MINEPDED

MINISTRY OF ENVIRONMENT, PROTECTION OF NATURE
AND SUSTAINABLE DEVELOPMENT

CAMEROON'S NATIONAL CLIMATE PLAN

April 2025

"Some of the damage caused by climate change is already irreversible. We have to stop this process of self-destruction at all costs."

H.E. Paul BIYA,

President of the Republic, Head of State
Copenhagen, 2009.

Dr Joseph DION NGUTE

Prime Minister, Head of Government.
General supervision of the Climate Agenda

MOTAZE Louis Paul

Minister of Finance,
1st Vice-Chair of the National Facilitation Committee of the Climate Agenda

HELE Pierre

Minister of Environment, Protection of Nature and Sustainable Development,
Chairperson of the National Facilitation Committee of the Climate Agenda

Alamine OUSMANE MEY

Minister of the Economy, Planning and Regional Development,
2nd Vice-Chair of the National Facilitation Committee of the Climate Agenda

SOMMAIRE

LIST OF ABBREVIATIONS AND ACRONYMS

AAAP: African Adaptation Acceleration Programme

ABM: Adaptation Benefits Mechanism

ACCF: Africa Climate Change Fund

ADRIFI: Africa Disaster Risk Financing

AEZ: Agro-ecological Zones

AF: Adaptation Fund

AFDB: African Development Bank

AFOLU: Agriculture, Forestry and Other Land Use

AGIA: Alliance for Green Infrastructure in Africa

BUR1: First Updated Biennial Report

CA: Climate Agenda

CAFI: Central African Forest Initiative

CAR: Central African Republic

CC: Climate Change

CEMAC: Economic and Monetary Community of Central Africa

CH: methane

CIF: Climate Investment Funds

CO: carbon dioxide

COP: Conference of the Parties

CSA: Climate-smart Agriculture

CSOs: Civil Society Organizations

ECAM5: Cameroon Household Survey

EHCVM: Harmonised Household Living Conditions Survey

FAO: Food and Agriculture Organization of the United Nations

FCFA: Franc de la Communauté financière africaine

FEICOM: Special Council Support Fund for Mutual Assistance

FFS: Farmers' Field Schools

FLA: Forestry and Land Allocation

GCF: Green Climate Fund

GDP: Gross Domestic Product

GEF: Global Environment Facility

GG EQ: Giga gram equivalent

GHG: Greenhouse gas

IFAD: International Fund for Agricultural Development

IMF: International Monetary Fund

IMPM: Institute of Medical Research and Medicinal Plant Studies

INC: National Institute of Cartography

IPCC: Intergovernmental Panel on Climate Change

IRAD: Agricultural Research Institute for Development

IRGM: Institute of Geological and Mining Research

LED: Light-Emitting Diode

LPG: Liquefied Petroleum Gas

MINADER: Ministry of Agriculture and Rural Development

MINEE: Ministry of Water Resources and Energy

MINEPAT: Ministry of the Economy, Planning and Regional Development

MINEPDED: Ministry of Environment, Protection of Nature and Sustainable Development

MINEPIA: Ministry of Livestock, Fisheries and Animal Industries

MINFI: Ministry of Finance

MINFOF: Ministry of Forestry and Wildlife

MINHDU: Ministry of Housing and Urban Development

MINRESI: Ministry of Scientific Research and Innovation

MINSANTE: Ministry of Public Health

MINT: Ministry of Transport

MINTP: Ministry of Public Works

MIPROMALO: Local Materials Promotion Authority

MNV/MRV: Measuring, Notification and Verification / Monitoring - Reporting - Verification

NA: Not available

NCP: National Climate Plan

NDC: Nationally Determined Contribution

NDS30: National Development Strategy 2020-2030

NE: Not estimated

NEC: National Education Centre

NGOs: Non-governmental Organizations

NO: Nitrogen monoxide

NPFE: Non-Permanent Forest Estate

NRPA: Nation Radio-protection Agency

NTDC: National Technology Development Committee

OCHA: UN Office for the Coordination of Humanitarian Affairs

ONACC: National Observatory on Climate Change

ONEFOP: National Observatory of Employment and Vocational Training

PAE: Public Administrative Establishment

PBS: Performance-based Subsidy

PFCS: Perfluorocarbons

PFE: Permanent Forest Estate

PLADDT: Local Land Use and Sustainable Development Plans

PNACC: National Action Plan for Adaptation to Climate Change

PNZT: National Territory Zoning Plan

PPP: Public-Private Partnerships

PRAIS3: Third report on land degradation

PROLOG: Local Governance and Resilient Communities Project

RAI: Rural Access Index

REDD+: Reducing Emissions from Deforestation and Forest Degradation

RLAS: Regional and Local Authorities

RRC: Rural Resource Centres

SDSR: rural sector development strategy

SESA: Sustainable Energy Fund for Africa

SME: Small and Medium-sized Enterprises

SNADDT: National Land Use and Sustainable Development Plans

SRADDT: Regional Land Use and Sustainable Development Plans

TFPS: Technical and Financial Partners

TNC: Third National Communication on Climate Change

UEMOA: West African Economic and Monetary Union

UNDP: United Nations Development Programme

UNESCO: United Nations Educational, Scientific and Cultural Organisation

UNFCCC: United Nations Framework Convention on Climate Change

UOSCF: Operational Unit for Monitoring Forest Cover

WB: World Bank

WHO: World Health Organisation

FOREWORD

FOREWORD

Cameroon, like other African countries, is affected by the adverse effects of climate change, despite its low level of greenhouse gas emissions on a global scale. These impacts are characterized by long-term droughts, recurrent floods, desert encroachment, an upsurge in extreme weather events and the associated disaster risks. This results in the degradation of natural environments, biodiversity loss, the destabilisation of agro-pastoral systems, food insecurity, and disruptions to the hydroelectric power production and distribution system. Environmental migrations followed by conflicts over control of natural resources are on the rise. This is having a considerable impact on the global resilience of the economy.

There is therefore a real sense of urgency of climate action. This action relies on efforts already undertaken, notably by mainstreaming climate concerns into national policies, such as the National Development Strategy 2020-2030 (NDS30). This is in line with Cameroon's commitment in the Nationally Determined Contributions (NDCs) to reduce its emissions by 35% by 2035. It is also reflected by the country's commitment to adopting a green budgeting approach through the principle of Climate-Sensitive Budgeting (CSB), which takes into account the impact of climate change on public spending. This principle took effect in the preparation of the 2025 budget, and identified nine (9) pilot ministries, namely: MINTP, MINHDU, MINEE, MINT, MINADER, MINEPIA, MINSANTE, MINFOF and MINEPDED, with climate-sensitive spending of up to 47.57% allocated to adaptation actions and 51.85% devoted to climate change mitigation initiatives.

This achievement allows us to envisage appropriate planning and more effective coordination by developing the National Climate Plan (NCP). This plan is one of the reform measures resulting from the Resilience and Sustainability Facility requested by Cameroon from the International Monetary Fund (IMF).

The objective of the National Climate Plan is to define priority responses adapted to climate vulnerabilities while using all the relevant levers to strengthen the country's overall resilience, in a concerted manner. The successful implementation of this important tool depends on cross-sectoral coordination and the articulation of all hierarchical levels of decision-making according to local and regional vulnerabilities.

The structure of the document is determined by the targeted objective. The vision, target, principles, aim, objective and alignment of the NCP with the NDS30 are set out in the general introduction. Chapter 2 addresses the situational analysis, which summarises climate hazards, shows future climate change projections and establishes causal links between hazards, vulnerabilities and development objectives by sector and agro-ecological zone. Chapter 3 deals with the main vulnerabilities in order to propose priority measures that could reverse the trend and strengthen the overall resilience of the economy and societies. Chapter 4 addresses the key issue of financing, proposing ways forward and dedicated funding windows. Chapter 5 deals with the fundamental issue of strengthening climate governance. In order to avoid overlaps and wastage and to increase the commitment of stakeholders and the credibility of the process, the institutional and regulatory frameworks are analysed and avenues for reform are indicated. Chapter 6 is the last section of the document and deals with guidelines for implementing and monitoring the NCP.

Presented in this way, the NCP constitutes a compass for decision-making that is useful for all sectors and all stakeholders, but is placed under the technical responsibility of the National Facilitation Committee for the Climate Agenda, which is responsible for steering and coordinating monitoring. Because it deals with an unstable and fluctuating subject, the NCP is designed to be a dynamic tool capable of adapting to the readjustments imposed by

global and national challenges, but also by available resources, and research and innovation findings.

We now have a strategic instrument that should guide our priority actions to combat climate change over the next five (5) years. We would like to express our heartfelt gratitude to CAFI (Central African Forest Initiative) mechanism, which, through the UNDP, has provided financial support to this process. The same goes for the PACJA/ACSEA organisation, the support of which has been decisive in developing this Plan. The IMF encouraged the achievement of this tool and has regularly monitored its development, for which the Government of the Republic is grateful. I appreciate and congratulate the commitment of MINEPDED/MINEPAT/CAFI Task Force, which has done its utmost to co-ordinate the production of this valuable document despite the relatively tight deadlines.

Given the importance of the issues involved in making our economy resilient to the effects of climate change, and because of the proven links between the objectives of the 2025 Vision and the impacts of an increasingly unpredictable climate, I urge all those responsible for the most vulnerable sectors, as well as national and international development partners, to take ownership of this valuable tool and become fully involved in its implementation.

(Sgd) HELE Pierre

Minister of Environment, Protection of
Nature and Sustainable Development

EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

Cameroon, which is aware of the impacts of climate change, ratified the UNFCCC in 1992. To reaffirm its commitment to combat climate change, Cameroon, in 2015, committed to reducing greenhouse gas emissions by 32 percent by 2035. This target was revised in 2021 to be more ambitious, i.e. 35% by 2030, and is broken down into an unconditional target of 12% and conditional 23%. To transform these climate commitments into concrete actions, both detailed planning and effective coordination are required. The National Climate Plan (NCP) is a strategic document designed to guide climate policies and actions in an integrated, participatory and multi-sector approach.

Vision and goal of Cameroon's National Climate Plan

With a view to turning climate challenges into development opportunities, Cameroon intends to build an economy that is resilient to climate change, low-carbon and socially inclusive, contributing to the reduction of social, economic and ecosystem vulnerabilities while respecting its commitments in the context of achieving global objectives.

Strategic objectives

Cameroon's National Climate Plan aims to put in place a planned and concerted approach to strategically coordinate the country's efforts to meet the challenges of climate change by contributing to the global effort to limit global warming to 1.5°C and to adapt effectively. It clearly defines the roles/responsibilities of the key stakeholders and the resources required to achieve the desired objective, while ensuring that the various processes are constantly monitored. Specifically, it aims to:

- Reduce greenhouse gas emissions and gradually implement the energy transition;
- Effectively adapt to the effects of climate change by strengthening the resilience of societies, agro-pastoral systems and infrastructure;
- Protect natural ecosystems and increase sequestration potential;
- Strengthen institutional capacities at various levels, including those for forecasting and integrating responses into the strategy;
- Mobilise national and international funding, particularly innovative or alternative funding.

Development process of Cameroon's National Climate Plan

The NCP is developed under the technical coordination of MINEPDED/CAFI Task Force, extended to the key administrations involved in Cameroon's Climate Agenda, civil society organizations and the private sector. Consultants were mobilised as per the Terms of Reference developed as part of the NCP development process. The assessment of the current situation is essentially based on the first Biennial Update Report (BUR1) (MINEPDED, 2024), the Report Situation of the Occupation of the National Territory (MINEPAT, 2016), the Study on Cameroon's Vulnerability and Adaptation to Climate Change as part of the Third National Communication and the First Biennial Report on Climate Change (MINEPDED, 2021).

Vulnerability of Cameroon's agro-ecological zones and key sectors of the economy affected by the effects of climate change

The impacts of climate change affect Cameroon's agro-ecological zones (AEZs) differently, depending on population density, the biophysical context, the level of industrial and infrastructural development and the degree of intrinsic vulnerability of the AEZs. The most affected sectors are agriculture, including livestock and fisheries, energy, infrastructure and health.

The Sudano-Sahelian AEZ (Far North and North Regions) is particularly vulnerable to floods, drought and, to a lesser extent, landslides. Forests with Monomodal Rainfall AEZ (Littoral, South-West and South Regions) is exposed to floods, rising sea levels and temperature rises. The High- Plateaus AEZ is exposed to landslides, erosion and floods in its lower parts. The Bimodal rainforest AEZ will suffer from the effects of floods and landslides. The same applies to the Guinean High-Savannah AEZ, which in addition to experiencing landslides is suffering from soil degradation due to overloading by agro-pastoralists.

Situation of greenhouse gas emissions in Cameroon

The total of greenhouse gas emissions in 2020 was 117443.14 Gg eq CO2. The agriculture sector represents the largest source of GHG emissions, with 97030 Gg EqCO2 emitted out of a total of 117443.14 Gg EqCO2, i.e. 80.17% of total emissions (Figure 12). The energy sector is second with 11.33%, followed by the waste sector with 8.02% and the Industrial Processes and Product Use (IPPU) sector occupies the last position with less than 1% (0.47%). The national GHG emissions and absorption balance sheet for 2020 shows that Cameroon remains a GHG sink overall, with an absorption capacity of 19859.76 Gg EqCO2. Including the AFAT sector, emissions amount to 117724.06 Gg EqCO2 and estimated absorptions to approximately -137583.06 Gg EqCO2, i.e. a net absorption of -19859.06 Gg EqCO2.

Priority actions and measures to combat climate change

Priority actions and measures have been identified according to the key sectors and their vulnerabilities. The priority sectors are agriculture, including livestock and fisheries, infrastructure and sanitation, energy, forestry, industry, waste and health. Cameroon identified four priorities to address climate risks and provide opportunities for a green, resilient and inclusive future. These include:

- Establishing a Climate resilient Agriculture, Forestry and Land Use system to integrate adaptation and mitigation measures and advance sustainable development in all agricultural and ecological zones of the country. These actions include promoting climate-smart and low-carbon agriculture (ICA). Endogenous knowledge must be explored as part of the participatory development of technologies adapted to strengthening the resilience of production systems.
- Integrating climate change impacts and risks in the design, greening, planning and financing of cities to improve the resilience and people's well-being in urban areas. In this context, diversifying the energy supply, increasing energy efficiency in the context of climate change and promoting and disseminating renewable energies are essential measures for reducing greenhouse gas emissions.
- Investing in sustainable infrastructure that adapts to help bridge the important infrastructure gap and improve the quality of life of every Cameroonian. To this end, the construction of climate-resilient infrastructure and the integrated management of water resources should be considered.

- Adopting an all-hands-on deck approach where resilience and adaptation will involve community driven approaches, strong engagement from citizens and local levels of government, as well as synergies with all relevant systems and sectors.

The NCP funding mechanism

Combating the effects of climate change reveals the need for additional financial resources, both for adaptation and mitigation, beyond those required for already recognized development imperatives. To successfully achieve the transformational shift towards a low-carbon economy, significant investments are required to implement appropriate technologies, targeting all sectors at stake. The necessary funding will support the implementation of programmes and projects in line with the commitments made, while respecting a distribution that takes into account the largest sectors of GHG emissions and the most vulnerable agro-ecological zones.

Strategies for mitigation and adaptation to the effects of climate change will be very costly and will further compromise the country's socio-economic development. Between 2015-2020, Cameroon mobilized approximately US$213.76 million, representing approximately FCFA 117.56 billion, for activities planned or related to the implementation of commitments made under the Paris Agreement.

The NCP's financing will rely, among other things, on existing financing strategies such as Cameroon's Disaster Risk Financing Strategy (MINFI 2025) and the National Investment Plan for Adaptation to Climate Change (PNIAC 2016), to name just a few. Furthermore, to facilitate the mobilization of financing for the implementation of the National Climate Plan, the Government will keep taking into account climate change in public policies. Based on international agreements to which the country is Party, the national budget has been greened through the Climate-sensitive Budgeting (CSB) principle in order to take into account climate impact into public spending.

Specific and detailed elements related to the financing guidelines of the National Climate Plan will be included in a dedicated National Investment Plan. This Plan is intended to be a national framework for planning national and external funds to reduce vulnerability to climate change and strengthen the resilience of populations and ecosystems.

Strengthened Climate Governance

In preparation for the implementation of the Climate Agenda, the Government of Cameroon has undertaken a number of reforms, driven by the need to strengthen the coordination role of MINEPDED, given the cross-cutting nature of the climate change issue and the challenges it entails. To this end, Order No. 00002/CAB/MINEPDED of 21 May 2024 was signed. This instrument defines the central role as the key authority responsible for coordinating the climate agenda. MINEPDED is supported in this role by the Ministry of the Economy and the Ministry of Finance. The Order also defines the roles and responsibilities of other sector ministries and government agencies in implementing the climate agenda.

As regards MINEPDED' missions, they are carried out under the general coordination of the Prime Minister, Head of Government, and are as follows:

Strategically, MINEPDED shall be responsible for, among other things, for defining and implementing sectoral policies and strategies to combat climate change; and develop sectoral guidelines for addressing climate change at the behest of the Ministry of Planning and in conjunction with other relevant administrations.

To support the overall coordination of the implementation of the climate agenda, a National Facilitation Committee has been established. The Climate Agenda (CA) governance framework shall ensure a structured, transparent, and participatory approach to climate action. It shall define the roles, responsibilities, coordination mechanisms, and financial arrangements necessary to ensure resilience and effective adaptation to climate change. Strengthening governance requires better horizontal or inter-sectoral coordination and vertical coherence from national to local, including regional levels. Gaps for strengthening governance have been identified in the institutional, legal and regulatory frameworks. These weaknesses require bold and planned reforms tailored to the challenges and available resources.

Mechanisms for implementing the NCP

For the effective implementation of the National Climate Plan (NCP), an adequate, operational, and stakeholder-owned institutional framework is required. Within the Government, MINEPDED shall lead the process, given its role as the Policy and Operational Focal Point for the United Nations Framework Convention on Climate Change (UNFCCC). It shall work under the supervision of the Prime Minister's Office, in close collaboration with the National Assembly and other sectoral ministries to ensure that adaptation and mitigation are integrated into the country's development strategy.

Implementation Deadlines and Communication

The NCP does not define new modalities for managing public policies. The implementation of actions is the sole responsibility of the institutional bodies involved in developing the NCP in accordance with Order No. 0002/CAB/MINEPDED of 21 May 2024 on the establishment, organization and functioning of the institutional framework for the Coordination and Monitoring of the Implementation of the Climate Agenda in Cameroon. Thus, the various bodies responsible for implementing the NCP are the sectoral institutions responsible for implementing sectoral policies, namely ministries, agencies and specialized institutions, bodies or establishments that are under the supervisory authority, technical departments, decentralized and local technical services, etc.

The successful implementation of the NCP depends on continuous and active communication to facilitate the acceptability and ownership of the NCP's actions by all stakeholders. The communication should target all strata of society, including: national decision-makers, local officials, administrations, organizations, businesses, civil society, associations, children and students. Particular emphasis will be laid on stakeholders who are directly impacted or involved in implementation actions.

Updating the NCP

Due to the development of knowledge, the evolution of climate change and its impacts, the updating of the NCP will follow appropriate planning, taking into account progress made, new issues and challenges in the area of adaptation and mitigation, the socio-economic context, the political environment, and both national and international commitments.

Monitoring & Evaluation of the NCP

To ensure monitoring, each sector responsible for implementing the NCP actions must ensure the regular collection of data/information aligned with quantitative and qualitative indicators to provide information on periodic reports on the progress of actions and projects/initiatives. This data or information must be transmitted to the Ministry of Environment, which will synthesize it. The Ministry of Environment, using tools such as the National GHG Emissions Inventory System (NGHGIS) and the NCP's MRV system, shall monitor, centralize information, evaluate indicators, and produce regular reports detailing the degree of implementation of actions and their performance. These reports shall be submitted to the National Facilitation Committee for the Implementation of the Climate Agenda for assessment/validation. Beyond monitoring, the objective assessment of the NCP implementation can be planned and entrusted to an external body not directly involved in the NCP development and implementation process.

Capacity building

One of the most urgent and pressing challenges facing the country in fulfilling its "reporting" obligations under the articles and decisions of the Convention and its implementation concerns the availability of the country's technical capacity in several areas, including human, institutional, technological, and financial. Capacity building is essential to increase capacities for implementing technologies, monitoring emissions, and calculating emission reductions resulting from policies and measures.

CHAPTER I

GENERAL INTRODUCTION

1- GENERAL INTRODUCTION

1.1- Background and rationale

According to Intergovernmental Panel on Climate Change (IPCC) Sixth Assessment Report, global surface temperature was 1.1 °C higher in the decade between 2011-2020 than between 1850–1900. This warming is greater over land (+1.6°C) than over the oceans (+0.9°C). Global CO2 emissions were 2400 Gt, and 42% of these emissions were produced between 1950 and 2019. These greenhouse gas (GHG) emissions are constantly increasing. Fossil fuels account for approximately 86% of global greenhouse gas emissions over the last decade. Between 1901 and 2018, the global-mean sea level rose by about 20 cm. This rise accelerated between 2006 and 2018. There is a relationship between countries' levels of development and emissions. In developing countries, an average emission per capita is 1.7 tonnes of CO2 equivalent per year, while in developed countries, the average is around 9 tonnes of CO2 equivalent. Thus, the richest 10% of the world's population are responsible for 40% of the global GHG emissions. Apart from rising sea levels, this increase in GHG emissions is driving the increase in the frequency and intensity of extreme weather and climate events. These include heatwaves, heavy rainfall, floods, droughts, etc.

Nearly half of the global population (3.6 billion people) are currently highly vulnerable to climate change impacts. The rise in extreme weather events, migration, infrastructure damage, and increased human mortality and morbidity are among the most common consequences. Socially and economically marginalized populations are the most affected. While Africa represents 15% of the world's population, and emits just 4% of global greenhouse gas emissions. Africa is the most vulnerable continent to climate change impacts Floods, rainfall variability, drought, bushfires, and water shortages exacerbate food insecurity, malnutrition, intercommunity conflicts, migration, and more.

It is in the face of this climate threat that humanity is trying to be united and take urgent action. The United Nations Framework Convention on Climate Change (UNFCCC), adopted at the Earth Summit at Rio, was the starting point for global commitment. Humankind's impact on climate change was gradually made more noticeable. Reducing greenhouse gas emissions also became a necessity. In 1997, under the Kyoto Protocol, responsibilities were established and a number of guidelines were provided to the UNFCCC parties. The Kyoto Protocol did not really produce the expected results due to its non-binding nature. To strengthen climate action, the Paris Agreement, adopted at the 21st Conference of the Parties to the UNFCCC, then proposed that each country's pledge to reduce GHG emissions, with specific targets. Today, 193 Parties have ratified the Paris Agreement. Overall, each country must make changes to its production and even lifestyles to reduce or avoid greenhouse gas emissions. These commitments are contained in the NDCs (Nationally Determined Contributions). Under its first NDC in 2015, Cameroon committed to reducing greenhouse gas emissions by 32 percent by 2035. This target was revised in 2021 to be slightly more ambitious, reaching 35% by 2030. It is broken down into two parts: an unconditional emissions reduction target of 12% and a conditional target of 23%.

The commitment to climate change gives rise to a large number of initiatives which are sometimes disparate. These include National Communications, National Adaptation Plans, REDD+ strategies, biennial reports, etc. Other initiatives can be identified at the sectoral and decentralized levels. The NCP is a "key document of the strategic approach to address the effects of climate change and brings together all planned or anticipated actions across sectors at different time horizons, covering aspects of climate change mitigation and adaptation." This holistic approach, driven by a strengthened governance framework, must remain

aligned with the NDC commitment. Thus, a National Climate Plan summarizes a country's strategy for addressing climate change. The advantage is that it is integrated into a coherent and adapted approach. Like the NDC, it is developed for a five-year period and serves as the primary tool for coordinating climate action for the central administration and officials of Regional and Local Authorities (RLAs).Developed for a five-year period and serves as the primary tool for coordinating climate action for the central administration and officials of Regional and Local Authoritiese between 2011-2020 than between 1850–1900. This warming is greater over land (+1.6°C) than over the oceans (+0.9°C). Global CO2 emissions were 2400 Gt, and 42% of these emissions were produced between 1950 and 2019. These greenhouse gas (GHG) emissions are constantly increasing. Fossil fuels account for approximately 86% of global greenhouse gas emissions over the last decade. Between 1901 and 2018, the global-mean sea level rose by about 20 cm. This rise accelerated between 2006 and 2018. There is a relationship between countries' levels of development and emissions. In developing countries, an average emission per capita is 1.7 tonnes of CO2 equivalent per year, while in developed countries, the average is around 9 tonnes of CO2 equivalent. Thus, the richest 10% of the world's population are responsible for 40% of the global GHG emissions. Apart from rising sea levels, this increase in GHG emissions is driving the increase in the frequency and intensity of extreme weather and climate events. These include heatwaves, heavy rainfall, floods, droughts, etc.

