone (Eastern and Western), Moyen-Chari, Salamat, Batha, Lac	173,506
Drought	January 2001	Kanem, Tibesti, Borkou, Ennedi (East and West), Lac, Bahr el Gazel, Batha, Ouaddaï, Wadi Fira, Sila, Guéra, Hadjer-Lamis, Mayo-Kebbi (East and West)	800,000
Flooding	August 2001	Chari-Baguirmi, N'Djamena, East Mayo-Kebbi, Tandjilé, Logone (Eastern and Western), Moyen-Chari, Salamat, Batha, Lac	175,763
Flooding	2007	Lac, Batha, Ouaddaï, Salamat, Kanem, N'Djamena, Mayo-Kebbi (East and West), Logone, Moyen-Chari, Tandjilé, Chari-Baguirmi, Sila, Guéra, Hadjer-Lamis	170,000
Drought	December 2009	Kanem, Tibesti, Borkou, Ennedi (East and West), Lac, Bahr el Gazel, Batha, Ouaddaï, Wadi Fira, Sila, Guéra, Hadjer-Lamis	2,400,000
Flooding	2010	Lac, Batha, Ouaddaï, Salamat, Kanem, N'Djamena, Mayo-Kebbi (East and West), Logone (Eastern and Western), Moyen-Chari, Tandjilé, Mayo-Kebbi (East and West), Chari-Baguirmi, Sila, Guéra, Hadjer-Lamis	145,000
Drought	June 2012	Kanem, Tibesti, Borkou, Ennedi (East and West), Lac, Bahr el Gazel, Batha, Ouaddaï, Wadi Fira, Sila, Guéra, Hadjer-Lamis, Mayo-Kebbi (East and West)	1,600,000
Flooding	September 2012	Lac, Batha, Ouaddaï, Salamat, Kanem, N'Djaména, Mayo—Kebbi (Est et Ouest), les deux Logones, le Moyen—Chari, Tandjilé, Chari-Baguirmi, Sila, Guera, Hadjar -Lamis.	700 000 ²⁸

28 United Nations Office for the Coordination of Humanitarian Affairs, Chad: Humanitarian Snapshot (as of 24 September 2012), N'Djamena, Chad, 2012. https://reliefweb.int/sites/reliefweb.int/files/resources/SS-2012-TCD_121002.pdf

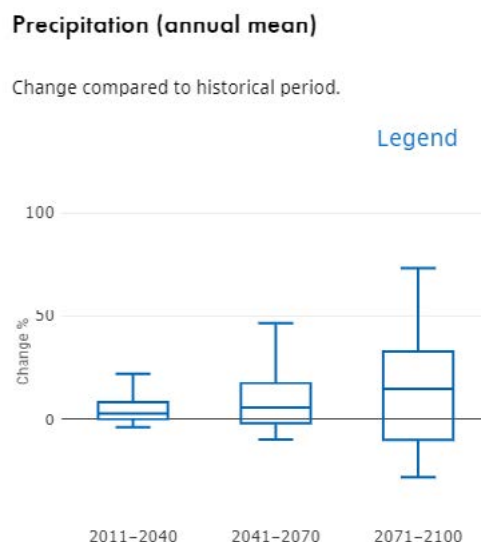
5.3 SCENARIOS AND PROJECTIONS

Chad does not have many studies on projections and the evolution of climate-related hazards. The most detailed projections were made in the second National Communication on Climate Change, which is over 10 years old. Almost all climate change studies in Chad are based on these projections. The 2021 Climate Risk Profile for Chad by the German Agency for International Cooperation represents the most recent assessment and presents clear, synthesized information on the impacts as well as uncertainties in the models. This risk profile is based on data and analysis generated by the Inter-Sectoral Impact Model Intercomparison Project.²⁹

This section also used data from *climateinformation.org*, a service developed by the Swedish Meteorological and Hydrological Institute on behalf of WMO, the World Climate Research Programme and the Green Climate Fund. This site provides instant climate change summary reports for any location in the world as well as easy access to a number of precalculated climate indicators based on state-of-the-art climate science.

Data from the *Climate Risk Profile for Chad* by the German Agency for International Cooperation and from the *climateinformation.org* website highlight the high degree of uncertainty in climate model projections and the high degree of disagreement among models, particularly for all water-related projections. It is therefore very important to consider this degree of uncertainty when planning and deciding on adaptation measures.

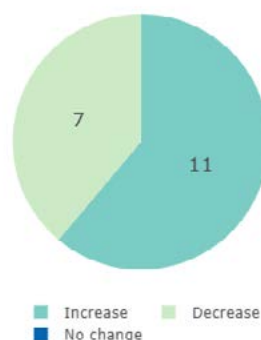
FIGURE 9
ILLUSTRATION OF UNCERTAINTY IN PRECIPITATION PROJECTIONS IN CHAD



Indicator: Precipitation (annual mean), Time period: 2041-2070, Historical period: 1981-2010, RCP 8.5, Model: CORDEX Africa Ensemble Mean, Model results for an area covering the location: N'Djamena (12.11, 15.05)
Reference: <https://climateinformation.org> (date: 2022-01-10)

Ensemble Agreement of Precipitation (annual mean)

Amount of ensemble members that results in a decrease, increase, and no change compared to the historical period.



Indicator: Precipitation (annual mean), Time period: 2041-2070, Historical period: 1981-2010, RCP 8.5, Model: CORDEX Africa Ensemble Mean, Model results for an area covering the location: N'Djamena (12.11, 15.05)
Reference: <https://climateinformation.org> (date: 2022-01-10)

²⁹ See <https://www.isimip.org>.

5.3.1 Precipitation

The projections of variations in rainfall for 2030, 2050 and 2100 presented in the second National Communication vary greatly, according to the country's zones. They project little or no change in rainfall in the south but anticipate a sharp decrease in the Sahelian zone and the southern part of the Saharan zone. This is estimated as a decrease of 20 percent in 2030 and could reach 70 percent in 2100, compared to the 2000–2009 average. In contrast, the north could experience an increase in rainfall according to these projections.³⁰

Using the median of the projections, another more recent analysis indicates an increase in mean annual precipitation of 32 mm under Representative Concentration Pathway (RCP) 2.6 and 50 mm under RCP6.0 by 2080, relative to 2000.³¹ It should be noted that precipitation projections are highly uncertain owing to the high natural variability from year to year, high level of uncertainty and differences between models.³²

FIGURE 10

DIFFERENCES IN RAINFALL FOR 2030, 2050 AND 2100 COMPARED TO 2000–2009

Source : Second National Communication on Climate Change, Chad, Ministry of Urban and Rural Hydraulics, 2012.

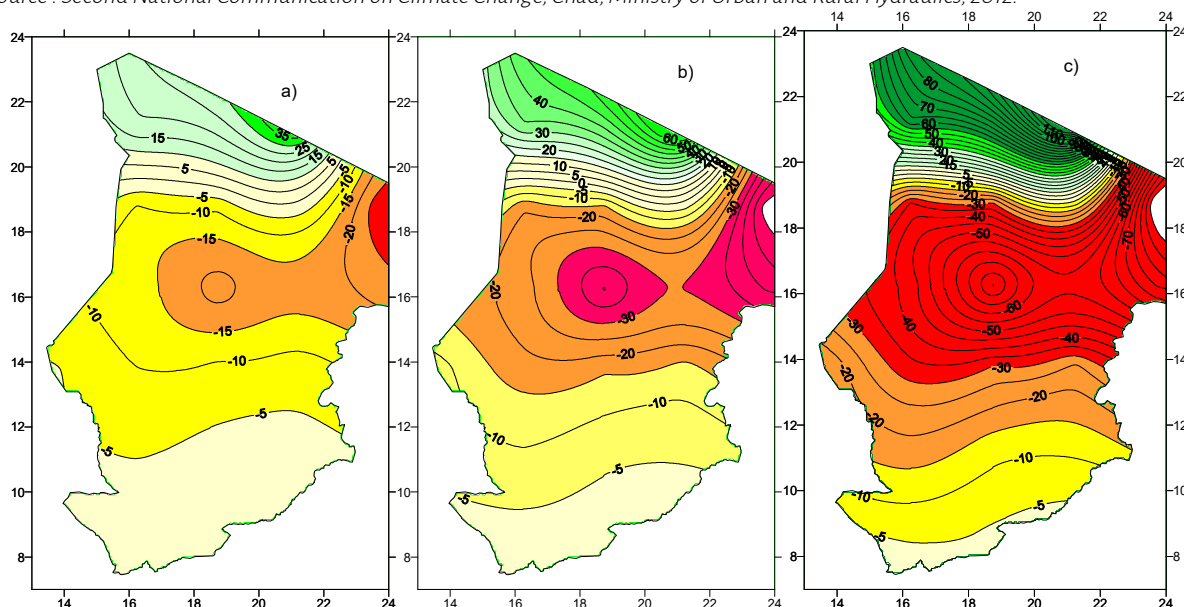


FIGURE 11

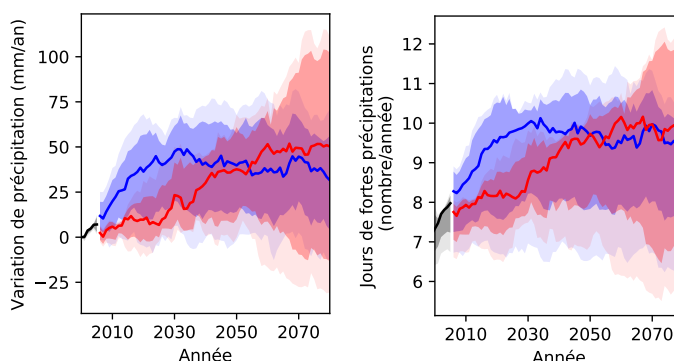
AVERAGE ANNUAL PRECIPITATION PROJECTIONS IN CHAD FOR DIFFERENT GREENHOUSE GAS EMISSION SCENARIOS, RELATIVE TO 2000

Source : German Agency for International Cooperation. 2021. Climate Risk Profile, Chad.

FIGURE 12

PROJECTIONS FOR THE NUMBER OF DAYS OF HEAVY RAINFALL IN CHAD, COMPARED TO 2000

Source : German Agency for International Cooperation. 2021. Climate Risk Profile, Chad



30 Second National Communication, 2012, <https://unfccc.int/sites/default/files/resource/tcdnc2.pdf>.

31 German Agency for International Cooperation. 2021. Climate Risk Profile, Chad, https://agricra.de/wp-content/uploads/2021/01/GIZ_Climate-risk-profile-Chad_EN_final.pdf.

32 See <https://climateinformation.org>.

Heavy precipitation events are expected to increase in intensity in many parts of the world, since a warmer atmosphere increases its capacity to hold water vapour. Some climate projection models for Chad predict an increase in the number of days with heavy rainfall, from 7 per year in 2000 to 9 per year (RCP2.6) and 10 per year (RCP6.0) in 2080.

5.3.2 Temperature

The temperature simulations of the second National Communication therefore show increases over the entire country by 2030, 2050 and 2100. The expected increases would be, on average:

- 1.2°C by 2030, 2.2°C by 2050 and 4.1°C by 2100, in the Saharan zone, between the sixteenth and twenty-fourth parallels
- 1.3°C by 2030, 2.4°C by 2050 and 4.5°C by 2100 in the regions between the tenth and sixteenth parallels
- 1.2°C by 2030, 2.2°C by 2050 and 4.2°C by 2100 in the Sudanian zone

Analyses by the German Agency for International Cooperation are consistent and predict that air temperature in Chad is expected to increase by 2.1°C to 4.3°C (very likely range) by 2080, compared to 1876, depending on different greenhouse gas emission scenarios. Relative to pre-industrial levels, the median temperature increase from climate models in Chad is approximately 2.1°C by 2030 and 2.5°C by 2050 and 2080 under the RCP2.6 emissions reduction scenario. For the medium-to-high emissions scenario (RCP6.0), the increase in median temperature from climate models is 2.1°C in 2030, 2.6°C in 2050, and 3.5°C in 2080. The number of very hot days per year (days in which the maximum temperature exceeds 35°C) is also expected to increase across the country with a high degree of certainty. For the RCP6.0 scenario, the median of the multiple models (averaged over the entire country) predicts 17 additional very hot days per year in 2030, 31 additional days in 2050 and 49 additional days in 2080, compared to 2000. **In some parts of the country, particularly in the centre, this equates to over 300 very hot days per year by 2080.**

FIGURE 13

AIR TEMPERATURE PROJECTIONS FOR CHAD

Source : German Agency for International Cooperation. 2021. Climate Risk Profile, Chad.

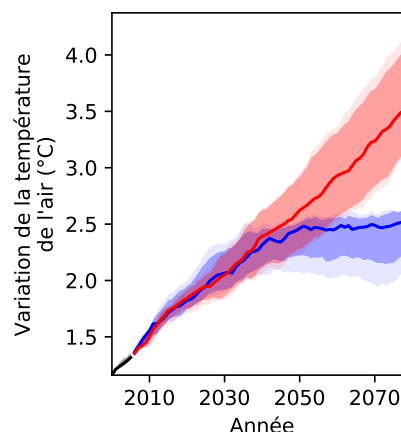
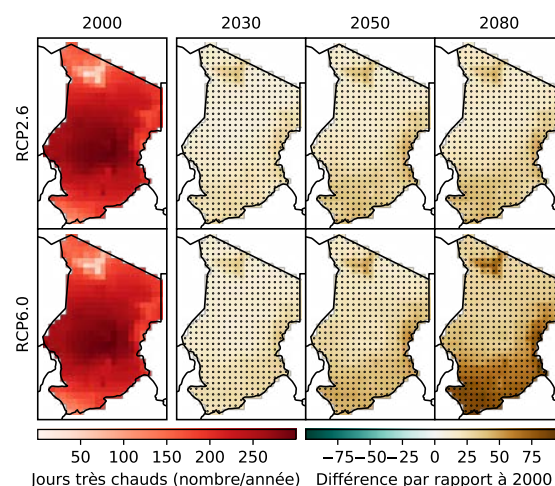


FIGURE 14

PROJECTIONS FOR THE ANNUAL NUMBER OF VERY HOT DAYS IN CHAD

Source : German Agency for International Cooperation. 2021. Climate Risk Profile, Chad.



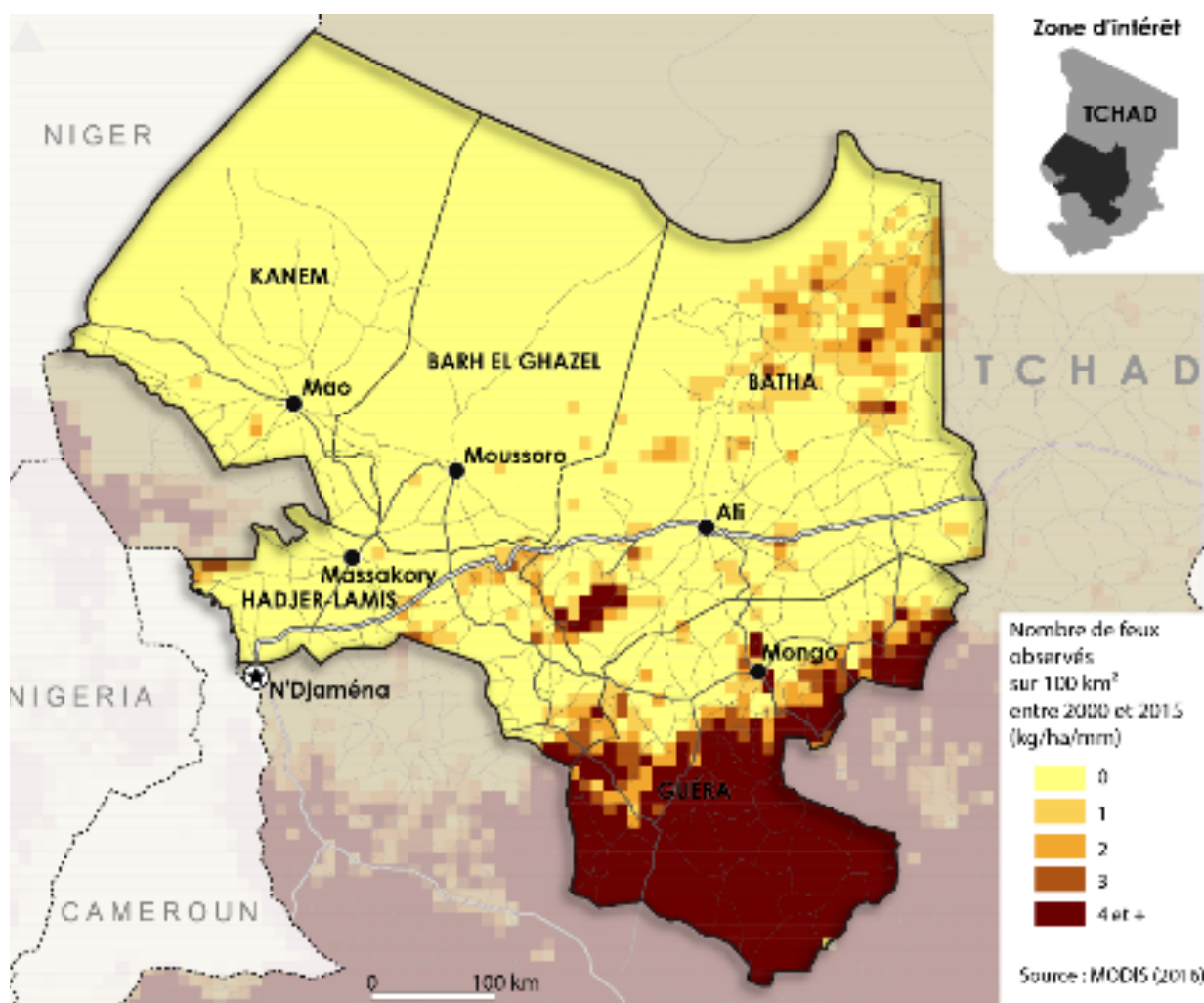
5.4 BUSH FIRES

Although rarely mentioned, bush fires are also a significant hazard to consider in Chad. Their intensity and frequency appear to be increasing, but very few studies or data exist. These fires strongly influence the dynamics of Sahelian agroecosystems. Depending on the region, they are considered either as a scourge, a tool for agricultural management or a means of natural resource management.

Generally speaking, active fires are concentrated in the southern part of the Guéra Region around Lake Fitri and are found more sporadically in the northern part of the Batha Region. The fires detected are primarily located around wetlands and often linked to agricultural practices. Fire frequency studies should be discussed with stakeholders at the local level to determine the impact of these events on agropastoral practices and thus determine the level of risk that these fires pose to the population.³³

FIGURE 15
AVERAGE DETECTION OF ACTIVE FIRES FOR THE LAST 15 YEARS

Source : Centre for International Cooperation in Agronomic Research for Development. International Fund for Agricultural Development. 2017. Analysis of the climate and environmental vulnerability of agropastoral systems in central-western Chad.



33 Centre for International Cooperation in Agronomic Research for Development. International Fund for Agricultural Development. 2017. Analysis of the climate and environmental vulnerability of agropastoral systems in central-western Chad. Ibra et al. 2017. Analysis of the climate and environmental vulnerability of agropastoral systems in central-western Chad. Final report. Montpellier (<https://agritrop.cirad.fr/584478/>)



6 VULNERABILITY FACTORS

The fifth Assessment Report of the Intergovernmental Panel on Climate Change presents a framework for assessing climate risks with a revised definition of vulnerability as the propensity or predisposition to be adversely affected. Vulnerability encompasses a variety of concepts or elements, including sensitivity or fragility and the inability to cope and adapt.

The risk associated with climate change arises from the link between climate-related hazards (including trends and extreme weather) and the vulnerability and exposure of human and natural systems. Changes in socio-economic processes are the main causes of vulnerability.

Analysing and modelling these changes is also important for a complete understanding of that risk. In the case of Chad, where climate models disagree and there is a high level of uncertainty, adaptation should focus more on the socio-economic processes that are the sources of vulnerabilities. Indeed, adaptation decisions should prioritize options to reduce vulnerability and exposure.

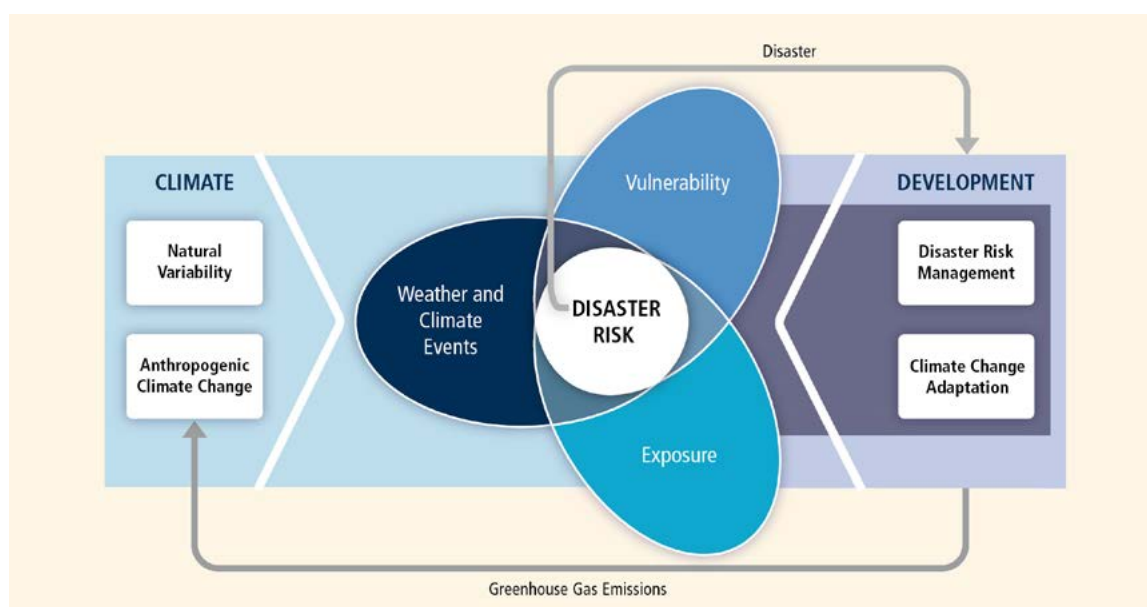
Chad was ranked 182nd out of 182 countries in the 2020 Notre Dame Global Adaptation Initiative Index. The Index summarizes a country's vulnerability to climate change and other global challenges in combination with preparedness to improve resilience. This ranking indicates that Chad has extremely high levels of vulnerability and low levels of preparedness to adapt to climate change.³⁴

The INFORM Risk Index provides a comprehensive and open-ended assessment of the risk of humanitarian crises and disasters, which can support prevention, preparedness and response planning. The Index is broken down to the subnational level for the Sahel countries³⁵ and provides a good source of information on vulnerability factors.