Nearly half of the global population (3.6 billion people) are currently highly vulnerable to climate change impacts. The rise in extreme weather events, migration, infrastructure damage, and increased human mortality and morbidity are among the most common consequences. Socially and economically marginalized populations are the most affected. While Africa represents 15% of the world's population, and emits just 4% of global greenhouse gas emissions. Africa is the most vulnerable continent to climate change impacts Floods, rainfall variability, drought, bushfires, and water shortages exacerbate food insecurity, malnutrition, intercommunity conflicts, migration, and more.

It is in the face of this climate threat that humanity is trying to be united and take urgent action. The United Nations Framework Convention on Climate Change (UNFCCC), adopted at the Earth Summit at Rio, was the starting point for global commitment. Humankind's impact on climate change was gradually made more noticeable. Reducing greenhouse gas emissions also became a necessity. In 1997, under the Kyoto Protocol, responsibilities were established and a number of guidelines were provided to the UNFCCC parties. The Kyoto Protocol did not really produce the expected results due to its non-binding nature. To strengthen climate action, the Paris Agreement, adopted at the 21st Conference of the Parties to the UNFCCC, then proposed that each country's pledge to reduce GHG emissions, with specific targets. Today, 193 Parties have ratified the Paris Agreement. Overall, each country must make changes to its production and even lifestyles to reduce or avoid greenhouse gas emissions. These commitments are contained in the NDCs (Nationally Determined Contributions). Under its first NDC in 2015, Cameroon committed to reducing greenhouse gas emissions by 32 percent by 2035. This target was revised in 2021 to be slightly more ambitious, reaching 35% by 2030. It is broken down into two parts: an unconditional emissions reduction target of 12% and a conditional target of 23%.

The commitment to climate change gives rise to a large number of initiatives which are sometimes disparate. These include National Communications, National Adaptation Plans, REDD+ strategies, biennial reports, etc. Other initiatives can be identified at the sectoral and decentralized levels. The NCP is a "key document of the strategic approach to address the effects of climate change and brings together all planned or anticipated actions across sectors at different time horizons, covering aspects of climate change mitigation and adaptation." This holistic approach, driven by a strengthened governance framework, must

remain aligned with the NDC commitment. Thus, a National Climate Plan summarizes a country's strategy for addressing climate change. The advantage is that it is integrated into a coherent and adapted approach. Like the NDC, it is developed for a five-year period and serves as the primary tool for coordinating climate action for the central administration and officials of Regional and Local Authorities (RLAs).

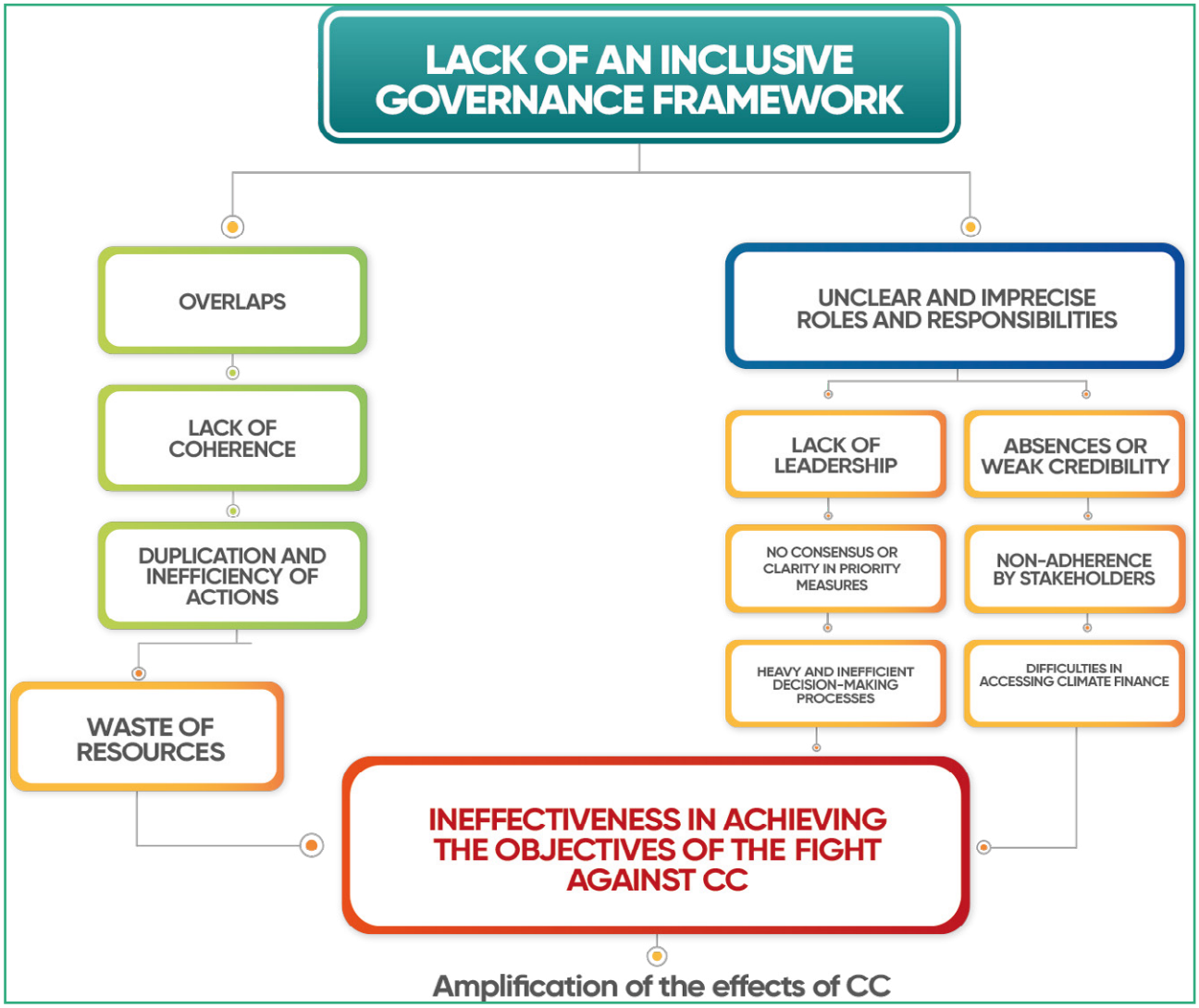


Figure1: Diagram illustrating the impacts of the absence of an inclusive governance framework

1.2- Link with other policies and strategies

The NCP should be considered not as a separate sectoral document, but as a cross-cutting framework that informs and guides all government action on sustainable development and, in particular, as a programmatic lever intended to turn climate constraints into development opportunities.

The success of the National Climate Plan relies on rigorous alignment and strong synergy with all existing national policies and strategies. This particularly concerns the NDS30, each of whose strategic objectives must be considered, namely:

- Reducing poverty to a socially acceptable level
- Becoming a middle-income country
- Achieving the level of a newly industrialized country

- Strengthening unity and consolidating national solidarity

The two main levers for combating climate change that include adaptation and mitigation must contribute to achieving each of these objectives.

To reduce poverty to a socially acceptable level, the NDS30 intends to intensify investments in infrastructure and productive sectors in an efficient and sustainable manner. The National Climate Plan, in its "Identification and Analysis of Vulnerabilities" section, clarifies the causal links between climate and infrastructure, and, as a priority action, plans to strengthen the resilience of infrastructure to the effects of climate change. As regards reducing the gaps between rich and poor, as envisaged by NDS30, the National Climate Plan identifies climate hazards impacting agro-pastoral productivity and then targets priority adaptation actions specific to different agro-ecological zones based on vulnerability levels. Similarly, the National Climate Plan is the ideal framework to identify and implement actions dedicated to the protection and security of populations against climate risks and disasters, the recurrence of which aggravates poverty.

To **become a middle-income country**, Cameroon must increase its productivity, intensify its silvo-agro-pastoral and fisheries activities, and promote the dissemination and enhancement of research findings. These specific objectives are all aligned with the goals set out in the National Climate Plan. Indeed, in the context of climate change, increasing productivity is only possible if we have a thorough understanding of current and future trends in climate variability and if we implement effective actions to make production systems resilient. Similarly, the early warning systems as envisaged in the National Climate Plan (NCP) therefore contribute to strengthening the resilience of production systems. Finally, the paradigm shift to be considered in the National Climate Plan, particularly as regards the promotion of participatory research for adaptation and mitigation, is fundamental to increasing productivity through systems that are expected to gradually become low-emitting GHGs. With this in mind, research must be supported by curricula tailored to develop skills in sectors related to combating climate change. New green job opportunities for young people and even seniors will thus contribute to achieving the ambition of reaching the level of middle-income countries.

As concerns reaching the level of newly industrialized country, the National Climate Plan, through the gradual implementation of a low-carbon economy, must, through its investment plan, attract international financing and encourage the country's private sector, through various tools, including regulatory instruments, to renew its project pipeline in favour of low-carbon projects. A profound shift toward renewable energy sources (hydro, solar, biomass, wind), improved energy efficiency, and reduced dependence on fossil fuels is essential to achieve this strategic objective, all of which are considered in the Climate Plan. Similarly, the country cannot reach the status of a newly industrialized country without fully mastering the tools for modeling the effects of climate change on its economy. In particular, the budgeting and development processes for investment projects must be climate-sensitive, aspects that feature prominently in any Climate Plan.

Similarly, **strengthening unity and consolidating national solidarity**, as stated as the fourth strategic objective of the 2035 Vision, is in line with the goals of this Climate Plan. Indeed, in a context of unequal exposure of AEZ to the effects of climate change and related disaster risks, adaptation measures and integrated disaster response plans must be adequately funded, otherwise vulnerable populations could develop a sense of marginalized groups. Even in urban areas, areas exposed to risks are primarily occupied by vulnerable social groups. Forced migration of groups affected by the effects of climate change is a major challenge in this context. Sustainable responses should be provided for this category, within the framework of climate-sensitive development plans, in accordance with climate justice

principle. National unity in the context of persistently unequal exposure to the effects of climate change could be perceived as an empty slogan.

In total, all the strategic objectives of the NDS30 are proving to be influenced by the various effects of climate change, which constitute a real threat likely to render them unattainable if an integrated Climate Plan, driven by a strengthened inter-sectoral dynamic, were not implemented both at the central level and at the regional and local authority (RLA) level. This involves defining targets and concrete measures to reduce GHG emissions and strengthen resilience, in close alignment with the main pillars and other sectoral policies inspired by the NDS3.

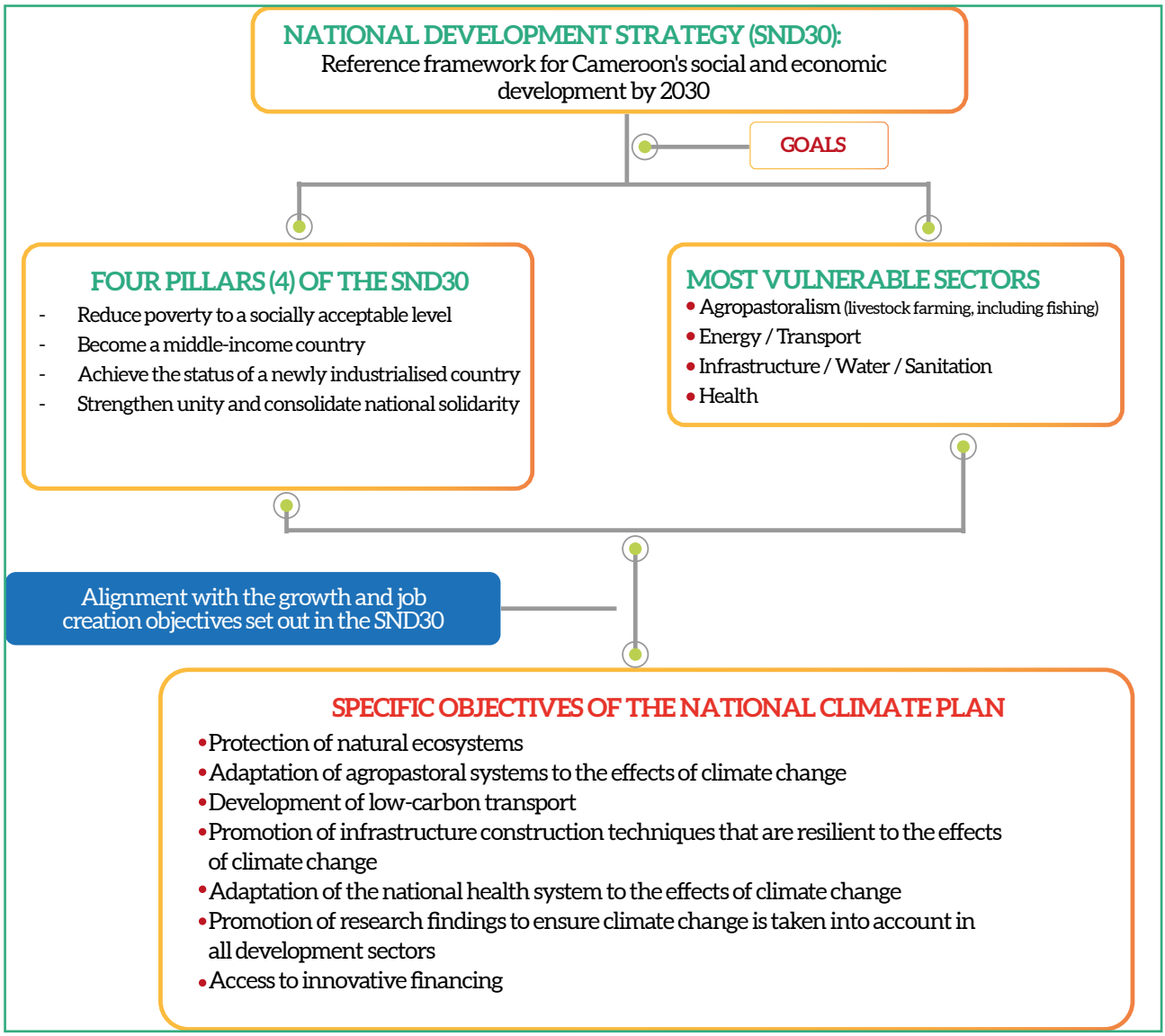


Figure 2: Possible alignment of the NCP with the objectives of the NDS30

1.3- Vision

With a view to turning climate constraints into development opportunities, Cameroon intends to build a climate-resilient, low-carbon, and inclusive economy, contributing to the reduction of social, economic, and ecosystem vulnerabilities while fulfilling its commitments to achieving global goals.

1.4- Goal

The goal is to contribute significantly to combat climate change (mitigation and adaptation), while promoting sustainable and inclusive development in the country.

1.5- Strategic objectives

Cameroon's National Climate Plan aims to establish an approach, or better, a roadmap, to strategically coordinate the country's efforts to address the challenges of climate change by contributing to the global effort to limit the increase in global temperature to 1.5°C and to adapt effectively. It clearly defines the roles/responsibilities of the key stakeholders and the resources required to achieve the desired objective, while ensuring that the various processes are constantly monitored. Specifically, it aims to:

- Reduce greenhouse gas emissions and gradually implement the energy transition;
- Effectively adapt to the effects of climate change by strengthening the resilience of societies, agro-pastoral systems and infrastructure;
- Protect natural ecosystems and increase sequestration potential;
- Strengthen institutional capacities at various levels, including those for forecasting and integrating responses into the strategy;
- Mobilise national and international funding, particularly innovative or alternative funding.

1.6- Guiding principles

The implementation of the NCP is guided by principles that apply to all stakeholders and guide decisions and actions (Table 1). These principles are complementary; taking them into account contributes to achieving the objective.

Table 1: Guiding Principles of Cameroon's National Climate Plan

Principle	Content
Sustainable development	Integrate the environmental, social, and economic dimensions of development to ensure resource availability in the short, medium, and long-term.
Equity and Climate Justice	Equitable distribution of the benefits and even the costs associated with combating climate change, taking into account the vulnerabilities of marginalized groups.
Precaution	Take measures to prevent climate change-related risks and prioritize options that minimize potential damage.
Participation	Ensure inclusive participation of all stakeholders (government, local communities/indigenous peoples, civil society/NGOs, and the private sector) while ensuring transparency and accountability.
Cost-effectiveness	Implementing measures to combat climate change must minimize costs while maximizing economic, social, and environmental benefits.

Operationally, the NCP ensures coherence and synergy between sectoral actions. In all processes, the greenhouse gas emission reduction objective must be sufficiently ambitious.

1.7- **Methodological Approaches**

The methodological framework for drafting Cameroon's NCP was developed in February 2025, following Order No. 00002/CAB/MINEPDED of 24 May 2024, which establishes and organizes the institutional framework for the coordination, monitoring, and implementation of the Climate Agenda in Cameroon. It was within this framework, and thanks to the technical and financial support from CAFI and UNDP, that a national workshop was organized in February 2025 to develop the methodological framework for developing the NCP. The participation of stakeholders involved in Cameroon's climate agenda enabled contributions from all stakeholders to be gathered in an inclusive manner. During this workshop, the structure and content of the proposed NCP were validated by the stakeholders invited to the workshop. One of the main outcomes of this workshop was a proposal for the structure and content of the National Climate Plan.

It is important to note that these activities also incorporate the needs to revise the NDC. Based on the needs, it was required to hire consultants to address the needs in the following areas:

- GHG reduction approach and mitigation actions;
- Adaptation actions and implementation plan;
- Capacity building plan;
- Gender mainstreaming;
- Monitoring plan (MRV adaptation, mitigation, financing).

In addition to these aspects, the NCP also includes general information about the country, hence the exploitation of the abundant literature developed within the framework of commitments related to the United Nations Framework Convention on Climate Change and even scientific publications. Figure 2 presents the step-by-step process of developing Cameroon's national climate plan. Putting in place the climate agenda task force was the starting point.

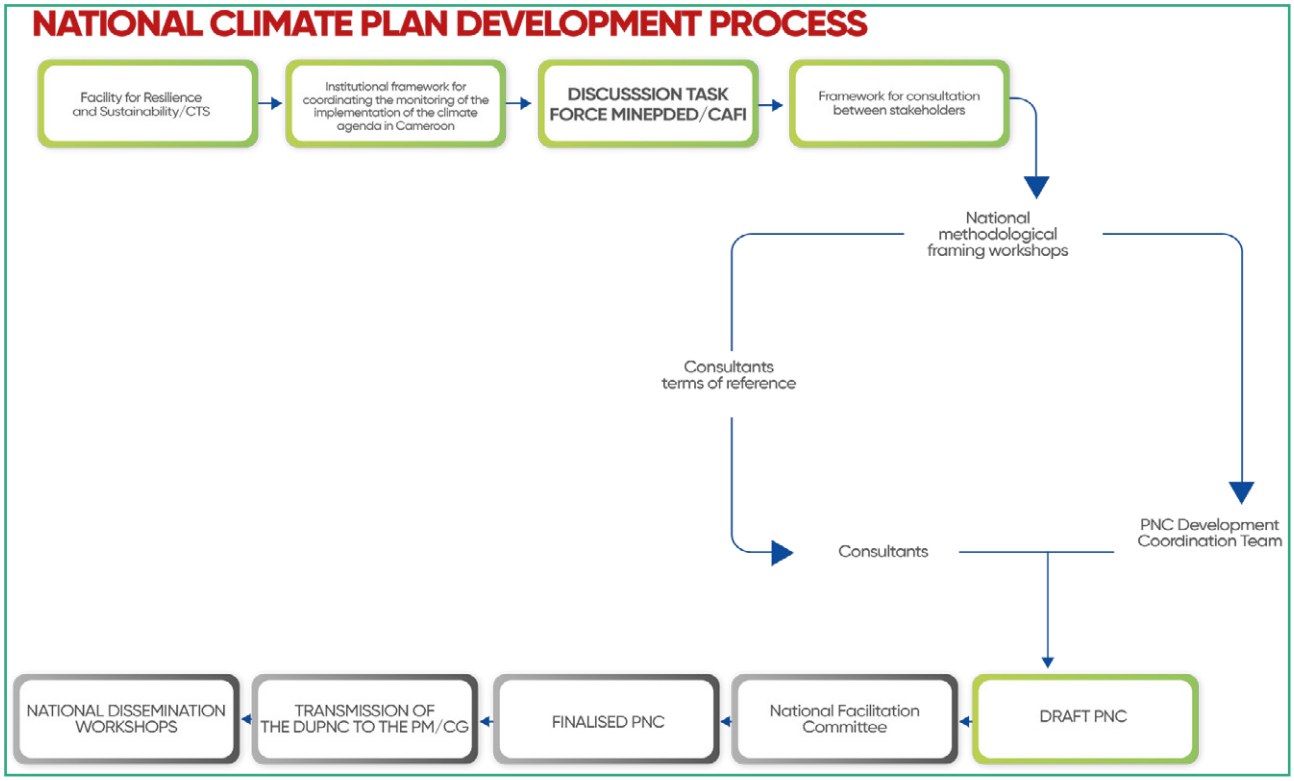


Figure 3: Cameroon's National Climate Plan Development Process

The NCP is developed under the technical coordination of MINEPDED/CAFI Task Force, extended to the key administrations involved in Cameroon's Climate Agenda, civil society organizations and the private sector. Based on the Terms of Reference developed during the scoping methodology workshops, consultants were engaged to gather and analyse the necessary data. A consultant responsible for consolidating contributions and ensuring consistency in the text supported the drafting coordination team throughout all stages. The assessment of the current situation is essentially based on the first Biennial Update Report (BUR1) (MINEPDED, 2024), the Report Situation of the Occupation of the National Territory (MINEPAT, 2016), the Study on Cameroon's Vulnerability and Adaptation to Climate Change as part of the Third National Communication and the First Biennial Report on Climate Change (MINEPDED, 2021).

CHAPITER II

SITUATIONAL ANALYSIS

2- SITUATIONAL ANALYSIS

Climate change is threatening food security, affecting economic activities and people's health. The issues of adaptation and resilience are therefore becoming more acute over time in all of Cameroon's agro-ecological zones.

Cameroon lies at the crossroads between Central Africa and West Africa, giving it a unique advantageous position at the heart of Africa. This geographical location accounts for its variety of its landscapes, climates and the diversity of human groups living there, which has earned it the appellation of 'Africa in miniature' (Tchawa, 2012). With a surface area of around 475,000 km², the country has a 400 km coastline from the Atlantic Ocean to the west.

Vulnerability to climatic risks varies according to the five agro-ecological zones (IRAD, 2000). Disparities can also be observed between sectors of economic activity, which are exposed to varying degrees to the effects of climate change. Agriculture, the backbone of the economy and the mainstay of people's incomes, is one of the sectors most affected by the effects of climate variability.

1.1- **Geographical profil of Cameroon**

The objective of this section is to outline the physical and human profile of Cameroon, in order to reveal the various contrasts that determine the hazards or justify the vulnerabilities of the different AEZs.

2.1.1- Overview of Cameroon's physical environment

Of all the factors that help to define environments, climate seems to be the most appropriate. But in Cameroon, in addition to this factor, which is largely influenced by latitude, there is a second factor whose influence on the individualisation of environments is fundamental: altitude. (Tchawa, 2012).

- **A diversity of topography prone to natural hazards**

As a summary of the whole of geographical Africa, Cameroon has mountains and highlands (1000-4070m) whose typology shows: block mountains as in Adamawa, plateau edges with a mountainous character and marginal bulges such as the one which serves as a transition between the southern Cameroonian plateau and the coastal plain in the Kribi area. The plateaux are Cameroon's second most important topographical unit, covering most of the country (65%). They are located at average altitudes ranging from 500 to 1800 m. Finally, the plains (0-300m) constitute the last characteristic element of Cameroon's topographical diversity. They stretch over vast swathes of the country, particularly along the Atlantic coastline (coastal plains), in the south-east along the Congolese border, and especially in the north from the Benoue basin to Lake Chad.

While the mountains and the various sectors of transition between relief units are particularly vulnerable to landslides, landslides and mudslides, the plains, whether coastal or inland, are highly exposed to flooding following intense rainfall.

- **A contrasting climate**

Cameroon stretches from 1°40' to 13° north latitude, covering 11° of latitude north of the equator. This position gives it the privilege of combining almost all the climates of tropical Africa. This diversity is enhanced by a wide range of altitudes (0 to 4,097 m) and the fact that it is open to the Atlantic Ocean. This gives rise to two major climatic zones: the equatorial and sub-equatorial zones to the south, and the tropical zone to the north, both with nuances linked to altitude or the effects of proximity to the ocean. The equatorial zone is characterised by abundant rainfall (more than 2,000 mm per year) and above all by a less marked dry season, with less rain in December-January. Temperatures vary little (between 25 and 35°), with little diurnal or annual temperature variation. The effects of the monsoon and exposure mean that there are some particularly rainy areas on Mount Cameroon (11,000mm at Debunscha).

There are three main types of tropical climate, depending on latitude and with variations due to relief: the humid tropical climate at altitude, around the Adamawa massif, the Sudanian tropical climate around the Benoue basin, and the Sahelian climate in the Far North of the country. The first type of climate is characterised by rainfall of around 1,500 mm per year in the Adamawa highlands, with a marked dry season and moderate temperatures throughout the year. The second shade is characterised by moderate rainfall (1000 mm per year in the North), coupled with a dry season that lasts more than 6 months. Finally, the last shade is characterised by a dry season lasting more than 8 months, with very high temperatures reaching 40°C in the shade at certain points, and irregular rainfall averaging between 500-800 mm per year (Far North).

- **A ramified hydrographic network**

Cameroon has a very extensive hydrographic network over a heterogeneous and compartmentalised terrain (Olivry, 1986). The hydrography is divided into 4 major basins: the Niger Basin (88,100km^2 or 4.17%), which collects water from the Benoue and Cross River sub-basins. It is drained by the Benoue, which collects water from the Mandara and Alantika mountains, north of Adamawa, and is enlarged by the Faro and Mayo Kebi rivers (Seignobos & Iyebi Mandjeck, 2000). The Congo basin (85300km^2 or 2.31%) collects run-off from the whole of south-east Cameroon. The Chad Basin (46,800km^2 or 1.96%) receives water from the Logone and the entire Far North region. Finally, the Atlantic Basin is drained by the following coastal rivers: Sanaga (920km long), Nyong, Ntem, Mungo, Wouri (Sigha-Nkamdjou et al., 1998 & 2005; Lienou et al., 2008) which are the only rivers originating in Cameroon and ending their course in the Atlantic Ocean whereas the outlets of the first three are in neighbouring countries (Tchindjang, 2012).

- **High bioecological diversity (vegetation and biodiversity)**

Reflecting the diverse climatic context, Cameroon's vegetation is a condensed version of that of the whole of tropical Africa, comprising around 8,000 species, 1,800 genera and 230 families according to Letouzey (1985). This explains the wide range of bioclimates and landscapes. The result is the rich biological diversity of Cameroon's forests, which are of vital socio-economic interest and have key functions, particularly in terms of conservation, regulation and storage.

There is therefore a wealth of plant and animal, genetic and eco-tourism potential (eco-systemic richness). There is therefore a wide range of plant and animal, genetic and ecotourism potential (eco-systemic wealth). In terms of zonal plant formations, the country's two main climatic zones each have vegetation that is characteristic of the natural environment. In a tropical environment, the shrub and tree savannah prevail across the Adamawa plateau. The woodland savannah is found in the basin of the River Benoue. Steppe, grassland and grassy savannahs characterise the Chad Basin and the Logone Valley (Yaérés).

- **Varied soils**

The diversity of soils in Cameroon is due to the wide variety of parent rocks, topographical factors and the different bioclimatic environments in which they were formed, as well as the length of time that has determined the cycles of weathering and erosion.

Table 2 distinguishes six (06) of the main types of soil found in Cameroon.

Type	Description
Iron-rich soils	Cover almost two-thirds of the country's surface area and are found south of the 8th parallel (Muller, 1978, Onguéné Mala, 1993).These are red, deep, loose, clayey and porous soils, suitable for forest-type vegetation.
Hydromorphic soils	These are found in lowland environments, particularly the Lake Chad plain with vertisols in the north, the coastal plain with mangrove swamps and river valleys. They are marked by an excess of water and have a grey, faded horizon.
Poorly developed soils	They develop on recent input materials such as the aeolian input from the Yagoua-Limani cordon of Lake Chad or the volcanic ash input from the slopes of Mount Cameroon and the large volcanic highlands with bare slopes of the western highlands (Martin, 1959, 1961 & 1966; Boli and Roose, 2004; Roose and Barthès, 2006).
Vertisols	These are found in regions with fluctuating wet and dry seasons, such as the far north of Cameroon (Mahop et al, 1995). They have a coherent, clayey, dark-coloured profile that cracks deeply when dry.
Andosols and eutrophic brown soils	These are young soils with a homogeneous profile. They develop on basic volcanic formations (basalts), associated with crude and little evolved minerals (Morin, 1989; Tchindjang, 1996; FAO, 1998). Both of these soils are suitable for agriculture, but their fertility declines with increasing leaching and induration.

Table 2: Characterisation of the main types of soil found in Cameroon

Table 3 summarises the main aspects of Cameroon's relief and climate

Name of region	Total surface area of the country	Altitude in metres	Average annual temperature (°)	Average annual rainfall (mm)
Northern lowlands and basins	21.53	300-900m	28	500-800
The Adamawa Plateau	13.67	1200-1800	25	1200-1500
West highlands	6.69	800-3000	22-25	1300-2500
Southern Cameroon Plateau	48.31	650-900	24-26	1500-1800
Coastlines and coastal plains	9.79	15-300	25-27	3000-9000
Mount Cameroon	0.01	800-4090	15-24	2000-3000

Table 3:Temperature and rainfall distribution according to altitude in Cameroon

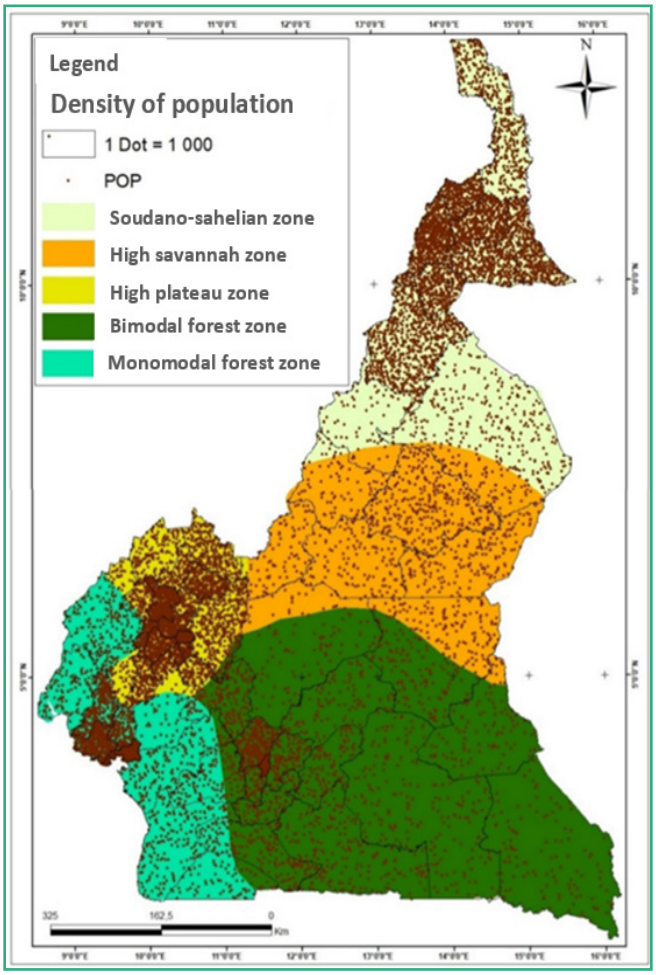
2.1.2. Structure and classification of the major agro-ecological zones in Cameroon

An agro-ecological zone is a cartographic unit of land resources, defined in terms of climate, geomorphology and soils, and/or vegetation cover and possessing a specific range of potentials and constraints for land use.

Thus, orohydrographic, pedological, biogeographic or ecological and climatic considerations have led to the country being classified into five major agro-ecological zones (Figure 3) based on Cameroon's natural regions.

1. Sudan-Sahelian zone in the North and Far North, with Savannah vegetation and a semi-arid climate.
2. High Savannah zone in Adamawa, part of the centre and east of the country, with Sudano-Guinean savannah vegetation on the Adamawa plateau, the country's 1st 'water tower': many of the country's major rivers have their sources here.
3. High Plateaux zone: the West and North-West regions, an upland area with an equatorial monsoon climate, the country's 2nd 'water tower'.
4. Bimodal Forest Zone (zone of forests with bimodal rainfall) or Southern Cameroon Plateau:
5. Bimodal Forest Zone (zone of forests with bimodal rainfall) or Southern Cameroon Plateau: part of the Centre, South and East, characterised by tropical rainforests with a particularly dense hydrographic network.
6. Monomodal Forest Zone (zone of forests with monomodal rainfall) or coastal zone, with a coastal and mountain frontage, with a humid equatorial climate known as Cameroonian. This is the rainiest zone in the country. It includes the Littoral, South-West and part of the South (Ocean division).

Figure 4: Breakdown of Cameroon's agro-ecological zones



2.1.3. Demographic and social profile of Cameroon

2.1.3.1. Main demographic data for Cameroon

In 2025, Cameroon's population is estimated at around 29,700,186 (0.36.

of the world's population), with an annual growth rate of 2.54% The gender breakdown is relatively balanced, with 50.68% men and 49.32% women. The country has three main areas of high population density (see Figure 3)

- Densely populated regions: 52.32% of Cameroon's population is concentrated in the three most populous regions, with over 4 million inhabitants: the Centre (5,225,915), Far North (5,178,810) and Littoral (4,291,250). It should be noted that the Far North and Centre regions, with 37% of the total population, are the largest population centres in Cameroon.
- Populated regions: these are those with a population of between 2 and 3 million, accounting for 35.06% of the total population. These are the North (3,276,891 inhabitants), North-West (2,369,058 inhabitants), West (2,184,726 inhabitants) and South-West (2,016,828 inhabitants) regions.
- Sparsely populated regions: these regions have fewer than 2 million inhabitants each and account for 12.62% of Cameroon's population. They are Adamawa (1,460,928 inhabitants), the East (1,226,797 inhabitants) and the South (857,642 inhabitants).

The urbanisation rate in Cameroon is rising sharply and steadily. It rose from 28.5% in 1976 to 37.8% in 1987 and 48.8% in 2005 (RGPH 1976, 1987, 2005). In 2010,

the urbanisation rate was 52%, rising to 57% by 2020. Its evolution is comparable to that of the population. Urban growth rates show that Cameroon's rural population has been declining considerably since 2010.

2.1.3.2. Socio-educational and research profile

Education

Cameroon is one of the countries making significant progress in terms of school enrolment in Central and Sub-Saharan Africa. Between 2010 and 2019, the school-age population grew by 22.5% at primary level and 24.9% at secondary level. However, Cameroon's education system does not yet provide adequate solutions to the problem of unequal access to knowledge. Access to school remains marked by strong regional imbalances and varies according to income level, culture, gender and, to a certain extent, place of residence. Problems of academic inclusion have been identified but are far from being adequately addressed. One of the challenges facing the current education system is the employability of graduates, which implies a need to reconfigure the system to make it more capable of responding to contemporary problems and challenges, including that of controlling climate change, in line with the repeatedly reaffirmed vision of transforming climate challenges into development opportunities. In this respect, research is an essential component.

Research

Research in Cameroon is structured into fourteen (14) public research and training centres, two (2) of which are private, and a dozen (12) spread throughout the national territory. In addition to coordinating these centres, MINRESI directly supervises eight (8) agencies and institutes, including: (1) the National Radioprotection Agency (ANRP) was created by Presidential Decree No. 2002/250 of 31 October 2002; (2)the Local Materials Promotion Authority (MIPROMALO) was created by Decree No. 90/1553 of 18 September 1990;(3) the Institute for Media Research and Medicinal Plant Studies (IMPM) was created in 1974; (4) the Institute of Geological and Mining Research (IRGM), created by decree in 1979; (5) the National Institute of Cartography (INC), created by decree No. 92/049 of 24 March 1992; (6) the Agricultural Research Institute for Development (IRAD), created in 1996; (7) the National Education Centre (CNE); and(8) the National Technology Development Committee (CNDT). In addition to these structures, some of which, such as IRAD and IRGM, play a leading role in various issues relating to adaptation to climate change, there is also ONACC, whose supervisory body is the Ministry of Environment and whose missions are specifically focused on climate change, both in terms of mitigation and adaptation.

Public Health

Health system indicators show that access to health services in Cameroon in 2016 was 219 health facilities per 10,000 inhabitants.

The number of health personnel was estimated at 1.90 per 1,000 inhabitants in 2011, while the WHO estimated it at 6 per 10,000 inhabitants, compared with 14.1 per 10,000 inhabitants in the African region. The number of health personnel was estimated at 1.90 per 1,000 inhabitants in 2011, while the WHO estimated it at 6 per 10,000 inhabitants, compared with 14.1 per 10,000 inhabitants in the African region. However, according to WHO estimates, this rate fell to 0.6 per 1,000 inhabitants in 2016. In terms of health funding, between 2011 and 2012 the percentage of total current expenditure on health as a proportion of

gross domestic product (GDP) rose from 4% to 5.4%. In 2014, the WHO estimated that this percentage was 4.10%. In 2001, 21.5% of households faced catastrophic healthcare costs, but by 2007, this ratio had fallen considerably to 8%.

Life expectancy at birth, estimated at 44.4 years in 1976, rose to 54.8 years in 2005, 57.3 years in 2015 and will reach 60 years in 2020. However, since 2005, there has been a gap of 2 to 3 years more in favour of women than men.

Generally speaking, the standard of health in Cameroon is still very low. This is compounded by the uneven distribution of medical services across the country, with the landlocked areas of the far north and east of the country suffering the most and also potentially being the most vulnerable to the effects of climate change. Heat peaks and changes in geographical distribution of the main climate factors (humidity and temperature) are creating new challenges, including the dynamics of the distribution area of the vectors of certain endemic diseases such as malaria. Despite the significant efforts made to reduce the prevalence rates of the main diseases and guarantee equitable access to medical care, challenges remain, namely the threats directly or indirectly linked to the effects of climate change (access to water, malnutrition, human-wildlife conflicts, etc.).

Poverty

Recent studies on poverty in Cameroon show that its incidence fell by 2.4 points between 2007 and 2014. Through the National Development Strategy for the period 2020-2030, Cameroon aims to reduce this rate to a quarter (25%) of its population. The measures taken focus on creating decent jobs and raising the standard of living of the chronically poor through social safety nets. Cameroon therefore intends to reduce the poverty rate from 37.1% in 2014 to 30.8% in 2030.To achieve this, the fifth Cameroon Household Survey (ECAM5) has been implemented using a new approach to measuring poverty, based on the Harmonised Household Living Conditions Survey (EHCVM) methodology developed by the World Bank and adopted in the CEMAC and WAEMU countries. The aim of ECAM5 is to produce indicators for monitoring poverty and household living conditions in Cameroon.

The main findings of ECAM5 indicate that, despite a resilient economy, the country faces persistent poverty and increased vulnerability of households to the various shocks to which they are exposed. Indeed, with an average annual economic growth rate of 2.6% over the period 2020 to 2023, not far from the demographic growth rate of 2.5% per year, the poverty rate will be 38.6% in 2021. In comparison with the 30.8% target set for the NDS30 by 2030, there is a gap of almost 8 points to be closed. Speeding up and strengthening the implementation of the NDS30 and the sectoral strategies that underpin it are the way forward, with particular attention to policies aimed at mitigating the impact of unavoidable shocks. Figure 5 illustrates poverty rates across Cameroon. It shows that the rural areas that are potentially the most vulnerable to the effects of climate change (Far North, North West, North and Adamawa) are the poorest in Cameroon (monetary poverty, severity, depth, etc.). In addition, areas of urban poverty are characterised by squatter settlements, generally located in non-aedificandi (undeveloped) zones, which are particularly vulnerable to natural hazards such as flooding and landslides

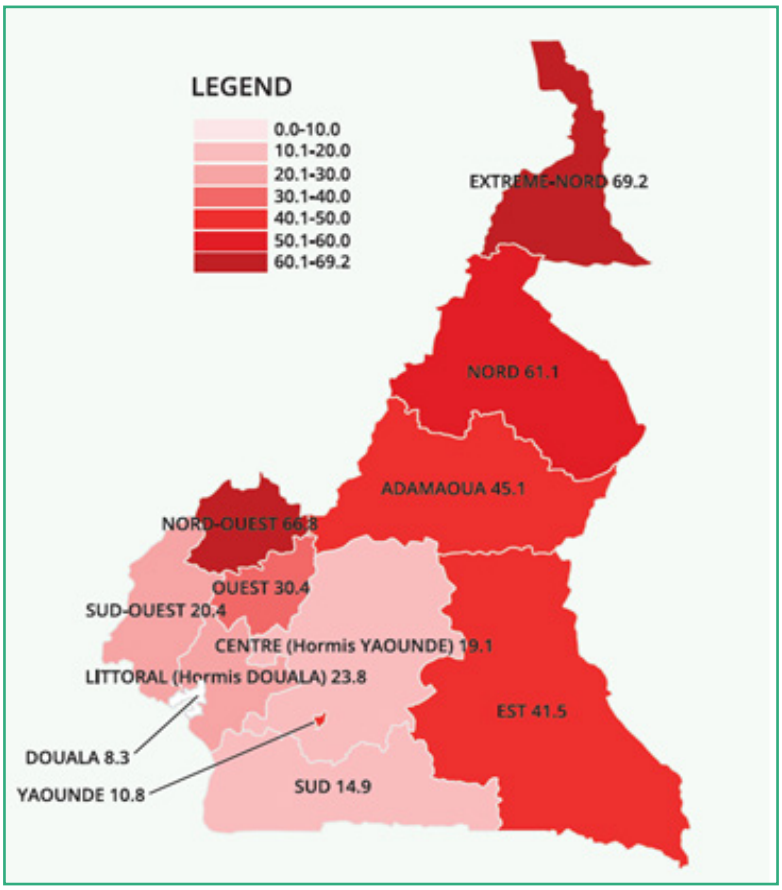


Figure 5: Poverty in Cameroon (source INS, 2024)

This endemic poverty is a source of food insecurity. A total of 2.9 million people are affectedecurity in Cameroon in five regions (Adamawa, East, Far North, North and West). The results showed that almost one household in four is food insecure (22.9%), an increase of 10.1 points compared to 2019. This deterioration in food security is mainly attributable to the security crisis in the Far North, North West and South West. The OCHA1 report highlights the regions most affected by hunger and others, and the degree to which they are affected. The areas most affected by food and nutritional insecurity are located in 03 divisions of the Far North (Boko Haram), 02 of the North West and 01 of the South West (socio-political crisis). A total of 2.9 million people are affected.

2.1.3.3. Economic profile

Cameroon is considered a lower middle-income country. Growth does not appear to be very inclusive. Cameroon has embarked on a policy aimed at becoming an emerging economy by 2035. This policy includes a set of intermediate objectives: (1) reducing poverty; (2) becoming a middle-income country; (3) becoming a newly industrialised country; and (4) consolidating the democratic process and national unity, while respecting the country's diversity. Its strategic location makes it a natural gateway to the landlocked countries of Central Africa (northern Congo), CAR and Chad), Cameroon remains the driving force behind the sub-region's economic and monetary community (CEMAC). Cameroon's economy, which accounts for over 40% of the GDP of the Economic and Monetary Community of Central Africa (CEMAC), is the most diversified in Central Africa.

The Cameroonian economy is based on agriculture, but since 2019 there has been sustained growth in the services sector. Cameroon's economy is highly diversified, thanks to a

wide range of activities, particularly in the forestry and agricultural sectors (cash and food crops), oil and gas, beverage industries, sugar refineries, oil mills, soap factories, flour mills, aluminium, cement, metallurgy, primary wood processing, etc., not to mention a number of new settlements and a fast-growing tertiary sector. However, it remains highly dependent on unprocessed raw materials: hydrocarbons, agricultural products (cocoa, coffee, cotton, palm oil, etc.), timber, etc.

Cameroon's economy bounced back slightly in 2018, with a growth rate of 4.1%, compared with 3.5% in 2017. However, this momentum slowed in 2019, with growth of 3.7%, before declining sharply in 2020, under the impact of the COVID-19 pandemic, to just 0.5%. A moderate recovery began in 2021, with a rate of 3.5%.

Although increasing over the years, the measures taken have not made it possible to achieve the target of 5.5% as an annual average, as set out in the Growth and Employment Strategy Document (MINEPAT, 2009).

Gross Domestic Product (GDP) growth is slow (3.6% per year). This growth (figure 5) is driven by the tertiary sector, which has seen the biggest increase (from 48.1% in 2000 to 52.9% in 2018).

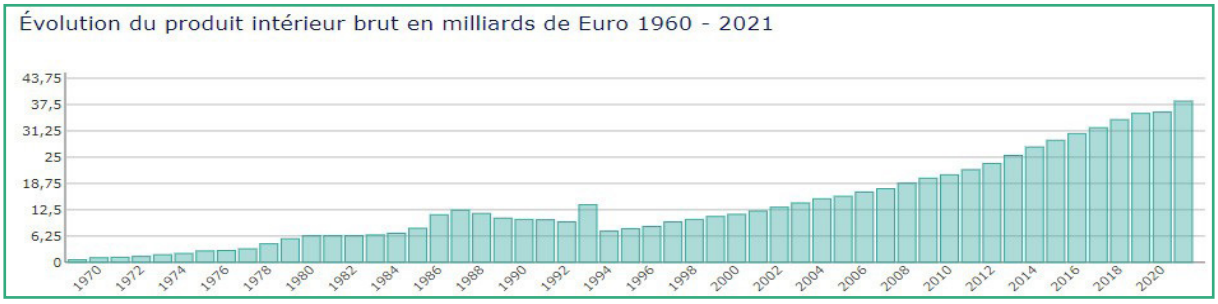


Figure 6: Evolution of Cameroon's Gross Domestic Product in billions of euros from 1960 to 2021.

In terms of debt, between 1991 and 2021, the debt budget varied between 1.4 billion and 13.3 billion euros. In 2021, the last year assessed, the amount of 13.30 billion euros was the highest in the last 30 years. On a per capita basis, this corresponds to a debt of 489 euros per person. The cost of Cameroon's external debt stood at CFAF 8,052 billion, or 28.3% of GDP. At the same time, public debt reached CFAF 12,510 billion, or 43.9% of GDP, up 2.9% quarter-on-quarter and 1.4% on the previous month (August). Despite this increase, Cameroon's debt level remains below the CEMAC convergence criterion, which prescribes a public debt threshold of less than 70% of GDP. External debt since 2020 remains below 47% of GDP.

Unemployment and jobs

In Cameroon, 384,000 jobs were created in 2021, according to statistics from the National Employment and Vocational Training Observatory (ONEFOP). This performance does not hide the worrying issue of unemployment, particularly among young people, due to a quantitative and qualitative mismatch and under-qualification. The employment crisis is global and affects all African countries. However, employment rates have risen from 0.45% in 2010 to 3.18% in 2021. The annual increase in employment was 2.32%, i.e. an average of 220,629 net jobs per year, despite the unemployment rate. The number of unemployed fell from 514,474 in 2000 to 460,125 in 2021, marking a slight decline over the period. The pro-

portion of women among the unemployed has also fallen, from 48.28% in 2000 to 47.37% in 2021. According to the INS, these jobs are being created by the tertiary sector, whose companies account for 84.4% of the 2,9482 structures registered in the country. The number of jobs created in Cameroon has risen from 330,903 in 2020 to 358,247 at the beginning of 2022, representing an increase of 8%. The sectors that have recruited the most, in order of importance, are first and foremost the primary sector (48.40%), which includes activities that produce unprocessed raw materials such as agriculture, fishing, mining, etc. Next comes the tertiary sector (37%). Next comes the tertiary sector (37%), represented by commercial activities, transport, financial services, accommodation-restaurant services, real estate, the information and communication sector, education, public administration, and so on. And finally, the secondary sector with 13.80%. In addition, the private sector accounts for 90% of the jobs created. Estimates show that the informal sector dominates the Cameroonian economy, accounting for almost 50% of GDP in 2005. In 2010, 89% of the working population was part of the informal sector, i.e. around 9.2 million people. The primary sector recruited the most, with a proportion of 48.40%, while the tertiary sector accounted for 37.80%, with a high concentration in the wholesale and retail trade, catering and hotel sectors. The new jobs created in Cameroon represent an increase of 28,000 more jobs than in 2020.

Companies

In terms of entrepreneurship, the number of companies operating in Cameroon is estimated at 324,899, including 324,250 small and medium-sized enterprises (SMEs) in 2021. The majority of their activities are in the tertiary sector (80.48%). However, 80% of these new businesses are sole proprietorships. The NSI also points out that 15.4% of these companies operate in the secondary sector, which consists mainly of informal manufacturing and processing units.