FIGURE 16

KEY ISSUES ADDRESSED IN THE CONTRIBUTIONS MADE BY WORKING GROUP II TO THE FIFTH ASSESSMENT REPORT

Source: Intergovernmental Panel on Climate Change, AR-5.



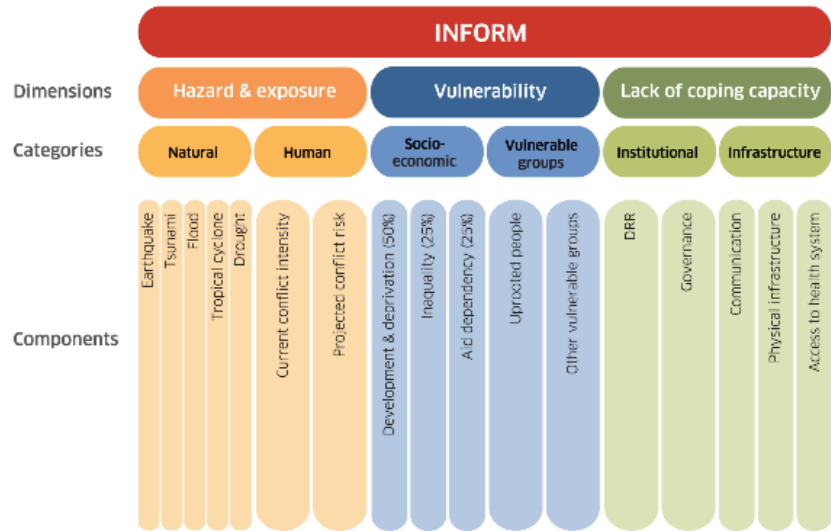
34 2020 Notre Dame Global Adaptation Initiative Index, Available from <https://gain-new.crc.nd.edu>. Accessed August 2021.

35 See <https://drmkc.jrc.ec.europa.eu/inform-index/INFORM-Subnational-Risk/Sahel/moduleId/1798/id/383/controller/Admin/action/Results>.

FIGURE 17

COMPONENTS OF THE INFORM RISK INDEX

Source : Source: INFORM-Risk. Available from <https://drmkc.jrc.ec.europa.eu/inform-index/INFORM-Risk/Methodology>



According to the Index, Chad has a very high level of risk (ranked fifth in the world). The Index also indicates a very high level of vulnerability (sixth in the world) and a lack of means and capacities to adapt (second in the world).

FIGURE 18

RISK PROFILE OF CHAD ACCORDING TO THE INFORM RISK INDEX

Source : INFORM-Risk. Available from <https://drmkc.jrc.ec.europa.eu/inform-index/INFORM-Risk/Country-Profile>

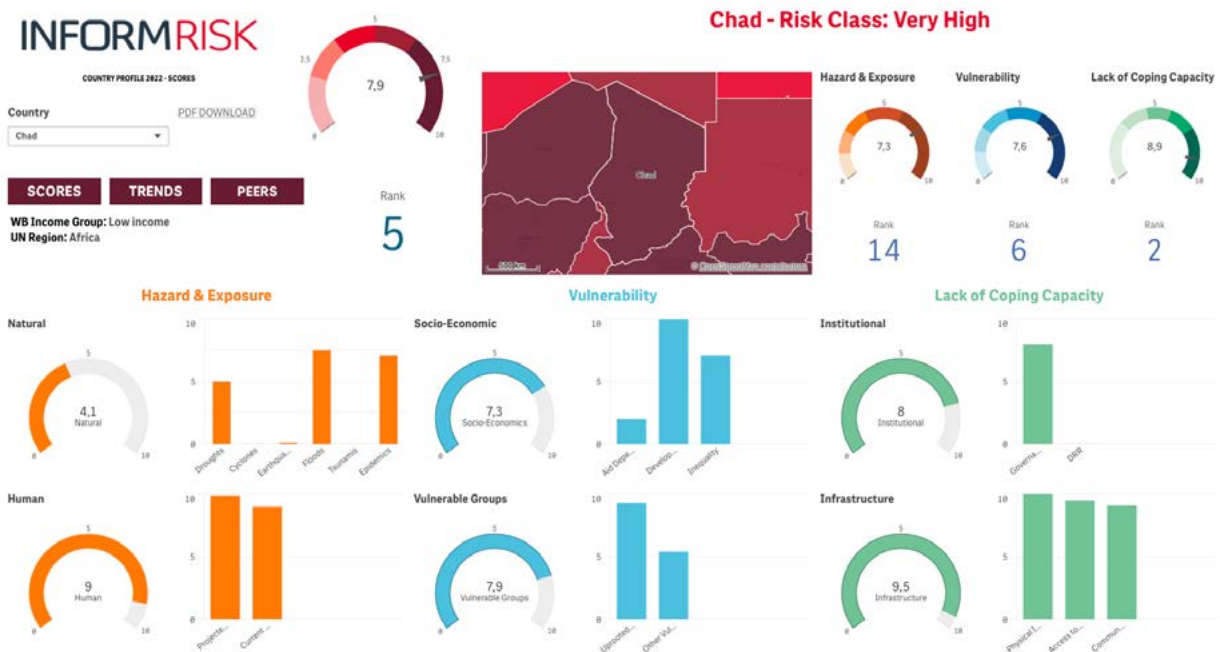
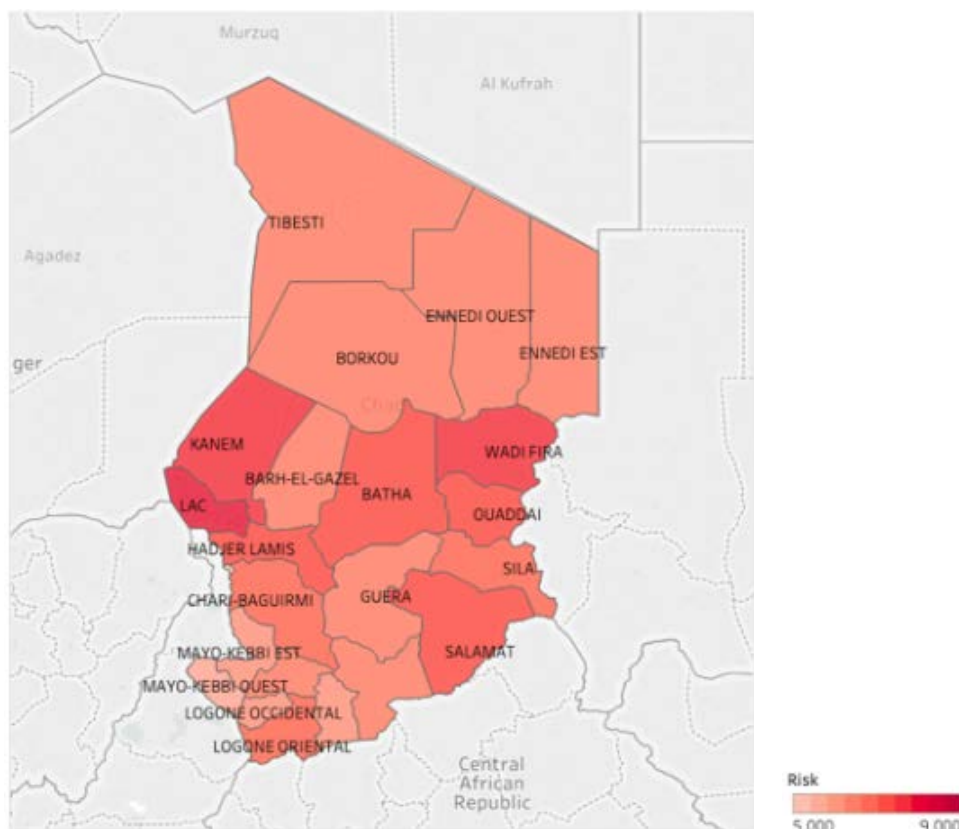


FIGURE 19

VARIATION IN THE INFORM RISK INDEX AT THE SUBNATIONAL LEVEL IN CHAD

Source : INFORM-Risk. Available from <https://drmkc.jrc.ec.europa.eu/inform-index/INFORM-Subnational-Risk/Chad>.



6.1 ENVIRONMENTAL FRAGILITY AND LAND DEGRADATION

Environmental fragility and degradation are important elements of vulnerability. The regression of the vegetation cover, progressive advance of the desert (3 km/year), decrease in biodiversity, degradation of arable agricultural land, hydromorphological alterations and silting of hydrosystems accentuate the fragility of populations.

Change in land use has been a major phenomenon in the Sahelian region for several decades.

Degraded areas in Chad are estimated to cover 428,000 km², or 33.43 percent of the total area, according to the National Programme of Action to Combat Desertification (2003). The main factors are:

- o overgrazing, responsible for 62 percent of the damage;

- o wind erosion;
- o woodfuels and timber, the need for which has damaged vegetation throughout the country;
- o mining.

These factors are the result of increased competition for land and other natural resources, owing to growth in agricultural land development combined with population growth, which has been accelerated by the use of ploughing and the recent advent of mechanization. Between 1975 and 2013, the area occupied by cultivated land is estimated to have doubled in West African countries, from 553,696 km² to 1,165,720 km². The average annual expansion rate is estimated at 4–5 percent in Chad, compared with an average of 2–3 percent per year for the subregion as a whole. The exponential increase in livestock in recent years and changes in transhumance routes also contribute to altering rural space.³⁶

36 Institute of Research and Application of Development Methods, BRACED study, 2019. <https://www.iram-fr.org/ouverturepdf.php?file=rappport-de-l-atelier-braced-du-03-septembre-2019-1570178814.pdf>

TABLE 5

VALUES OF THE COMPONENTS OF THE INFORM RISK INDEX, ACCORDING TO REGION

Source : INFORM-Risk. Available from <https://dtrmkc.jrc.ec.europa.eu/inform-index/inform-Subnational-Risk/Chad>.

	Food		Physical		Droughts probability and historical impact		Political violence		Conflict probability		Human		HAZARD		Development & Deprivation		Socio-Economic Vulnerability		Health Conditions		Children U5		Malnutrition	
	Insecurity Probability	exposure to flood	Land Degradation	historical impact	Natural	violence	probability	Human	HAZARD	Deprivation	Inequality	Vulnerability	Uprooted people	Health Conditions	Children U5	Malnutrition								
Barh el Ghazel	5,0	9,0	0,1	6,1	5,9	0,0	9,9	5,0	5,5	9,6	6,3	8,5	1,3	3,0	7,1	7,1								
Batha	3,9	8,9	0,2	5,6	5,5	4,0	9,9	7,0	6,3	9,0	8,0	8,7	2,3	0,3	7,9	6,8								
Borkou	1,3	0,0	0,0	3,6	1,3	4,0	9,9	7,0	4,8	8,9	6,6	8,1	0,6	3,3	6,8	7,7								
Chari-Baguirmi	0,0	6,7	0,9	4,6	3,6	4,0	9,9	7,0	5,6	9,4	6,3	8,4	1,7	3,0	7,7	4,7								
Ennedi Est	2,2	0,0	0,0	3,6	1,6	4,0	9,9	7,0	4,9	9,4	5,3	8,0	4,5	1,3	8,6	4,9								
Ennedi Ouest	2,2	2,0	0,0	3,6	2,0	4,0	9,9	7,0	5,0	9,4	5,3	8,0	0,3	1,3	7,9	6,8								
Guerre	3,9	2,1	4,0	5,1	3,9	0,0	9,9	5,0	4,5	8,8	7,2	8,3	1,9	2,9	8,0	5,9								
Hadjer-Lamis	2,2	9,1	5,3	6,1	6,3	4,0	9,9	7,0	6,7	9,5	5,9	8,3	1,9	2,6	8,2	7,9								
Kanem	5,6	8,9	6,1	5,1	6,7	4,0	9,9	7,0	6,9	10,0	6,6	8,9	1,8	0,5	8,8	7,6								
Lac	5,6	8,9	4,5	5,1	6,4	5,0	9,9	7,5	7,0	10,0	5,8	8,6	9,5	3,3	8,2	5,7								
Logone Occidental	1,1	2,3	3,9	5,1	3,2	4,0	9,9	7,0	5,4	5,3	9,8	6,8	3,8	1,8	6,6	3,8								
Logone Oriental	2,2	7,6	6,3	4,1	5,4	4,0	9,9	7,0	6,3	5,9	8,2	6,7	8,4	1,2	6,9	4,2								
Mandoul	1,7	5,7	4,6	4,1	4,2	0,0	9,9	5,0	4,6	6,1	9,8	7,3	5,2	0,4	6,6	1,3								
Mayo-Kebbi Est	1,7	7,6	2,7	5,1	4,7	4,0	9,9	7,0	6,0	5,7	6,3	5,9	3,8	2,1	6,8	3,1								
Mayo-Kebbi Ouest	1,7	5,2	5,5	4,6	4,4	0,0	9,9	5,0	4,7	5,4	7,2	6,0	1,3	0,6	6,8	2,6								
Moyen-Chari	1,7	7,6	3,9	4,6	4,8	4,0	9,9	7,0	6,0	4,9	9,8	6,5	5,9	1,9	7,1	2,1								
Ouaddai	2,2	4,4	3,7	5,6	4,1	4,0	9,9	7,0	5,7	9,9	6,2	8,7	8,9	3,8	7,2	7,6								
Salamat	1,7	8,8	6,6	5,1	6,2	4,0	9,9	7,0	6,6	9,2	6,7	8,4	3,6	5,5	9,2	6,9								
Sila	2,2	9,1	3,7	6,1	6,0	0,0	9,9	5,0	5,5	10,0	4,8	8,3	5,8	0,1	7,1	8,5								
Tandjile	2,2	3,8	3,9	3,6	3,4	4,0	9,9	7,0	5,5	5,7	8,9	6,8	3,2	2,8	7,9	5,0								
Tibesti	2,5	0,0	0,0	3,6	1,7	5,0	9,9	7,5	5,3	8,9	6,6	8,1	0,3	3,3	5,5	5,0								
N'Djamena	x	9,3	2,5	7,2	7,2	5,0	9,9	7,5	7,4	1,4	6,7	3,2	4,5	5,0	7,0	4,7								
Wadi Fira	4,4	2,6	5,9	6,1	4,9	4,0	9,9	7,0	6,1	10,0	5,2	8,4	8,8	2,0	6,3	7,8								

... (CONT.) TABLE 5

VALUES OF THE COMPONENTS OF THE INFORM RISK INDEX, ACCORDING TO REGION

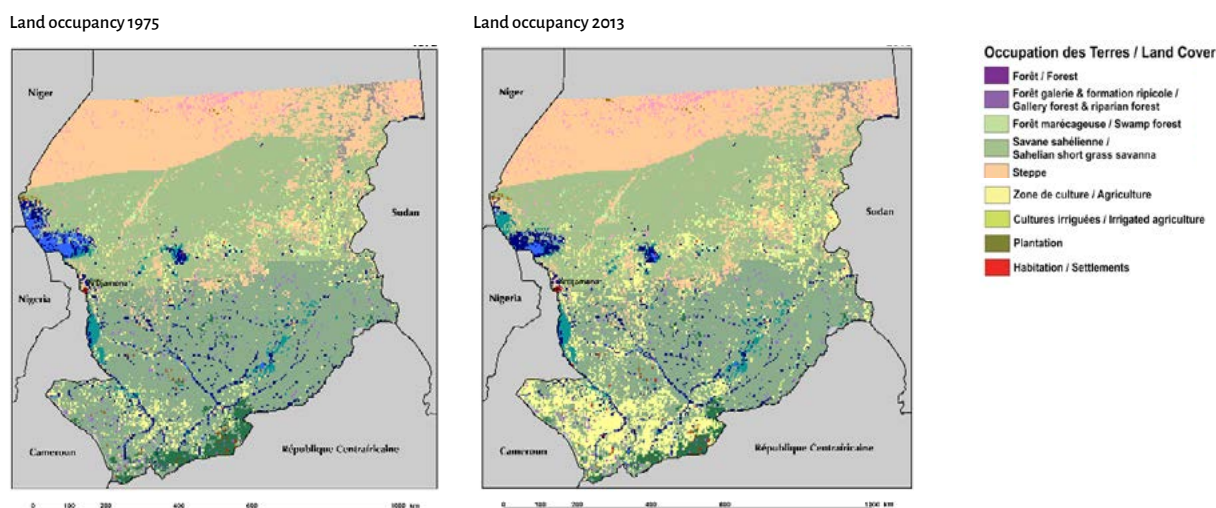
Source : INFORM-Risk. Available from <https://dtrmkc.jrc.ec.europa.eu/inform-index/INFORM-Subnational-Risk/Chad>.

	Recent Shocks	Food Security	Other		Vulnerability	DRR	Governance	Institutional	Communication	Physical infrastructure	Access to health care	Infrastructure	LACK OF COPING CAPACITY	RISK
			Vulnerable Groups	Vulnerable Groups										
Barh el Ghazel	0,0	5,5	5,1	3,4	6,6	9,2	8,0	8,6	9,8	5,0	5,4	6,7	7,8	6,6
Batha	0,0	1,9	4,2	3,3	6,8	9,2	8,0	8,6	9,8	4,9	6,9	7,2	8,0	7,0
Borkou	0,0	10,0	6,8	4,4	6,6	9,2	8,0	8,6	8,9	6,9	7,7	7,8	8,2	6,4
Chari-Baguirmi	10,0	2,4	6,7	4,7	6,9	9,2	8,0	8,6	9,9	4,4	7,6	7,3	8,0	6,8
Ennedi Est	0,0	4,4	4,6	4,6	6,6	9,2	8,0	8,6	9,4	9,4	7,3	8,7	8,7	6,6
Ennedi Ouest	0,0	8,7	6,0	3,7	6,3	9,2	8,0	8,6	9,4	9,0	7,2	8,5	8,6	6,5
Guera	10,0	2,0	6,9	4,9	6,9	9,2	8,0	8,6	9,4	5,8	5,6	6,9	7,9	6,3
Hadjer-Lamis	0,0	0,7	4,9	3,5	6,5	9,2	8,0	8,6	9,8	3,4	6,8	6,7	7,8	7,0
Kanem	10,0	3,9	7,4	5,2	7,5	9,2	8,0	8,6	9,9	4,2	5,4	6,5	7,7	7,4
Lac	10,0	10,0	8,4	9,0	8,8	9,2	8,0	8,6	9,9	4,0	5,6	6,5	7,7	7,8
Logone Occidental	0,0	1,4	3,1	3,5	5,4	9,2	8,0	8,6	8,8	6,4	5,4	6,9	7,9	6,1
Logone Oriental	0,0	2,6	3,4	6,5	6,6	9,2	8,0	8,6	9,3	6,8	5,0	7,0	7,9	6,9
Mandoul	0,0	1,7	2,4	3,9	5,9	9,2	8,0	8,6	9,5	6,9	4,9	7,1	7,9	6,0
Mayo-Kebbi Est	0,0	2,0	3,2	3,5	4,8	9,2	8,0	8,6	9,2	6,7	5,5	7,1	7,9	6,1
Mayo-Kebbi Ouest	0,0	0,8	2,6	2,0	4,3	9,2	8,0	8,6	8,8	7,0	4,2	6,7	7,8	5,4
Moyen-Chari	0,0	1,4	3,0	4,6	5,6	9,2	8,0	8,6	8,3	5,2	5,3	6,3	7,6	6,3
Ouaddai	0,0	0,8	4,6	7,3	8,1	9,2	8,0	8,6	9,8	7,1	7,6	8,2	8,4	7,3
Salamat	0,1	1,0	5,6	4,7	6,9	9,2	8,0	8,6	9,7	5,8	6,1	7,2	8,0	7,1
Sila	0,1	0,2	4,4	5,1	7,0	9,2	8,0	8,6	8,8	6,1	6,2	7,0	7,9	6,7
Tandjile	0,0	1,7	4,1	3,7	5,5	9,2	8,0	8,6	9,4	6,1	4,8	6,8	7,8	6,2
Tibesti	0,0	10,0	6,1	3,8	6,4	9,2	8,0	8,6	8,9	7,5	7,5	8,0	8,3	6,6
N'Djamena	0,0	x	4,6	4,6	3,9	9,2	8,0	8,6	5,5	4,3	6,4	5,4	7,3	6,0
Wadi Fira	10,0	1,9	6,8	8,0	8,2	9,2	8,0	8,6	10,0	8,9	7,4	8,8	8,7	7,6

FIGURE 20

CHANGE IN LAND USE IN CHAD BETWEEN 1975 AND 2013

Source : NAP-GEF Project. 2021. Vulnerability and adaptation to climate change in the agriculture, livestock, fishery and water resource sectors in Chad.



Pressure on natural resources has also contributed to degrading the historical relationship between pastoral and agricultural societies. As a result, the relationship between herders and farmers that was based on complementarity has devolved into competition over natural resources, resulting in an increase in land conflicts. Degraded areas are estimated to cover 428,000 km², or 33.43 percent of the total area. Open forests declined by 29 percent between 1975 and 2013, a loss of 4,700 km². Agricultural expansion has largely been responsible for the decline in vegetation cover between 1975 and 2013, with an average expansion rate of 5 percent. Nationwide, the area under cultivation increased 190 percent between 1975 and 2013. The reduction in the size of Lake Chad from 25,000 km² to 2,500 km² between 1963 and 2008 has negatively impacted biodiversity and quality of life in the surrounding communities. It has also increased the risk of migration and conflict.³⁷

Assessing vulnerability to climate change is all the more important because the country's characteristics make it highly sensitive to such changes. The assessment began by identifying climate risks and vulnerable groups and then examined the impacts of climate change on both natural and human systems.

6.2 GENDER INEQUALITY

Gender inequalities are very pronounced in Chad; however, the political, legal and socio-economic environment in Chad is gradually changing and a response is being made. Several international instruments, such as the Convention on the Elimination of All Forms of Discrimination against Women and the 2030 Agenda, have increased the focus on the need for access to basic social services for girls and women, although the results are still mixed in terms of reducing social inequalities.

In addition, the process of adopting the National Gender Policy lasted seven years, between 2010 and 2017. The vision of this policy is: "By 2063, Chad will be a country free of all forms of gender inequalities and inequities, all forms of violence, where men and women have equal access to and control over resources and participate equitably in decision-making bodies for sustainable development."

Even before the Policy was adopted, several sectoral programmes and strategies, including the National Food Security Programme, the National Rural Sector Investment Plan and the National Social Protection Strategy, had identified opportunities to address social and gender inequalities in rural development.

³⁷ NAP-GEF Project. 2021. Vulnerability and adaptation to climate change in the agriculture, livestock, fishery and water resource sectors in Chad.