2.2. Climate change, risks and vulnerabilities in Cameroon

2.2.1. Analysis of climate trends and developments in Cameroon

Numerous studies of Cameroon's climate highlight a general trend towards a decrease in rainfall and solar radiation, following a North-South gradient. On the other hand, average annual temperatures and relative humidity are rising. More specifically, temperatures are rising by around +0.7°C, while rainfall is falling by -1 to -5% in equatorial climates, but rising by 0 to 2% in the Sudano-Sahelian zone. The amount of energy received from the sun is falling in equatorial climates and rising in tropical climates. There is some stability in equatorial Cameroon and a drop in the equatorial Guinean climate. As for relative air humidity, the concentration is tending to increase at all the climate stations. Table 4 summarises climate trends in Cameroon.

Table 4: Summary of climate trends in Cameroon

	↑↓	In certain localities with an equatorial climate the trend in annual precipitation is decreasing meanwhile it is increasing in sahelian climate zone
	↑	Temperatures are increasing significantly across the country
	↑	Relative humidity tends to increase across the country
	↑→↓	Annual insolation tends to increase in tropical climate zones ; to remain constant in *Cameroon's* equatorial climate and to decrease in localities with *Guinean* equatorial climate

Source: Tchindjang et al., 2012, MINEPDED, 2024

Over the last four decades, average temperatures have risen by an average of 0.18°C per decade. By 2050, in response to GHG concentration, the mean annual temperature is projected to increase by 1.1°C under the low emission scenario and by 1.5°C under the high emission scenario compared to 2004 (Gloy et al, 2023). Temperatures will stabilise under the low emissions scenario after 2050 and continue to rise until the end of the century under the high emissions scenario in the future (Figure 6). Projections of these rises are for the whole of Cameroon.

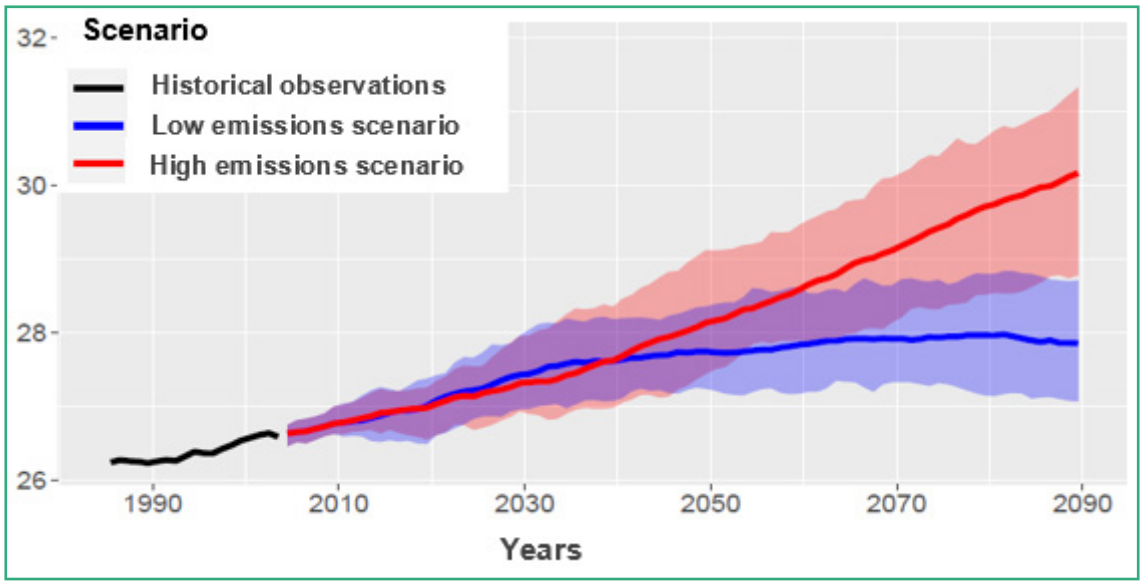


Figure 7: Changes in mean temperatures in °C and ten-year moving average of historical and projected mean temperatures in °C. The black line indicates historical observations, the red and blue lines show projections under high and low emission scenarios. Solid lines indicate the median of the multi-model set (Source: Gloy et al, 2023).

Annual rainfall amounts have fallen over the last four decades as a result of uncertainties and regional variations throughout Cameroon. The decrease is greatest in the south, in the forest and coastal zones, and in the high plateaux. However, there has been a marked increase in the north (Sudano-Sahelian AEZ), with a reduction in the number of rainy days and a concentration of intense rainfall in space and time. According to Gloy et al (2023), precipitation projections are much more uncertain than temperature projections. The median of the models projects an increase in heavy precipitation, even more marked under the high emissions scenario (Figure 8).

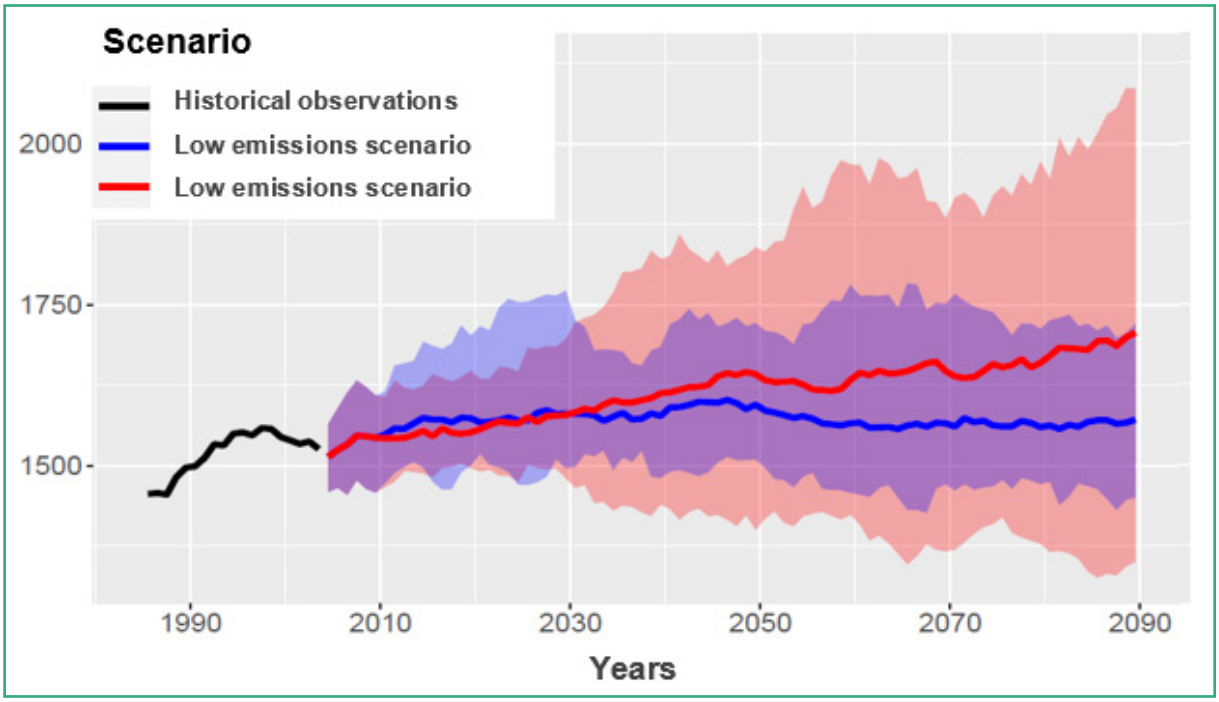


Figure 8: Trends in average rainfall in mm and ten-year moving average of historical and projected average rainfall in mm. The black line shows historical observations, while the red and blue lines show projections under high and low emissions scenarios. The solid lines indicate the median of the multi-model set and the shaded areas describe the range expressed by all ten models. The values are averages throughout Cameroon (Source: Gloy et al, 2023).

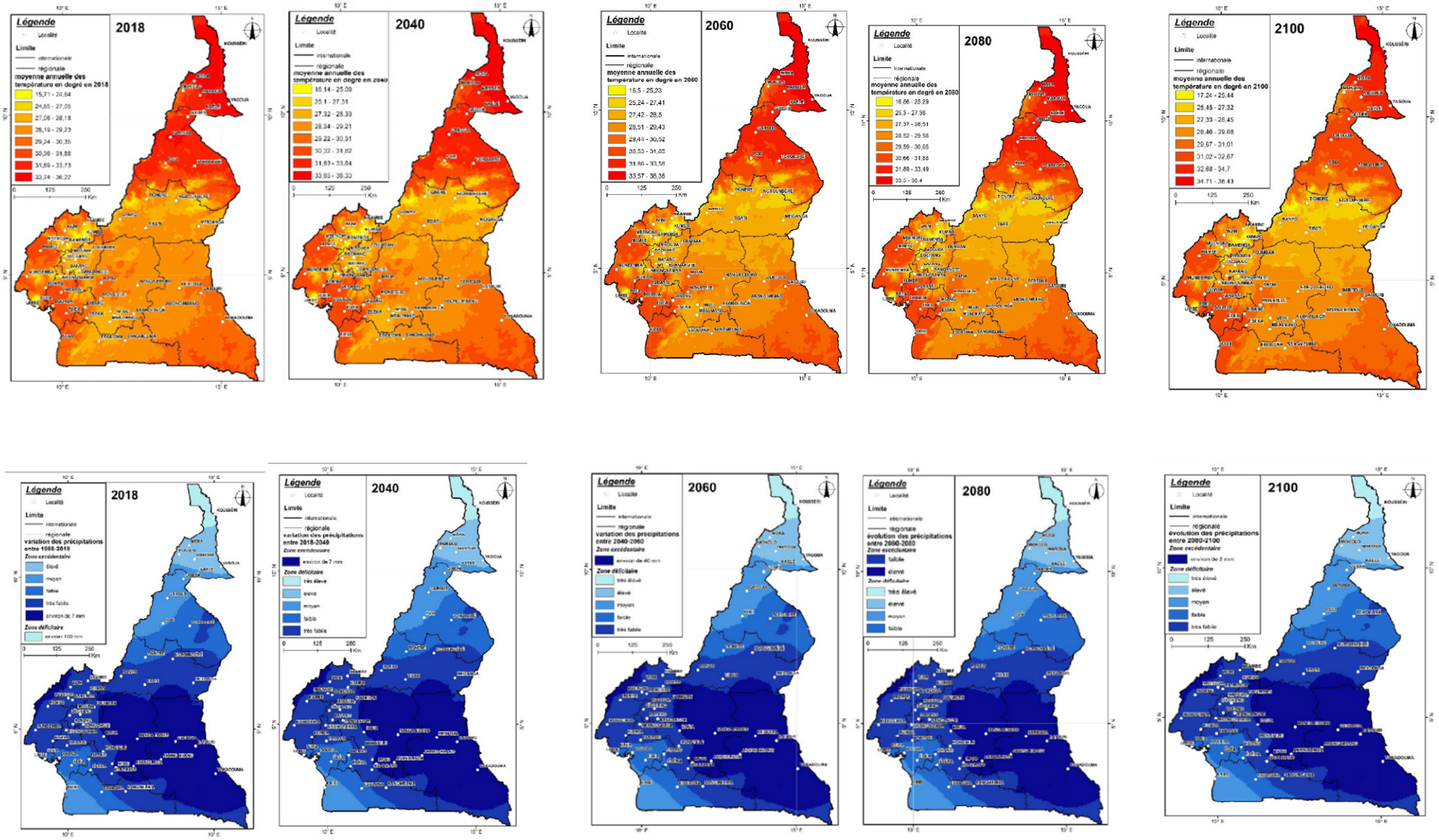
A model was run on four climatic parameters, including rainfall, temperature, relative humidity and radiation. In addition to the reference period (1971-2000), four temporal ranges of future periods (2021-2040; 2041-2060; 2061-2080; 2081-2100) were evaluated. The results of these climate projections are summarised in Table 5

Table 5: Climate parameter projections from 2021 to 2100

Projected climate parameters	Scenarios	Time frame			
		2021-2040	2041-2060	2061-2080	2081-2100
Rainfall trends in %	Low (RCP 2.6)	-5 to 5	0 to 7	0 to 10	-0 to 2
	Average (RCP 4.5)	-2 to 5	-1 to 5	-2 to 5	0 to 5
	High (RCP 8.5)	-1 to 7	-1 to 5	0 to 10	-4 to 5
Rainfall trends in °C	Low	0.5 to 1	0.7 to 1.5	2 to 4	2 to 4.5
	Average	0.5 to 1	1 to 2	2.5 to 4.5	2.5 to 5.5
	High	0.5 to 1.5	1 to 2.5	3 to 5	4 to 6+
Change in relative humidity (%)	**Low**	-7 to 1.2	0 to 2	-2 to 0.6	-1.5 to 0.3
	Average	-1 to 0.7	0.3 to 2.5	-0.1 to 1.4	-0.7 to 1.1
	High	0 to 1	-0.4 to 2.4	-0.5 to 1.7	0 to 1.9
Change in solar radiation (%)	**Low**	-2.6 to 0.2	-0.8 to 0.6	-0.4 to 1.7	0.7 to 2.3
	Average	-2.1 to 0.4	-1.3 to -0.3	-0.8 to 0.6	-0.2 to 1
	High	-2.8 to -0.9	-3.4 to -0.6	-2.5 to -0.6	-3.1 to -1.1

2.2.1.1 Analysis of climate trends and developments in Cameroon Future temperature and rainfall trends in Cameroon

Changes in temperature and precipitation are expected to be linked to scenarios of CO2 concentration levels and feedback from biogeochemical processes in the atmosphere (MINEPDED, 2021a, 2021b, 2024). Rainfall is expected to fall by between -1% and -5% in humid tropical climates (Adamawa) and equatorial Cameroon (the High-Plateaux), then by between -2% and 0% in Equatorial Guinea, and finally by between 0% and 2% in equatorial Cameroon (coastal zone) between 2021 and 2040 (MINEPDED, 2021). Monthly rainfall totals are expected to be highly variable, with values ranging from -12 to +20 mm per month (i.e. from -8 to +17%) in the 2100s (MINEPDED, 2024). In terms of temperature, the thermometer in the dry tropical climate zone will read +1.2°C in 2035, +2.5°C in 2055, +3.6°C in 2075 and +4.8°C in 2100. In the other three climate types, temperature increases will rise from +0.6°C in 2025 to +3.6°C in 2100 (MINEPDED, 2024). Figure 8 shows the spatial distribution of future temperature and precipitation trends between now and 2100 in Cameroon. The values in this table are fairly close to those found by an earlier study (World Bank, Climate Change and Disaster Risk Management in Cameroon, 2017), which considers that in the 2030s (2025-44) warming will be 1°C-1.4°C compared with the reference period (1986-2005). For the 2040s (2035-2054), the same study envisages a more significant warming, with a projection of 1.4°C for the low warming scenario, compared with an average temperature rise of 1.8°C in the high warming scenario.



Future temperatures and precipitations in Cameroun from 2018 to 2100 (MINEPDED, 2018)

2.2.2. Environmental and socio-economic impacts of climate change in Cameroon.

The impacts of climate change in Cameroon are multifaceted and vary from one agro-ecological zone to another, as well as from one sector of activity to another.

For each of the 4 projected parameters (rainfall, temperature, relative humidity and solar radiation), increases and decreases have consequences for targets and issues, and can increase or decrease the vulnerability of ecosystems, societies and assets, not to mention the capacity to adapt. By analysing future trends in climate extremes, isolated climate parameters can be used to gain a better understanding of the links between climate change and socio-economic vulnerability.

2.2.2.1. Projections on climate extremes

Because of their obvious negative effects on key sectors of the economy, the combined hazards known as extreme weather events analysed will be droughts, extreme wet events and heat waves.

Droughts combine the effect of a fall in rainfall volumes and, in some contexts, a rise in temperatures. This combination exacerbates the evaporation of water resources and causes aridification. Droughts can be climatic, hydrological or soil-related, sometimes affecting the agricultural and livestock sectors at the same time, as well as energy production and, indirectly, many sectors of the economy. Analysis of available historical data shows that the Far North and North regions are the most vulnerable to droughts, which are the primary cause of forced displacement known as "environmental migration". In these regions, between 2007 and 2018, drought analysis has shown two worrying characteristics: a reduction in their probability of return over the years and an increase in the length of extreme drought episodes (Kossoumna, 2012).

In the low warming scenario, the Adamawa region will experience the greatest increase in the frequency of droughts, as will part of the Littoral and Sud regions (there is considerable uncertainty for these two regions). Over the decade to 2040, the frequency of extreme droughts will increase particularly in the Adamawa and Far North regions. In the high warming scenario, the increase will be concentrated in the Littoral region, over the two decades 2030 and 2040 - with an increase in the number of months affected by extreme drought of between 15 and 20%. In the other regions, the increase measured by the climate models would be less intense.

Cameroon is regularly affected by extreme wet events leading to flooding. Since 2000, at least 25 major floods have been recorded in Cameroon - each time affecting several thousand people. Analysis of future extreme wet events reveals that the Far North region will be subject to an increase in the frequency of extreme wet events of around 8-10% under the high warming scenario. On 19 September 2024, rainfall of rare intensity exploited the low slopes and the nature of the soil to cause catastrophic flooding in this region. Around 56,000 houses were destroyed and more than 67,000 households affected, i.e. some 365,000 people and tens of thousands of hectares of cultivated or arable land flooded (www.unocha.org/publicaTIONS/report/cameroun).

In the low warming scenario, there would be a slight downward trend in the intensity of wet events in the East region.

The risk caused by heat waves is assessed by the number of warm-season months with a temperature deviation exceeding a certain threshold. This threshold is defined as twice the

standard deviation of temperature deviations for warm-season months during the 1986-2005 reference period. A particularly pronounced increase in the frequency of heat waves is projected for the south of the country (World Bank, 2017). Heat waves can have multiple adverse effects on economic, social and human development. In the agricultural sector, extreme heat events affect grain yields as well as the quality of pasture necessary for livestock productivity. In the energy sector, the output of hydroelectric schemes is very sensitive to supply and demand (increasing the need for air conditioning). Extreme heat events also have a negative physiological effect on human health (Heal & Park, 2013).

2.2.2.2. Impacts of climate change on economic sectors

The economic sectors most affected are agriculture, livestock, water and energy, transport infrastructure and health.

Agriculture

In agriculture in particular, climate hazards, notably droughts and floods, are set to increase in frequency and severity by 2100 as a result of climate change, and will affect agricultural production.

As agriculture is essentially rain-fed, the vulnerability of the agricultural sector is preoccupying, as farming activities are closely dependent on the succession of seasons and the spatial distribution and volumes of rainfall. The areas most affected are the Sudano-Sahelian zone, the Guinean high savannah zone and the western highlands. The fishing sector has not been spared the impact of climate change, particularly inland fishing and aquaculture. Prolonged drought leads to the drying up of lakes, ponds, tides and other reservoirs that are home to fish species.

Figure 10: Illustration of extreme climatic phenomena in the biological risks and post-harvest losses in crop production, also under the influence of climate change, are the two major hazards in Cameroon's agricultural sector. The frequency of these risks and the severity of losses in the event of extreme events (particularly a combination of diseases and pest attacks) are very high. The frequency and scale of epidemics, crop pests and animal pests are not dependent on the AEZs. Sudano-Sahelian zone (flooding(fig1) and hydric stress(fig2)) source www.studioarmani.org

The model used to analyse future economic risks in the agri-food sector measures the effect of changes in rainfall and temperature on production and growth in the agricultural sector in the various regions of Cameroon over the short (2015-2025) and long (2040-2049) periods. In addition, the projections provided me- sures both absolute risk (in US dollars) and relative risk measured as deviation from expected growth in the sector. (World Bank, 2017)

The maps below (Figure 8) present the economic risk for different periods and scenarios for the agricultural sector. In all specifications, the Far North region is the one with the highest risk linked to the consequences of climate change. Over the decade to 2040, the risk is concentrated in the central and northern regions of Cameroon, with a particularly pronounced relative risk for the East and Far North regions. Insofar as agricultural production in the Eastern region is low compared to other regions, the absolute risk is concentrated in the Far North, North and Centre regions. In all the scenarios and for risk measured in relative terms, the Littoral and West regions of the country are the least at risk for the agricultural sector.

The concentration of risk in the North and Far North regions, in both relative and absolute terms, could accelerate the climate-induced forced displacements (environmental migrations) in the North-South direction already observed in Cameroon, mainly towards the urban centres of the Centre (Yaounde) and Littoral (Douala) regions. These displacements are at the root of conflicts between new arrivals and local residents over access to increasingly scarce natural resources. As a result, land clearing and the degradation of wood resources, particularly around protected areas, are increasing, vulnerability is growing and mitigation targets are not being met. A veritable vicious circle is taking hold, and these regions are no less likely to achieve their climate change adaptation objectives.

If effective adaptation and risk management measures are not implemented, the consequences of climate extremes could increase or at least hinder efforts to reduce poverty in these regions, where the proportion of the population living below the poverty line is already the highest in the country.

In the 2020s, the risk for both scenarios was around -2 to -1%. In the decade from 2040 to 2050, a significant increase in this risk is envisaged in all regions of Cameroon. In the low warming scenario, losses in the agricultural sector would fluctuate between 3% and 6% in the northern and western regions. In the high warming scenario, they would be around 12% and 18% respectively in the same regions (B.M., 2017).

Livestock

In the livestock sector, extreme drought forces cattle and sometimes sheep farmers to transhumance in search of better pastures for their animals. The agro-pastoral system in the Sudano-Sahelian zone is highly dependent on rainfall and its distribution over time. As a result of worsening climatic conditions and subsequent famines, the populations of the most disadvantaged and affected regions have reacted by migrating temporarily or permanently, near or far, with or without the support of the public authorities (Gonné and Seignobos, 2009). The combination of these phenomena has created the conditions for a crisis in pastoralism. Following the loss of their livestock, some farmers adapt by becoming agro-pastoralists or outright farmers. Other socio-economic impacts include herder migration (temporary or permanent), lower animal productivity, agro-pastoral conflicts, school drop-out, additional expenditure on caring for infected animals, poverty and social decline.

The energy sector

In Cameroon, dependence on hydroelectric power (73% of the electricity produced) makes the country particularly vulnerable to droughts and heat waves. During periods of drought and high temperatures, the demand for electricity also increases due to the high demand for energy for air-conditioning needs, particularly in urban areas.

The supply of hydroelectric power is unable to meet the needs of an ever-growing population. The result is frequent load shedding and rationing by consumers. Despite the commissioning of the Memve'ele dam, power cuts still continue. The average duration of interruption rose from 98.5 minutes in 2018 to 142.7 minutes in 2020, before falling back to 43.7 minutes in 2021 (MINEE, 2024). In 2024, the situation seems to have worsened locally. Fifty-seven percent (57%) of users claim to experience at least four interruptions per week. The regions most affected are the Littoral, North- West, West, South and South-West. This shortage is partly due to frequent low-water periods associated with droughts. Runoff modeling in the various equipped river basins of Cameroon reveals (Gritsen, J., 2014):

- By 2050, fluctuating runoff due to climate change would af- fect hydroelectric production (-15 to + 5%) for the Edea, Song loulou, Lom Pangar and Nachtigal hydroelectric schemes.
- In the southern forest basins, by 2050, variations in hydroelectric production linked to climate change would range from -15 to +10% at Memve'ele on the Ntem and from -10 to +5% for the Njock and Mouila stations on the Nyong river.

In the case of the Lagdo hydroelectric project on the Benoué river, hydroelectric production is expected to fall by 20%, and by as much as 30% by 2080, within a range of between -35% and +15%.

In addition, urban and rural demand for firewood and charcoal is a major factor in deforestation, which would have negative feedbacks on the climate and hydrological systems in particular.

Another type of effect is caused by storms and violent winds that affect the distribution and transmission systems, knocking down power transmission lines and causing more or less prolonged interruptions to the supply of electricity in several localities. The industry has been badly affected by this precarious state of the energy production system. The freezing of activities is unavoidable, with the consequences that workers are put on short-time working, which is a source of insecurity, vulnerability and poverty.

Figure 11: Guider solar power plant and Memve'ele hydroelectric schemes Source: energie-media.com

Building/ infrastructure/ transport

The impacts of climate change in these sectors include:

For buildings: Early ageing of materials, subsidence of land and dwellings, thermal discomfort in dwellings, health insecurity, energy over-consumption, energy inefficiency, energy insecurity

For infrastructure: Degradation of road and rail infrastructure, Destruction of road infrastructure and bridges (surface structures), Destruction of the telephone network, etc.

For Transport: Deformation due to expansion of certain infrastructures, Damage to surface structures, Damage/destruction of road infrastructures, Traffic disruption and extension of travel times, Disruption to rail, sea and air transport, etc.

Figure 12: Extreme weather events and infrastructure deterioration (subsidence of the Bonepoupa-Yabassi highway (fig1) and landslide on the Dschang cliff(fig2)) source: www.cameroon-concord.com

In the health sector

The impacts of climate change on human health can be summed up as an increase in the prevalence of malaria and the recurrence of diarrhoeal diseases and gastroenteritis. Recent studies have revealed links between extreme temperatures and diabetic decompensation. The fact that climate change is undermining food security has serious consequences for children's health, particularly as many cases of malnutrition are slowing the growth of children in the most vulnerable regions. In Cameroon, for example, there is a positive correlation between variations in rainfall/temperature and the incidence of malaria.

Table 6: Impacts of climate change by sector

Sector	Impacts identified
Agriculture	Disruption of the agricultural calendar, lower productivity and crop yields, soil degradation; loss of biodiversity; wilting and drying out of crops; food insecurity; increased insect infestations and erosion; higher food costs; seed shortages; fluctuating prices; etc.
Livestock	High livestock mortality and morbidity; Decrease and destruction of pastures; Modification and lengthening of transhumance routes; Increase in pathogens, parasites and vectors; Food insecurity; Decrease in livestock feed consumption; Decrease in livestock yields; Decrease in conception rates. Decrease in the quality of fodder; Changes in the composition of pastures; Increase in agro-pastoral conflicts; Increase in the cost of foodstuffs; Drowning of animals; etc.
Fishing	Disruption to fishing and aquaculture activities; Decrease in fish resources; Destruction of fishing camps; Decrease in catches at sea; Decrease in water in ponds and hydro-agricultural dams; Increased risk of fish mortality; etc.
Forestry	Forest degradation, deforestation and reduction in forest resources; Fragmentation and destruction of habitats and ecosystems; Reduction in plant and animal biodiversity; Reduction in non-timber forest products; Damage to traditional pharmacopoeia; etc.
Water resources	Drying up of rivers, reduction in flow rates and run-off; Drying up of water points, fragmentation or modification of habitats and the ecology of aquatic species; Lowering of the water table; Disappearance of wetlands; etc.
Energy	Decrease in hydroelectric production, worsening of and incessant power-cuts in the production network, Loss of efficiency in energy transport, drying up and water shortage in dams, Increase in consumption costs, Disruption in turbine operation, Destruction of pylons and electricity transmission lines, Disruption in electricity supply, Atmospheric pollution, Depletion of biomass resources, Submergence of thermal power stations and electricity substations, etc.
Buildings	Premature ageing of materials, subsidence of land and dwellings, thermal discomfort in dwellings, health risks, excessive energy consumption, energy inefficiency, energy insecurity. Early ageing of materials, subsidence of land and dwellings, thermal discomfort in dwellings, health insecurity, energy over-consumption, energy inefficiency, energy insecurity.
Transport	Deformation due to expansion of certain infrastructures, Damage to surface structures, Damage/destruction of road infrastructures, Traffic disruption and extension of travel times, Disruption to rail, sea and air transport, etc.
Infrastructure	Degradation of road and rail infrastructure, Destruction of road infrastructure and bridges (surface structures), Destruction of the telephone network, etc.
Health	Increase in malaria, Recurrence of diarrhoeal diseases and gastroenteritis, Slower growth in children, increase in morbidity and death rates, Recurrence of cardiovascular diseases, Recurrence of emerging diseases, Expansion of endemic diseases such as meningitis, fluorosis, malaria and measles, Expansion of water-borne diseases (cholera, amoebiasis, typhoid, hepatitis), Increase in skin and respiratory diseases.
Urban development	Decrease in air quality in cities; Increase in the frequency of hot nights; Displacement of populations; Social conflicts; Destruction of homes and critical infrastructure by floods and landslides.
Tourism / ecotourism	Decrease in the number of visitors to tourist sites; Increase in mountain tourism; Submergence of species habitats in coastal areas; Disruption to the activities of tourist operators; Decrease in tourist guide activity; Blocking of access routes to sites by landslides and flooding; Increase in road detours and longer journeys Increase in travel, stay and visitor costs; Change in the length and quality of tourist seasons; Change in landscapes; Damage to infrastructure used for tourism; Depletion of natural and tourist resources.
Migration	Increase in heat-related mortality (for children, the elderly, the chronically ill, the socially isolated); Increase in premature births and displacement of vulnerable populations; Displacement of populations to areas with a more favourable climate; etc.

2.2.2.3. Impacts of climate change on Cameroon's agro-ecological zones

The impacts of climate change will affect Cameroon's agro-ecological zones in different ways, depending on population density, the biophysical context, the degree of industrial and infrastructural development and the degree of intrinsic vulnerability of the AEZ.

Vulnerabilities will mainly affect the Sudano-Sahelian AEZ (Far North and North Regions), which are highly exposed to flooding, drought and, to a lesser extent, mass movements; the Coastal AEZ (part of the Littoral, South-West and South regions), which are particularly affected by flooding, rising average sea levels, temperature rises and, to a lesser extent, drought; and the Upper Plateaux AEZ, which is exposed to mass movements, erosion and flooding in its lower parts. The Forest AEZ will suffer the effects of flooding and mass movements and the Upper Guinean Savannah AEZ will experience land movements and erosion due to overgrazing. The following lines describe the impacts in the two most vulnerable AEZs and a summary table will summarise the impacts in all five other AEZs.

Sudano-Sahelian AEZ.

The Sudano-Sahelian AEZ is an ecologically fragile zone, based on indicators such as climate, relief, soils, vegetation, hydrographic network and demographic distribution. The major climate change-related events in this AEZ are drought, heat waves and heavy rainfall leading to flooding. The impacts of these events will vary according to the different development sectors. The area is 90% vulnerable to climate change. Drought is endemic, and more than a million people are exposed to it. It is the cause of epidemics of meningitis and cholera. This drought affects agricultural yields and jeopardises food security. Over the years, it causes a worrying drop in water resources, which has a severe impact on human populations, agriculture and livestock. The drought also favours the invasion of locusts.

Extreme wet weather events and subsequent flooding are a particularly serious source of vulnerability. The catastrophic floods that hit the Mayo Danay and Logone et Chari rivers in 2024 in this AEZ affected around 56,000 households. They devastated fields and swept away hundreds of livestock. We can expect widespread food shortages in the region this year, and probably also an increase in migratory flows towards the Benoue plain or further south. The effects of flooding are amplified in this AEZ by the very gentle slopes of these plains, which are drained by rivers such as the Logone. To control the recurrent catastrophic overflows of this watercourse, a poorly maintained dyke due to a lack of resources is like an impending disaster threatening the safety of hundreds of thousands of people.

AEZ of forests with monomodal rainfall (coastal zone).

This AEZ is a complex environment combining a mountainous area prone to landslides and a very gently sloping coastal plain area regularly subject to flooding. It is also likely to be exposed to the consequences of rising average sea levels. It is therefore a very fragile AEZ due to the aforementioned hazards, the sensitivity of its ecosystems and its attractiveness to people and specific activities. These three specific hazards (flooding, coastal erosion and sea-level rise) will increase in intensity and magnitude between now and 2030 (table 7). Tourism, and in particular accommodation and leisure facilities, are regularly destroyed by coastal erosion, particularly in Kribi and Limbe. Entire establishments have been destroyed, relocated or wiped off the tourist map altogether. The same applies to the roads, which have to be regularly maintained until they can be moved.

This agro-ecological zone is home to essential resources (oil and fisheries) for the country's economic development. It is home to a large number of strategic activities and has a number of key economic functions (industrial, port, tourism, trade, residential). Cameroon's indus-

trial arc passes through the cities of Douala, Kribi and Limbe, whose development prospects reinforce their strategic weight in the country's economy. All of which calls for special attention to be paid to strategies for strengthening the resilience of this AEZ to the effects of

climate change, especially as climatic vulnerabilities may be exacerbated by volcanic seismic risks, particularly for Limbe and Kribi.

Climate change, all the more so as climatic vulnerabilities may be intensified by volcanic seismic risks, particularly for Limbe and Kribi.

Table 7: Coastal hazards in Cameroon

	Douala		Kribi		Limbe		Idenau/Bibundi	
	2020	2030	2020	2030	2020	2030	2020	2030
Floods								
Coastal erosion								
Sea level rise / marine submersion								

Key

Escalation scale	1	2	3	4	5
Colour					

Table 8: Impacts of climate change by agro-ecological zone

Agro-ecological zone	Impacts identified
Sudano-Sahelian AEZ	Thermal discomfort with migration and displacement of populations; Decrease in surface water; Decrease in yields; Worsening of water-borne diseases and drought-related illnesses; Faecal peril, disruption of agricultural activities and reduction in fish stocks; Bush fires; Regular postponement of sowing due to late arrival of rains; Increase in invasions of insects such as locusts that ravage crops; Damage to crops caused by extreme heat; Food insecurity; Considerable drop in fish stocks; Migration of livestock farmers to watering holes; etc.
Upper Savannah AEZ	Depletion of water resources; Food security; Decrease in groundwater recharge, drought and erosion; Water stress and crop damage caused by pests; Increase in pest invasions; etc.
Upper-Plateau AEZ	Increased invasions of insects and crop pests such as grasshoppers; Damage to crops caused by extreme heat; Increased weed growth and outbreaks of malaria; Reduced yields of irrigated crops; Increased erosion and landslides; Increased water stress; Reduction in cultivated and arable land, and renewed land disputes; etc.
AEZ Forests	Damage and destruction of infrastructure; loss of wetlands; pressure on public structures and urban services; increase in transport costs; reduction in the amount of water available for irrigation and agriculture; increase in water-borne diseases; more limited access to water bodies; increase in water quality problems and restrictions on water consumption; etc.
Coastal AEZ	Negative effects on coastal tourism and coastal shipping; Effects on health linked to coastal migrations; Displacement of disaster-stricken populations in the hinterland; Displacement of fishing camps on the coast; Decrease in biomass; Decrease in agricultural and fish farming yields; Food shortage; Erosion and landscape degradation; Reduction in forest area; Increased die-back of ligneous species; etc.

2.2.3. Assessment of greenemissions in giga tonnes of CO equivalent for eachemission projections, etc.)

2.2.3.1. Greenhouse gases in Cameroon

The most recent inventory of greenhouse gas emissions dates from 2020. These emissions totalled 117,673 Gg eq CO. The main gases emitted are carbon dioxide (CO), which represents 62.19%, methane (CH) 26.15% and nitrous oxide (N O) 11.47%. Perfluorocarbons (PFCs) account for just 0.2%. Figure 9 shows emissions in giga tonnes of CO equivalent for each gas.

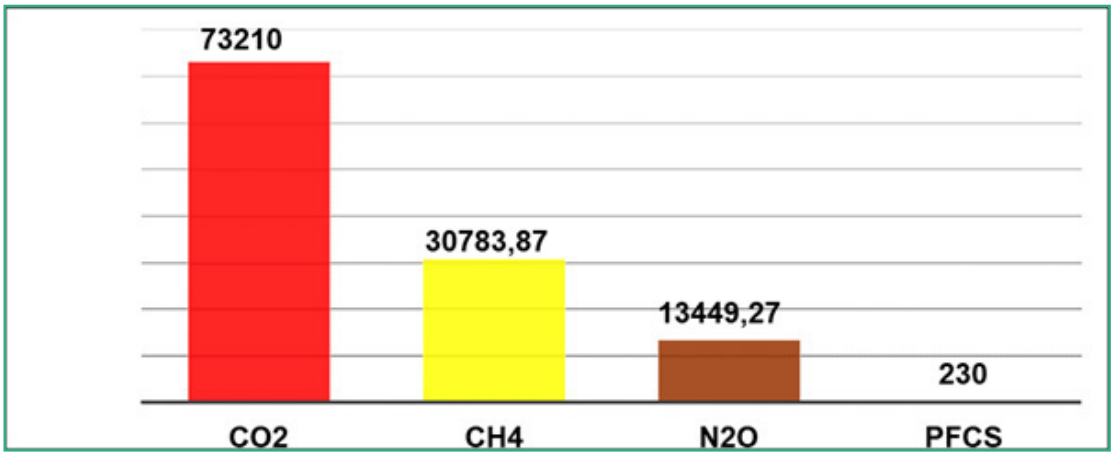


Figure 13: Emissions of the main greenhouse gases in Cameroon

2.2.3.2. Greenhouse gas emissions by sector

Agriculture, energy, waste and industry are, in ascending order, the main greenhouse gas emitting sectors in Cameroon. Emissions from agriculture are due to biomass burning, enteric fermentation, direct N O emissions from managed soils, manure management and rice cultivation.

In 2020, the agriculture sector represented the largest source of GHG emissions, with 97030 Gg EqCO2 emitted out of a total of 114575 Gg EqCO2, i.e. 80.17% of total emissions (Figure 10). The energy sector came second with 11.33%, followed by the waste sector with 8.02% and the Industrial Processes and Product Use (IPUP) sector last with less than 1% (0.47%).

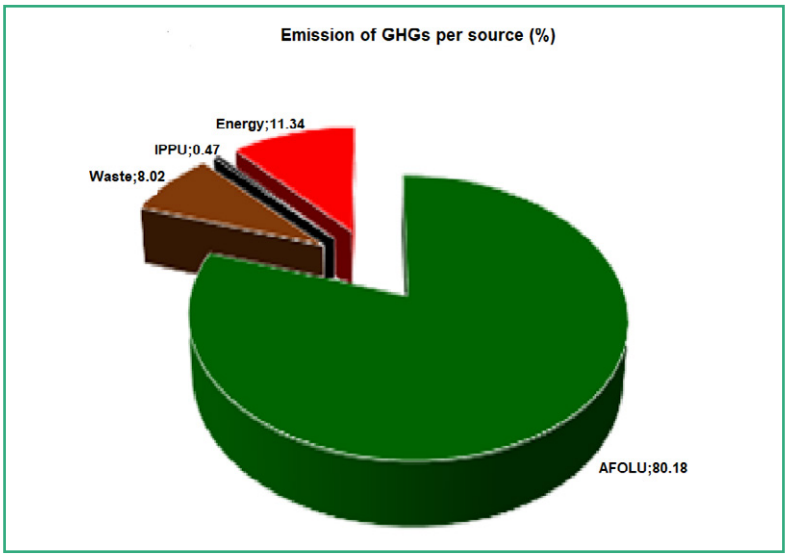


Figure 14: Percentage of GHG emissions by sector in 2020 in Gg eq CO2.

Emissions from agricultural processes are highly diversified. Nearly 90% of national methane emissions come from this sector (enteric fermentation, biomass combustion, manure management and rice cultivation). In 2020, the energy sector was responsible for 10,018.7 Gg eq CO of which fossil fuel consumption and industry were the main contributors. CO is the main gas emitted in this sector The waste sector emitted 6,356.21 Gg eq CO in 2020. The incineration and landfilling of waste, to which must be added the treatment of wastewater, are the practices responsible for methane emissions, which account for 95.17% of emissions from this sector.

Table 9 summarises GHG emissions for the 2020 reference year. The national balance sheet of these GHG emissions and removals shows that Cameroon remains a GHG sink overall, with an absorption capacity of 19859.76 Gg EqCO . If the AFAT sector is added, emissions amount to 117724.06 Gg EqCO and estimated absorptions to approximately 137583.06 Gg EqCO (-137583.06) Gg EqCO), i.e. a net absorption of 19859.06 Gg EqCO (-19859.06 Gg EqCO).

Table 9: Summary of GHG emissions for 2020

Emissions (Gg) CO2 Equivalents (Gg)								
Categories	Net CO2 (1)(2)	CH4	N2O	HFCs	PFCs	SF6	NOx	Co
National total of emissions and absorptions	-64372.91	1231.35	45.3	0	230.20	0	176.60	6852.53
1 - Energy	6884.98	83.40	1.297	0	0.00	0	0.00	0.00
2 - Industrial processes and product use	153.54	0	0.000	0	230.20	0	0.00	0.00
3 - Agriculture, forestry and other land uses	-71419.17	895.97	42.956	0	0	0	176.60	6852.53
3.A - Livestock	0.00	435.68	0.349	0	0	0	0	0
3.B - Lands	-71463.03	NE	NE	NA	NE	NE	0	0
3.B.1– Forest land	-137583.63	NA	NA	NA	NE	NE	0	0
3.B.2– Cultivated land	32974.70	NA	NA	NA	NE	NE	0	0
3.B.3 - Grasslands	32212.43	NA	NA	NA	NE	NE	0	0
3.B.4– Wetlands	0.00	NA	0	NA	NE	NE	0	0
3.B.5 - Institutions	218.83	NA	NA	NA	NE	NE	0	0
3.B.6 – Other lands	714.64	NA	NA	NA	NE	NE	0	0
3.C - Aggregate sources and sources of non-CO2 emissions on land	43.86	460.29	42.607	0	0	0	176.60	6852.53
4 - Waste	7.73	251.98	1.046	NE	NE	NE	NE	NE
5 - Others	NE	NE	NE	NE	NE	NE	NE	NE
Total emissions and removals in Gg eq CO2	-64372.91	30783.75	13499.4		230.20			
Difference between Absorptions and Emissions	-19859.76 Gg							

2.2.3.3. Emissions trend

Emissions of greenhouse gases are on the rise in Cameroon. They have risen from 12,939 Gt eq CO2 in 2010 to 17,972 Gg eq CO2 in 2020, excluding the FAT sector, whose absorption exceeds emissions. This represents an increase of 39% over the 10-year period. It should be noted that 2019 saw a drop of -4.9% compared with 2018. 2018 was a peak year (18,668 Gg eq CO2) which has not been exceeded until 2020. Table 10 illustrates the variations in greenhouse gas emissions excluding the FAT sector between 2010 and 2020.

Five priority sectors were considered in the overall GHG emissions assessment: agriculture, waste, energy, industrial processes and forestry. Table 10 shows the evolution of GHG emissions from 2010 to 2020 without FAT and with FAT. The total without FAT shows an increasing trend in emissions, while the total with FAT makes Cameroon a source of carbon.

Table 10: Overall balance of GHG emissions

Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Energy	7925.2	7216.9	7334.6	7959.8	7803.2	8714.8	8572	9847.1	11083.7	10081.8	10018.7
Agriculture	597.19	766.45	564.24	602.86	536.68	583.83	697.96	728.3	874.7	879.22	982.85
PIUP	404.96	404.96	294.27	294.27	462.15	448.29	429.51	462.27	421.41	356.43	351.92
Waste	4011.53	4395.81	4744.35	5093.05	5447.37	5780.74	5876.76	6077.69	6287.78	6433.68	6619
Total excluding FAT	12938.88	12784.12	12937.46	13949.98	14249.4	15527.66	15576.23	17115.36	18667.59	17751.13	17972.47
FAT	-81064	-83600	-87480	-82969	-88796	-86241	-86241	-78679	-83429	-70752	-71419
Total with FAT	-68125	-70816	-74542	-69019	-74547	-70713	-70664	-61563	-64762	-53001	-53447

Most of the key categories come from the AFAT sector, accounting for 91% of total emissions/removals. The largest source is the Forest Land Remaining category, which accounts for 54% of the total. Although marginal, the energy (road transport) and waste (wastewater treatment and discharge, solid waste disposal) sectors are among the largest sources in Cameroon in 2020. Figure 11 summarises the analysis by key categories as requested by the IPCC, including a summary of the estimated GHG emissions from the AFAT sector for the 2020 base year.Overall, in 2010, the AFAT sector emitted/absorbed approximately -81092.58Gg of CO, 545.57 Gg of CH and 28.52 Gg of N O as direct GHGs. In 2020, emissions/absorptions will be -71463.03 of CO, 895.97 of CH and 42.95 of N O as direct GHGs.

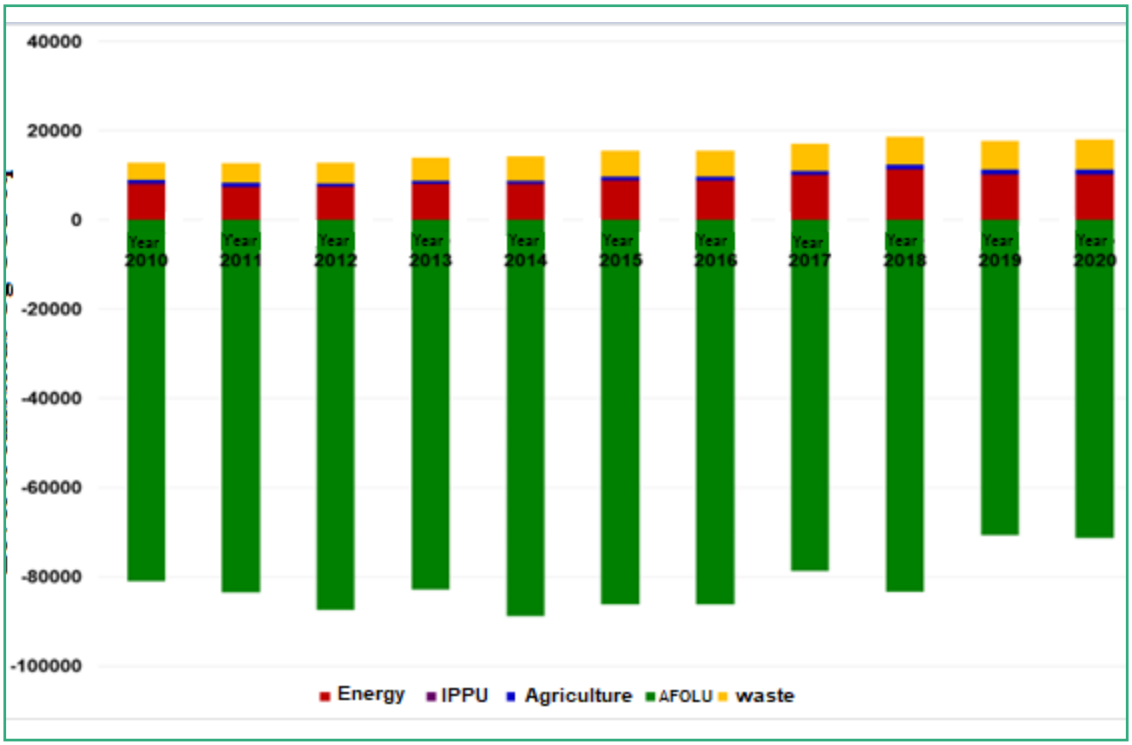


Figure 15: Summary of GHG emissions for all sectors

This trend in emissions is driven by the energy sector, which is the main source. Then there is the waste sector, which accounts for a large proportion of emissions. Emissions from agricultural processes also increased throughout the period.

The general trend is towards an increase in greenhouse gases. If current trends continue, by 2030 Cameroon's greenhouse gas emissions will be 119,084 Gg CO eq . This represents an increase of 240% compared with the reference year (2010). Under the commitments made in the Paris Agreement, efforts to reduce emissions would amount to 104,186 Gg eq CO, which represents a difference (Figure 12).

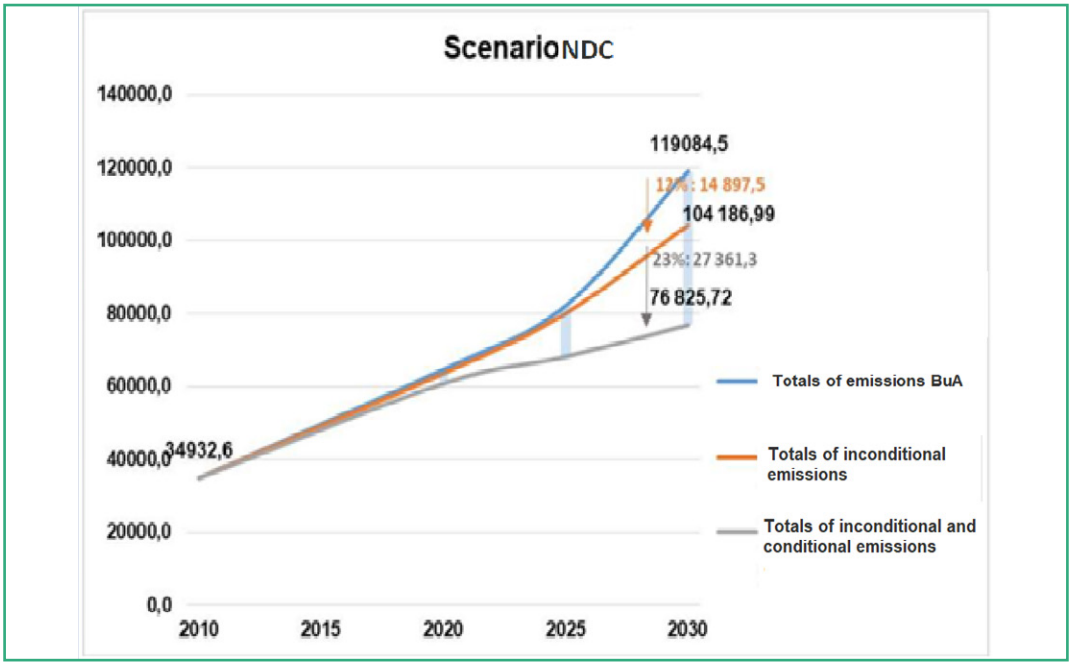


Figure 16: Projected greenhouse gas emissions in Cameroon to 2030

2.2.4 Vulnerability assessment and implications for development.

Vulnerability is "the degree to which a system is susceptible to, or unable to cope with, adverse effects of climate change, including climate variability and extremes. Vulnerability depends on the character, magnitude and rate of climate change to which a system is exposed, as well as its sensitivity and adaptive capacity" (Parry et al. 2007). Vulnerability is influenced by three parameters: (i) the level of exposure and sensitivity, (ii) the ability to adapt,

(iii) the probability of being more exposed to current climate hazards.