Two studies have recently been completed, the first on gender and climate change in Chad,³⁸ the second on gender mainstreaming in the NAP process in Chad.³⁹

Both studies also highlighted the poor understanding of the concept of gender by different actors (i.e. national decision makers and some women themselves) and its links to climate change. They show that limited education, cultural barriers, unequal social responsibilities and low participation in decision-making by girls and women are at the root of their vulnerability and hinder their ability to adapt to climate change. In particular, these studies emphasize that persistent prejudices and stereotypes within administrations make it difficult for planners and policymakers to take ownership of gender.

Both studies emphasize three cross-cutting priorities that will be important to making progress in both the adaptation and mitigation components of the NDC:

- Strengthen the capacity of the Ministry in charge of gender and other ministries involved in climate change to fulfil their catalytic role in integrating gender into gender-responsive adaptation planning, budgeting and training.
- Systematize the implementation of a gender approach in formulating climate policies, strategies, plans and programmes and sustainable development projects.
- Ensure women's access to decision-making spheres with support that provides education, information and economic empowerment.

It is important to note that these studies are preliminary and do not enter into the level of detail required to properly inform adaptation planning. Indeed, research has shown that vulnerabilities related to climate change and its effects on communities are gendered and that weak gender analysis in planning processes deprives the most vulnerable of assistance.⁴⁰

In order to understand people's capacities to cope with and adapt to climate change, it is therefore essential to develop a broad understanding of the gender-related vulnerability that emerges from poverty, social discrimination and sociocultural practices in different political, geographic and historical contexts, in addition to climate variability and environmental and/or natural

hazards. Nevertheless, there continues to be insufficient understanding of the different coping strategies used by men and women of different social classes and groups to secure their livelihoods in the short and medium term. Access to resources (land, water and money) is important, but the way in which they relate to social roles, norms, values and cultural identities in different contexts must be analysed. Further analysis should be done to examine how adaptation is shaped by the differences in household structures, the division of labour and the rights and responsibilities that flow from them.

6.3 POVERTY

Despite considerable structural obstacles, Chad has made significant progress in reducing poverty over the past 15 years. Nevertheless, Chad remains one of the poorest countries in the world. According to the 2018 Human Development Index, Chad ranks 187th out of 189 countries and territories.

According to the latest Household Consumption and Informal Sector Survey of Chad (2018–2019), approximately 42 percent of Chadians, or 6.5 million people (i.e. 3.4 million women and 3.1 million men), live below the national poverty line of 242,094 CFA francs per year, or 663 CFA francs (equivalent to \$1.20) per day. Approximately 15 percent of the population (2.4 million people) live in extreme poverty, i.e. they cannot meet their basic nutritional needs of 2,300 calories per day. Using the international poverty line of \$1.90 per day (based on 2011 purchasing power parity), data show that 33.7 percent of the population lives in extreme poverty.⁴¹

38 Sarr and Djoula. 2020. Chad: gender analysis and climate change. Project to strengthen the resilience of local communities to the impact of climate change in Chad. National Water Fund.

39 National Adaptation Plan Global Network and the Ministry of Environment, Water and Fisheries. 2021.

40 Rao et al. 2017. Gendered vulnerabilities to climate change: insights from the semi-arid regions of Africa and Asia, *Climate and Development*, vol. 11, No. 1, pp. 14–26, <https://doi.org/10.1080/17565529.2017.1372266>.

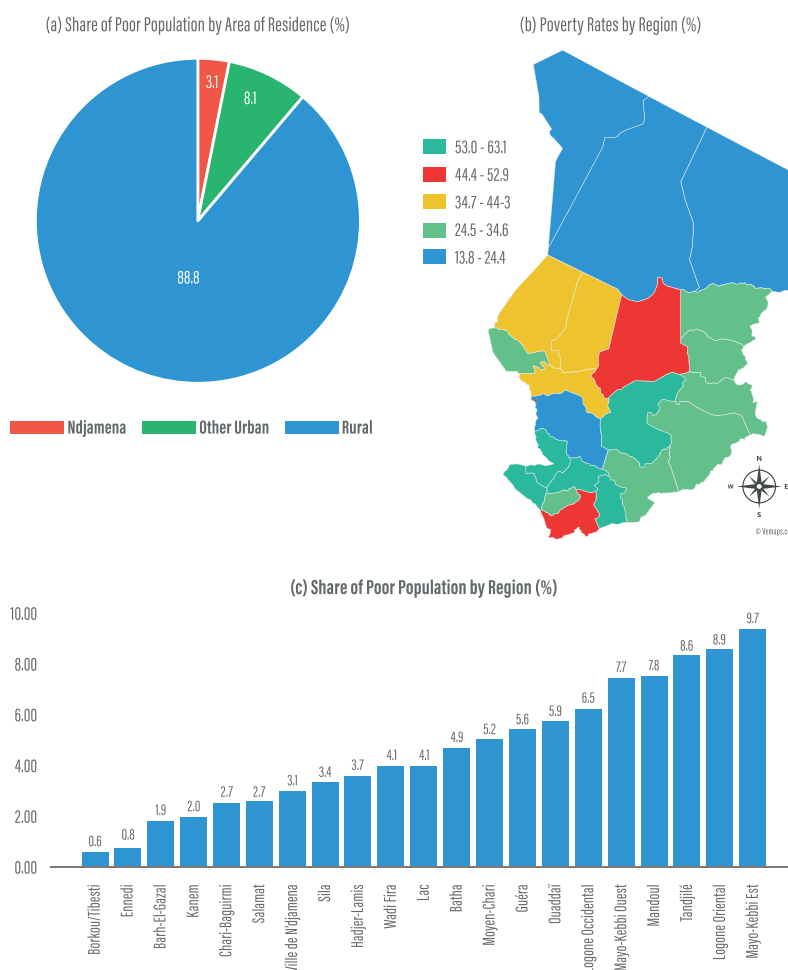
41 World Bank. 2020. Chad: Economic and poverty update under COVID-19. <https://openknowledge.worldbank.org/handle/10986/34563>.

The latest World Bank study Chad Poverty Assessment: Investing in Rural Income Growth, Human Capital, and Resilience to Support Sustainable Poverty Reduction, published in October 2021, represents the most recent and detailed study on the various aspects of poverty. It is the source of the data in this section. This study shows that poverty rates at the national level have decreased significantly over the past 15 years. The share of Chadians living below the national poverty line decreased by 12 percentage points between 2003 and 2018. Poverty levels vary considerably by region, with a significant difference between rural and urban areas. Nearly 89 percent of poor households are in rural areas, while only 3 percent are in the capital city of N'Djamena.

The Multidimensional Poverty Index measures different deprivations that an individual or household faces at a given time. People are considered multidimensionally poor if they are defined as deprived in at least 30 percent of the indicators covering six dimensions of well-being.

FIGURE 21
DISTRIBUTION OF THE POOR POPULATION BY REGION

Source : World Bank. 2021. Chad Poverty Assessment: Investing in Rural Income Growth, Human Capital, and Resilience to Support Sustainable Poverty Reduction.



The lowest scores in the country are in N'Djamena, followed by the Sudanian zone in the south. The Saharan zone in the north has the highest average scores. Regionally, the highest scores on the Index are found in the Lac Region, which is experiencing widespread population displacement due to the Boko Haram insurgency and accelerated environmental instability. It is followed by the Sila Region, which is facing escalating tensions between farmers and herders, spillover effects from recurring conflicts in neighbouring Sudan and a sharp decline in world prices of cotton, the region's main export.

The decline in the Index scores reflects significant progress in improving housing conditions and available assets among the country's poorest households. Pro-poor nutrition and education policies have also contributed to the decline in multidimensional poverty. Progress in improving access to basic services among multidimensionally poor households has been mixed.

FIGURE 22
MULTIDIMENSIONAL POVERTY INDEX BY REGION

Source : United Nations Office for the Coordination of Humanitarian Affairs. 2017. 2018 Humanitarian Needs Overview: Chad.

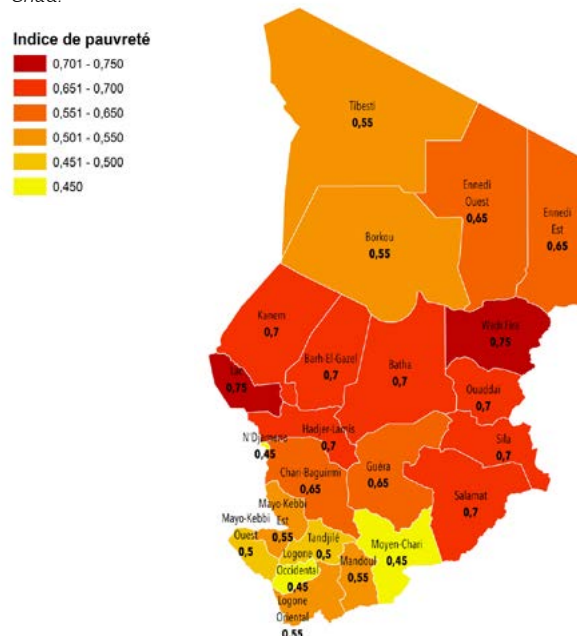
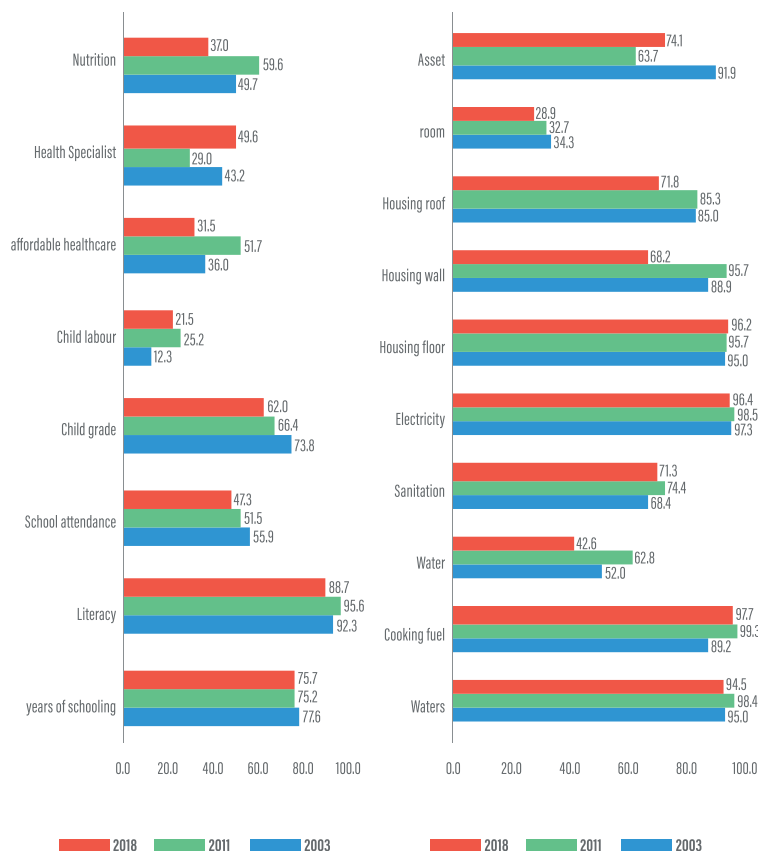


FIGURE 23
DEPRIVATION BY INDICATOR AMONG MULTIDIMENSIONALLY POOR HOUSEHOLDS

Source : World Bank. 2021. Chad Poverty Assessment: Investing in Rural Income Growth, Human Capital, and Resilience to Support Sustainable Poverty Reduction.



Due to the substantial differences in livelihood patterns within Chad, the analysis examined the Saharan, Sudanian and Sahelian agroecological zones separately.⁴² Transhumance pastoralism is the dominant economic activity in much of the sparsely populated Saharan zone. Households in this zone are less likely to experience monetary poverty than households in other areas, but they are highly likely to experience multidimensional poverty. By contrast, monetary poverty is extremely pervasive in the densely populated Sudanian zone, where most households derive their income from smallholder farming and related activities. Agropastoralism is common in the semi-arid Sahelian zone, where a favorable climate for crops and livestock offers considerable potential for diversification, but environmental degradation is intensifying conflicts between farmers and herders. Each zone faces unique challenges, and addressing poverty will require solutions tailored to address the specific circumstances of Chad's diverse households.

The analysis concludes that while the causes of poverty are complex and overlapping, four factors are particularly relevant: (i) a lack of economic diversification, (ii) low productivity in the rural sector, (iii) exposure to shocks and (iv) low levels of human capital.

6.4 INDIGENOUS PEOPLES

Two groups are considered indigenous to Chad: the Peul M'Bororo and the Toubou, two pastoralist communities.⁴³ Their nomadic and semi-nomadic way of life makes it difficult to take a census. These indigenous peoples face difficulties in accessing land and natural resources such as water and grazing land. Climate change exacerbates this situation by accentuating these difficulties. This disrupts the transhumance corridors, increasing the vulnerability of these nomadic populations. Indigenous peoples contribute to the preservation of the Sahel's fragile ecosystems and their traditional knowledge deserves to be used, as it provides a valuable opportunity to complement the climate science base and identify other sustainable adaptation options. The Government

has committed to involving these populations in national adaptation efforts and facilitating their own adaptation, including by appointing Hindou Oumarou, the President of the Association of Peul Women and Indigenous Peoples and a human rights and climate activist, as the Goodwill Ambassador to the Presidency of the Republic.

6.5 CONFLICT, MIGRATION AND INTERNAL DISPLACEMENT

Violence in the Central African Republic, Nigeria, South Sudan and Sudan continues to push people across the border into Chad, exacerbating already protracted refugee crises in the country's east, south and lake regions. As of 31 December 2021, Chad had 555,787 refugees and asylum seekers in its territory, including 374,216 Sudanese from Darfur, 121,511 Central Africans primarily in the south, 35,878 Cameroonians and 19,321 Nigerians in the Lake Chad area, 254 Congolese, and over 4,607 refugees and asylum seekers whose origins are not specified. Between December 2019 and January 2020, approximately 16,000 new Sudanese refugees crossed the border into eastern Chad, fleeing inter-ethnic violence.⁴⁴

The majority of refugees live in camps; however, approximately 30 percent of Nigerian and Central African refugees are settled in host villages. In some regions, particularly in the east, the majority of refugees leave the camps before the start of the rainy season for "opportunity villages". In the Lake Chad area, the security situation limits refugees' and host communities' access to land and fishing areas.⁴⁵

In the Lake Chad region, climate change and conflict dynamics create a loop in which the impacts of climate change create additional pressures, while conflict undermines the communities' ability to cope. The people of Lake Chad are trapped in conflict. Violent conflicts between State security forces and armed opposition groups, poor governance, endemic corruption, environmental mismanagement and poverty have ruined the lives of local people. Climate change exacerbates these difficulties.⁴⁶

42 World Bank. 2021. Chad Poverty Assessment: Investing in Rural Income Growth, Human Capital, and Resilience to Support Sustainable Poverty Reduction

43 See <https://www.iwgia.org/en/chad/3498-iw2019-chad.html>.

44 Office of the United Nations High Commissioner for Refugees. <https://data2.unhcr.org/en/country/tcd>.

45 Office of the United Nations High Commissioner for Refugees. 2018. Chad. Country Refugee Response Plan [https://reporting.unhcr.org/sites/default/files/Chad Country RRP 2019-2020 - March 2019.pdf](https://reporting.unhcr.org/sites/default/files/Chad%20Country%20RRP%202019-2020%20-%20March%202019.pdf)

46 Vivekananda et al. 2019. Shoring Up Stability: Addressing Climate and Fragility Risks in the Lake Chad Region. Berlin: adelphi. <https://shoring-up-stability.org/wp-content/uploads/2019/06/Shoring-up-Stability.pdf>.

More generally, the socio-economic crises that have occurred in Chad in recent years are putting pressure on protection efforts and the ability of authorities, communities and families to protect those most at risk. This concerns both Chadian populations and refugees and particularly affects children and people with special needs, particularly women and girls. In addition, refugees and other displaced persons often face increased risk due to their displacement status. Protection challenges and solutions in Chad can only be properly addressed through a combination of concerted and coordinated humanitarian, resilience and development actions.

The security implications have also disrupted traditional cross-border transhumance and trade, with consequences for the national and local economy. Whether the people trapped in conflict can escape will depend on a nuanced understanding of the interaction between climate change and conflict in this specific context.



7

IMPACTS OF CLIMATE CHANGE ON
VARIOUS SECTORS

7.1 WATER AND SANITATION

7.1.1 Water resources

Detailed quantitative information on water resources, their monitoring and use remains limited, which is a major impediment to their integrated management.

Significant efforts for mapping and developing a database have been made under the ResEau Programme supported by the Swiss Development Cooperation. Nevertheless, the last comprehensive review of water resources and their mobilization dates back to the analyses carried out in preparation for the 2003–2020 Water and Sanitation Master Plan, which is over 20 years old.⁴⁷

The impacts of climate change in recent decades on surface water resources are well illustrated by the drastic reduction in the water level of Lake Chad between 1966 and 1975, following a drop in rainfall of up to 95 percent, and the diversion of river water for irrigation, for which needs have quadrupled as a result of the significant increase in the population of the Lake Chad basin. The evolution of Lake Chad over the last few decades has become a symbol of current climate change. Continuing to face major threats, its current variability to the effects of climate change remains extremely uncertain but still illustrative.

Other lakes in the country have also been severely impacted by droughts in the 1970s and 1980s; Lake Fitri dried up completely in 1973 and 1984 as a result of the significant reduction in inflows.

The country's two major rivers, the Chari and the Logone, have also experienced marked variability in their hydrological regimes. In fact, the lowest discharge of the Chari in N'Djamena (i.e. 235 m³/s) was recorded in 1984, and there is a clear downward trend, although the last few years suggest some improvement.

Current projections of water availability in Chad are subject to **a high degree of uncertainty**, regardless of the greenhouse gas emission scenario considered. For a constant population level, the median projection of multiple models suggests no change in the amount of water available per capita in the country by the end of the century under the two RCP models. In contrast, if population growth as estimated in the Shared Socio-economic Pathways projections is taken into account,

the per capita water availability in Chad is projected to decline by 75 percent by 2080, relative to the year 2000, under both scenarios. **Although this decline is primarily due to population growth and not climate change, it underscores the urgency of investing in water-saving measures and technologies for future consumption.**

Projections on the availability of rainfall also vary by region. In line with rainfall projections, **water availability is expected to increase in central and northern Chad**—the latter in particular—under both RCP models. It is also important to note that the models show divergent results with respect to these increases.

In recent decades, Chad has been subject to strong seasonal and annual variations in rainfall, which was a significant problem for agricultural production given **the severe droughts experienced between 1950 and 1980**. Annual precipitation totals then began to increase. Other droughts have been recorded more recently, in 2005, 2008, 2010 and 2012.

It is also important to note that regions with below-average rainfall are also those with the greatest inter-annual rainfall variations, which increases the vulnerability of the rural poor, making them more susceptible to climate shocks and exposing more households to the risk of falling below the poverty line. Areas affected by population and livestock displacement (including conflict-related displacement) are also vulnerable as a result of the pressure from newcomers on natural resources, including water, and essential services. These situations contribute to food insecurity or malnutrition, which affected nearly 5.5 million people in 2021.⁴⁸

Adaptation planning for the water sector must be undertaken through integrated management that considers population growth scenarios, the changes in water usage according to agricultural needs, conflicts between farmers and pastoralists, internal displacement and migration and the conflict situation that persists in the broader region.

7.1.2 Water supply

The supply of drinking water in both urban and rural areas is largely based on groundwater exploited from boreholes and large diameter wells. Because these structures are not always resilient, they may be adversely affected by climate change. **On**

47 World Bank. 2019. Water and Sanitation Sector Note. <https://documents1.worldbank.org/curated/en/990891563355313917/pdf/Chad-Water-and-Sanitation-Sector-Note.pdf>.

48 United Nations Office for the Coordination of Humanitarian Affairs. 2021. Chad Situation Report. <https://reports.unocha.org/en/country/chad/>.

the one hand, the combined effects of reduced precipitation and high temperatures can cause these structures to dry up. On the other hand, floods cause groundwater pollution through poorly protected catchments.

These factors are among the major causes of poor **access to basic services and safe drinking water, which is estimated at only 44 percent** of the population nationwide, according to recent data from the Joint Monitoring Programme (2019–2020). These data also show that approximately 10 percent of the country's rural population continues to rely on untreated surface water—a source that is highly vulnerable to the impacts of climate change.⁴⁹

7.1.3 Sanitation

Access to hygiene and sanitation services in Chad is still poor. According to the Joint Monitoring Programme report, 66 percent of the population still practice open defecation and **only 20 percent have adequate sanitation services**. Open defecation is almost the norm in rural areas (82.4 percent of the population).⁵⁰

In urban areas, most people relieve themselves in latrines that are not watertight or only loosely sealed and dug at depths above the water table. This practice constitutes **a definite source of pollution for groundwater as well as surface water sources** in the event of a strong rise in the potentiometric surface. In addition, the poor management of household, medical or industrial waste can be the cause of pollution for both surface water and groundwater owing to flooding or rising potentiometric levels.⁵¹

It is important to link water, sanitation and hygiene deficits to other development indicators and human capital development. Certain factors are particularly critical in terms of both underdevelopment and the humanitarian crisis facing many parts of Chad, especially its conflict-prone border areas. Access (or lack thereof) to water, sanitation and hygiene contributes greatly to the country's structural vulnerability and affects its health and nutritional situation. In education, the lack of water, sanitation and hygiene also limits the development of human capital.