Vulnerability assessments have the following advantages: (i) improved risk assessment and identification of hazardous phenomena; (ii) improved risk assessment and analysis; (iii) improved risk control. Risk control may include monitoring, reassessment and compliance with decisions.

Despite the lack of data, it was possible to carry out a study of vulnerability to climate change in the Cameroonian context using indicators classified into two main groups:

- **Exposure and sensitivity indicators: rainfall, temperature, hydrographic network and drainage density, relief and slope, soil exposure and degradation, population density.**
- **Adaptive capacity indicators: education, health, road network, standard of living (poverty), land use.**

When preparing the adaptation and mitigation measures to be implemented, other indicators related to governance, communication, awareness-raising and the availability and proper functioning of early warning tools will be considered.

Based on these indicators, Figure 13 shows that the Sudano-Sahelian zone is poorly equipped to adapt to climate change. It is closely followed by a central band which shows an average to low capacity to adapt. However, more than half of Cameroon's territory potentially has a fairly good capacity to adapt if we consider only the functioning of natural environments and their intrinsic capacity to withstand shocks. But when we look at socio-economic indicators (accessibility, access to information, local response capacity), the overall capacity to adapt is often low. The map that emerges (Figure 14) shows that over 60% of Cameroon's territory is vulnerable to climate change. The areas most affected by this vulnerability are those around Douala, Buea, Kribi, Maroua, Yaounde and Ebolowa. Bamenda and Bafoussam in the Upper Plateaux are also highly vulnerable. Moderately vulnerable areas are those around Garoua and Ngaoundere.

Vulnerability to climate change was also disaggregated by sector and by AEZ. At sectoral level, agriculture (including livestock and fisheries) appears to be the most vulnerable sector, followed by the energy sector, centred essentially on hydroelectricity, and finally infrastructure, particularly roads and associated transport. Urban development, due to uncontrolled urbanisation, is also fairly vulnerable.

The agro-ecological perspective shows that the Sudano-Sahelian AEZ is the most vulnerable due to natural factors (climatic and edaphic), the level of equipment and the poverty of its populations. This region is regularly exposed to catastrophic flooding. Sporadic attacks by the Boko Haram terrorist group increase the region's vulnerability. The coastal AEZ is also highly vulnerable, due to the combined effects of extreme wet weather (monsoon rains), exceptional tides and topographical factors, as well as erosion, including that affecting the coastline through landslides, which cause catastrophic flooding. These are the main impacts suffered by this zone. Heavy rainfall and steep slopes are conducive to landslides and erosion in the Upper Plateaux AEZ. The Upper Savannah AEZ suffers to a lesser extent than the Upper Plateaux from the onslaught of landslides and erosion. Finally, the forest zone is the least vulnerable to climate change, even though deforestation is contributing to landslides, flooding and erosion.

2.2.4.1 Vulnerabilities aggravated by interconnected hazards and macroeconomic impacts

Hazards occurring in one sector or region of the country have consequences that extend to other regions and even other sectors. Sometimes, these are cumulative effects that boost the negative effects felt at macroeconomic level. The multi sectoral and multidimensional consequences induced by the interconnection of hazards were highlighted by the World Bank's 2017 diagnostic report. The four sectors showing high levels of hazard largely correspond to those identified above as being the most sensitive to the effects of climate change.

These include the agro-pastoral sector, the energy sector, transport infrastructure, health and urban development. The four key sectors chosen for this diagnosis have a mutual influence, hence the cross-sectoral approach that is indispensable for their exhaustive analysis.

2.2.4.1.1 As regards the agro-pastoral sector, climate change is likely to lead to a drop in production, and even to a decline in agro-pastoral production, in the case of the most intense climatic extremes and depending on the global warming scenario.

In terms of rural development, Cameroon's vision envisages the launch of a vast programme to increase agricultural production in order to meet not only the food needs of a steadily growing population, but also those of the agro-industries, which are diversifying and multiplying. In this context, the country plans, among other things, to make the factors of production more accessible and available, particularly land, water and agricultural inputs, but these can only achieve emergence goals if they are redesigned to be resilient to the effects of climate change. The analysis of the rural sector development strategy (RSDS) identifies vulnerability to climate change as one of the threats to achieving the sector's objectives. One of its sub-objectives is to limit rural exodus to ensure availability of the workforce necessary to develop the agro-pastoral sector. However, rural exodus tends to be triggered and sustained by deteriorating climatic conditions. In the absence of effective measures to adapt to the effects of climate change, it will be particularly difficult for authorities and communities to achieve their development objectives.

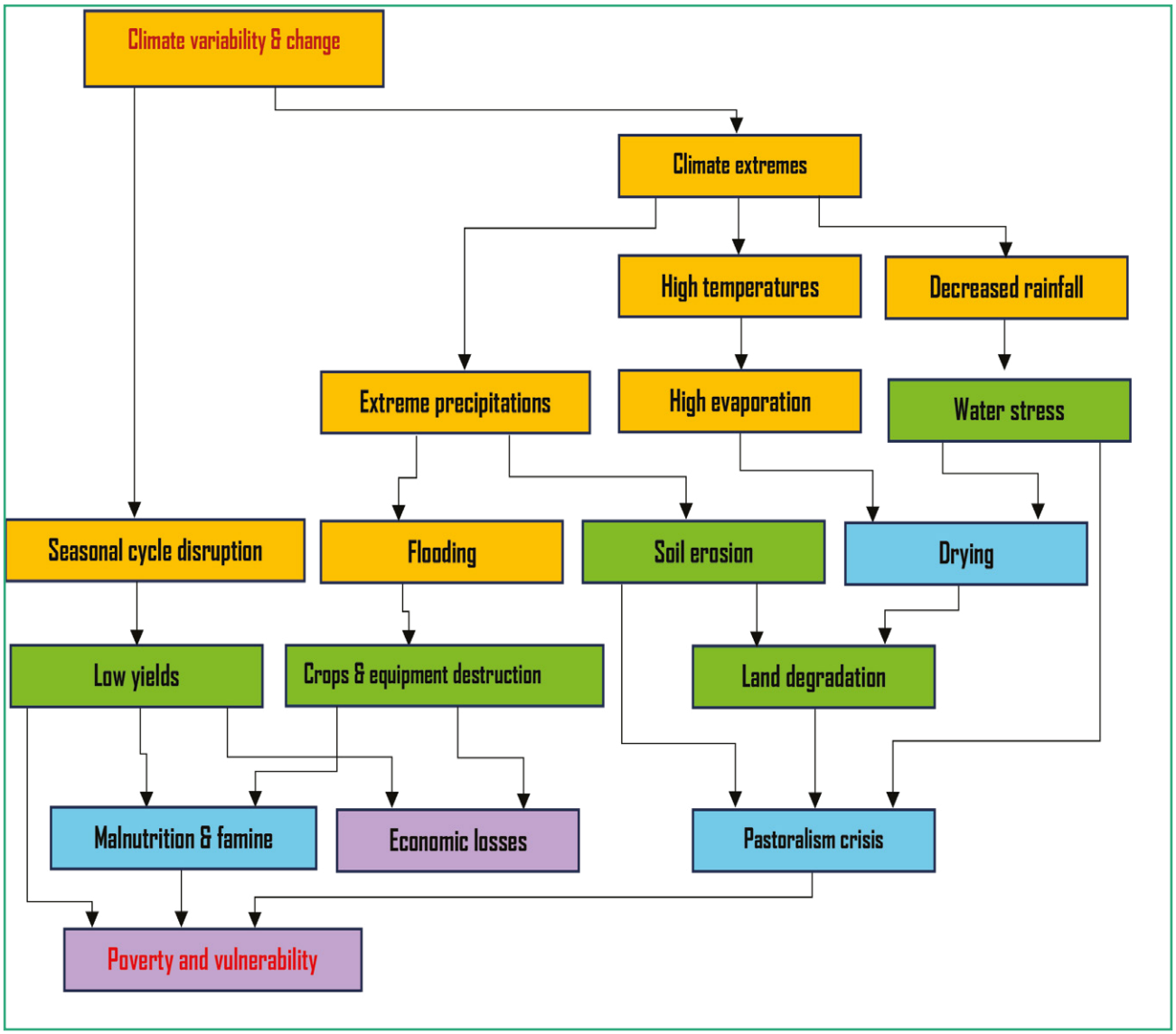


Diagram 17: Climate variability and change in agro-pastoral systems and related impacts. (Source: World Bank, 2017)

2.2.4.1.2 The production of energy and electricity is an essential element of economic and social development, as all activities, whether in the agro-pastoral sector, infrastructure or services, are dependent on uninterrupted and low-cost - energy. Its contribution to the success of the objectives of the other sectors is crucial, just as the strategic choices that guide it can limit or increase greenhouse gas emissions.

Cameroon's economic vulnerability to the effects of climate change is largely due to its dependence on the production of hydroelectric power, which is itself particularly sensitive to droughts and heat waves. The nearly endemic shortage of available, low-cost electricity, according to the aforementioned logic of hazard or interconnection links, causes additional pressure on the timber resources of the Sudano-Sahelian regions in particular. This leads to a gradual scarcity of wood energy, which, through the principle of supply and demand, increases prices, enhances the value of the resource and intensifies deforestation. Neither the mitigation nor the adaptation objectives, and certainly not those of combating poverty, can be achieved under these conditions.

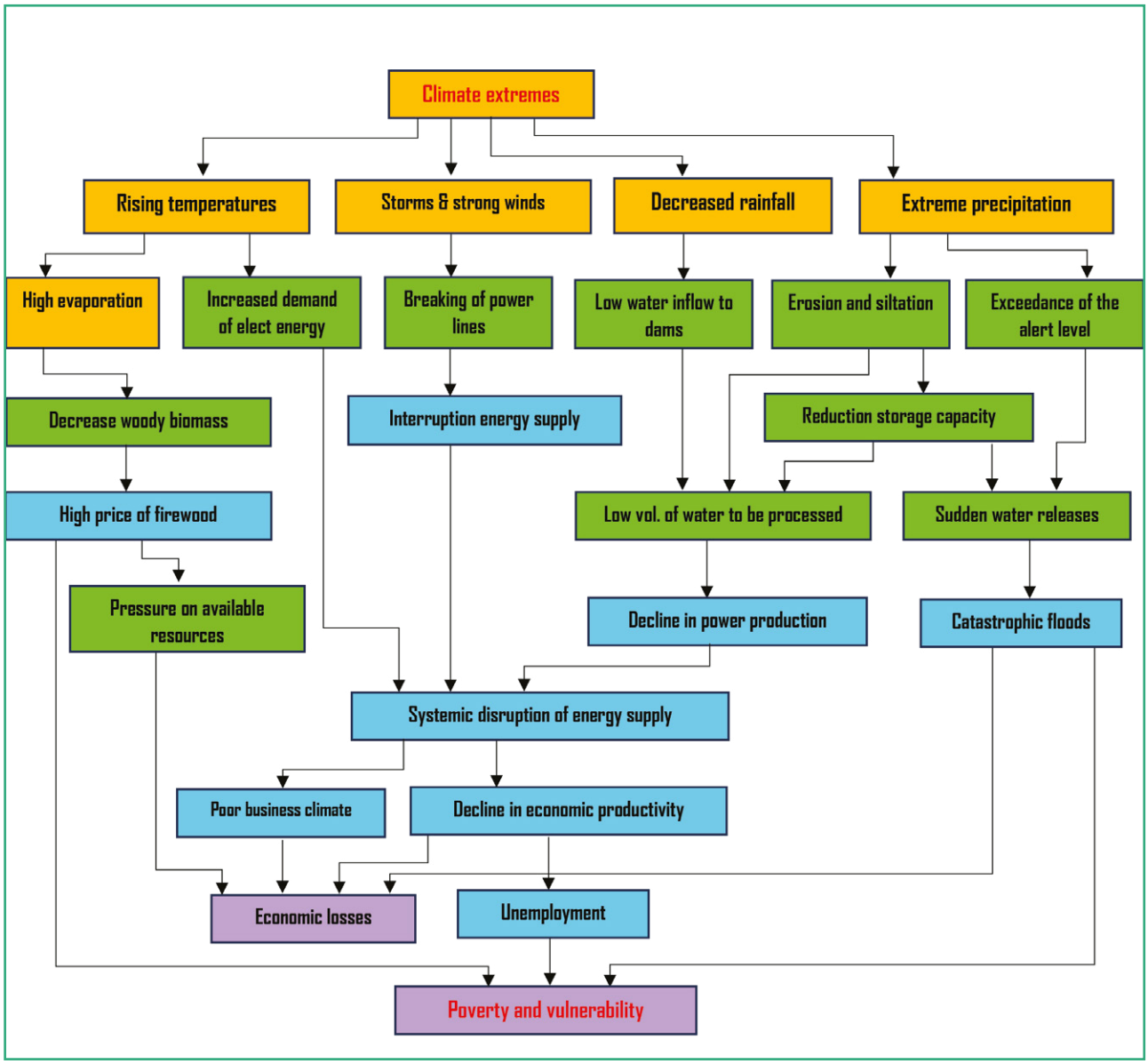


Diagram 18: Climate variability and change in energy production and related impacts

(source: World Bank,2017)

2.2.4.1.3 In the transport infrastructure sector

Climate variability has an impact on this strategic, cross-cutting sector, with significant effects on the services sector. The transport infrastructure sector is particularly affected by extreme wet weather and heat peaks. All types of transport are affected, at various magnitudes: road, rail, sea, river and air.

Transport infrastructure in the Far North, North, Western Highlands and North-West regions will be mainly affected by the increased frequency and intensity of extreme wet weather episodes. Coastal regions will not be spared, but will be more exposed, as is the case in the South region, to the effects of heat waves.

A road degraded by the effects of climate change has as direct effects an increase in the risk of accidents, longer journey times which, in addition to increasing fuel consumption,

are the cause of higher CO2 emissions. Traffic interruptions due to collapsing culverts, other crossing structures or landslides (national road No.3 at Matomb following the sudden collapse of a culvert in October 2016 caused losses estimated at several billion FCFA). In addition, in the context of climate change, infrastructure degrades rapidly and also requires more frequent maintenance, affecting the State budget and depriving resources from other important sectors of development. In fact, there are economic losses resulting from this maintenance to the detriment of other more productive public investments. Disruptions caused by the prolonged rainy season or heavy rain contribute to longer delivery times on some major road projects. In most cases, this gives rise to amendments, which are mechanisms designed to take into account climatic contingencies, but which also result in additional expenditure for the State.

Transport infrastructure in urban areas is particularly vulnerable to the effects of climate change. The specific malfunctions in urban mobility caused by flooding or blocked drains explain the shift in transport provision towards the informal sector (motorbikes). This transport mode has become more widespread, but presents complex problems. It fuels traffic jams wherever it is used in urban area alongside other types of vehicles, and is a source of air pollution and even increased greenhouse gas emissions. Urban development, and in particular balanced suburban growth, depends on the extent to which these suburbs are accessible, and therefore on the degree to which the roads are passable. The Rural Accessibility Index (RAI), which measures the proportion of the rural population that is less than 2 km from a passable road in any season, was around 20% in Cameroon, compared to an average of 30% for Sub-Saharan Africa (ADB, 2015). The inaccessibility of production areas and difficulties in supplying towns with foodstuffs are among the main constraints hampering agropastoral development. The impassable nature of many of the rural roads linking production and consumption areas is a major obstacle to development. The budget for maintaining rural roads will continue to increase as long as appropriate adaptation measures are not implemented. The effects of climate change on transport infrastructure could ultimately lead to a significant drop in GDP and an increase in poverty in all regions of the country.

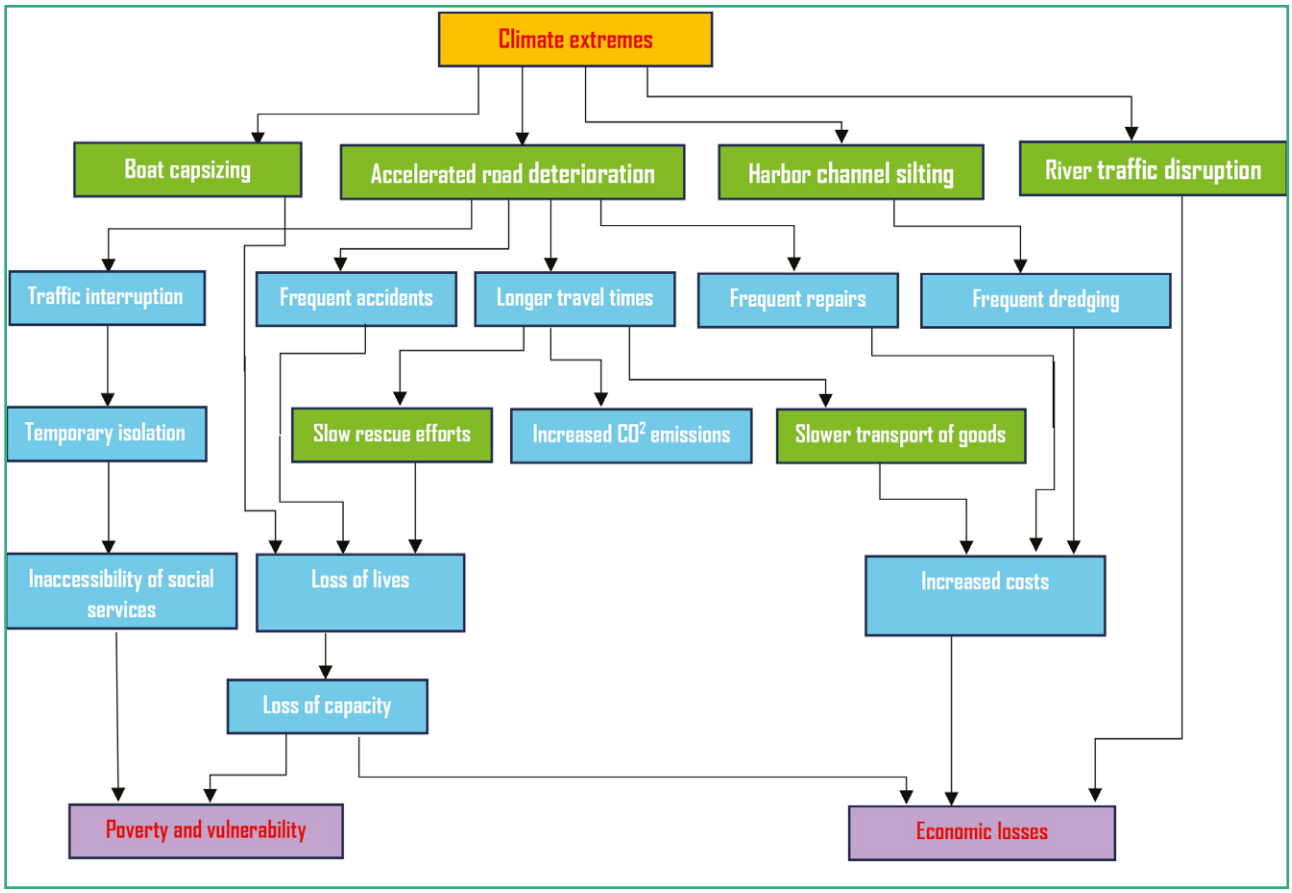


Diagram 19: Climate variability and change in transport infrastructure and related impacts (Source: World Bank, 2017)

CHAPTER III

PRIORITY ACTIONS AND MEASURES TO COMBAT CLIMATE CHANGE

3- PRIORITY ACTIONS AND MEASURES TO COMBAT CLIMATE CHANGE

A study on vulnerability to climate change in Cameroon was carried out using two main groups of indicators:

1. Exposure and sensitivity indicators: rainfall, temperature, hydrographic network and drainage density, relief and slope, soil exposure and land degradation, population density.
2. Adaptive capacity indicators: education, health, road network, standard of living (poverty), land use.

Based on these indicators, the vulnerability assessment arises from the intersection of factors determining adaptive capacity, and those of sensitivity and exposure. The resulting map (Diagram 18) shows that over 60% of Cameroon's territory is vulnerable to climate change. The areas most affected by this vulnerability are those around Douala, Buea, Kribi, Maroua, Yaoundé and Ebolowa. Bamenda and Bafoussam in the Highlands are also extremely vulnerable. The areas of Garoua and Ngaoundéré are relatively vulnerable.

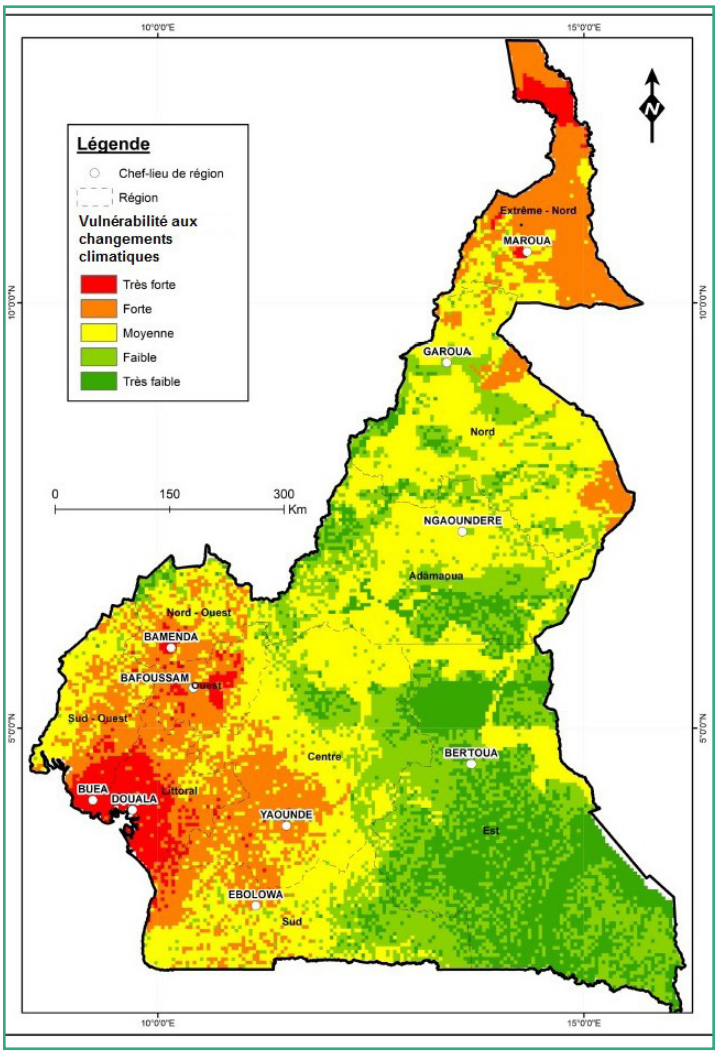


Diagram 20: Map of Cameroon's vulnerability to climate change

This study of the country's vulnerability shows that the most affected sectors are infrastructure, followed by agriculture and livestock. The most vulnerable AEZs are the Sudano-Sahelian AEZ, which is highly exposed to flooding, drought and, to a lesser extent, slumps and landslides, and the monomodal rainfall forest AEZ.

The 'coastal zone' is hit hard by flooding, rising sea levels, temperature rises and, to a lesser extent, drought. The Western Highlands AEZ is exposed to landslides, erosion and flooding in its low areas. The Bimodal Rainforest AEZ bears the brunt of flooding and landslides, while the High Guinean Savannah AEZ is mainly affected by landslides and erosion due to overgrazing.

3.1- Priority climate change adaptation and mitigation actions and measures by sector and by AEZs according to vulnerability

Over the past 20 years, Cameroon has reduced its emissions through reforestation and by shifting its energy mix in favour of renewable energy.