Problems related to access to water, water storage and the lack of sanitation and hygiene also increase the risk of epidemics. Since 1990, diarrhoeal diseases remain the leading cause of premature mortality in Chad, which has the highest mortality rate attributable to diarrhoeal diseases among children under

5 years of age in sub-Saharan Africa. The rainy season and stagnant water in the lowlands aggravate the intensity and even the lethality of malaria cases.⁵²

7.2 AGRICULTURE AND LIVESTOCK

Chad is characterized by the absence of disaggregated data on agriculture at the regional level. The country is also characterized by varied production systems depending on the bioclimatic zone. For these reasons, current knowledge on the effects of climate change on the agricultural sector in Chad remains very general, with few quantified references by crop and by region and very little socio-economic data.⁵³

Largely rain-fed and shifting, Chadian agriculture is highly dependent on the rainfall regime and will therefore be strongly impacted by climate change. Food crops dominate agriculture, making up 80–85 percent of the subsector. Agriculture contributes 23 percent of GDP, of which 20 percent comes from food production and 3 percent from cash crops.⁵⁴

Livestock production in Chad is largely extensive and based on natural rangelands, which are the main forage resources recommended for feeding livestock. Inevitably, livestock production remains dependent on the availability of forage resources, the productivity of which remains closely linked to annual rainfall. In addition, a “clear regression of pastoral areas, due not only to anthropic pressure but also to the decrease in rainfall,” was noted. The combination of poor livestock nutrition and diseases accelerated by climate change, particularly trypanosomiasis, has led to high mortality rates, which reached 30 percent of the cattle herd, or 780,000 head, in 2009 in the regions of Kanem, Lac, Chari-Baguirmi, Hadjer-Lamis and Bahr el Gazel. Other species have not been spared.⁵⁵

The impact of climate change and hazards on agriculture and livestock production is reflected in:

- a reduced agricultural season and increased frequency of dry days during the agricultural season, resulting in significant drops (of 10–25 percent) in the yields and production of food crops (i.e. millet, sorghum and maize) owing to water shortfalls caused by successive droughts, high temperatures, late onset of rainy seasons and/or the early cessation of rain

49 Contribution by the Water, Sanitation and Hygiene Team.

50 World Bank. 2019. Water and Sanitation Sector Note (see footnote 46).

51 Contribution by the Water, Sanitation and Hygiene Team

52 World Bank. 2019. Water and Sanitation Sector Note (see footnote 46).

53 NAP Project 2021. Vulnerability and adaptation to climate change in the agriculture, livestock, fishery and water resource sectors in Chad.

54 See <http://www.fao.org/tchad/notre-bureau/le-pays-en-un-coup-doeil/fr/>.

55 Second National Communication on Climate Change, Chad, Ministry of Urban and Rural Hydraulics, 2012.

- a shrinking production area for cash crops, such as cotton, the cultivation of which has gradually moved from the Sudano-Sahelian zone to the Sudanian zone
- a regression of the vegetation cover and an expansion of cultivated lands at the expense of forest lands, which can lead to irreversible deforestation in the long term
- an extension of the distribution area of crop pests (insects, diseases, etc.) that can lead to a decrease in agricultural production
- significant impacts on the modalities of livestock transhumance owing to possible reductions in forage biomass with prolonged stays in the south, as well as an evolution towards agropastoral systems.

These impacts primarily affect already fragile populations and add to existing frequent food insecurity and conflicts between nomadic pastoralists and sedentary farmers.

They are all the more worrying given the importance of this sector in Chadian society. These issues are fundamental for the country's development objectives because the sector employs 83 percent of the country's active population, 47.9 percent of whom are women. Livestock alone accounts for 8 percent of GDP⁵⁶ and provides direct and indirect income to 40 percent of the population.⁵⁷ Given the concentration of poor households in the agricultural sector—52 percent of people living in a household headed by a farmer are poor⁵⁸—the fluctuating rainfall pattern has a strong influence on poverty.

The impacts of climate change on agriculture and livestock will also have significant effects on the entire food chain of the Chadian population, which suffers from malnutrition and food insecurity.

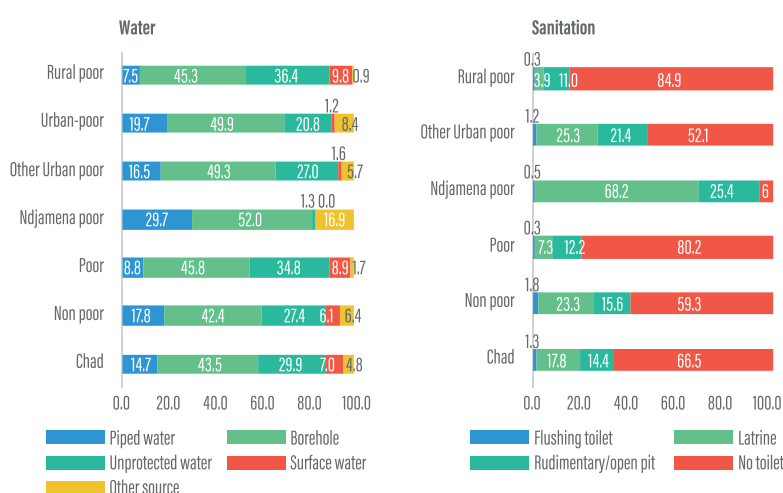
7.3 FISHERY RESOURCES AND AQUACULTURE

Chad is well endowed with water resources, with several major permanent watercourses: Lake Chad, inland lakes, the Chari River (1,200 km), the Logone River (1,000 km) and other temporary watercourses. Chad has 136 species of freshwater fish, 80 percent of which are suitable for commercial exploitation. These species include catfish, tilapia, African threadfin and other species such as those of the genera *Alestes* and *Hydrocynus*. Average fish production is estimated at 100,000 tons per year. The production of artisanal and improved spirulina is estimated at 405 tons. Nearly 35 percent of the sector's production comes from Lake Chad, and 65 percent comes from rivers, floodplains and inland lakes. The fishing and aquaculture sector represents 3 percent of GDP.⁵⁹ Fish farming is still underdeveloped and produced only 156 tons in 2016; this represents a very small percentage of total national fish production.⁶⁰

FIGURE 24

ACCESS TO BASIC SERVICES IN CHAD

Source: World Bank. 2021. *Chad Poverty Assessment: Investing in Rural Income Growth, Human Capital, and Resilience to Support Sustainable Poverty Reduction*.



56 Second National Communication on Climate Change, Chad, Ministry of Urban and Rural Hydraulics, 2012.

57 Economic Commission for Africa, 2016. <https://repository.uneca.org/handle/10855/23690>.

58 World Bank. 2020. Chad: Economic and poverty update under COVID-19. <https://openknowledge.worldbank.org/handle/10986/34563>.

59 National Rural Sector Investment Plan. 2016. <http://extwprlegs1.fao.org/docs/pdf/Cha173116.pdf>.

60 Agricultural Development Policy Declaration, 2016.

Recent studies by the Economic Commission on Cattle, Meat and Fish Resources, carried out in 2020, estimate that 435,175 people live off of fishing and related activities. The number of fishers is estimated at 208,452, of which 20,845 are professionals (including a significant proportion of foreign fishers) and 187,607 are agrofishers (including 3,500 women). The fishing and aquaculture sector is largely artisanal and is confronted with recurring droughts, the clogging of rivers and lakes due to erosion in watersheds and the consequences of accelerated deforestation. The lack of supervision and overfishing are also major challenges for the sector.⁶¹

The climate change recorded to date has significantly modified aquatic environments with the following impacts:

- Droughts and the related silting of the river system have resulted in the loss of an estimated 210,000 ha of spawning areas in the Chadian floodplains and the marshes of Lake Chad.⁶²
- Most of the known fish species in Chad are endangered today because of climate-related hazards and, more particularly, because of the sharp decline and change in the quality (i.e. salinization) of surface waters.
- An increase in temperature and accelerated decomposition of organic matter have led to a loss of oxygen saturation that eliminates many fish species, especially in marsh water.
- Reproduction of many migratory species in the floodplains, which receive very little water owing to low inflows, has been poor. This includes an important trade species, the pebbly fish (*Alestes baremoze*), which recovers in years of good riverine flooding.

Furthermore, the increase in the number of fishers and the widespread use of small-mesh nets and active gear have aggravated these negative effects on the fishery potential by increasing the depletion of rare species and capturing juveniles. The lack of planning and management mechanisms has resulted in a production shortage and a sharp reduction in economic gains for fishers.

Fishing is considered a growth sector in the National Development Plan (2017–2021) and in the NDC (2015). **Nevertheless, the integration of climate considerations in this sector is very weak because of a lack of quality economic analyses and in-depth risk and vulnerability assessments of the fishing sector.**

7.4 ENVIRONMENT AND FOREST RESOURCES

Climate change is expected to have a significant influence on the ecology and distribution of ecosystems in Chad, especially forest ecosystems; nevertheless, the magnitude, level and direction of these changes are uncertain. There is a significant lack of environmental data, which limits the ability to assess impacts. Forests are perhaps one of the most important ecosystems, not only because they are home to a large number of animal species but also because of their socio-economic value. The Food and Agriculture Organization of the United Nations reports that since the existence of the forestry service in Chad, **no national forest inventory has been conducted. Only a few localized and specific parcel inventories have been conducted in the context of scattered projects and programmes.**⁶³

Chad has a biodiversity that is particularly rich in the Tibesti desert, the southern Sudanian zone and the floodplains and wetlands surrounding various watercourses.⁶⁴ As temperatures rise and droughts increase in frequency and intensity, wetlands and river systems are increasingly at risk of evolving into other ecosystems, with plants being supplanted by other species and animals losing their habitat.

The projections made in the framework of the German Agency for International Cooperation Climate Risk Profile (2021) represent the most recent and relevant data on the impact of climate change on ecosystems.

The analyses evaluated projections related to species diversity (amphibians, birds and mammals) and forest cover in Chad, which show similar patterns of change regardless of the RCP considered. The models predict that the number of species will increase up to 40 percent in north-eastern Chad and decrease up to 20 percent in western and southern Chad by 2080. Another analysis shows that biodiversity and protected areas in Chad are currently affected by climate change; those in the western part of the country are more vulnerable than others to its impacts. This analysis expects relatively small changes in species richness for mammals, birds and amphibians, but identifies many species as vulnerable to climate change based on their specific biological traits. In particular, a significant number of species of mammals, birds, reptiles, amphibians and freshwater fish have been identified, particularly in the

61 NAP Project. 2021. Vulnerability and adaptation to climate change in the agriculture, livestock, fishery and water resource sectors in Chad.

62 Second National Communication

63 Food and Agriculture Organization of the United Nations 2020. Global Forest Resources Assessment. Chad Report. <https://www.fao.org/3/ca9825fr/ca9825fr.pdf>

64 Convention on Biological Diversity. Country Profile. Chad. <https://www.cbd.int/countries/profile/?country=td>. Accessed August 2021.

Sahelian and desert regions. Of these species, those that have been assessed as globally threatened should be considered priorities for conservation.⁶⁵

With respect to forest cover, the models predict a 2 percent decrease in forest cover for the southernmost part of Chad according to RCP2.6 and a 2 percent increase according to RCP6.0 by 2080. It is very important to note that forest cover projections should be considered with caution, given the uncertainty in related values for most regions of Chad.

Although these results describe a rather positive view of the impacts of climate change on biodiversity and forest cover, it is important to keep in mind two important factors:

- the degree of uncertainty in climate models
- the fact that **model projections exclude the impact on biodiversity of human activities such as overexploitation and land use**

Indeed, the country's natural resources are already exposed to anthropic pressure that greatly exceeds their capacity. Overexploitation and the unsustainable use of biological resources owing to extreme poverty and demographic pressures (i.e. waves of refugees and a growing population) are the main factors of loss. Pressure on terrestrial ecosystems and biodiversity is exerted through poorly managed pastoral systems, deforestation, land clearing and bush fires for agriculture, and the proliferation of pests and invasive species. The concomitance of this pressure with the negative effects of climate change (e.g. weakened productivity, reduced natural regeneration, etc.) only aggravates degradation in terms of both vegetation dynamics and spatial occupation, which was reduced from 23.1 million ha in 1990 to 21.7 million ha in 2005.⁶⁶ The influx of people into affected areas, timber exploitation and the need for pastures and farmland have led to high rates of deforestation; Chad lost 1.54 million ha (i.e. 25 percent) of forest cover between 2001 and 2016.⁶⁷ The overexploitation of wood resources for domestic use combined with climate change has led to deforestation in over 90 percent of the national heritage and has caused some plant species to go extinct between 1970 and the present.⁶⁸

Biodiversity loss in Chad has been greatly affected by recurrent droughts and extensive desertification. The effects

of climate change on this sector are reflected in:

- the fact that vegetation is limited to the lowlands, outwash plains and outcrops of the water table in the north; it is also highly vulnerable to extreme weather conditions
- increased dieback of woody plants and soil cracking in the Sahelian zone
- a relative reduction in the number of large trees, mainly in the Sudanian zone
- the disappearance of certain animal and plant species, especially aquatic species
- degradation of ecosystems and ecosystem services, especially wetlands and river systems that risk transforming into other ecosystems
- rising temperatures and increased droughts, which could also influence the renewal of forest systems and may lead to irreversible deforestation
- an increase in the risk of invasive species becoming established
- an increase in the risk of forest and bush fires

7.5 HUMAN HEALTH AND NUTRITION

Climate change poses significant threats to the health and nutrition sector owing to the increased frequency of heat waves, floods, droughts and storms.

The main health impacts would be in increased morbidity and mortality from vector- and non-vector-borne tropical diseases (e.g. malaria, cholera, bacillary dysentery and measles) and water-related diseases, which often occur after floods (e.g. diarrhoea and cholera). These impacts are already beginning to be seen; over 2.5 million malaria cases, including 8,693 deaths, were reported in 2018.⁶⁹ Increases in temperature and decreases in humidity resulting from climate change could lead to a significant increase in the number of meningitis cases and advance its seasonal onset. The southern part of Chad is part of the "meningitis belt," which largely corresponds to the Sahel region and is the site of the majority of meningitis epidemics.⁷⁰

The significant impacts of climate change on food and water supplies will increase the risk of malnutrition and food insecurity (two major health problems), as discussed in the previous sections. Food insecurity is one of the major problems in the country and is the subject of a significant amount of emergen-

65 United Nations Environment Programme-World Conservation Monitoring Centre. 2016. Improving the resilience of protected areas to climate change in Chad, PARCC Project Policy Brief. http://parcc.protectedplanet.net/system/comfy/cms/files/files/000/000/180/original/PARCC_Policy_Brief_CHAD.pdf.

66 According to the Food and Agriculture Organization of the United Nations, as quoted by the second National Communication.

67 German Agency for International Cooperation. 2021. Climate Risk Profile, Chad. op. cit.

68 Green Climate Fund Chad Country Programme. 2019. <https://www.greenclimate.fund/sites/default/files/document/chad-country-programme.pdf>.

69 World Health Organization. 2019. World Malaria Report 2019. <https://www.who.int/publications/i/item/9789241565721>.

70 German Agency for International Cooperation. 2021. Climate Risk Profile: Chad. op. cit.

cy aid. Chronic malnutrition in 14 regions of Chad impacts from 40.1 percent to 63.9 percent of people. The effects of climatic shocks associated with conflicts and migration exacerbate the various conditions of malnutrition.⁷¹

Climate change is also likely to aggravate difficulties in accessing basic health services, high mortality rates (i.e. infant, child, maternal and senile mortality) and low life expectancy at birth.

Chad is one of the countries in which temperatures are projected to rise significantly, by as much as 5°C by 2100, which will lead to more frequent heat waves and thus more heat-related deaths. Projections of the share of the population affected by at least one heat wave per year show a large increase for the RCP6.0 scenario, from 2.5 percent in 2000 to 14 percent in 2080. Moreover, for the same scenario, heat-related mortality is likely to increase threefold, to 12 deaths per 100,000 inhabitants annually.⁷²

7.6 EDUCATION AND COMMUNICATION

The education sector is a critical sector for advancing all of the country's development goals. It is directly and indirectly impacted by climate change. It is also directly impacted by extreme weather events (e.g. floods, heat waves, etc.), which can lead to the deaths of school children and teachers or impact school infrastructure. It is important to note that children are particularly vulnerable to the impacts of climate change. They are physically more vulnerable and less able to withstand and survive shocks such as floods, droughts, severe weather and heat waves.

The education sector is indirectly impacted by worsening deficiencies in water, sanitation and hygiene, which also negatively impact the quality of education and the development of human capital. According to the Joint Monitoring Programme (2018), 7 of 10 students lack access to adequate sanitation facilities and clean water. A Chadian girl spends about 1,500 hours a year, or 62 days, collecting water instead of studying. Those lucky enough to study must still miss school because there are no toilets adapted to their specific menstrual hygiene needs.

According to the Children's Climate Risk Index of the United Nations Children's Fund, Chad is ranked second in the

world for countries in which children are most at risk from climate change.⁷³

Master plans, strategies and other plans, as well as the National Adaptation Programme of Action, rarely take into account the specific needs, knowledge and skills of students, which are sustainable levers of change that can contribute to combating and adapting to climate change and other potential disasters.⁷⁴ Access to useful and usable climate information remains a problem in Chad, mainly because of poor access to the climate-related information that people need for production activities. People must not only be informed and sensitized, but above all they must be educated on the specific nature of environmental issues related to climate change.⁷⁵

The education and communication sector can also make an important contribution to adaptation. Investments in education for sustainable development have significant multiplier effects. Better quality education that builds knowledge and skills will help to improve sustainability practices and adaptation at the individual, institutional and community levels.

Improving educational outcomes could include investments in disaster-resilient infrastructure to reduce long-term disruptions to children's learning processes, as well as solutions that improve access to and the content of education to empower children, adolescents and teachers to participate in school-based activities focused on climate change adaptation and resilience and thus encourage children to contribute to solutions.

7.7 INFRASTRUCTURE, RISK MANAGEMENT AND ESSENTIAL LAND-USE PLANNING

It is clear that extreme weather events such as floods can severely affect infrastructure such as roads, storm sewers, drainage systems, housing and health infrastructure, as well as facilities for food production, water management and power generation.

Heat waves and rising temperatures can also impact infrastructure and human settlements as they can cause

71 Green Climate Fund Chad Country Programme. 2019. op. cit.

72 German Agency for International Cooperation. 2021. Climate Risk Profile: Chad. op. cit.

73 United Nations Children's Fund. 2021. The climate crisis is a crisis of children's rights. <https://www.unicef.org/media/105376/file/UNICEF-climate-crisis-child-rights-crisis.pdf>

74 International Union for Conservation of Nature. 2020. Policy Brief: Integrating Climate Change into the School Curriculum in Chad. https://www.iucn.org/sites/dev/files/content/documents/note_de_politique_-_integration_des_changements_climatiques_au_programme.pdf

75 Global Climate Change Alliance-International Union for Conservation of Nature. Project to improve information, education and communication among rural and peri-urban populations on climate change adaptation. https://hrms.iucn.org/iresy/index.cfm?event=vac.offline.download&offline_vacancy_id=3664.

cracking and faster degradation of roads, bridges and protective structures. Chad relies heavily on road transport, but the country's road density ranges from 6 km to 40.5 km per 1,000 km², and many unpaved roads become impassable during the rainy season, leaving many villages and rural communities isolated.

Climate change will also have significant impacts on human settlements and economic production sites, particularly in densely populated urban areas such as N'Djamena, Moundou or Sarh. Informal settlements are particularly vulnerable to extreme weather events. Makeshift dwellings are often built in unstable geographic locations such as riverbanks, where flooding can result in the destruction of homes, water contamination, injury or death. Inhabitants generally have a low capacity to adapt to such events owing to high levels of poverty and a lack of infrastructure to reduce risk.

Urban centres face episodes of flooding during heavy rains or river floods. For example, heavy flooding occurred in 1996, 1999, 2004, 2005, 2006, 2007/08, 2010 and 2016, which also affected precarious neighbourhoods in urban centres. In N'Djamena, these floods have destroyed houses and left thousands of people homeless.⁷⁶ In 2012, heavy flooding in southern Chad affected up to 700,000 people and at least 255,000 ha of arable land, and 96,000 houses were destroyed.⁷⁷

In Chad, there have been several initiatives related to producing climate information, notably through the Action Plan to Implement the National Climate Services Framework of Chad (2016–2020). Nevertheless, it is critical that adaptation planning be based on integrated risk assessments that take into account the spatial evolution of infrastructure, human settlements and land use, which can greatly increase exposure to climate risks. Given the country's significant population growth rate, Chad will have nearly 16 million people by 2025 and could have over 25 million by 2050. **It is therefore essential to consider infrastructure, disaster risk management and land-use planning together. The new national policy on land use, urban planning and housing may create opportunities in this regard.**

FIGURE 25
RANKING OF CHAD IN
THE CHILDREN'S CLIMATE
RISK INDEX

Source : United Nations
Children's Fund. *Children's*
Climate Risk Index.

CCRI RANK	COUNTRY	CLIMATE AND ENVIRONMENTAL FACTORS	CHILD VULNERABILITY	CHILDREN'S CLIMATE RISK INDEX
1	Central African Republic	6.7	9.8	8.7
2	Chad	7.0	9.4	8.5
2	Nigeria	8.8	8.1	8.5
4	Guinea	7.7	8.9	8.4
4	Guinea-Bissau	6.4	9.5	8.4
4	Somalia	7.0	9.3	8.4
7	Niger	7.3	8.9	8.2
7	South Sudan	6.8	9.2	8.2
9	Democratic Republic of the Congo	7.2	8.6	8.0
10	Angola	6.5	8.9	7.9
10	Cameroon	7.8	7.9	7.9
10	Madagascar	7.8	7.9	7.9
10	Mozambique	7.5	8.2	7.9

76 Green Climate Fund Chad Country Programme. 2019. op. cit.

77 United Nations Office for the Coordination of Humanitarian Affairs. Chad: Humanitarian Snapshot (as of 24 September 2012). N'Djamena, Chad. 2012. https://reliefweb.int/sites/reliefweb.int/files/resources/SS-2012-TCD_121002.pdf.



8

8
NATIONAL ADAPTATION
PRIORITIES

This chapter presents a set of adaptation priorities that have two objectives:

- improve the integration of adaptation into development planning
- strengthen the resilience of Chadian society and the economy to climate change

These priorities take into account the fact that several projects and initiatives with the same objectives are underway and continue to produce important studies.

The identification and selection of the priorities contained in this document was made in several steps:

- Identification of information gaps and enabling actions described in section 4.4
- Review and prioritization of key climate-related hazards and impacts in Chad
- Review of priorities identified in key adaptation planning documents, especially the National Adaptation Programme of Action, the first NDC, the National Climate Change Strategy and the Green Climate Fund Country Programme
- Technical consultation workshop in July 2021, which discussed the results of the above items and adopted a list of priority intervention areas and adaptation measures
- Regional consultation with communities and regional officials to confirm and prioritize the results of the technical consultation workshop
- Final pre-validation workshop in September 2021 to confirm these priorities

It is important to note that most of the priorities presented here will require further details under the NAP process, including those funded by the NAP-GEF Project, to build a pipeline of bankable projects. Other priorities will also be added to and/or updated on this list as the NAP process and other adaptation initiatives in Chad move forward, allowing other sectors and administrative levels to identify their adaptation priorities.

8.1 PRIORITY AREAS OF INTERVENTION

The review of national adaptation strategies and plans showed that most climate-related strategies echoed the priorities identified in the National Adaptation Programme of Action that were meant to be urgent priorities, addressing the short term. They did not consider the medium or long term and can be replaced by new priorities. It should be noted that Chad did not have comprehensive and detailed studies of the vulnerabilities impacting the population or socio-economic sectors. This task has been identified as a priority for the Chad NAP process.

The priority areas of intervention and groups vulnerable to climate change described in the National Adaptation Programme of Action and included in the first NDC were repeated and slightly updated in the second National Communication and the Green Climate Fund Country Programme.

TABLE 6

SUMMARY OF ADAPTATION PRIORITIES IN MAJOR CLIMATE CHANGE PLANS AND STRATEGIES IN CHAD

National Adaptation Programme of Action, 2009	Nationally determined contribution, 2015	National Climate Change Strategy, 2017	Green Climate Fund Country Programme, 2019
Water	Water	Agro-sylvo-pastoral and fishery production systems	Improve the resilience of agricultural production systems and urban systems
Agricultural production	Agriculture		
Grazing land	Livestock breeding		
-	Fishing		-
Risk management	Risk management	Risk management for extreme weather events	Prevent risks and manage extreme weather events

TABLE 7

MAIN CLIMATE-RELATED HAZARDS AND IMPACTS AFFECTING CHAD

Main climate-related hazard	Priority sectors	Factors aggravating vulnerability	Main impacts
Drought	<ul style="list-style-type: none"> · Livestock breeding · Agriculture · Water and sanitation · Health/nutrition, environment · Fishing · Social · Education, trade 	<ul style="list-style-type: none"> · Reduced biodiversity and the degradation of productive and forest ecosystems · Degradation of the quality of water resources and the fragility of aquatic ecosystems 	<ul style="list-style-type: none"> · Decrease in drinking water supplies · Loss of agricultural and livestock potential and associated income (i.e. loss of crops, livestock) · Loss of fishery potential and associated income · Malnutrition · Loss of life · Loss of natural habitat for wildlife and birds · Erosion
Increased temperatures	<ul style="list-style-type: none"> · Livestock breeding · Agriculture, health/nutrition, environment, education · Social · Water and sanitation · Trade 	<ul style="list-style-type: none"> · Urbanization · Degradation of agroforestry systems · Degradation of the quality of water resources and the fragility of aquatic ecosystems 	<ul style="list-style-type: none"> · Decrease in drinking water supplies · Loss of agricultural and livestock potential and associated income (i.e. loss of crops, livestock) · Loss of fishery potential and associated income · Malnutrition · Loss of life · Increased attacks from pests and insects · Impacts on biodiversity and degradation of the ecosystem
Floods	<ul style="list-style-type: none"> · Water and sanitation · Livestock breeding · Agriculture, health/nutrition, environment · Fishing · Social · Trade, infrastructure and housing · Transport · Tourism 	<ul style="list-style-type: none"> · Erosion · Solid and liquid waste · No territorial planning · Inadequate sewage systems 	<ul style="list-style-type: none"> · Extended and multiplied flood zones · Destruction and loss of land, habitat, community resources and associated income · Disruption of certain natural and productive ecosystems and associated income · Loss of pastures · Loss of crops · Loss of public and private infrastructure · Diseases · Loss of life
Strong winds	<ul style="list-style-type: none"> · Livestock breeding · Agriculture · Health/nutrition · Environment · Fishing · Social · Water and sanitation · Trade · Infrastructure and housing · Transport · Tourism 	<ul style="list-style-type: none"> · Degradation of forest and vegetation cover · Inadequate infrastructure 	<ul style="list-style-type: none"> · Destruction and degradation of infrastructure · Loss of livestock · Silting of wells and ponds · Eye diseases · Wind erosion
Bush and forest fires	<ul style="list-style-type: none"> · Livestock breeding · Agriculture · Health/nutrition · Environment · Social · Infrastructure and housing 	<ul style="list-style-type: none"> · Drought · Dwellings using vegetation (wooden roofs, etc.) 	<ul style="list-style-type: none"> · Loss of crops, harvests and livestock · Loss of forest cover · Damage to infrastructure and housing

The main areas of intervention are clusters of specific adaptation actions that aim to reduce vulnerabilities and impacts and improve resilience to climate change. In some cases, they correspond to an economic sector, but this is not always the case. Additionally, in some cases, stakeholders recognize that acting on vulnerabilities or causes of a problem will impact other priority sectors. For example, for the health and nutrition sector, the adaptation actions needed to address the causes of disease and malnutrition fall under the fields of agriculture, water and sanitation.

The priority areas of intervention were ranked according to the results of consultations with stakeholders. It should be noted that the number and order of priority areas has changed compared to other strategic documents, including the first NDC. Stakeholders identified additional priority sectors, namely, the environment, gender and social protection, education and land-use planning.

Stakeholders emphasized that the absence of these various sectors from climate change projects and strategies is not necessarily because they are not important or seen as a priority. The choice of priorities in previous documents was largely governed by the demands of technical and financial partners, weak political will and weak national coordination capacity for climate action.

The priority areas of intervention are as follows:

- 1 Agriculture and livestock
- 2 Environment and forestry
- 3 Water, hygiene and sanitation
- 4 Renewable energy
- 5 Gender and social protection
- 6 Education and communication
- 7 Management of risks and extreme weather events, infrastructure and land-use planning, housing and urban development
- 8 Aquaculture and fishery resources

For each area of intervention, a number of priority adaptation options were identified based on national priorities, consultations with stakeholders at the national and regional levels and consultations in the regions of Chad with communities and regional officials. The latter were carried out in the bioclimatic zones and took into account national realities.

It should be noted that most of these measures are **no-regret measures**. This is in response to the lack of studies on sector-specific risks, as well as the uncertainty of climate projections. They also consider implementation capabilities and constraints. For the most part, they were ranked according to a score compiling assessments of the effectiveness, feasibility, cost/benefit ratio and acceptability of each measure. The table and graphs below show the national average of the scores from the regional consultations.

TABLE 8
PRIORITY ADAPTATION MEASURES AND OPTIONS

		National average				
	Option	Effectiveness	Feasibility	Cost/ benefit	Acceptability	Combined score
Agriculture and livestock	Delimitation and planning of pastoral areas	2.75	2.72	3.25	2.52	11.25
	Forage crop development	3.12	2.75	3.5	3.12	12.5
	Regulation of pastoral mobility	3.57	3.2	4.4	3.4	14.57
	Management and creation of pastoral water points	4	3.275	4.3	3.45	15.02
	Diversification of water and soil conservation techniques	3.95	2.8	3.85	4.475	15.07
	Improvement of the adapted animal breed	3.975	3.15	4.6	4.125	15.85
	Water management for irrigated crops	4.175	3.1	4.35	4.675	16.3
	Development of a commodity chain approach in the agropastoral and organic agriculture sectors	4.25	3.4	4.25	4.575	16.67
	Agroforestry development	4.3	3.925	4.45	4.025	16.7
	Promotion of improved crop varieties	4.5	4.275	4.25	4.2	17.22
Environment and forestry	Bush and forest fire management	3.5	2.5	3.5	3	12.5
	Promotion of deferred grazing	3.65	2.85	3.9	2.825	13.22
	Protection and conservation of biodiversity and protected areas	3.75	2.72	4.25	3.55	14.27
	Establishment and/or effective management of community forests	4	3.5	4	3.5	15
	Showcasing of aboriginal skills and knowledge	3.82	3.9	3.6	4.22	15.65
	Promotion and development of non-timber forest products	4.37	4.27	4.3	4.57	17.52
Water and sanitation	Rainwater collection and treatment systems	3.6	2.725	3.075	3.225	12.62
	Promotion of basic sanitation measures (e.g. community-led total sanitation project and ecological sanitation)	4.2	4.35	3.925	3.05	15.52
	Improvement of knowledge on surface and groundwater resources	4.12	3.05	4.5	5	16.67
	Management of ponds and adaptive dams	4.57	3.4	4.5	4.625	17.1
	Construction of modern wells and boreholes	4.77	3.37	4.5	4.875	17.52
Renewable energy	Development of biogas	2.2	2.4	2.8	2.2	10
	Promotion of wind energy	3.1	1.8	3.1	3.67	11.85
	Popularization of butane gas	4.475	3.475	4.3	3.82	16.07
	Promotion of solar energy	4.7	3.65	4.9	5	18.25
	Popularization of improved stoves	4.9	4.4	4.9	5	19.2

		National average				
	Option	Effectiveness	Feasibility	Cost/ benefit	Acceptability	Combined score
Gender and social protection	Development of a disaggregated database	1	1	1	1	4
	Development of social safety nets	2.95	2.7	3.2	2.7	11.55
	Fight against negative social norms	3	2.8	3.4	3.4	12.6
	Facilitation of access to land for women and youth	3.375	3.025	3.35	3.075	12.82
	Promotion of green entrepreneurship for women and youth	3.475	3.425	4	3.625	14.52
Education and communication	Popularization of books and training guides	2	2.4	2.4	2.6	9.4
	Adaption of school calendars to climate change	2.4	2.6	2.6	2.4	10
	Integration of adaptation into the education curriculum and in higher education modules	2.6	2.6	2.6	3	10.8
	Promotion of environmental literacy for adults	3.35	3.45	3.2	3.3	13.3
	Finalization and implementation of the NAP communication strategy*	3	4	4	4	15
	Promotion of environmental clubs in schools and universities	3.75	3.75	4.2	4.3	16
Risk management, infrastructure and land- use planning	Development of climate insurance	1	1	1	1	4
	Development of alerts and early warning systems	1.2	1.4	1.4	1.6	5.6
	Promotion of instruments such as zoning, building codes and redevelopment*	4	2	4	1	11
	Implementation of risk-sensitive and participatory land-use planning*	4	2	4	1	11
	Management of new climate-related natural disasters based on risk zone maps*	4	2	4	2	12
	Implementation of risk management and climate disaster plans at the national and local levels	3.2	2.73	3.4	3.4	12.73
	Community awareness on climate risk prevention and management	3.27	3.02	3.5	3.25	13.05
Fishery Resources	Promotion of spirulina aquaculture	3	3	3.5	3	12.5
	Promotion of fish farming	3.375	2.875	3.75	3.375	13.37
	Stocking of dams and retention basins	3.3	2.7	3.7	3.7	13.4
	Use of appropriate fishing gear and equipment	3.5	2.9	3.5	3.5	13.4
	Increased fish supply	4.1	3.45	4.1	4.1	15.75

8.2 SYNERGIES WITH THE NATIONALLY DETERMINED CONTRIBUTION

As this first NAP was developed in parallel with the NDC and with the goal of updating the adaptation priorities for both documents, stakeholders emphasized that the implementation of this first NAP will occur within the framework for implementing the NDC for the period 2021–2026.

Stakeholders also stressed the importance of synergies between adaptation and mitigation actions. The following four points are particularly important to consider in the joint implementation of the NAP and the NDC.

8.2.1 Prioritize measures with co-benefits

One of the important elements that emerged from the consultations in Chad is the importance of emphasizing and prioritizing actions that create synergies and co-benefits for adaptation and mitigation, thereby maximizing the impact of climate change investments in Chad through better synergy between the NAP and the NDC. Indeed, by 2030, Chad will implement several climate change adaptation measures that will have mitigation benefits, especially nature-based solutions that will build resilience to climate change, contribute to capturing greenhouse gas and help to achieve other SDGs. These actions will also have beneficial effects on biodiversity, health and the socio-economic well-being of communities.

As such, given the vulnerability of agriculture to changes in precipitation patterns in the country, nature-based solutions for sustainable and climate-smart agriculture and agroforestry should be promoted and supported. These include cropland nutrient management, the planting of trees in croplands and conservation agriculture, which offer significant mitigation benefits alongside a considerable number of adaptation benefits. They also provide environmental and socio-economic benefits in terms of improved biodiversity and ecosystem services, as well as increased agricultural production, improved livelihoods, food security and nutrition.

Livestock management and sustainable grazing and feeding practices can have benefits in terms of improving soil fertility, vegetation cover and grassland ecosystems, which will have associated climate change adaptation and carbon sequestration benefits. These actions will also be associated with manure management and composting, which will have mitigating effects by reducing methane (CH₄) and nitrous oxide (N₂O) emissions.

Other adaptation measures with mitigation benefits will support forest restoration and sustainable forest management, which will benefit biodiversity conservation

and reduce deforestation. Those that target the impact of flooding will contribute to carbon sequestration and help communities establish alternative income-generating activities.

Integrating adaptation and mitigation into access to water, sanitation and hygiene will improve health and contribute to economic benefits for communities. Adaptation measures will improve community access to basic water and sanitation and support climate-resilient water and sanitation infrastructure. Mitigation measures will also be incorporated in terms of wastewater treatment and the use of solar energy to extract water, which can reduce emissions.

It is also important to note that stakeholders have identified renewable energy as an important focus area for adaptation. Promoting and supporting the use of renewable energy, such as biogas and solar energy, will generate co-benefits by reducing methane and nitrous oxide emissions from manure and reducing communities' dependence on firewood. This will help reduce deforestation and land cover degradation, which, in addition to increasing carbon sequestration, is an important element in reducing vulnerability to climate change and will have economic, public health and environmental benefits.

8.2.2 Enhance synergies between the Rio Conventions and the Sustainable Development Goals

The majority of the adaptation and mitigation measures in this NAP are in perfect synergy with commitments made by Chad under the three Rio Conventions on biodiversity, climate change and desertification, as well as the 2030 Agenda and the Bonn Challenge (i.e. to restore 5 million ha of degraded and deforested land by 2030).

In this context, the priority adaptation measures in this NAP will support forest and land restoration, address the causes of biodiversity loss and land degradation and contribute to reducing greenhouse gas emissions.

In this way, through nature-based solutions, these actions will contribute to the goal of land degradation neutrality by 2030. At the same time, they will promote the conservation, management and restoration of several ecosystems, as well as interventions that call for protecting and conserving biodiversity and restoring ecosystems and their services, which are goals under the Strategic Plan for Biodiversity under the Convention on Biological Diversity.

Some of the response measures will also create synergies and co-benefits, including mitigation, in the course of activities that reduce greenhouse gas emissions, which will

be carried out in agriculture, forestry and other land-use sectors.

The NAP also creates synergies that can generate co-benefits for several of the SDGs, particularly with respect to activities related to clean water and sanitation, agriculture, resilience, infrastructure, land use and management, forests, ecosystems, the environment, disaster risk reduction, awareness, employment, well-being, resource efficiency and adaptive capacity, which are related to Goals 1–7, 9, 10, 13 and 15.

8.2.3 Promote land-use planning

Land-use planning was identified as an important cross-cutting element for the planning and effectiveness of adaptation priorities and is therefore an essential tool for the implementation of this NAP.

Effective land-use planning is an important component of a successful climate response, as it can both influence greenhouse gas emissions and represent a cost-effective adaptation strategy at the national, regional or local levels. Land-use choices significantly influence the long-term effects of climate change and can increase resilience to its impacts through the location, mix and design of development. Currently, more and more countries are incorporating climate risk considerations into risk-sensitive planning decisions, particularly in urban areas.

Indeed, land use and infrastructure decisions can either significantly decrease or increase risk, particularly in cities. If investments in infrastructure, housing and other facilities were made in hazardous locations, the risk would persist for decades and it would be much more expensive to address it than to prevent it from happening. It will be important to further integrate risk reduction measures that consider the effects of climate change and variability, with the help of early warning mechanisms for floods and droughts to improve community preparedness. Adaptation actions will benefit urban settlements by reducing their vulnerability to extreme weather events through hazard mapping, climate-resilient building codes and upgrades to infrastructure. The measures will also include energy efficiency improvements to buildings, green space and parks that will have mitigation benefits.

8.2.4 Ensure alignment with regional projects

Cross-border aspects must be taken into account when implementing the NAP, especially since Chad contributes to many regional projects. Ensuring consistency and

complementarity among the adaptation priorities identified in the NAP and these regional projects will be important and will require the continued involvement of technical partners and consideration of lessons learned from these regional projects, including:

- Projects related to the sustainable management of **Lake Chad**, in particular, projects carried out by the Lake Chad Commission within the framework of its 2025 vision.⁷⁸ There are also two projects under development, one by the Sahara and Sahel Observatory and financed by the Green Climate Fund⁷⁹ and the other by WMO and financed by the Adaptation Fund.⁸⁰
- **Projects related to the Great Green Wall Initiative**, including two recent projects funded by the Green Climate Fund. The first project began in 2021 with the support of the International Fund for Agricultural Development and the African Risk Capacity and aims to increase resilience and improve the livelihoods and water and food security for smallholder farmers and rural communities in seven Great Green Wall countries through integrated climate risk management for natural resources (water, soil, etc.). This project will also enable target countries, including Chad, to adopt low-emission and climate-resilient agricultural development paths. The second project under development will be carried out with the support of the Food and Agriculture Organization of the United Nations. It aims to remove barriers to facilitate greater resilience and mitigation by scaling up successful restoration practices and strengthening national and regional Great Green Wall institutions.

⁷⁸ The list of Lake Chad Commission projects is available from <https://cblt.org/category/projects/on-going-projects/>.

⁷⁹ The project concept note is available here: <https://www.greenclimate.fund/sites/default/files/document/23120-lacc-project-lake-chad-adaptation-climate-change.pdf>.

⁸⁰ The project document is available here: https://www.adaptation-fund.org/wp-content/uploads/2021/03/AFB.PPRC_27.20-Proposal-for-Cameeroun-Central-African-Republic-Chad-Niger-and-Nigeria.pdf.



9
CONTINUED DEVELOPMENT OF AN
EFFECTIVE NATIONAL ADAPTATION
PLAN PROCESS AND THE DEVELOPMENT
OF A SECOND, MORE COMPREHENSIVE
NATIONAL ADAPTATION PLAN

A number of studies and priority actions are needed to fill the most significant gaps, reduce barriers and improve and systematize considerations for climate risks and adaptation needs in development planning.

These activities seek to advance four urgent priorities to better advance the NAP process:

- 1- Facilitate a coordination mechanism for the NAP process
- 2- Identify capacity needs to guide and coordinate efforts to develop capacity in a systematic and sustainable manner

3- Undertake baseline risk assessment studies to inform and clarify national priorities and integrate climate and non-climate risk information into development planning

4- Strengthen the enabling environment for adaptation planning by ensuring strategic communication at all levels of government and at the community level

Actions	Expected results
1- Facilitate a coordination mechanism for adaptation planning and implementation in Chad	
<ul style="list-style-type: none"> - Undertake a study to analyse the current institutional framework and capacity and propose the best options for institutional coordination mechanisms and the governance system according to the national context - Organize a consultation workshop with key stakeholders (including regional representatives and key vulnerable groups) to discuss and agree on an institutional arrangement for coordination and governance - Draft a regulatory text (e.g. ministerial order) that describes the coordination and governance structure for climate change adaptation, defines the coordinating bodies (at the national and regional levels) and their mandates and identifies focal points and participating institutions - Establish a technical partner coordination group for the implementation of the NAP 	<ul style="list-style-type: none"> - A study report describing the best options for the governance system - A formal coordination and governance structure and mechanisms validated by stakeholders, with clearly defined roles and mandates to coordinate adaptation planning and implementation in Chad - Climate change focal points in key ministries and regional institutions - A technical partner coordination group established to support the coordinated implementation of the NAP
2- Identify capacity needs to guide and coordinate efforts to develop capacity in a systematic and sustainable manner	
<ul style="list-style-type: none"> - Conduct a capacity needs assessment and establish a baseline to compile key gaps and needs identified through relevant initiatives and direct requests, considering complementarity with ongoing initiatives on climate change capacity development by the Green Climate Fund and technical and financial partners - Create a capacity development strategy, with tailored performance indicators to build and improve the capacity of technical staff in public planning and financing institutions at the national and regional levels with regard to climate change adaptation; hazard, vulnerability and risk assessments; financial assessments of climate impacts and disaster risks; adaptation planning; and adaptation budgeting tools, particularly to support investment in and the implementation of adaptation options 	<ul style="list-style-type: none"> - Capacity needs assessed with an established baseline - Sustainable capacity development strategy with performance indicators

Actions	Expected results
<p>3- Undertake studies to inform and clarify national priorities and integrate climate and non-climate risk information in development planning</p> <ul style="list-style-type: none"> - Analyse the main economic costs of climate change for Chad, including quantifying impacts on the priority sectors and development objectives most at risk, and assess the main investments at the national and regional levels, with key indicators for the country's economy to facilitate informed decision-making on adaptation needs - Conduct a study and mapping of socio-economic vulnerabilities for the entire country of Chad, with a view to providing usable information on the social and economic impacts of climate change in key sectors and on key issues, in order to support data-based adaptation planning by the Government and at the local level (i.e. the lowest scale for which census data are available) and link them to relevant indicators in the National Development Plan - Based on the results, update the list of key adaptation measures for priority sectors and ecosystems in Chad - Conduct cost-benefit and cost-effectiveness analyses of prioritized adaptation measures, by order of priority 	<ul style="list-style-type: none"> - A quantitative analysis of the costs and impacts of climate change for priority sectors and investments - Socio-economic vulnerability analysis - Updated priority adaptation measures - In-depth cost/benefit and cost-effectiveness analyses of adaptation measures
<p>4- Strengthen the enabling environment for adaptation planning by ensuring strategic communication for government officials and communities</p> <ul style="list-style-type: none"> - Reproduce and disseminate the study to relevant actors (including at the local level) - Compile the list of priorities and submit the draft NAP for stakeholder review; validate and disseminate the NAP - Share the progress of the NAP in Chad at the national, regional and local levels; with the United Nations Framework Convention on Climate Change Secretariat; and in international forums 	<ul style="list-style-type: none"> - Communication products focused on the studies conducted - NAP finalized and distributed

The NAP-GEF Project will be an important tool in the continuation of the NAP process, as the activities already planned intend to address some of these needs, in addition to the vulnerability studies that were just finalized in late September 2021. The project plans to:

- Establish an information system (database) that includes climate and socio-economic databases and available GIS data.
- Develop and implement the training programme on mainstreaming climate change adaptation through participatory workshops.
- Develop climate products to inform short-, medium- and long-term decision-making and provide them to planners in targeted socio-economic sectors and regions.
- Improve the identification and assessment of adaptation options in the agricultural, livestock, fishery and water resource sectors.
- Strengthen the capacity of the Special Environment Fund of Chad to access funding and select adaptation projects.
- Strengthen the monitoring and evaluation system

established under the Global Climate Change Alliance Project (i.e. purpose, scope, focus, indicators, types of data and information, sectors, verification methods, data sources and reporting) and propose more effective monitoring and evaluation tools (i.e. collection, processing and management of information; specific assessments; reporting; and gender disaggregation).

- Implement the environmental education strategy on adaptation in all 15 regions.

Two outcomes of the NAP Project are particularly relevant to advancing the NAP process and integrating adaptation into development planning:

- a national development plan and 15 regional plans that effectively integrate priority adaptation activities
- the revision of sectoral policies (i.e. agricultural, pastoral, fisheries and water) and associated action plans by effectively integrating priority adaptation actions, as well as the inclusion of these actions in the annual budgets of the ministerial departments of the most vulnerable sectors, with regular updates to the action plans

This first NAP in Chad lays the foundation for beginning to consider and address the impacts of climate change on development goals and to integrate adaptation into medium- and long-term development planning.