As a result, emissions have dropped from 9.32 tonnes of CO2 per capita in 1998 to 4.89 tonnes in 2018. Nevertheless, investment is needed to accelerate adaptation and resilience in agriculture, livestock, roads, schools and the health system. Given the country's strong renewable energy potential, there is significant scope to increase renewable energies from less than 1% to 25% of the total mix by 2035.

The national report on climate and development in Cameroon identifies four priorities to address climate risks and provide opportunities for a green, resilient and inclusive future:

- Establish climate-resilient agriculture, forestry and land-use systems to integrate mitigation measures and promote sustainable development in all agricultural and ecological zones of the country.
- Integrate the risks and impacts of climate change into the design, greening, planning and financing of cities to improve the resilience and well-being of urban residents.
- Invest in sustainable and adaptive infrastructure to fill the large infrastructure gap and improve the quality of life of all Cameroonians.
- Adopt a holistic approach in which resilience and adaptation involve community-led approaches, strong commitment from citizens and local governments, and synergies between relevant systems and sectors.

3.1.1 Agriculture, livestock and fisheries

Strategic objectives: Promote climate-smart agriculture to build resilience and improve investment in adaptation, strengthen community resilience to the adverse effects of climate change through improved access and connectivity, food storage and strengthen the value chain in agriculture and livestock.

3.1.1.1 Agriculture

The NCCAP (MINEPDED, 2015) defined a series of actions for smart or climate-resilient agriculture, with the aim of improving the resilience of the livestock sector to the negative effects of climate change and reducing the negative effects of climate change on the fisheries sector.

The agricultural sector is crucial to achieving self-sufficiency and food security, empowering women, improving living conditions in rural areas and economic growth at national level The NCP aims, in line with the NDS30, to make the transition to a second-generation agriculture that is climate-resilient and low in greenhouse gas emissions. To achieve this, actions and measures should be initiated or reinforced. The main measures proposed are designed to increase the use of climate-smart agriculture (CSA) techniques and technologies, support the sustainable management of cultivated land and pastures, increase irrigation and diversify the livelihoods of farming communities.

3.1.1.2 Livestock

Climate change has a major impact on livestock farmers and the ecosystem goods and services on which they rely. In Cameroon, livestock farmers, most of whom are rural communities, depend on livestock for their food, income and livelihoods. Livestock farming contributes increasingly to food security and better nutrition.

Regional livestock systems have evolved according to the availability of natural resources. In the livestock sector, climate change is manifested by the drying up of the majority of water points/streams for animals, the significant reduction in grazing and their colonisation by plant species the livestock. In the livestock sector, extreme droughts cause cattle breeders and sometimes sheep breeders to go on migratory journeys in search of better pastures for their animals. At the environmental level, vegetation types are changing as a result of both climate change and human activities, such as the invasion of protected areas by farmers, herders, gold miners and others who cause bush fires and cut down trees to make charcoal.

They also cut down and prune trees to feed their animals. The development of fodder plantations and the creation of migration corridors, and the implementation of the NACCP are actions that will contribute to making this sector resilient.

3.1.1.3 Fishing and aquaculture

The rise in sea level influences the movement of the tides and, as a result, fish farming and aquaculture activities are affected. The disruption of seasons, along with late and heavy rainfall, will have an impact on this sector. However, the prawn fishing database shows a positive correlation between increased rainfall and prawn catches.

Thus, prawn production increases as rainfall rises. The rise in sea level will have a clear impact on coastal ecosystems.

The most significant impacts on the mangroves of Cameroon's estuary are erosion, sedi-

mentation, flooding, rising salt water levels. The development of activities to reduce the effects of climate change on the fisheries sector will enable adapting aquaculture systems to the effects of climate change and thus enable an increase in production. As with the livestock sector, actions and measures in the fisheries and aquaculture sector will help achieve self-sufficiency, food security, development of the agro-industry and improved productivity and competitiveness.

3.1.2 Energy sector

Strategic objective: Reduce greenhouse gas emissions from the energy sector and increase the percentage of renewable energies (excluding large hydro) in the electricity mix to 25% by 2035.

Energy contributes to economic development, poverty reduction, education and the general improvement of people's living conditions. It plays a vital role in achieving the country's Sustainable Development Goals. However, it is influenced by climatic phenomena such as floods, heat waves, droughts and severe weather, which have an impact on various sectors of activity.

Cameroon features in the top 30 countries in terms of gas flaring volume, and has one of the highest flaring intensities in the world (IMF, 2024). Apart from emitting greenhouse gases, flaring wastes an important resource that could be used to generate electricity or for other purposes. There are several solutions to the problem of gas flaring, such as capturing and using the gas, and imposing penalties on companies to reduce these emissions.

The expected results of the actions and measures to be recommended are: to improve access to electricity for the population and industry by increasing the production capacity fourfold to 6 GW by 2035; to increase the use of renewable energies in electricity production, especially in areas that are difficult to connect to the electricity grid; and to make energy efficiency a national priority.

3.1.3 Forestry sector

Strategic objective: Reduce greenhouse gas emissions from the forestry sector through sustainable forest management and the restoration of degraded areas.

Cameroon belongs to the tropical rainforest massif sheltered by the Congo Basin and offers a variety of natural landscapes. It is characterised by 3 major ecological zones. The forest zone, which covers an area of 22.5 million hectares in 2022 (estimate based on PRAIS3), including almost 20 million hectares of natural forest and 2.5 million hectares of planted forest (agro-industrial plots and reforestation).

Although Cameroon remains a rich source because of its forests, urgent measures and actions are needed to conserve them and reduce damage (illegal logging, bush fires, etc.). These actions include sustainable forest management through the exploitation and development of productive forests within the framework of management plans; contributing to economic growth and the fight against poverty through the return of part of the tax rev-

enue to communities, job creation, establishment of community forests in the Permanent Forest Estate (PFE) and community forests in the Non-Permanent Forest Estate (nPFE); the conservation of biodiversity by strengthening the national network of protected areas; and the harmonisation of the land tenure system through land zoning plans.

3.1.4 Infrastructure

Strategic objective: to substantially reduce infrastructure's carbon footprint and make it resilient to climate change.

Infrastructure is an essential material support for the development of political, economic, social and cultural activities. Infrastructure includes roads, ports, airports, bus stations, hydroelectric dams, bridges, public buildings, fibre optics, electricity and telephone pylons, transformer stations, private buildings, schools, hospitals, universities, etc. Some of these infrastructures are critical, as they can cause loss of life if disrupted. Climate change in Cameroon will be accompanied by extreme meteorological phenomena: flooding, violent winds, rising sea levels, hailstones, etc. It is obvious that many infrastructures built during 'normal' climatic periods are less suitable today. Cameroon already spends around USD 930 million a year on infrastructure, or 5.6% of its GDP.

The expected results of the actions and measures to be prescribed are: the construction of climate-resilient infrastructure and strengthening the resilience of national and regional transport systems and corridors; the integrated management of water resources and the development of climate-change resilient sanitation systems; the promotion and creation of low-energy cities; and the alignment of local development plans with regional land-use plans.

3.1.5 Waste sector

Strategic objective: Improve urban hygiene, in particular by turning waste into a resource to produce energy, compost, building materials, etc.

The rapid population growth in Cameroon's big cities is accompanied by increased waste production. Although this sector is not a key category in the national GHG inventory, it does contribute to methane emissions. It is worth noting that waste management remains an issue to be considered. Measures and actions in this sector will enable the integrated management and recovery of waste; the promotion of circular economy initiatives (biogas and composting); and the creation of controlled landfill sites.

3.1.6 Health sector

Strategic objective: On the one hand Integrate climate change into the strategic planning of health in Cameroon in order to adapt effectively and on the other hand contribute to mitigation.

Health is 'a state of complete physical, mental and social well-being'. The concept of health

takes into account individuals, their biology, psychology, socio-environmental environment and the political and cultural context in which they live. From this perspective, the harmful effects of climate change (drought, floods, landslides, cholera, etc.) are closely linked to health. In addition, it has been proven that there is a link between climate change and the resurgence of epidemic/endemic water-borne diseases (MINEPDED, 2021). Climate change therefore poses a health challenge that should be resolved both by mitigation actions and measures and by improving the provision of quality healthcare at low cost and accessible to all.

The expected results in the health sector are improved synergy between scientific research and health-environment research, and adaptation of the national health system to the effects of climate change.

3.2. Developing endogenous know-how

Endogenous or traditional (local) know-how refers to cumulative and complex sets of knowledge, skills, practices and representations that are perpetuated and developed by people who have interacted with their natural environment over a long period of time. These cognitive systems are part of a whole that includes language, connection to place and vision of the world (UNESCO, 2003). In a nutshell, local know-how represents all the knowledge acquired by a local population through accumulated experience and interpretation of the environment in a given culture (Warren, 1991; Warren & Rajasekaran, 1993). It includes ideas, experiences, practices and information that have either been generated locally or produced outside the community, but which have been transformed by local people and incorporated over time into local cultural, agro-ecological and socio-economic conditions (Figure 19). In the specific case of indigenous peoples, IFAD (2016) defines their knowledge as knowledge and know-how accumulated over generations, tested and adopted over millennia, which guide indigenous societies in their interactions with the surrounding environment.

Faced with climate injustices and the indifference of climate policies to indigenous climate knowledge, it seems useful to integrate these practices into the implementation of Cameroon's NCP. Indeed, this knowledge can support the production of agro-pastoral techniques and practices (breeding, fishing, agro-ecology, agro-forestry, poly-cropping, etc.) as well as adaptation to the harmful effects of climate change.

Endogenous know-how exists in all the AEZs of Cameroon. They should be identified, and the capacities of farmers/breeders should be strengthened with a view to their implementation in the Farmer Field Schools (FFS) or in the Rural Resource Centres (RRC) or in the communities. This is one of the best ways of making the most of them. It must be prioritised in efforts to adapt to and mitigate climate change in agriculture and agricultural production.

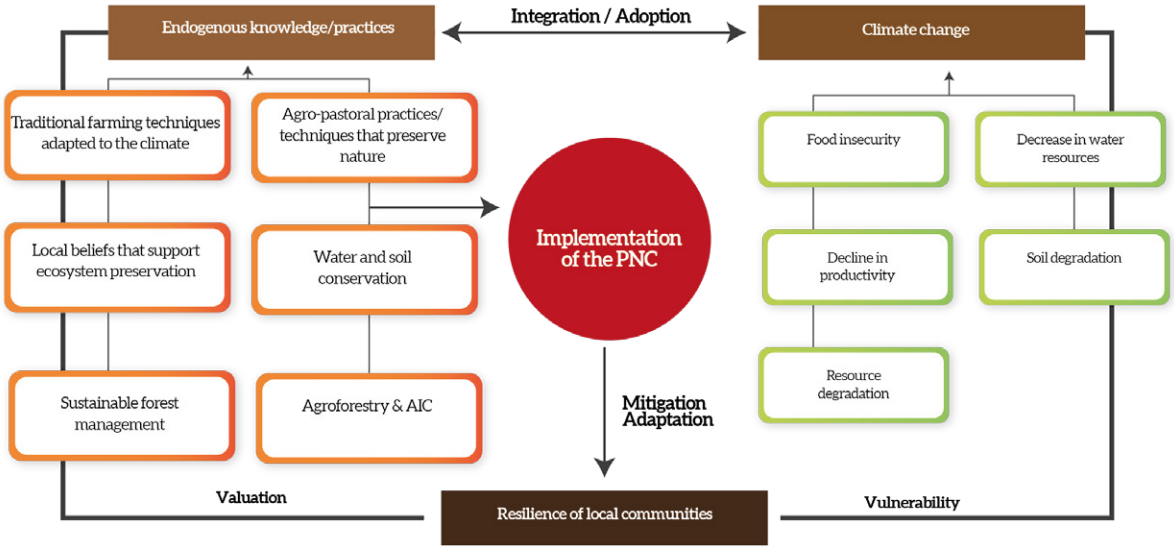


Diagram 21: Endogenous knowledge in the NCP

How can traditional knowledge be developed?

This ancestral and age-old traditional knowledge is valid for both adaptation and mitigation of climate change, and deserves to be promoted within the framework of the NCP by documenting this knowledge in writing, in videos and, above all, by setting up FFS or CRR.

How can traditional knowledge be developed?

This ancestral and age-old traditional knowledge is valid for both adaptation and mitigation of climate change, and deserves to be promoted within the framework of the NCP by documenting this knowledge in writing, in videos and, above all, by setting up FFS or CRR.

A field school, also known as a peasant field school or farmer field school (FFS), is a group of 20 to 25 people who meet once a week to work on a training plot throughout the farming season and learn how to solve production problems. It's a place where people can co-learn techniques and tools to boost agricultural yields. Farmer Field Schools (FFS) are a participatory approach initiated by the FAO 25 years ago to build the capacity of communities to increase their agricultural production and improve their livelihoods adapted to the local context.

Place for sharing experience and knowledge, the field schools enable producers to learn by doing, and provide them with the tools to analyse their practices and identify solutions to their problems.

Table 11: Summary of priority actions/measures by sector and by AEZs.

Priority sectors based on vulnerability	Priority actions and measures	Priority activities	Priority areas of intervention	Nature of actions and measures
Agriculture	- Promotion of intelligent, low-carbon agriculture (ICA); - Production of bio-fertilisers and use of nitrification inhibitors; - Implementation of the NCCAP.	- Supporting the portfolio of nine priority and integrated ICA investments - Support women's empowerment to adapt to climate change and target structural disadvantages of women farmers to improve rural productivity and food security. - Strategic regional adaptation investments accompanied by a local climate action plan to minimise the amplification of conflict factors and the resulting violence following climate shocks.	All AEZs	Adaptation
		- Development and sustainable use of at least 15% of potentially suitable and irrigable land. - Use of intermittent irrigation Rice fields in the Maga and Lagdo production basins; - 5% of farmers to use nitrification indicators by 2030; - Intensification and settling of integrated, low-carbon agricultural systems; - Setting up composting units with a production capacity of 50 to 100 tonnes/day in the ten regions of Cameroon;		MITIGATION
Livestock and fisheries	- Development of fodder plantations and creation of migration corridors; - Reduce the effects of climate change on the fisheries sector; - Implementation of the NCCAP.	- Introduction of 12% fat supplementation in ruminant feed - Setting up access conditions to cattle feed - Development of 12 500 ha of fodder plantations in the Sudano-Sahelian and high savannah zones	AEZs Sudano-Sahelian zone, Guinean high savannahs and West highlands Monomodal rainfall zones	Adaptation

Infrastructure and sanitation	- Building climate-resilient infrastructure and strengthening the resilience of national and regional transport systems and corridors; - Integrated management of water resources and development of climate- resilient sanitation systems; - Promoting and creating low-energy cities; - Making local development plans consistent with regional land use plans.	- Development planning that takes into account climate change: Ensure that medium- and long-term national/ sectoral planning strategies incorporate climate considerations. - Opportunities for cities to implement equitable adaptation policies; - Ensure systematic fair adaptation planning and community mobilisation with hazard-specific actions (assess vulnerability of roads; integrate results of vulnerability assessments into strategic planning) - Include in the decentralisation law provisions on the role and responsibilities of local government in climate action, including budget lines for climate action funding	All AEZs	Adaptation
ENERGY:	- Diversify energy supply and increase energy efficiency in the context of climate change; - Promote and disseminate renewable energies; - Implement mini, off-grid hydroelectricity; - Implement a low-carbon, multi-modal transport system in urban areas.	- Improve the operating performance of electricity companies (reduce losses); adopt a disciplined approach to the payment of electricity bills by public entities and companies; introduce tariffs that allow cost recovery. - Implementation of off-grid mini and micro hydroelectric schemes - Promote solar energy (use of solar street lamps) - Express bus services; - Promote electric cars; - Promote lighting using compact fluorescent/LED bulbs. - Promote energy efficiency measures in public buildings; - Alternative energies to wood fuel (biogas, LPG) - Promote low-carbon cities - Produce and disseminate improved stoves	All AEZs	Adaptation and mitigation
Forests	- Promote reforestation and restoration of degraded forest landscapes; - Secure protected areas against incursions.	- Setting up checkpoints, training and installation of eco-guards. - reforesting 650 000 ha of degraded land and landscapes; - Protect and conserve 3.3 million hectares of forest nationwide. - Strengthen community control of forests;	ZAEs in the high Guinean, Sudano-Sahelian savannahs and the West highlands	Adapting and Mitigation

Industry	- Promote low-carbon technologies in industrial processes; - Promote energy efficiency.	Support for energy efficiency in industry	All AEZs	Mitigation
Waste	- Integrated management and recovery of waste; - Promote circular economy initiatives (promotion of biogas and composting); - Create controlled landfill sites;	- Setting up inter-communal waste management centres in the ten regions of Cameroon; - Setting up bio-digesters on farms; - Setting up plastic waste collection and recycling units; - Making the waste market operational and setting up alternative solutions (waste exchange). - Collect and recover fuels from waste treatment plants; - Collect and recover biogas from waste treatment plants; - Reuse of organic waste for agricultural purposes;	All AEZs	Adaptation and mitigation
Health	- Strengthen synergies between scientific research and key development sectors; - Adapt the national health system to the effects of climate change.	- Strengthen the health system's capacity to respond and adapt to climate change; - Enhance the use of research results to take into account climate change in the healthcare system.	All AEZs	Adaptation
Education/awareness-raising	- Include the issue of climate change in school curricula; - Take into account climate change in the construction of school infrastructure;			

CHAPTER IV

NCP FUNDING MECHANISMS

4- NCP FUNDING MECHANISMS

4.1- General context

In Cameroon, climate change has been identified by the World Bank as an 'imminent' threat to economic development due to the country's dependence on natural resources. According to a recent report ('National Report on Climate and Development in Cameroon, 2022') published by the World Bank, the changes in temperature, rainfall and drought that are now widespread expose more than 8 million Cameroonians to increased risks of poverty and famine. The country could also lose up to 10% of its GDP by 2050 if climate adaptation measures are not taken as a matter of urgency, and 1.3 million more of its population could be pushed into poverty.

Moreover, the fight against the effects of climate change will require additional financial resources, both for adaptation and mitigation, over and above those needed to meet the already known imperatives of development. Successful transformational change towards a low-carbon economy requires substantial investment in the deployment of appropriate technologies, targeting all key sectors. The necessary funding will support the implementation of programmes and projects in line with the commitments made, while respecting a distribution that takes into account the most emitting sectors and the most vulnerable agro-ecological zones.

In order to reconcile its legitimate ambitions for economic growth with the need to combat global warming, and to meet the commitments made in its NDC, the Government has devoted one of the overall objectives of the NDS30 to combating climate change: 'Strengthen measures to adapt to and mitigate the effects of climate change and environmental management in order to ensure economic growth and sustainable and inclusive social development'.

Cameroon's vision in its strategy for an inclusive response to the impacts of climate change is summarised in the slogan: 'transforming climate constraints into development opportunities'. This is based on the theory of reverse determinism, which admits that positive structural socio-economic transformations can be triggered by a concerted effort to overcome constraints in the physical environment. In this respect, climate change can be seen as a real opportunity not only to win the gamble of a greener economy, but also to strengthen social cohesion through the social solidarity needed to reduce differential vulnerabilities.

The financial resources estimated to finance Cameroon's NDC amount to approximately 58 billion US dollars, or 29,000 billion CFA francs. Considering the various contingencies linked to national circumstances that could increase socio-economic vulnerabilities and put additional pressure on ecosystems, the estimate seems understated and insufficient to meet the commitments made during the reference period (2020-2030). However, there is growing concern about the need to review and raise the country's commitments.

4.2 - Sources of funding

Mitigating and adapting to the effects of climate change in Cameroon will be very costly and will further compromise the country's socio-economic development. Between 2015 and 2020, Cameroon will have mobilised approximately US$213.76 million, i.e. around CFAF 117.56 billion, for activities planned or linked to the implementation of commitments made under the Paris Agreement. This amount, which does not even represent 0.5% of the 29,000 billion envisaged, is made up of resources mobilised nationally (CFAF 83.29 billion, or 70.84%) and internationally (CFAF 34.28 billion, or 29.16%).

Resources mobilised at international level include grants, provisions and loans contracted within the framework of specific mechanisms and initiatives relating to the fight against climate change (mainly forest conservation and restoration) as well as financial mechanisms under the UNFCCC (FVC, GEF, FA, etc.). Resources at national level represent Public Investment Budget (BIP) funds committed by administrations and Public Administrative Establishments (PAEs). They include loans contracted under bilateral agreements with friendly countries, since Cameroon is required to repay them.

An analysis of the process of mobilising financial resources for the period 2015-2020 at national level reveals three main points: i) the resources mobilised are almost entirely from the State, with the much-awaited private sector only timidly coming forward; ii) while the rural sector is identified as the sector that emits the most GHGs (over 60%), the energy sector is, contrary to all expectations, the one that has attracted the most funds between 2015-2020 (46% of the 70% mobilised at national level), which poses a problem of coherence; iii) the financial resources allocated to capacity building, political and institutional reforms and the establishment of an appropriate governance framework are insignificant, even though the 2015-2020 five-year period was dedicated to preparing and putting in place the reforms of all kinds that are essential for implementation.

Thus, the resources that can be mobilised could come from several different but complementary sources.

4.2.1 Domestic public sources

- National and sectoral budgets;
- Sub-national budgets (RLAs);
- Domestic climate funds (yet non-existent in Cameroon).

4.2.2 International public sources

- Bilateral financing;
- Multilateral climate funds under the UNFCCC;
- Multilateral climate funds outside the UNFCCC;
- Multilateral funds not focused on climate;
- Multilateral development banks.

4.2.3 Sources of private funding

- Private companies;
- Private donors.

4.2.4 Public-Private Partnerships (PPP)

On the basis of the principles and guidelines adopted by the World Bank concerning the concept of Public-Private Partnerships (PPP), it is possible, in the context of climate action, to imagine possibilities for implementing the Plan by adopting this approach. In this respect, the implementation of the carbon market mechanism based on Article 6 of the Paris Climate Agreement offers an opportunity in terms of this PPP principle, particularly as regards the voluntary market. Other aspects in this area could also be integrated into projects that involve concessions and management contracts for land-intensive restoration work, or work in protected areas.

Furthermore, the desire to involve the private sector in the financing of the National Climate Plan may also involve aspects related to limiting emissions from industry and other polluting activities. The government could, as part of the fight against pollution, involve the private sector in taxes to help protect the environment in general.

4.3 - Funding strategies

The government recognises that it is essential to strengthen the frameworks to attract national and international financing for low-carbon development that is resilient to climate change. Achieving the Sustainable Development Goals and accelerating growth and poverty reduction are highly dependent on adequate, timely and sustainable climate finance.

4.3.1 National public and private funding

The development of Cameroon's capital markets is one way of accessing long-term financing for climate investments. Green bonds an innovative financial product that raises funds for environmentally sound sustainable development projects to accelerate climate change mitigation and adaptation - could provide the capital needed to meet the country's climate commitments. Cameroon's private and public sectors, as in other parts of Africa, are lagging behind other emerging markets when it comes to issuing these innovative bonds. A genuine strategy for mobilising the national private sector needs to be developed, and should include awareness-raising modules on the principles and mechanisms of green and/or alternative financing, gradual incentives agreed with the administrations in charge of finance and, more specifically, tax and customs, and the climate risks weighing on their activities in the business-as-usual hypo-thesis.

4.3.2 International finance

In the short term, the use of concessional finance represents a viable option for bridging the gap between public and private sector financing, particularly in sectors where investors perceive higher risk or access to finance at a reasonable price is limited. Concessional finance can be provided in many forms, such as subsidies, technical assistance to prepare industry for policies to reduce carbon emissions, or first loss guarantees.

Debt-for-nature swaps can improve environmental sustainability and public debt, and thus contribute to the stability of the international financial system. However, there are a number of technical, financial and governance challenges associated with their implementation. They could therefore be accompanied by adverse effects that need to be analysed in detail.

Although it is possible to allocate more national resources to adaptation and mitigation actions, the mobilisation of new financial resources seems necessary in view of the recent situation. There are two main sources of funding:

- international funds and bilateral and multilateral cooperation programmes.
- national funds and the development of innovative national funding mechanisms.

4.3.3 Ongoing initiatives

The financing of the NCP will also be based on existing financing strategies such as Cameroon's Disaster Risk Financing Strategy (MINFI 2025) and the National Investment Plan for Adaptation to Climate Change (PNIAC 2016), to mention but a few.