The drafting of this initial NAP has highlighted the gaps and barriers that prevent integration. The process of updating this NAP should incorporate the results of ongoing studies, particularly those from the NAP-GEF Project and the Green Climate Fund Country Programme, in order to:

- Update the list of adaptation measures, encourage quantified cost-benefit analyses and formulate a more elaborate portfolio of adaptation projects as well as a financing strategy.
- Implement mechanisms and tools to facilitate effective governance and the means to ensure monitoring, evaluation and transparency while undertaking adaptation actions.
- Develop tools to facilitate climate-sensitive budgeting at the national and local levels.
- Advance the planning and execution of adaptation actions at the local level.
- Develop specific tools to ensure that the planning and execution of adaptation actions are gender sensitive.

The financial requirements for implementing this NAP are significant. Given the lack of studies and quantified data to determine the socio-economic impacts of climate change on various sectors in Chad, it was difficult to estimate the cost of adaptation interventions. The financing needs for the actions identified in this NAP have therefore been estimated according to a top-down approach, which estimates adaptation needs as a percentage of GDP. This is based on global simulations of adaptation needs developed by the United Nations Environment Programme (i.e. the top-down approach from the Adaptation Gap Report), as well as several reports and studies which have estimated that adaptation costs could be equivalent to an annual loss of between 1.5 percent and 3 percent of GDP in Africa by 2030.⁸¹ As Chad is one of the most vulnerable countries in the world, the estimate of 3 percent of GDP was chosen.

According to this approach, the financing needs to respond to the significant climate risks expected in Chad could amount to over \$375 million as early as 2021 (based on the estimate of 3 percent of GDP) and reach an annual cost of \$510 million by 2026. **Based on these annual simulations, funding requirements for the period 2021–2026 could amount to over \$2.6 billion.**

⁸¹ Watkiss, P. 2010. AdaptCost project: analysis of the economic costs of climate change adaptation in Africa. Nairobi: United Nations Environment Programme.



ANNEXES



ANNEXE 1

PROGRAMME OF THE TECHNICAL WORKSHOP TO CONSULT STAKEHOLDERS IN THE PREPARATION OF THE FIRST NATIONAL ADAPTATION PLAN AND THE NATIONALLY DETERMINED CONTRIBUTION

CHAD

LOCATION: N'DJAMENA | DATE: 13–16 JULY 2021

Background

Nationally determined contributions (NDCs) are at the heart of the Paris Agreement. They define a party's contribution to achieving its goals, including what the party must do to transition to a low-carbon, climate-resilient economy. By ratifying the Paris Agreement on 12 January 2017, Chad agreed to revise its successive NDCs every five years, knowing that each one must «progress» from the previous version. The Government therefore decided to draft an initial National Adaptation Plan (NAP) as a first step towards drafting a more comprehensive NAP. This initial NAP will aim to synthesize the most recent studies, data and knowledge on climate change adaptation in Chad and identify the gaps to be filled.

The NDC and the NAP are the primary means of communication by which the Government informs the international community of its actions to address climate change. Nevertheless, from the drafting phase of these two documents, the mobilization of all stakeholders in the fight against climate change in Chad is essential to ensure their effective and successful implementation. Through the Directorate of Environmental Education and the Fight against Climate Change, the Ministry of Environment, Fisheries and Sustainable Development has deemed it essential to organize a technical workshop with stakeholders in order to involve them in a participatory process to draft these two key documents for Chad.

Objectives

The overall objective of this national technical consultation workshop is to inform and consult stakeholders regarding the two ongoing climate-related processes in Chad, namely the NDC and the initial NAP. It aims to validate a situation analysis on climate change in Chad, gather additional information and discuss and agree on strategic priorities for adaptation and mitigation.

In particular, the workshop will:

- Raise awareness and share knowledge about the intent and purpose of the NAP and NDC processes.
- Encourage ownership and buy-in from key stakeholders for the NAP process and the NDC.
- Ensure that the NDC and the initial NAP are aligned with national development priorities and sectoral policies and strategies.
- Collect missing data.
- Conduct an initial review of the mitigation and adaptation priorities to be included in the NDC and initial NAP
- Discuss promoting synergies between the revision of the NDC and the preparation of the initial NAP to guarantee consistency between the two documents.

Outcomes

The main outcomes of this workshop are to determine initial strategic directions as well as recommendations for adaptation and mitigation priorities that have been validated by stakeholders. These recommendations and strategic directions will be further developed by national and international consultants hired by the National Adaptation Plan Global Support Programme, the United Nations Development Programme (UNDP) and the European Union (EU). They will eventually lead to the formulation of an initial NAP and the NDC.

Methodology

An interactive participatory approach will be used for the workshop. The plenary sessions will be preceded by discussions and breakout sessions to ensure that all stakeholders can fully participate and provide input.

Participants

The workshop will bring together approximately 60 participants from various public and private institutions and regions, as well as civil society representatives and technical and financial partners.

WORKSHOP PROGRAMME

DAY 1: Tuesday, 13 July 2021		
Time	Session	Participants
8-30 - 9.00	Registration	Participants
9.00 - 9.30	Opening remarks	M. Oualbadet Magomna, DGM du Ministère de l'Environnement et de la Pêche
9.30 - 10.45	<p>Session 1: Process for drafting the NAP, the initial NAP and the NDC</p> <p>Objective: Raise awareness among stakeholders on the evolution of climate change response strategies in Chad (i.e. the National Adaptation Programme of Action, preliminary NAP, NAP) and on the NDC (2015 and revised NDC) and reach a common understanding of the goal of these three documents and their synergies.</p> <p>General discussion (in plenary)</p>	<p>Presentation 1: Evolution of climate change impacts and responses in Chad (Mr Mahamat Abdoulaye Issa, Director of Environmental Education and the Fight against Climate Change –15 min.)</p> <p>Presentation 2: The NDC process – Mitigation (EU team –10 min.)</p> <p>Presentation 3: The NDC adaptation process and the NAP process (preliminary and detailed) (UNDP team –10 min.)</p>
10.45- 11.00	Coffee break	
11.00 - 13.00	<p>Session 2: State of knowledge on climate risks and vulnerabilities as well as mitigation and adaptation efforts in Chad</p> <p>Objective: Present a brief situation analysis of emission trends and key climate risks and vulnerabilities in Chad, as well as key gaps and barriers. Obtain validation from participants and discuss gaps to be filled.</p> <p>Group exercise: Discussion in four groups (two groups for adaptation and two groups for mitigation) on the primary information gaps on emissions, climate risks and needs in order to fill these gaps and address barriers.</p> <p>Issues to be considered by each group:</p> <ol style="list-style-type: none"> 1- priority risks and vulnerabilities (adaptation)/biggest emitting sectors (mitigation) 2- needs in order to fill information gaps 3- barriers to filling information gaps 	<p>Presentation 1: Adaptation situation analysis (UNDP team –15 min.)</p> <p>Presentation 2: Mitigation situation analysis and preliminary results (EU/Initiative for Climate Action Transparency (ICAT) team –15 min.)</p>
13.00 - 14.00	Lunch	

DAY 1 (continued): Tuesday, 13 July 2021		
Time	Session	Participants
14.00 - 15.45	Session 2 (continued) Focus groups (continued) Report to plenary	
15.45 - 16.00	Coffee break	
16.00 - 17.00	Session 3: State of knowledge and implementation of adaptation and mitigation programmes and projects in Chad Objective: Present and validate a summary of the main adaptation projects and programmes in Chad and discuss lessons learned from their implementation as well as key gaps. Discussion: Four discussion groups: two on mitigation and two on adaptation. Issues to be considered by each group: 1- Fill in the list of existing projects or those being prepared. 2- What are the lessons learned from their implementation? 3- What are the difficulties observed in the implementation of adaptation and mitigation projects? 4- What other sectors or priorities are not covered by projects/ programmes and why?	Presentation 1: Analysis of adaptation programmes and projects in Chad (UNDP team – 10 min.) Presentation 2: Analysis of mitigation programmes and projects in Chad (EU/ICAT team – 10 min.)
DAY 2: Wednesday, 14 July 2021		
Time	Session	Participants
9.00 - 10.45	Session 3: (continued) Group discussion (continued) Report to plenary	
10.45 - 11.00	Coffee break	
11.00 - 13.00	Session 4: Gender and climate change in Chad Objective: Hold an initial discussion on gender considerations in climate mitigation and adaptation measures. At the beginning of the session, a questionnaire will be distributed and completed by all participants. The questionnaire will collect information to understand the motivations, barriers and context of actors working on gender and climate change in Chad. General discussion (in plenary) on the need to better integrate gender issues into the NDC and NAP processes in Chad	Questionnaire Presentation 1: The importance of considering gender in adaptation and mitigation actions (International Institute for Sustainable Development team – 15 min.) Presentation 2: Next steps to ensure gender mainstreaming in the NAP process (Colette Benoudji – 15 min.)
13.00 - 14.00	Lunch	

DAY 2 (continued): Wednesday, 14 July 2021		
Time	Session	Participants
14.00 - 15.45	<p>Session 5: Vision and objectives for adaptation and mitigation</p> <p>Objective: Agree on a clear vision and objectives for adaptation and mitigation in Chad and review and agree on priority sectors.</p> <p>Discussion: Two discussion groups, one on mitigation and one on adaptation.</p> <p>Issues to be considered by the adaptation group</p> <p>1- Review and validate the adaptation vision and objectives for the NDC and the initial NAP. 2- Review the list of priority sectors based on the 2015 NDC and the Green Climate Fund Country Programme.</p> <p>Issues to be considered by the mitigation group</p> <p>1- Review and validate the mitigation vision and objectives for the NDC. 2- Review the list of priority sectors based on the 2015 NDC and the Green Climate Fund Country Programme.</p>	<p>Presentation 1: Suggestions for an adaptation vision and objectives for the NDC and the initial NAP (UNDP team – 10 min.)</p> <p>Presentation 2: Suggestions for a mitigation vision and objectives (EU/ICAT team – 10 min.)</p>
15.45 - 16.00	Coffee break	
16.00 - 17.00	<p>Session 5 (continued) Group discussion (continued) and return to plenary</p>	
DAY 3: Thursday, 15 July 2021		
Time	Session	Participants
09.00 - 10.45	<p>Session 6: Discussion of adaptation and mitigation priorities</p> <p>Objective: Review and validate strategic priorities for adaptation and mitigation in Chad, based on the strategic documents (2015 NDC and the Green Climate Fund Country Programme).</p> <p>Discussion: Sectoral groups are invited to review, validate and expand on adaptation and mitigation priorities.</p> <p>Preliminary list of groups (to be adjusted after the results of session 5)</p> <p>1- Agriculture, forestry and livestock 2- Water 3- Fishing 4- Infrastructure 5- Human settlements 6- Health and nutrition 7- Energy and transport</p> <p>Issues to be considered by each group/sector:</p> <p>i- Identify priority adaptation/mitigation measures for your sector. ii- Identify the most vulnerable groups (for adaptation) or the biggest emitters (for mitigation) in your sector. iii- Identify the priority regions for your sector and explain why. iv- Identify the criteria for prioritizing measures in your sector.</p>	<p>Presentation 1: Synthesis of the priority adaptation measures in the current documents of Chad (UNDP team – 15 min.)</p> <p>Presentation 2: Synthesis of the priority mitigation measures in the current documents of Chad (EU/ICAT team – 15 min.)</p>

DAY 3 (continued): Thursday, 15 July 2021		
Time	Session	Participants
10.45 - 11.00	Coffee break	
11.00 - 13.00	Session 6 (continued) Group discussion Return to plenary	
13.00 - 14.00	Lunch	
14.00 - 15.45	Session 7: Co-benefits of adaptation and mitigation actions Plenary discussion on nature-based solutions and how to prioritize synergies between adaptation and mitigation.	Presentation 1: Nature-based solutions: synergies between adaptation and mitigation measures (UNDP team – 15 min.)
15.45 - 16.00	Coffee break	
16.00 - 17.30	Session 8: Climate governance in Chad Objective: Overview of existing governance and coordination arrangements for adaptation and mitigation in Chad and discussions on strengthening them. Plenary discussion on gaps in adaptation and mitigation coordination and suggestions for strengthening the coordination mechanism in Chad and encouraging the involvement of all stakeholders.	Presentation 1: Existing coordination mechanisms in Chad (Mr. Ndodjide Aubain, NAP Director – 15 min.) Presentation 2: Examples from other countries and draft recommendations for an institutional climate framework in Chad (UNDP – 10 min.)
DAY 4: Friday, 16 July 2021		
Time	Session	Participants
9.00 - 10.45	Session 9: Discussion of entry points and needs for monitoring and evaluating the implementation of the NDC and the NAP The session will present the previously discussed and validated national measurement, reporting and verification system and discuss whether there is a need to complement it with other monitoring and evaluation needs for the effective implementation of the NDC and NAP. Objective: Introduction to the need for monitoring and evaluating the implementation of the NDC and the NAP. Plenary discussion on specific entry points and needs for monitoring and evaluating climate change adaptation and mitigation.	Presentation 1: National measurement, reporting and verification system in the context of implementing the NDC in Chad (Mr. Katien, ICAT team – 20 min.)
10.45 - 11.00	Coffee break	

DAY 4 (continued): Friday, 16 July 2021		
Time	Session	Participants
11.00 - 13.00	<p>Session 10: Needs and enabling activities</p> <p>Objective: Review and validate the needs and enabling conditions necessary to fill the gaps identified in previous sessions.</p> <p>Group discussion: two for adaptation and two for mitigation</p> <p>Discussion and prioritization of cross-cutting needs and the enabling activities needed to implement the priorities and activities identified in the previous sessions (e.g. capacity needs, climate data collection and processing, communication and outreach, etc.)</p> <p>Report to plenary</p>	<p>Presentation 1: Cross-cutting needs and enabling activities in national documents (UNDP team – 15 min.)</p> <p>Presentation 2: Communication strategy of the NDC and NAP (UNDP team – 15 min.)</p>
13.00-14.00	Lunch	
14.00 - 15.45	<p>Session 11: Next steps</p> <p>Plenary discussion: Agree on the next steps to complete the NDC (adaptation and mitigation), regional visits and the initial NAP, including synergies with the development of a more comprehensive NAP by 2023.</p>	
15.45 - 16.00	Coffee break	
16.00 - 17.00	Validation of the recommendations and closing of the workshop	

ANNEXE 2

LIST OF PROGRAMMES AND PROJECTS FUNDED BY MAJOR DONORS IN THE FIELDS OF RURAL DEVELOPMENT, RESILIENCE AND CLIMATE CHANGE¹

Financing from the African Development Bank (AfDB)

Programme/project title	Purpose	Beneficiaries	Area of intervention	Relevant ministry/manager	Execution	Cost in currency	Cost in billions of CFA francs	Start date (DD/MM/YYYY)	End date (DD/MM/YYYY)
Programme to build resilience to recurrent food and nutrition insecurity in the Sahel (P2RS)	Food and nutrition security + resilience: increase interregional trade Increase agro-sylvo-pastoral and fishery production and productivity, improve the income of vulnerable populations, Improve women's access to resources	Vulnerable farmers Pastoralists and agropastoralists Artisanal fishers	Kanem and Bahr el Gazel	Ministry of Production, Irrigation and Agricultural Equipment		9 770 UC (9.192.000 \$)	7,78 (5,515)	04/12/2014	30/06/2020
Programme to rehabilitate and strengthen the resilience of socio-ecological systems (PRESIBALT)			Eastern and Western Logone, Chari-Baguirmi, Hadjer-Lamis, Tandjilé, Lac, Mandoul, Moyen-Chari, Mayo-Kebbi East and West, Kanem, Guéra, Ouaddaï and Batha	Ministry of Environment, Water and Fisheries		5 350 000 UC	4,21	09/03/2015	30/09/2020
Programme to rehabilitate and strengthen the resilience of socio-ecological systems (PRESIBALT)	60 ha, 640 km of lake road, 73 km of paths, 1 health centre, 1,500 ha of anti-erosion development and 22 classrooms		Lake Chad, Hadjer-Lamis and Kanem	Ministry of Environment, Water and Fisheries		6 779 754 UC	5,40	07/2018	30/09/2019
Urgent humanitarian aid for nutrition, Sahelian band (emergency food assistance)				Ministry of Production, Irrigation and Agricultural Equipment		653 877 000 UC	0,52	22/12/2017	31/12/2018

¹ This list was created by the study Climate Change Adaptation and Resilience-building in Chad, conducted by the Institute of Research and Application of Development Methods for the BRACED programme (Building Resilience and Adaptation to Climate Extremes and Disasters) in 2019.

Financing from the World Bank

Programme/project title	Purpose	Beneficiaries	Area of intervention	Relevant ministry/ manager	Execution	Cost in currency (millions)	Cost in billions of CFA francs	Start date (DD/MM/YYYY)	End date (DD/MM/YYYY)
Social safety net project	Cash transfers (conditional and unconditional) Assistance for productive development	6,200 poor households	Bahr el Gazel, N'Djamena and Western Logone	Ministry of the Economy and Development Planning		10 US \$ BM-DFID	5,4	05/10/2016	2019
Project for women's empowerment and the demographic dividend in the Sahel			Regional (Chad, Côte d'Ivoire, Mali, Mauritania, Niger)	Ministry of the Economy and Development Planning/Ministry of Public Health/Ministry of Women, Protection of Early Childhood and National Solidarity		25,75 US \$	14,1	18/12/2014	
Support project for pastoralism in the Sahel (PRAPS)	Modernization of infrastructure and capacity-building for veterinary services Pastoral facilities (wells, ponds, stations, markers) Trade support (markets, transit stations) Support for pastoral crisis management	400,000 pastoralists and agropastoralists, of which 20 percent are women	Hadjer-Lamis, Kanem, Lac, Bahr el Gazel, South Borkou, Batha, Guéra, Wadi Fira, Ouaddaï, Sila, East and West Ennedi	Ministry of Livestock and Animal Husbandry		45 US \$		11/02/2016	31/12/2021
Support project for irrigation in the Sahel (PARIIS)	Develop and manage irrigation and increase irrigated areas	Vulnerable farmers Pastoralists and agropastoralists	Ouaddaï, Wadi Fira, Sila, Guéra, Salamat, Mayo-Kebbi East and West, Tandjilé, Eastern and Western Logone, Moyen-Chari, Mandoul, Hadjer-Lamis and Chari-Baguirmi	Ministry of Production, Irrigation and Agricultural Equipment		27,5 US \$	13,7	23/05/2018	31/03/2024
Project to strengthen climate resilience and sustainable agricultural productivity (PROPAD)	Development of sustainable and climate-resilient agriculture (adoption of innovative technologies) Emergency response	360 000 people	Mandoul, Moyen-Chari and Salamat	Ministry of Production, Irrigation and Agricultural Equipment		41 US \$		11/2018	11/2023
Support project for refugees and host communities (PARCA)	Improved access to basic services (health and education) Unconditional cash transfers Subsidies for productive activities and training	Refugees and host communities 25,000 poor households (transfers)	Eastern Logone, Ouaddaï and Lake Chad	Ministry of the Economy and Development Planning/National Commission for Assistance to Refugees and Returnee		60 US \$	30	06/10/2018	12/2023

Financing from the Central African States Development Bank and the Arab Bank for Economic Development in Africa

Programme/project title	Purpose	Beneficiaries	Area of intervention	Relevant ministry/manager	Execution	Cost in currency	Cost in billions of CFA francs	Start date (DD/MM/YYYY)	End date (DD/MM/YYYY)
Rice farming development project in the Chari-Logone 2 Plain (PDRI-CLz)	Improving food security and reducing poverty: irrigation; support for production and storage facilities; training in production, storage and trade	1,400 producers Vulnerable farmers Pastoralists and agropastoralists Artisanal fishers	Hadjer-Lamis and East Mayo-Kebbi			10,000,000 Arab Bank for Economic Development in Africa/State	6	2014	2018
Project to construct micro-dams for agriculture and livestock in three regions			Guéra (Mongo) Ouaddaï (Abéché) Wadi-Fira (Biltine)	Ministry of Production, Irrigation and Agricultural Equipment/ Ministry of Livestock and Animal Husbandry		Arab Bank for Economic Development in Africa	11,00	09/05/2016	30/04/2020
Development of groundwater resources and reclamation of run-off water			East and West Ennedi	Ministry of Environment, Water and Fisheries/Ministry of Production, Irrigation and Agricultural Equipment/ Ministry of Livestock and Animal Husbandry		Central African States Development Bank/State	16,03		

Financing from the Islamic Development Bank (IDB)

Programme/project title	Purpose	Beneficiaries	Area of intervention	Relevant ministry/ manager	Execution	Cost in currency	Cost in billions of CFA francs	Start date (DD/MM/YYYY)	End date (DD/MM/YYYY)
Project to develop the rice sector in the Chari-Logone Plain (PDRI-CL)	Increased rice production and income for producers		Chari-Baguirmi, East Mayo-Kebbi, Western Logone and Moyen-Chari			\$53,550,000 IDB/State	32,130	2014	2019
Project to strengthen resilience and combat food insecurity in Chad (PDRLIAT)	Food and nutrition security + resilience: livelihood support, climate change adaptation, food crisis management capacity	Vulnerable farmers Poor households	Tibesti, Borkou, East Ennedi, West Ennedi, Wadi Fira, Ouaddaï, Batha, Sila, Guéra, Salamat, Lac, Kanem, Bahr el Gazel, Chari-Baguirmi and Hadjer-Lamis			\$32,020,000 IDB/State	19,212	2015	2020
Project for the management and development of natural resources in the Sudanian zone (PGRN/ZS)	Food and nutrition security Increased agricultural production, irrigation development, creation of credit cooperatives	Vulnerable farmers	Eastern Logone, Western Logone, Mandoul, East Mayo-Kebbi, Tandjilé and Moyen-Chari			\$22,320,000 IDB/State	13,392	2015	2019

Financing from the German Cooperation

Programme/project title	Purpose	Beneficiaries	Area of intervention	Relevant ministry/manager	Execution	Cost in currency (millions)	Cost in billions of CFA francs	Start date (DD/MM/YYYY)	End date (DD/MM/YYYY)
Food security and increased resilience of local populations and refugees in Ouaddaï (SAAR)	Distribution of seeds and agricultural tools Income-generating activities: small processing equipment and subsidies for microprojects	2,200 households Refugees, host communities	7 districts in Ouaddaï (Molou, Guerngné, Manjobok, Bardé, Ouadi Hamra I/II, Troané)	Ministry of Production, Irrigation and Agricultural Equipment	German Agency for International Cooperation (GIZ)	€3.2 Federal Ministry for Economic Cooperation and Development (BMZ)	2,09	01/11/2017	31/10/2020
Strengthening the resilience of refugees and returnees from the Central African Republic and promoting social cohesion within host communities in southern Chad	Emergency livelihood support: distribution of agricultural inputs and tools, distribution of animals, animal health support Income-generating activities: equipment, microcredit Risk reduction plans Equip training centres	Refugees, returnees, host communities, indigenous peoples	Moyen-Chari (Grande Sido) Eastern Logone (La Nya Pendé)		UNHCR-Lutheran World Federation (LWF)	Diakonie Katastrophenhilfe (DKH)-BMZ		2017	2020
Project to empower and integrate Chadian returnees in southern Chad (PAIR-Chad)	Livelihood support: distribution of agricultural inputs and tools, distribution of animals, animal health support Income-generating activities: distribution of kits and cash transfers	Returnees, host communities	Moyen-Chari (Grande Sido)		CARE	BMZ		2017	2018
Strengthening the resilience of Lake Chad communities to climate change and Ensuring the socio-economic integration of populations affected by the Boko Haram crisis	Livelihood support: distribution of agricultural inputs and tools Distribution of animals Training for market gardeners, rain-fed farmers, school gardens, livestock farmers, tree production and planting Construction of a community warehouse for storage	Displaced persons, host communities Indigenous peoples	Lac (Mamdi, Kaya, Fouli)		CARE	0,735 US \$ BMZ		2017	2020
Project to strengthen resilience and peaceful coexistence in Chad (PRCPT)	Distribution of agricultural inputs, tools and training for beneficiaries	7,280 indigenous households	Chari-Baguirmi (Baguirmi) Hadjer-Lamis (Dagana) East Mayo-Kebbi (Kabbia, Mayo-Boneye, Mont Illi, Mayo-Lémié) West Mayo-Kebbi (Mayo-Dallah, Lac Léré) Salamat (Barh Azoum) Sila (Kimiti) Borkou		GIZ- Unit for Study, Support and Action for Development and Peace [Cellule d'Etudes, de Soutien et d'Action pour le Développement et la Paix]- Association for the Rural Cooperation in Africa and Latin America Association for the promotion of local initiatives-Univ Pop	18 € EU Emergency Trust Fund-BMZ		2016	2019

... (cont.) Financing from the German Cooperation

Programme/project title	Purpose	Beneficiaries	Area of intervention	Relevant ministry/ manager	Execution	Cost in currency (millions)	Cost in billions of CFA francs	Start date (DD/MM/YYYY)	End date (DD/MM/YYYY)
Strengthening nutritional and food security of vulnerable populations in the Sahelian band of Chad: access to urgent food needs and strengthened livelihoods	Cash transfers Strengthening livelihoods; support for agriculture, livestock	15,000 indigenous households	Guéra (Mangalmé)		Oxford Famine Relief Organization (OXFAM)-Chad Association of Volunteers for Progress (ATVP)	German Foreign Office		2016	2018
Programme «Sustainable forest management in the Congo Basin», Project «Support for the BSB Yamoussa Transboundary Park» (COMIFAC)			BSB Yamoussa (Bouba N'Djidda National Park/ Cameroon and Sena Oura/Chad) and periphery	Ministry of Environment, Water and Fisheries		6,9 €	4,52	20/04/2015	31/10/2018
Sustainable management of water resources in the Lake Chad basin, Africa, suprarregional			Pilot area: Yaere wetlands: N'Djamena- Bongor - Far North of Cameroon (Maroua)	Ministry of Environment, Water and Fisheries		6 €	3,93	11/2017	30/06/2019
Programme “Run-off water management in the Sahelian zone of Chad” (GERTS)	Number of systems constructed: 146 of 180 planned Number of hectares under full or partial control: 8,083.73 ha Access to support services	1,682 farmers or herders, including 954 women and 139 young people	Batha - Wadi-Fira - West Ennedi - East Ennedi	Ministry of Production, Irrigation and Agricultural Equipment		7,5 €	4,53	01/11/2015	31/10/2018
Protection, multisectoral assistance and sustainable solutions for refugees in southern, eastern and urban Chad		Refugees			UNHCR	1,12 \$			
Emergency food assistance project for internally displaced persons, returnees and refugees Lake Chad	Food assistance	Displaced persons, host communities, refugees	Lac		WFP	2,312 \$		2018	2019
Humanitarian aid					PAM	2,37 \$			

... (cont.) Financing from the German Cooperation

Programme/project title	Purpose	Beneficiaries	Area of intervention	Relevant ministry/ manager	Execution	Cost in currency (millions)	Cost in billions of CFA francs	Start date (DD/MM/YYYY)	End date (DD/MM/YYYY)
Possibilities for the strengthening of the independence by «cashed-based assistance» insb. from refugees are compiled Besides, are moved, e.g., the construction by well for the cattle position and the agriculture and repair of streets	Livelihood support: creating assets	Vulnerable populations			WFP	9,988 \$		2019	2023

Financing from Canada

Programme/project title	Purpose	Beneficiaries	Area of intervention	Relevant ministry/manager	Execution	Cost in currency (millions)	Cost in billions of CFA francs	Start date (DD/MM/YYYY)	End date (DD/MM/YYYY)
Integrated emergency assistance for the Lake Chad crisis	Emergency livelihood support: Support for market gardening, fishing Realization of market gardening projects Cash transfers: Cash For Work	Displaced persons, host communities, returnees	Lac (Kaya, Fouli)		CARE			2017	2019
Support for food and nutritional security to improve the livelihoods of the populations affected by the current pastoral crisis in the Lake and Kanem Regions	Emergency livelihood support: Support for livestock	1,800 host community households	Kanem (Kanem, Nord Kanem) Lac (Mamdi, Kaya, Fouli)		FAO-Directorate of Veterinary Services	1,705 US \$		2018	2019
Multisectoral assistance to displaced women and girls in the Lac Region, Chad (2018—2020)	Cash transfers Business skills training and start-up fund endowment	4,170 people Displaced persons, host communities	Lac (Kaya, Fouli)		International Rescue Committee (IRC)	1,728 US \$		2018	2020
Emergency food assistance project	Food assistance	Internally displaced persons, returnees and refugees from Lake Chad Affected vulnerable populations in the Sahelian zone Drought			WFP	5,627 US \$		2018	2019
Prevention of acute malnutrition for internally displaced populations in Lake Chad	Nutrition, integrated management of moderate acute malnutrition				WFP	0,24 US \$		2018	2019
Annual Humanitarian Allocations - WFP Country Support: Food (P007070)	Food security				WFP	0,894 US \$		2019	2020
Emergency project	Nutrition, water, sanitation and hygiene	Vulnerable populations affected by droughts			Action Against Hunger	0,786 US \$		2018	2019
Support of 2018 operations of UNHCR in Chad (P005413)		Refugees			UNHCR	1,807 US \$		2018	2019

Financing from the French Cooperation

Programme/project title	Purpose	Beneficiaries	Area of intervention	Relevant ministry/manager	Execution	Cost in currency (millions)	Cost in billions of CFA francs	Start date (DD/MM/YYYY)	End date (DD/MM/YYYY)
PASTOR	Improve access to basic mobile services for livestock farmers: drinking water, health, education and information	125,000 transhumant nomads 3 million rural population	Department of Fitri, Regions of Guéra, Mandoul, Moyen-Chari, East Ennedi, Wadi Fira, Ouaddaï, Sila, Salamat	Ministry of Livestock and Animal Husbandry		€6 AfDB	3,93	07/07/2015	30/06/2021
Moundou flood control project	Storm drains, waste management, flood management	80,000 inhabitants living in flood-prone areas	Moundou	Ministry of Environment, Water and Fisheries		€10 AfDB	6,56	07/03/2016	31/12/2021
Building resilience and improving food security for displaced and host populations in Monts de Lam	Distribution of agricultural inputs and training Small ruminant distribution	1,500 households of returnees and host communities	Eastern Logone (Monts de Lam)		Islamic Relief France - Unit for Study, Support and Action for Development and Peace	Crisis Centre (Ministry of Foreign Affairs, France)/Société Informatique de France		2017	2019
Project to respond to the food and nutrition crisis in the Wayi Department, Lac Region	Distribution of tools, seeds Technical support for development (irrigation) and training of beneficiaries in market gardening	750 indigenous households	Lac (Wayi)		ACTED	€0.5 French embassy		2018	2019
Emergency response for host communities and refugees affected by the Central African crisis in the Eastern Logone Region	Cash transfers: Cash for work	280 households Refugees, host communities	Eastern Logone (La Nya Pendé)		ACTED		Crisis and Support Centre	2018	2019
Prevention and treatment of acute malnutrition + resilience (4R)	Food security Nutrition				WFP	0,617 \$		2018	2019
Cash for work: participation in planning and planting gardens to support the school food programme	Food security				WFP	0,868 \$		2018	2019

... (cont.) Financing from the French Cooperation

Programme/project title	Purpose	Beneficiaries	Area of intervention	Relevant ministry/ manager	Execution	Cost in currency (millions)	Cost in billions of CFA francs	Start date (DD/MM/YYYY)	End date (DD/MM/YYYY)
Support to women producers of local fortified food for children aged 6 to 23 months in Chad	Nutrition				WFP	0,341 \$		2018	2019
Multisectoral response to refugees in the south-east Chad		Refugees			UNHCR	1,361 \$		2018	2019
RESILAC - Lake Chad inclusive economic and social recovery	Strengthen the resilience of local communities by linking relief, rehabilitation and development (LRRD) in areas particularly affected by current environmental, socio-economic and security issues	90,000 beneficiaries Host communities, displaced persons and refugees	Chad: Lac Region, Bassin Nord Niger, Diffa Region Cameroon: Far North Region Nigeria: Borno State		AfDB - Action Against Hunger - CARE - Groupe URD	€30 EU Trust Fund €5 AfDB		2018	2022

Financing from the Swiss Cooperation

Programme/project title	Purpose	Beneficiaries	Area of intervention	Relevant ministry/ manager	Execution	Cost in currency (millions)	Cost in billions of CFA francs	Start date (DD/MM/YYYY)	End date (DD/MM/YYYY)
Chad: action against hunger emergency response south	Health Nutrition			Ministry of Production, Irrigation and Agricultural Equipment/Ministry of Women, Protection of Early Childhood and National Solidarity	Action Against Hunger	0,1 CHF		01/10/2018	30/06/2019
Project to build community capacity for resilience and improve food and nutritional security in the Batha Region, Phase 1	Cash transfers: purchase of draft horses Income-generating activities: working capital Extension of moringa cultivation Literacy	1,220 households 26 mothers' clubs	Batha Ouest	Ministry of Production, Irrigation and Agricultural Equipment	French Red Cross-Red Cross of Chad			15/08/2018	28/02/2019
7F-10226.01 Batha resilience, phase 2				Ministry of Production, Irrigation and Agricultural Equipment				01/03/2019	31/12/2020
Strengthening pastoral breeding, phase 2	Improved living conditions and food security for pastoralists		Batha, Ennedi and Wadi Fira	Ministry of Livestock and Animal Husbandry		9,5 CHF		01/07/2018	30/06/21
7F-08038.03 Weirs Sahelian zone			Ennedi, Wadi-Fira, Batha	Ministry of Production, Irrigation and Agricultural Equipment			6,25	01/11/2015	31/10/2018
Operationalization of the seed value chain in Chad (OFST Phase2)	Distribution of agricultural inputs (seeds, light tools and fertilizers)	Farmers	Moyen-Chari (Grande Sido, Lac Iro, Barh Köh) Eastern Logone (Monts de Lam, La Nya Pendé, Kouh, La Pendé) Batha (Batha Est-Ouest, Fitri) Wadi Fira (Biltine, Kobé, Dar Tama) Mandoul (Mandoul Occidental, Mandoul Oriental, Barh Sara)		GIZ	Swiss Agency for Development and Cooperation		2018	2022
UNHCR earmarked contributions 2018		Refugees			UNHCR	1,524 \$		2018	2019
WFP Multi-Bi Allocation-Contributions under the Food Assistance Convention					WFP	1,065 \$		2018	2019

... (cont.) Financing from the Swiss Cooperation

Programme/project title	Purpose	Beneficiaries	Area of intervention	Relevant ministry/ manager	Execution	Cost in currency (millions)	Cost in billions of CFA francs	Start date (DD/MM/YYYY)	End date (DD/MM/YYYY)
(Lake Chad basin) Additional contribution Sahel crisis to support WFP's emergency response: food security, emergency food assistance	Food assistance				WFP	1,003 \$		2018	2019
2019 Allocation: contributions under the Food Assistance Convention: food security, emergency food assistance	Food assistance				WFP	1,001 \$		2019	2020
Project to manage run-off water in the Sahelian zone of Chad, phase 2			Batha - Wadi-Fira - West Ennedi - East Ennedi	Ministry of Production, Irrigation and Agricultural Equipment			4,37	01/11/2015	31/10/2018
7F-07801.02 Water resource knowledge/ management, Phase 1 and 2			The entire north and centre of the country	Ministry of Environment, Water and Fisheries			5,34	01/09/2015	31/07/2021
Water resources mapping, phase 1	Territory mapping, capacity-building (continuing education and diploma courses, water resource databases)		National coverage	Ministry of Environment, Water and Fisheries			7,67	06/2012	2023
Water resources mapping, phase 2	Territory mapping, capacity-building (continuing education and diploma courses, water resource databases)		National coverage	Ministry of Environment, Water and Fisheries			4,31	01/09/2015	31/07/2021
7F-06573.01 Blue programme (BP) Chad				Ministry of Public Health/Ministry of Environment, Water and Fisheries				01/01/2018	31/12/2022

Funding from the European Union European Development Fund (EDF)

Programme/project title	Purpose	Beneficiaries	Area of intervention	Relevant ministry/manager	Execution	Cost in currency (millions)	Cost in billions of CFA francs	Start date (DD/MM/YYYY)	End date (DD/MM/YYYY)
Chad State consolidation support programme (ACET) - Phase 2 {11th EDF sector 1 = Food Security, Nutrition and Rural Development}	General and non-targeted State consolidation support Support for reforms in the area of food and nutrition security Budgetary support (€80 million sector 1) + complementary support (€8 million sector 3)			Government/ Ministry of Finance and Budget		88 € EDF		2016	2018/19
<i>Food and nutritional security programme (SAN)</i> {11th EDF sector 1}	Multisectoral action to reduce chronic malnutrition: - support for the establishment of an adequate political, institutional and budgetary framework; - sustainable strengthening of production systems and livelihoods of agropastoral households, also in terms of climate change; - improved access to primary health care, water and sanitation services; the adoption of good feeding practices; and family hygiene	Support for vulnerable households in intervention areas	Ouaddaï, Wadi Fira, Guéra, Western Logone and Tandjilé	Ministry of the Economy and Development Planning/ Ministry of Public Health/Ministry of Production, Irrigation and Agricultural Equipment /Ministry of Environment, Water and Fisheries/Ministry of Infrastructure and Development		156 € EDF	102,32	2018	2023
<i>Structured support programme for pastoral development (PASTOR)</i> {11th EDF sector 2 = natural resource management}	i) Improve the concerted management of agropastoral resources (consultations, transhumance corridors, pastoral water points), ii) Establish a permanent management system for the maintenance of pastoral facilities, iii) Test innovative human and animal health and education systems that are adapted and sustainable in pastoral environments, iv) Support innovations in agriculture-livestock association in areas experiencing demographic pressure, v) Support the improvement of public policies in pastoral development and capacity-building at the central and deconcentrated levels	125,000 transhumant nomads 3 million rural population	Department of Fitri, Region of Guéra, Mandoul, Moyen-Chari, East Ennedi, Wadi Fira, Ouaddaï, Sila, Salamat	Ministry of Livestock and Animal Husbandry		20 € EDF	13,11	20/11/2015	2021

... (cont.) Funding from the European Union
European Development Fund (EDF)

Programme/project title	Purpose	Beneficiaries	Area of intervention	Relevant ministry/ manager	Execution	Cost in currency (millions)	Cost in billions of CFA francs	Start date (DD/MM/YYYY)	End date (DD/MM/YYYY)
<i>Chad protected areas and fragile ecosystems support project (APEFT)</i> <i>{11th EDF sector 2}</i>			Borkou-Ennedi-Tibesti, Wadi Fira, East and West Ennedi, Chari-Baguirmi, Salamat, Moyen-Chari, Guéra and N'Djamena	Ministry of Environment, Water and Fisheries		33 € EDF	21,64	11/04/2017	
REVANCHE initiative: resilience and adaptation to climate variability for sustainable food and nutrition security			Ouaddaï, Wadi Fira and Guéra	Ministry of Public Health		9,4 €	6,19	01/01/2017	01/06/2019
	Support for agricultural and pastoral development: provision of water drainage equipment, provision of kits to livestock auxiliaries, small ruminant fair, market gardening training Support for building stock for grain banks Cash transfers: Cash for work	Indigenous peoples, host communities	Ouaddaï (Wara)		CARE-Rural Development Programme in Wadi Fira (PDR-WF) and Association for the Promotion of Integrated Development for Women and Children (APRODIF)			2017	2019
	Support for agricultural and pastoral development: creation of agricultural and pastoral facilities Income-generating activities: support for small businesses	Indigenous peoples	Guéra (Mangalmé)		OXFAM - Sahelian Alliance for Applied Research for Sustainable Development (ASRADD)			2017	2019
Support programme for the preservation of biodiversity and fragile ecosystems - phase 6 (ECOFA 6)	Sustainable management of protected areas and peripheral zones Development of socio-economic activities	Local populations	Salamat	Ministry of Environment, Water and Fisheries		4 € EDF	2,62	07/04/2017	07/04/2022

Fiduciary Funds

Programme/project title	Purpose	Beneficiaries	Area of intervention	Relevant ministry/manager	Execution	Cost in currency (millions)	Cost in billions of CFA francs	Start date (DD/MM/YYYY)	End date (DD/MM/YYYY)
Resilience and employment in Lake Chad (RESTE)	Contribute to and maintain social and economic stability in the Lake Chad region and the Sahelian band in the West	Indigenous peoples	Kanem, Barh el Gazel and Lac	Ministry of Internal Administration, Public Safety and Local Governance/ Ministry of Public Administration	See below	€27 EU Trust Fund	17.71	01/02/2017	01/02/2021
	Support for agricultural and pastoral development: distribution of seeds and farming tools, small ruminant fair, training on the village savings and loan association approach and the provision of kits		Lac (Wayi)		CARE - Chora			2017	2021
	Income-generating activities: training of beneficiaries in small trades								
	Cash transfers: Cash for work								
	Support for agricultural and pastoral development: creation of agricultural and pastoral facilities Income-generating activities: support for small businesses	Indigenous peoples	Barh el Gazel (Barh el Gazel Sud, Barh el Gazel Ouest)		OXFAM-AIDER				2017
Support for agricultural and pastoral development: creation of agricultural (gardening) and pastoral facilities Income-generating activities: support for small businesses	Indigenous peoples	Barh el Gazel (Barh el Gazel Nord, Barh el Gazel Sud, Barh el Gazel Ouest) Kanem (Wadi Bissam)		Action Against Hunger Oxfam Intern on				2018	2021
Inclusive development programme in host areas (DIZA)	Support access to basic services and social protection mechanisms for all populations (local and returnees, refugees)	558,000 people: -187,000 refugees in the East	Ouaddaï, Sila, Salamat, Moyen-Chari, Mandoul and Eastern Logone	National Commission for Assistance to Refugees and Returnees, National Agency for Support to Rural Development	UNHCR - NGOs	€15 EU Trust Fund		2019	2021
	Strengthen the creation of economic opportunities and jobs in order to empower people to achieve economic self-sufficiency, food and nutritional security and resilience to risks (including agro-climatic risks)	-121,000 people in the South, including 71,000 refugees and 50,000 Chadian returnees from the Central African Republic							
	Strengthen local governance mechanisms by reinforcing the technical capacities of officials and by encouraging regular dialogue between populations, local authorities and stakeholders	- 250,000 indigenous peoples							

... (cont.) Fiduciary Funds

Programme/project title	Purpose	Beneficiaries	Area of intervention	Relevant ministry/ manager	Execution	Cost in currency (millions)	Cost in billions of CFA francs	Start date (DD/MM/YYYY)	End date (DD/MM/YYYY)
Project to strengthen resilience and peaceful coexistence in Chad (PRCPT)	Improve the living conditions of local populations, refugees and returnees by creating employment opportunities	Refugees, host communities, returnees	Sila, Salamat, Hadjer-Lamis, Chari-Baguirmi, East and West Mayo-Kebbi and a pilot in Borkou-Ennedi-Tibesti	Ministry of the Economy and Development Planning		€18 EU Trust Fund/ BMZ	11,80	03/05/2016	30/09/2020
Support for demining, social protection and development for vulnerable people (PRODECO)	Integrated approach combining demining, implementation of socio-economic activities and capacity-building for Chadian authorities	Populations exposed to the dangers of mines, munitions and unexploded remnants of war	Tibesti, Borkou and West Ennedi and the Lac Region	National Demining Centre (NDC)	Mines Advisory Group - Swiss Foundation for Demining - Humanity & Inclusion - Catholic Relief and Development	€23 EU Trust Fund		2017	2021
Support for the socio-professional integration of young Chadians in vulnerable situations	Socio-economic integration of vulnerable youth by improving and enhancing the skills of young Chadians in the labour market and optimizing their professional opportunities Development of formal apprenticeship training (dual FAP) in line with the needs of national companies	Young people in vulnerable situations	N'Djamena, Bongor, Moundou, Abeché, Sarh and Bol	Ministry of Vocational Training and Microworks/ Ministry of Youth Promotion, Sports and Employment	National Foundation for Vocational Training - ESSOR	€10.3 EU Trust Fund AfDB	6,75	04/2017	01/07/2021
RESILAC - Lake Chad inclusive economic and social recovery	Strengthen the resilience of local communities by linking relief, rehabilitation and development (LRRD) in areas particularly affected by current environmental, socio-economic and security issues	90,000 beneficiaries Host communities, displaced persons and refugees	Chad: Lac Region, Bassin Nord Niger: Diffa Region Cameroon: Far North Region Nigeria: Borno State		AfDB - Action Against Hunger - CARE - Groupe URD	€30 European Trust Fund €5 AfDB		20187	2022

European Community Humanitarian Office (ECHO)

Programme/project title	Purpose	Beneficiaries	Area of intervention	Relevant ministry/ manager	Execution	Cost in currency (millions)	Cost in billions of CFA francs	Start date (DD/MM/YYYY)	End date (DD/MM/YYYY)
Socio-economic integration of Sudanese refugees in eastern Chad	Support for market gardening and rain-fed agriculture Distribution of seeds	1,500 households Refugees, host communities	Sila (Kimiti)		LWF	1,043 \$ ECHO		2018	2019
Project to empower and integrate Chadian returnees in southern Chad (PAIR-Tchad)	Livelihood support: distribution of small ruminants, support for market gardening and Cash transfers Training and outreach for improved stoves Training of nursery workers in the production and sale of plants	3,000 households Returnees, host communities	Eastern Logone (La Nya Pendé)		UNHCR - CARE	2 € ECHO		2017	2019
Emergency mutual assistance project for new Central African refugees and host communities in Goré and Moissala (PAMUNOR)	Support for rain-fed crop production (inputs, training, materials) Income-generating activities: Global Resilience Network training Revitalization of community structures	2,990 households Refugees, host communities	Eastern Logone, Mandoul		CARE	1,7 € ECHO		10/2018	12/2019
Protection pending solutions for Sudanese refugees in eastern Chad	Emergency livelihood support: cash transfers Income-generating activities: training	Refugees, host communities	Ouaddaï (Assoungha)		UNHCR-LWF	ECHO		2018	2018
Project to reduce mixed migration and support youth empowerment	Emergency livelihood support: support for small businesses	110 refugees	Ouaddaï (Assoungha)		UNHCR-LWF	ECHO		2018	2019

... (cont.) European Community Humanitarian Office (ECHO)

Programme/project title	Purpose	Beneficiaries	Area of intervention	Relevant ministry/ manager	Execution	Cost in currency (millions)	Cost in billions of CFA francs	Start date (DD/MM/YYYY)	End date (DD/MM/YYYY)
Protection and mixed solution for Central African refugees living in southern Chad	Livelihood support: Support for livestock, market gardening and employment Cash transfers for the acquisition of seeds and agricultural tools, training of producers Construction of community granaries for storage	Refugees, host communities, returnees	Salamat (Haraze-Mangueigne) Mandoul (Barh Sara) Eastern Logone (La Nya Pendé, Monts de Lam) Moyen-Chari (Grande Sido)		UNHCR-LWF	1,748 \$ ECHO		2018	2018
Support for food security to improve the nutritional status of host communities, returnees and displaced persons affected by the Boko Haram crisis in the Lac and Kanem Regions	Cash transfers Purchase of oxen, slaughtering, drying of meat and distribution	2,800 indigenous peoples	Kanem, Lac (Fouli)		FAO	ECHO		2018	2018
Support for the coordination of the food security cluster in Chad and the improvement of nutrition for populations affected by the current pastoral crisis in the Wadi-Fira Region	Food security	Pastoralists Agropastoralists	Wadi Fira		FAO	1,146 \$ ECHO			
Support for food security and the prevention of malnutrition for vulnerable populations in the Sahelian band in Chad (Guéra and Barh el Gazel) _HIP 2018	Cash transfers: distribution of coupons and cash In-kind distributions Nutrition	Indigenous peoples	Bahr el Gazel		Oxford Famine Relief Organization (OXFAM)-Chad Association of Volunteers for Progress (ATVP)	3,02 \$ ECHO		2018	2019
Strengthening nutritional security in the districts of Mao, Mondo, Moussoro, Chadra and Michemiré - Kanem and Bahr el Gazel Regions, Chad.	Nutrition Cash transfers: cash distribution	Children under 5 years and pregnant and lactating women 3,500 people Indigenous peoples	Kanem (Kanem, Wadi Bissam)		Action Against Hunger	4,382 \$ ECHO		2018	2018

... (cont.) European Community Humanitarian Office (ECHO)

Programme/project title	Purpose	Beneficiaries	Area of intervention	Relevant ministry/ manager	Execution	Cost in currency (millions)	Cost in billions of CFA francs	Start date (DD/MM/YYYY)	End date (DD/MM/YYYY)
Emergency support to populations affected by food and nutrition crises and disaster risk reduction in the Sahelian band in Chad	Cash transfers: cash distribution Strengthening the community early warning and rapid response system for disaster risk reduction: training, coordination support, equipment and provision of a contingency fund	8,200 indigenous households	Batha (Batha Est) Lac (Wayi)		Agency for Technical Cooperation and Development	2,699 \$ ECHO		2018	2019
Support for the socio-economic integration of Central African refugees at the Gaoui site in Chad	Cash transfers: Cash for work Income-generating activities: training support and cash distribution	97 refugee households	N'Djamena		Agency for Technical Cooperation and Development	0,491 \$ ECHO		2018	2019
Support for the medical and nutritional care of children under 5 years of age and for the maternal health of pregnant and breastfeeding women in N'Djamena and in the districts of N'Gouri and Isserom	Nutrition	Children under 5 years and pregnant and lactating women	N'Djamena N'Gouri and Isserom		Alliance for International Medical Action	0,604 \$ ECHO		2018	2018
Support project for populations vulnerable to food and nutrition insecurity in the Batha Region	Emergency livelihood support: agropastoral inputs, training in organizing village savings and loan associations, training in vegetable production Cash transfers: cash distribution Training of livestock auxiliaries, plant protection officers, local action committees and village development committees	1,700 very poor households with children under 5 years of age Indigenous peoples, host communities	Batha (Batha Ouest)		Solidarity	1,350 \$ ECHO		2018	2018
Strengthen resilience and ensure the socio-economic integration of vulnerable populations affected by the crisis in the Lake Chad region					CARE	1,227 \$ ECHO			

... (cont.) European Community Humanitarian Office (ECHO)

Programme/project title	Purpose	Beneficiaries	Area of intervention	Relevant ministry/ manager	Execution	Cost in currency (millions)	Cost in billions of CFA francs	Start date (DD/MM/YYYY)	End date (DD/MM/YYYY)
Support basic needs coverage, livelihood stabilization and recovery and resilience-building for communities (hosts, returnees and internally displaced persons) affected by the Boko Haram crisis in the Lake Chad region		Host communities, displaced persons and returnees			Oxfam Intermon	1,394 \$ ECHO			
Providing targeted food and nutrition assistance to vulnerable Chadian and refugee populations and strengthening systems for food security information and analysis	Food assistance, nutrition	Vulnerable populations Refugees			WFP	16,76 \$ ECHO		2018	2019
Reinforcement of the response to the humanitarian crisis through integrated, health and nutrition intervention in the Lake Chad Region	Nutrition				International Medical Corps	0,9 \$ ECHO			
Health, nutrition and protection assistance for displaced and indigenous people in the Lake Chad region	Health, nutrition and protection				IRC	0,988 \$ ECHO			
Improve the prevention and management of global acute malnutrition in children under 5 years of age and pregnant and lactating women	Nutrition				PMI	0,617 \$ ECHO			

... (cont.) European Community Humanitarian Office (ECHO)

Programme/project title	Purpose	Beneficiaries	Area of intervention	Relevant ministry/manager	Execution	Cost in currency (millions)	Cost in billions of CFA francs	Start date (DD/MM/YYYY)	End date (DD/MM/YYYY)
Integrated approach to improving the management of severe acute malnutrition in Chad					United Nations Children's Fund (UNICEF)	11,11 \$ ECHO			
Protection and assistance to refugees in Chad	Response for refugees	Refugees			UNHCR	3,641 US \$ ECHO		2019	2020
Multisectoral approach to improving the management of severe acute malnutrition and strengthening rapid response preparations in Chad	Nutrition				UNICEF	5,275 \$ ECHO		2019	2020
Ensuring vulnerable Chadian and refugee population receive adequate and timely food and nutrition assistance to strengthen their food security and nutrition situation	Food assistance, nutrition	Vulnerable populations Refugees			WFP	3,676 \$ ECHO		2019	2020

Other lines of financing

Programme/project title	Purpose	Beneficiaries	Area of intervention	Relevant ministry/ manager	Execution	Cost in currency (millions)	Cost in billions of CFA francs	Start date (DD/MM/YYYY)	End date (DD/MM/YYYY)
Project to support sustainable and diversified agricultural production adapted to climate change and variability in order to strengthen household resilience by introducing innovative agricultural techniques in the Lac Region	Support for agriculture: Validation of the ouadis through support for pumping water	1,500 indigenous households	Lac (Fouli, Wayi)	Ministry of Environment, Water and Fisheries	SOS Sahel - Ministry of Environment, Water and Fisheries	€1.1 Global Climate Change Alliance		2016	2019
Soil fertility management project and support for climate-resilient agriculture in the Mandoul Region	Creation of a centre to explore and popularize techniques Equipment for farmers Training in conservation agriculture and agroforestry Pastoral infrastructure	9,990 farmers and herders	Mandoul		RAPS-Mandoul Association for the Promotion of the Shea Butter Industry in Mandoul (APROFIKAM)	€1.2 Global Climate Change Alliance		2016	2019
Project to improve the concerted management of pastoral resources in the Gara/Salamat plain for integrated and sustainable conservation in the peripheral zone of the Zakouma National Park	Establish permanent pools, mark transhumance corridors, delimit pastoral areas Facilitate a multi-stakeholder dialogue platform for the governance of agropastoral resources Offer innovative services to the transhumant community (drinking water, animal and human health)	40,000 transhumant nomads and 3,000 agropastoralists from the villages bordering Zakouma National Park	Salamat		ALISEI - SAHEL- EcoDev	€1.1 Global Climate Change Alliance		2016	2019
Project to improve information, education and communication among rural and peri-urban populations on climate change adaptation	Raise awareness of local populations on climate risks and climate change adaptation mechanisms Facilitate the integration of climate change into education and training programmes	Farmers: herders/pastoralists, fishers, resource users	National		International Union for Conservation of Nature - Social Action for Holistic Development (SODAH) - Central African Community and Local Radio Network for Good Governance, Conservation and Sustainable Resource Management (ReRaC	€0.8 Global Climate Change Alliance		2016	2019

... (cont.) Other lines of financing

Programme/project title	Purpose	Beneficiaries	Area of intervention	Relevant ministry/manager	Execution	Cost in currency (millions)	Cost in billions of CFA francs	Start date (DD/MM/YYYY)	End date (DD/MM/YYYY)
Project to support the sustainable management of Sahelo-Saharan protected areas - Niger and Chad	<p>Conserve the remaining viable populations of Sahelo-Saharan megafauna</p> <p>Contribute to the effective management of Sahelo-Saharan protected areas and their sustainable financing</p> <p>Contribute to securing pastoral systems for the benefit of local populations and biodiversity</p>		Barh el Gazel, Kanem, Batha, Borkou and Wadi Fira	Ministry of Environment, Water and Fisheries	Noé	1,8 €	1,18	01/12/2015	01/12/2019
Local production of complementary foods for children from 6 to 24 months (PRO-ACT)			East Mayo-Kebbi, West Mayo-Kebbi and Kanem	Ministry of Women, Protection of Early Childhood and National Solidarity		€5 PRO-ACT	3,27	01/12/2015	01/12/2019

Funding from the Food and Agriculture Organization of the United Nations

Programme/project title	Purpose	Beneficiaries	Area of intervention	Relevant ministry/ manager	Execution	Cost in currency (millions)	Cost in billions of CFA francs	Start date (DD/MM/YYYY)	End date (DD/MM/YYYY)
Emergency food security and livelihood protection project for refugee and host populations in southern Chad		Refugee and host communities				0.76 Central Emergency Response Fund		2018	2019
Emergency project to address the food insecurity of vulnerable Chadian households living in the Sahelian band		Vulnerable populations affected by droughts	Sahelian band			0.8 Central Emergency Response Fund		2018	2019
Emergency support for food and nutritional security in the Wadi Fira Region			Wadi Fira			0.5 Central Emergency Response Fund		2019	2019

Funding from the International Fund for Agricultural Development

Programme/project title	Purpose	Beneficiaries	Area of intervention	Relevant ministry/ manager	Execution	Cost in currency (millions)	Cost in billions of CFA francs	Start date (DD/MM/YYYY)	End date (DD/MM/YYYY)
Project to strengthen the resilience of agricultural systems in Chad (PARSAT)	<p>Food and nutrition security + resilience:</p> <ul style="list-style-type: none"> -Secure production against climatic risks, by improving the mobilization and management of water on crop plots -Intensify agricultural production by improving cultivation techniques and using better adapted varieties -Improve storage capacity and stockpiling for the lean season -Diversify profitable off-season economic activities and improve access to markets 	<p>Vulnerable farmers</p> <p>Poor households</p>	Guéra, Hadjer-Lamis and Batha			\$36,200,000	21,720	2015	2022
						International Fund for Agricultural Development/ State			

Financements Japon

Programme/project title	Purpose	Beneficiaries	Area of intervention	Relevant ministry/ manager	Execution	Cost in currency (millions)	Cost in billions of CFA francs	Start date (DD/MM/YYYY)	End date (DD/MM/YYYY)
Prevention of acute malnutrition (Sahel)	Nutrition	Children under 5 years and pregnant and lactating women			WFP	2,5 \$		2018	2019
Humanitarian assistance	Food security				WFP	2,7 \$		2018	2019

Funding from the World Food Programme (Central Emergency Response Fund + non-targeted contributions)

Programme/project title	Purpose	Beneficiaries	Area of intervention	Relevant ministry/manager	Execution	Cost in currency (millions)	Cost in billions of CFA francs	Start date (DD/MM/YYYY)	End date (DD/MM/YYYY)
Strengthening the management and prevention of malnutrition	Nutrition, integrated management of moderate acute malnutrition	Central African Republic refugees in southern Chad Vulnerable Populations	Sahelian zone and southern Chad			0.325 Central Emergency Response Fund		2018	2019
Emergency food security and livelihood protection project for refugee and host populations in southern Chad		Refugee and host communities				1.261 Central Emergency Response Fund		2018	2019
Emergency project to address the food insecurity of vulnerable Chadian households living in the Sahelian band	Food assistance	Vulnerable populations	Sahelian zone			5.003 Central Emergency Response Fund		2018	2019
Project to improve food security, livelihoods and nutrition for refugee and host populations in southern Chad Prevention of acute malnutrition (Sahel)	Food and nutrition security	Refugee and host communities				3.957 Central Emergency Response Fund		2019	2020
	Nutrition, integrated management of moderate acute malnutrition	Children under 5 years and pregnant and lactating women				2,741			
Treatment of malnutrition (crisis response - treatment)	Nutrition, integrated management of moderate acute malnutrition	Children under 5 years and pregnant and lactating women				9,509			
Food assistance project for vulnerable populations during the lean season in the Sahel	Food assistance	Vulnerable populations	Sahelian zone			10,488			
Unconditional food assistance to refugees from the Central African Republic and Sudan	Food assistance	Refugee populations				32,199			
Food assistance and asset creation project for vulnerable populations	Asset creation	Vulnerable populations	Sahelian zone			2,987			
Capacity-building of the National Food, Nutritional and Pastoral Crisis Prevention and Management System	Institutional support	National Food, Nutritional and Pastoral Crisis Prevention and Management System				1,2			

Funding from the United Kingdom

Programme/project title	Purpose	Beneficiaries	Area of intervention	Relevant ministry/ manager	Execution	Cost in currency (millions)	Cost in billions of CFA francs	Start date (DD/MM/YYYY)	End date (DD/MM/YYYY)
Food assistance to Central African Republic refugees in Chad	Food assistance	Refugees			WFP	1,377 \$			
Humanitarian aid					WFP	4,006 \$			
Nutrition (Part of SM180301)	Nutrition	Children under 5 years and pregnant and lactating women			UNICEF	1,424 \$			
Social safety net project	Cash transfers (conditional and unconditional) Assistance for productive development	6,200 poor households	Bahr el Gazel, N'Djamena and Western Logone	Ministry of the Economy and Development Planning		\$5	World Bank- Department for International Development	05/10/2016	2019

Financing from Sweden

Programme/project title	Purpose	Beneficiaries	Area of intervention	Relevant ministry/ manager	Execution	Cost in currency (millions)	Cost in billions of CFA francs	Start date (DD/MM/YYYY)	End date (DD/MM/YYYY)
Humanitarian assistance to affected population	Food security				FAO	19,425 \$		2017	2019
Provide and improve humanitarian assistance focused on health, nutrition and protection to emergency affected populations in the Lake Chad region	Nutrition	Children under 5 years and pregnant and lactating women	Lac		IRC	0,329 \$		2018	2019
Reduce acute malnutrition of children under five in N'Djamena	Nutrition	Children under 5 years and pregnant and lactating women	N'Djamena		IRC	0,242 \$		2018	2019
Emergency support to affected populations	Nutrition	Children under 5 years and pregnant and lactating women	N'Djamena		UNICEF	0,173 \$		2018	2019
Contribution to various operations based on UNHCR's Global Appeal 2019					UNHCR	0,88 \$		2019	2020
Support to Oxfam GB's humanitarian activities 2019					Oxfam	0,539 \$		2019	2020

Funding from the Office of the United Nations High Commissioner for Refugees

Programme/project title	Purpose	Beneficiaries	Area of intervention	Relevant ministry/ manager	Execution	Cost in currency (millions)	Cost in billions of CFA francs	Start date (DD/MM/YYYY)	End date (DD/MM/YYYY)
Emergency response to new refugees from the Central African Republic and affected host village communities	Refugee response plan	Central African Republic refugees in southern Chad Host communities				2.142 Central Emergency Response Fund		2018	2019
Protection and multisectoral assistance to Sudanese refugees and host communities in eastern Chad	Refugee response plan	Refugees, host communities				2 Central Emergency Response Fund		2019	2020

Funding from the United Nations Children's Fund

Programme/project title	Purpose	Beneficiaries	Area of intervention	Relevant ministry/ manager	Execution	Cost in currency (millions)	Cost in billions of CFA francs	Start date (DD/MM/YYYY)	End date (DD/MM/YYYY)
Strengthening the management and prevention of malnutrition in response to the influx of refugees from the Central African Republic to southern Chad	Nutrition, integrated management of acute malnutrition	Refugee and host communities				0.325 Central Emergency Response Fund		2018	2019
Intensification of activities for the management of acute malnutrition in the regions in the Sahel band affected by the food crisis	Nutrition, integrated management of acute malnutrition	Vulnerable populations affected by droughts	Sahelian band			2.599 Central Emergency Response Fund		2018	2019
Integrated approach to improve the nutritional situation of host and refugee communities in eastern Chad	Nutrition	Refugee and host communities				1.248 Central Emergency Response Fund		2019	2020
Nutrition HTCD18/NUT/52816/1	Nutrition					3,419		2018	2019

Funding from the United States Agency for International Development (USAID)

Programme/project title	Purpose	Beneficiaries	Area of intervention	Relevant ministry/manager	Execution	Cost in currency (millions)	Cost in billions of CFA francs	Start date (DD/MM/YYYY)	End date (DD/MM/YYYY)
(In kind): Humanitarian aid and food assistance (USAID/Food for Peace)	Food aid				WFP	45,734		2018	2019
Emergency food assistance project for internally displaced persons, returnees and refugees from Lake Chad (USAID/Food for Peace)	Food assistance	Refugees, returnees, displaced persons	Lac		WFP	11,493		2018	2019
Humanitarian assistance (USAID/Food for Peace)					WFP	22,2		2018	2019
2019 Humanitarian Response Plan					UNHCR	6,5		2019	2020
2018 Humanitarian Response Plan					UNHCR	28,333		2018	2019
Project to strengthen the socio-economic resilience of refugees, returnees and the host population of Goré and Moissala	Distribution of market gardening inputs and equipment Distribution of seeds (corn, peanuts and sorghum) and farming tools Distribution of small ruminants and poultry Cash transfers: Cash for work	Refugees, returnees, host communities	Eastern Logone (La Nya Pendé) Mandoul (Barh Sara)		UNHCR - CARE	1.85	Bureau of Population, Refugees, and Migration	2017	2018
Food self-sufficiency and social cohesion	Support for agricultural production (inputs, tools) Support for livestock (distribution, destocking, vaccination, etc.)	Refugees, returnees	Eastern Logone (La Nya Pendé) Moyen-Chari (Grande Sido)		UNHCR-LWF		Bureau of Population, Refugees, and Migration	2017	2018
Nutrition (USAID/Food for Peace)	Nutrition				Unicef	2.998	Food for Peace		
Early warning system (Famine Early Warning Systems Network)					Ministry of Production, Irrigation and Agricultural Equipment	10,9 US \$	6,00	2003	2032

... (cont.) Funding from the United States Agency for International Development (USAID)

Programme/project title	Purpose	Beneficiaries	Area of intervention	Relevant ministry/ manager	Execution	Cost in currency (millions)	Cost in billions of CFA francs	Start date (DD/MM/YYYY)	End date (DD/MM/YYYY)
C-4 cotton partnership (USAID «C4CP»)	Increased income for men and women producers, as well as cotton processors: Training, training fields, women empowerment	Vulnerable farmers	Moyen-Chari, Mandoul and East Mayo-Kebbi			14.8 (regional fund: Benin, Burkina Faso, Chad and Mali)		2014	2018
Enhance women's protection and reduce the risk of GBV through improved access to GBV response and prevention services and increased use and control of resources	Cash transfers	1,050 indigenous peoples	Lac (Fouli)		IRC	Office of US Foreign Disaster Assistance		2018	2019
Promote self-resilience mechanisms for conflict-affected households and improve access to humanitarian information in the Lake Chad region, Kaya and Fouli departments	Distribution of small ruminants, training and equipping of livestock auxiliaries Support for the establishment of community gardens: inputs, tools, protective equipment Support for the creation of market garden groups Construction/rehabilitation of market garden wells	Very vulnerable women, groups, Indigenous peoples, displaced persons, host communities	Lac (Fouli, Kaya)		Agency for Technical Cooperation and Development	Office of US Foreign Disaster Assistance		2017	2018
Food security and normalization of living conditions for displaced persons and host communities in Chad, Lac Region	Emergency livelihood support: support for agriculture	4,300 households Displaced persons, host communities	Lac (Fouli)		Intersos	Office of US Foreign Disaster Assistance		2017	2018
Support for the improvement of livelihoods and community protection mechanisms to normalize living conditions for internally displaced persons and host communities in the Lac Region	Emergency livelihood support: support for agriculture and fishing	4,600 households Displaced persons, host communities	Lac (Fouli, Kaya)		ntersos	Office of US Foreign Disaster Assistance		2018	2019

... (cont.) Funding from the United States Agency for International Development (USAID)

Programme/project title	Purpose	Beneficiaries	Area of intervention	Relevant ministry/manager	Execution	Cost in currency (millions)	Cost in billions of CFA francs	Start date (DD/MM/YYYY)	End date (DD/MM/YYYY)
Promotion of local initiatives (African Development Foundation)				Ministry of the Economy and Development Planning		Embassy			