In addition, in order to facilitate the mobilisation of funding for the implementation of the NCP, the government will step up the consideration of climate change in public policies. On the basis of the international agreements to which our country has signed up, action has been taken to green our budget through the principle of Climate-Sensitive Budgeting (CSB) in order to take account of the impact of climate change on public spending. This principle, which was implemented in the preparation of the 2025 budget, identified 09 pilot ministries (MINTP, MINHDU, MINEE, MINT, MINADER, MINEPIA, MINSANTE,

MINFOF and MINEPDED) that correspond to the priority sectors for implementing climate action identified by the National Climate Plan. Marking climate-sensitive activities. Three main aspects are considered: adaptation, mitigation and biodiversity. The main aim of this approach, which is supported by the World Bank, is to enable the government to control the range of climate-sensitive activities in order to reduce their impact on the public investment budget and improve investment planning in line with the principle of import substitution.

In the future, this approach will involve all the public spending planned for this 2025 financial year, in terms of investment:

- CFAF 225.3 billion, or 12.27% of the total budget of the 09 administrations concerned;
- 3.11% of the total State budget, for climate-sensitive expenditure by the 09 administrations identified;
- 12.13% of the Public Investment Budget (BIP) for climate-sensitive expenditure;
- and 47.57% of climate-sensitive expenditure allocated to actions to adapt to climate change and 51.85% devoted to climate change mitigation initiatives.

The details of the financing guidelines for the National Climate Plan will be set out in the dedicated National Investment Plan. The plan is intended as a national framework for planning national and external funding to reduce vulnerability to climate change and strengthen the resilience of populations and ecosystems. It will take into account the investment needs dedicated to Adaptation and Mitigation to Climate Change over a five-year horizon (2026 - 2030).

The development of a priority investment programme is justified not only by the scale of the sums to be mobilised to implement the NCP and the fact that their design and implementation may take several years, but also by the fact that it will call on several sources of funding with different mobilisation and management methods, with the limited financial resources to be defined and allocated systematically. The aim is to provide the Government with a multi-year investment plan classified by order of priority, with an indication of the planned start and end dates, together with a cost estimate and the relevant indicators, based on the planned physical units and the standard market prices in force.

4.4 Windows adapted to Cameroon's needs and profile

4.4.1 General climate funds

African Climate Change Fund (FCCC): Multi-donor trust fund providing small grants to African governments, NGOs and regional institutions for climate-resilient development.

Green Climate Fund (GCF): International fund supporting climate action in developing countries, providing grants, concessional loans and risk mitigation instruments.

Climate Investment Fund (CIF): Multilateral climate finance mechanism providing grants, concessional loans and risk mitigation instruments for low-carbon development that is resilient to climate change.

4.4.2 Specialised financing for adaptation and resilience

- African Adaptation Acceleration Programme (AAAP): a collaborative initiative leveraging $25 billion to strengthen adaptation measures in Africa, with pillars focusing on food security, infrastructure resilience, youth empowerment and innovative financial instruments.
- Adaptation Benefits Mechanism (ABM): a results-based payment mechanism, mobilising public and private finance for adaptation measures, improving transparency and supporting Nationally Determined Contributions (NDCs).
- African Disaster Risk Financing Facility (ADRiFi): a programme promoting disaster

response mechanisms, such as index-based parametric sovereign insurance, to provide timely compensation for catastrophe relief.

4.4.3 Sustainable development financing facilities

- Sustainable Energy Fund for Africa (SEFA): A multi-donor special fund providing catalytic financing for private sector investments in renewable energy and energy efficiency.
- Catalytic Financing Facility for Small and Medium-Sized Agribusinesses Special Fund: An $85 million fund supports agricultural SMEs through blended financing, targeting investments that are pro-poor, gender-focused and resilient to climate change.
- Alliance for Green Infrastructure in Africa (AGIA): An initiative to develop bankable green infrastructure projects and mobilise $10 billion in private finance for Africa's transition to carbon neutrality[1].

CHAPTER V

STRENGTHENED CLIMATE GOVERNANCE

5- STRENGTHENED CLIMATE GOVERNANCE

5.1. Introduction

The governance framework for Climate Agenda (CA) ensures a structured, transparent and participatory approach to climate action. In the absence of an inclusive and robust governance framework, the main risks include needed to ensure effective resilience and adaptation to climate change.

In the absence of an inclusive and robust governance framework, the main risks include:-

- risks of duplication;
- duplication of effort;
- lack of buy-in from stakeholders;
- lack of coherent action;
- no access to funding.

This framework therefore aims to:

- coordinate climate-related actions across various sectors and decision-making levels;
- ensure accountability and transparency in climate governance;
- promote stakeholder engagement at national, regional and local levels;
- facilitate the mobilisation of resources for mitigation and adaptation measures;
- ensure that national policies are aligned with international climate commitments;
- take into account and make the most of local realities (endogenous knowledge, etc.);
- ensure communication, access to information and climate justice.

5.2. Governance principles

The Climate Agenda governance is based on the following key principles:

5.2.1. Inclusion

Ensuring the active participation of local communities, in particular women, young people, people with disabilities and indigenous peoples, civil society organisations (CSOs), regional and local authorities (RLAs) and the private sector.

5.2.2. Transparency and accountability

Defining the roles and responsibilities of stakeholders and establishing clear monitoring, reporting and verification mechanisms accessible to all in order to guarantee the coherence, effectiveness and compliance of climate policies and actions.

5.2.3. Decentralisation

Defining the roles and responsibilities of regional and local authorities (RLAs) in imple-

menting the climate agenda.

Building the capacity of regional and local authorities in developing, implementing and monitoring climate actions in line with national objectives.

5.2.4. Participation

The principle of participation of all stakeholders at all levels is a key element for the implementation of the National Climate Plan. To this end, it guarantees access to information and prior and effective consultation of all stakeholders before any climate-related decisions affecting them are taken.

5.2.5. Sustainability and equity

Ensuring that climate governance promotes a fair and sustainable transition, protecting the most vulnerable populations and ensuring equitable access to climate financing and resources, while seeking a balance between international commitments and national development priorities.

5.3. Legal and institutional framework

5.3.1. Legal framework

5.3.1.1. International legal framework

Cameroon is a Party to almost all the international conventions on climate, namely:

- The United Nations Framework Convention on Climate Change, signed in Rio de Janeiro in 1992, is the foundation of efforts to combat global warming. It has also been one of the main tools used by the international community to promote sustainable development, ratified in 1994;
- The Kyoto Protocol is an international treaty adopted in 1997. It aims to reduce greenhouse gas emissions in order to combat climate change. Cameroon joined the Protocol in 2002 and has been participating in international climate negotiations ever since;
- The Paris Agreement is a legally binding international treaty on climate change. It was adopted by 196 Parties at the UN Climate Change Conference (COP21) in Paris, France, on 12 December 2015. It entered into force on 4 November 2016. Its overarching goal is to hold "the increase in the global average temperature to well below 2°C above pre-industrial levels" and pursue efforts "to limit the temperature increase to 1.5°C above pre-industrial levels" (Article 2);
- The Montreal Protocol on Substances that Deplete the Ozone Layer, concluded in 1987, is a global agreement to protect the stratospheric ozone layer, ratified in 1989;
- The United Nations Convention to Combat Desertification, adopted in Paris on 17 June 1994, is aimed to promote effective measures through innovative local programmes and international cooperation and partnership arrangements, ratified in

1997;

- The Convention on Biological Diversity was adopted on 5 June 1992, with as goals the conservation of biological diversity, the sustainable use of its components, and the fair and equitable sharing of benefits arising from the use of genetic resources;
- The Stockholm Convention on Persistent Organic Pollutants, signed on 22 May 2001 in Stockholm, is aimed to control, reduce or eliminate discharges, emissions or leaks of persistent organic pollutants, ratified in 2005.

5.3.1.2. National legal framework

a) Constitution

Law No.96-6 of 18 January 1996 to amend the Constitution of 2 June, 1972, although not directly aimed at climate issues, targets the environment as a whole. In other words, the climate issue is implicated in the right to a healthy environment that it enshrines. In addition, the Constitution recognises the supra-legal value of international conventions ratified by Cameroon. As a result, all the international conventions ratified by Cameroon in the area of climate have a legal force superior to laws in the Cameroonian legal system. Combating climate change is therefore part of the Constitution.

The Preamble to the Constitution stipulates that the State shall recognise the right of every person to live in a healthy environment. This stipulation commits the public authorities, civil society organisations, the private sector and individuals as both debtors and creditors of environmental rights, including those relating to climate. As we know, the Preamble, under Section 65 of the Constitution, is part and parcel of the provisions.

"The Constitution also recognises the right of the President of the Republic to ratify international treaties and conventions; as a result of this ratification, Cameroon is bound by the terms of these treaties and conventions which relate to the protection of the environment, biological diversity and climate. Section 26 of the Constitution cites the fundamental rights, guarantees and obligations of the citizen as falling within the domain of the law, to which may be added the regime of natural resources, which may extend to environmental and climate issues. This means that when issues relating to the environment, natural resources and biological diversity are on the table, Parliament can vote on them and the President of the Republic can enact them".

b) Laws

Law No.96/12 of 5 August 1996 relating to environmental management

Although there is currently no specific law on climate, Law No.96/12 of 5 August 1996 governs environmental issues as a whole. Law No.96/12 of 5 August 1996 relating to environmental management, which establishes legal bases for environmental protection and sustainable development, is a genuine environmental charter in Cameroon's legal system. To this end, it makes environmental governance the backbone of environmental protection. It is in this context that Sections 7 and 8 emphasise access to environmental information and the effective participation of stakeholders in environmental decision-making.

Law No. 2011/022 of 14 December 2011 governing the electricity sector in Cameroon

Electricity is one of the strong components of the energy sector. The production of energy affects several aspects of the environment, but its impact on climate can be reduced through the production of renewable energy. This is why Section 63 of this Law lists the types of renewable energy that can be used to contribute to energy efficiency. The following shall be considered as renewable energy:

- solar, thermal and photovoltaic energy;
- wind energy;
- less than or equal to 5MW river hydroelectric energy;
- biomass energy;
- geothermal energy;
- marine energy.

Law No.2024/008 of 24 July 2024 to lay down forestry and wildlife regulations

The importance of forestry in combating climate change is well established. To this end, forests, particularly tropical forests, are in the forefront because of their potential to sequester greenhouse gases (GHGs). The Forestry and Wildlife Law, whose objectives include restoring forest landscapes and reducing the impact of deforestation and degradation, makes a significant contribution to the fight against climate change.

Law No.2019/024 of 24 December 2019 Bill to Institute the General Code of Regional and Local Authorities

It follows the same logic when it sets out in Section 157 the obligation for RLAs to prepare council environmental action plans. The structure of these plans includes the climate dimension in the form of a specific plan.

Law No. 2024/015 of 23 December 2024 governing civil protection in Cameroon

This law contributes to the implementation of the Climate Agenda in that combating climate-related disasters and risks is one of the objectives pursued by the law.

Law No.2011/008 of 6 May 2011 to lay down Guidelines for Territorial Planning and Sustainable Development in Cameroon

It defines the general legal framework of national territorial planning to promote sustainable development. It prescribes a certain number of territorial planning tools, in particular the National Territorial Planning and Sustainable Development Plan (SNADDT), Regional Territorial Planning and Sustainable Development Plans (SRADDT), Local Territorial Planning and Sustainable Development Plans (PLADDT) and the National Territory Zoning Plan (PNZT).

c) Regulatory framework

The weaknesses of the legislative framework relating to the fight against climate change have repercussions on the regulatory framework. The latter suffers from a scattering of rules, some of which are contained in decrees governing structures, and some of which are indirectly conveyed by decrees dealing with the climate issue. However, Order No.002/CAB/MINEPDED of 21 May 2024 establishing, organising and operating the institutional framework for coordinating and monitoring the implementation of the climate agenda in Cameroon is an exception in this respect.

As regards decrees, Decree No.2012/413 of 1 October 2012 to organise the Ministry of Environment, Protection of Nature and Sustainable Development should be mentioned. Article 45 of this Decree entrusts the Department of Conservation and Management of Natural Resources, in particular the Sub-Department of Ecological and Climate Monitoring, with the task of developing, implementing and monitoring climate change programmes, as well as monitoring the activities of the National Observatory on Climate Change.

Decree No.2009/410 of 10 December 2009 on the creation, organisation and functioning of the National Observatory on Climate Change, amended and supplemented by Decree No.2019/026 of 18 January 2018 on the reorganisation of the Observatory: Article 3 of Decree No.2019/026 makes this government establishment responsible for monitoring and assessing the socio-economic and environmental impacts of climate change and proposing measures to prevent, mitigate and/or adapt to the harmful effects and risks associated with these changes.

Decree No.2019/166 of 2 April 2019 to reorganize the Inter-Regional Committee for Drought Control in the North; Article 3 (1) stipulates that one of its missions is to contribute to the fight against climate change.

Order No.002/CAB/MINEPDED of 21 May 2024 establishing, organising and operating the institutional framework for coordinating and monitoring the implementation of the climate agenda in Cameroon is unique in that it addresses the issue of coordinating the monitoring and implementation of the climate action agenda in a holistic manner. To this end, coordination is implemented at the strategic level, in terms of mobilisation and support of stakeholders, mitigation and adaptation measures, financing, research, innovation and communication.

Other regulatory instruments include texts on environmental assessments, in particular Decree No.2013/0171/PM of 14 February 2013 to lay down the methodology for conducting environmental and social impact assessments and Decree No.2013/0172/PM of 14 February 2013 to lay down methodology for conducting environmental and social audit. These instruments make a significant contribution to climate transparency by promoting access to information and the integration of environmental and climate considerations into project development. The procedural emphasis on public consultation and public hearings helps to strengthen public participation.

The same applies to Decree No.2012/2809/PM of 26 September 2012 to lay down conditions for sorting, collecting, transporting, recovering, recycling, treating and final disposing of waste, whose role in combating climate change should not be overlooked.

The implementing instruments for the forestry law are along the same lines. This includes Decree No.95/531/PM of 23 August 1995 laying down the procedure for implementing the forests system. Although not explicit on the issue of climate change, this regulatory instrument details the conditions and procedures for exploiting and managing the country's forest resources. It also opens the door to interesting initiatives in the fight against climate change. These include recent developments in (a) the reporting and monitoring of GHG emissions from forestry activities, (b) the implementation of emission reduction and carbon sequestration projects, and (c) the publication of reports on the climate impact of forestry policies in relation to climate transparency requirements. All this leads to the development of decisions and circulars aimed at field actors.

In the same vein, it is worth mentioning Order No.0086/MINFOF/C2D-PSFE2 of 18 May 2016, on the creation, organisation and functioning of the Operational Unit for Monitoring Forest Cover. The Operational Unit for Monitoring Forest Cover (UOSCF) is responsible in particular for collecting, processing, archiving and making available satellite images and aerial photographs, with the aim of monitoring changes in Cameroon's forest cover in connection with the Reducing Emissions from Deforestation and Forest Degradation (REDD+) mechanism.

5.3.2. Institutional framework

The institutional framework relating to climate in Cameroon is structured around the Government and Regional and Local Authorities

Government

Environment policy has been a cornerstone of Government policy in Cameroon for several decades. The climate issue, which is at the heart of the targeted policy, is given special treatment, as demonstrated by the presence of the Head of State at numerous COPs (Copenhagen, Paris) and climate summits (New York). The President of the Republic is responsible for defining government policy on the environment and sustainable development. Since climate policy is part of this overall policy, it is easy to understand that the definition of the main thrusts of the policy in question falls within the remit of the supreme authority within the State.

Climate policy is implemented by the Government under the coordination of the Prime Minister, who relies on his secular arm, the Ministry of Environment, Protection of Nature and Sustainable Development. This administration is supported in the accomplishment of its climate mission by the administrations concerned by climate in their sector, as well as public establishments.

The Ministry of Environment, Protection of Nature and Sustainable Development

Organised by Decree No.2012/431 of 1 October 2012, this Ministry is a key player in developing and implementing climate policy. Article 45 of this instrument and, more specifically, Article 5 of Order No.002/CAB/MINEPDED of 21 May 2024 on the establishment, organization and functioning of the institutional framework for coordinating and monitoring the implementation of the climate agenda in Cameroon, are edifying on this point. Placed under the authority of the Prime Minister, Head of Government, the Ministry of Environment shall be responsible for the general coordination of the implementation of the climate agenda, which it develops in liaison with ONACC and the administrations and bodies concerned. This coordination is structured around several areas of action. They cover strategic interventions, mobilisation and support for stakeholders, mitigation and adaptation measures, financing, research, innovation and communication. In exercising its prerogatives in this area, it relies on the services of the National Facilitation Committee for Implementing the Climate Agenda in Cameroon. This is the main framework for consultation between the administrations concerned by the climate issue. As such, it issues an opinion on the achievement and monitoring of national climate objectives, as well as on planning documents relating to the fight against climate change. It also provides a framework for the coherence and effectiveness of interventions by the government and technical and financial partners in the prevention and fight against climate change. It serves, inter alia, as an arbitration body for issues relating to the implementation of the Climate Agenda. Thus presented, it is at the heart of the implementation of the Climate Agenda. In addition, the fight against climate change is anchored in Institutional Programme 361 entitled "Combating Desertification and Climate Change".

The other ministries involved include:

- The Ministry of Forestry and Wildlife, because of its responsibility for restoring and monitoring the national forest cover and combating climate change in the forestry sector.
- The Ministry of Agriculture and Rural Development, which is involved in defining and implementing policies to promote climate-smart agriculture and agricultural policies to promote resilience in the face of climate change.
- The Ministry of Livestock, Fisheries and Animal Industries, recognised for its participation in defining and implementing policies in favour of livestock and fisheries systems that are resilient to climate change.
- The Ministry of the Economy, Planning and Regional Development, which defines national policy on land use and the coherence of subsequent uses. It ensures that the challenges of combating climate change and ecological transition are taken into account in regional planning schemes.
- The Ministry of Transport, because of its responsibility for promoting low-carbon modes of transport.
- The Ministry of Mines, Industry and Technological Development, which is responsible for promoting low-carbon technologies.
- The Ministry of Water Resources and Energy, which helps to define and implement

national policy on energy transition and efficiency.

- The Ministry of Territorial Administration, which is responsible for defining national policy on preventing and combating natural risks and disasters.
- The Ministry of Economy and the Ministry of Finance, which are responsible for mobilising finance to combat climate change and for incorporating climate issues into development policies, strategies and programmes.
- The Ministry of Scientific Research and Innovation, which contributes to the definition of policies dedicated to the resilience of societies and environments to climate change.
- The Ministry of External Relations, because of its involvement in international negotiations on climate issues;
- The Ministry of Public Works, whose role is to promote infrastructure that is resilient to the effects of climate change, as well as the use of low-carbon materials in major renovation and construction projects;
- The Ministry of Decentralization and Local Development, which is responsible for mobilising regional and local authorities in the fight against climate change, as well as related development opportunities.
- The Ministry of Trade and the Ministry of Public Contracts, whose role is to define the criteria to be met by displays providing consumers with information on the environmental impact of a good or service.

Public establishments and specialised bodies

- The National Observatory on Climate Change (ONACC)'s duties consist in monitoring and evaluating the socio-economic and environmental impacts of climate change and proposing measures to prevent, alleviate and/or adapt to the adverse effects and hazards related to such changes. It is also responsible for monitoring climate trends, providing meteorological and climatological data to all the relevant sectors of human activity and drawing up Cameroon's annual climate report.
- CILSN: the Interregional Committee for Drought Control in the North is tasked with combating the effects of drought and desertification in its area of competence. It is responsible for carrying out, or having carried out under its own responsibility, all studies and surveys enabling it to present to the Government appropriate measures aimed at combating the effects of drought and desertification; ensuring, in its capacity as Project Manager for the Republic of Cameroon, the management of specific operations to combat drought and desertification, etc. All these activities, due to their importance, contribute significantly to both the reduction of GHG emissions and community resilience to climate change.
- CAA: the Autonomous Sinking Fund is responsible for managing the public loan funds of the State, public and semi-public bodies and its correspondents; providing the Government with the information it needs to formulate the country's debt policy; researching, studying and negotiating the State's external and internal financing, in conjunction with the ministries concerned; participating in the monetary and financial market.
- MINT collaboration platform: a framework for consulting, promoting the exchange

of scientific information, monitoring research activities, training expertise, and transferring research results to decision-makers and civil society carried out in partnership between the parties in the fields of meteorology and climatology.

- Regional and Local Authorities (RLAs): they play a major role in the implementation of the Climate Agenda, in view of their decisive roles, which article 7 of the aforementioned Order No.002/CAB/MINEPDED of 21 May 2024 emphasises the responsibility of Councils and Regions for the adoption of territorial Climate-Air-Energy action plans and regional development schemes, as well as environment action plans. The aim of these plans and schemes is to reduce greenhouse gas emissions, improve energy efficiency and make territories more resilient to climate change.
- FEICOM: The Special Council Support Fund for Mutual Assistance, commonly known as FEICOM, is a financial institution serving Regional and Local Authorities in Cameroon. It plays a crucial role in financing and supporting the development of councils by providing financial and technical resources needed for the implementation of infrastructure projects and essential public services. (FEICOM and CAA have begun the process of becoming a National Implementing Entity of the Green Climate Fund).
- PROLOG: Local Governance and Resilient Communities Project. This project is a funding window through which additional resources are mobilised for the benefit of Regional and Local Authorities (RLAs). This funding window, known as the Performance-Based Grant (PBG), will provide, over a three-year period, a financial envelope to be transferred to eligible RLAs in the form of a Grant, based on the achievement of performance indicators not only in terms of local governance, but also in terms of service delivery to the population.

Identifying legislative and institutional gaps

It follows from the above that the legal and institutional framework suffers from a degree of fragmentation. The implications of this are expressed in terms of gaps, inadequacies and incompleteness at both legislative and institutional levels.

d) In terms of legislation and regulations

- no climate-specific law;
- insufficient regulatory instruments on climate;

Consequently, at sector level, there are:

- undefined climate obligations;
- legal uncertainty and insecurity, instability of legal situations in climate sectors;
- absence of sanctions to punish those responsible for non-compliance with climate commitments;
- inadequate and biased treatment of the climate issue by the structures responsible for applying and enforcing the law (doubts about the relevance of the issue);
- vagueness and nebulousness that disorientate international partners.

Institutional level

- lack of sector-based anchoring;
- low consideration of climate issues by the various sectors;
- conflicts of competence;
- insufficient consultation between sectors and various levels of decision-making;
- private sector actors fail to fully embrace climate issues;
- weak public-private partnership;
- low involvement of CSOs;
- insufficient and ineffective participation of other stakeholders in climate decision-making;
- insufficient communication and access to climate information;
- low consideration of climate risks by stakeholders;
- sector strategies fail to take account of the cost of inaction linked to climate risks;

In terms of funding

- poor predictability of state funding;
- inappropriate treatment of the climate issue by the bodies responsible for preparing the budget;
- complex access to international climate funding.

In terms of research and innovation

- no partnership between sectors and research organisations and researchers;
- poor use of research data (conventional and non-conventional) in the decision-making process;
- poor use of research results;
- inadequate research budgeting;
- data dispersion across various administrations, research institutes, universities, etc.

5.3.3. Consolidating institutional and sector consultation

With a view to implementing the Climate Agenda, the State of Cameroon has undertaken a certain number of reforms legitimised by the need to strengthen MINEPDED's coordination role due to the cross-cutting nature of the issue of climate change and the challenges it entails. To this end, Order No.00002/CAB/MINEPDED of 21 May 2024 was issued. This instrument defines the Ministry's central role as the key authority responsible for coordinating the Climate Agenda. It is supported in this role by the Ministry of Economy and the Ministry of Finance. The instrument also defines the roles and responsibilities of other sector ministries and public agencies in the implementation of the Climate Agenda.

MINEPDED's missions are carried out under the general coordination of the Prime Minister, Head of Government, and are as follows:

- **At strategic level**, they are expressed, inter alia, in terms of defining and implementing sector policies and strategies to combat climate change; developing sector directives for taking climate change into account at the behest of the Ministry in charge of planning and in collaboration with the other administrations concerned.
- **In terms of mobilising** and supporting stakeholders, this includes supporting sector ministries and other stakeholders in the process of integrating climate change into sector, ministerial and thematic strategies; promoting the integration of climate change into sector and local development planning; taking relevant measures after consultation with key stakeholders to ensure coherence of interventions and linking of actions to prevent and combat climate change; and creating and developing synergies between state and non-state actors.
- **In terms of mitigation and adaptation measures**, this involves the development and support for the implementation of GHG emission reduction strategies by all stakeholders, together with a report in compliance with guidelines for NDCs; planning and implementing actions to prevent and adapt to climate change across the country, in conjunction with the Government administrations and bodies concerned, regional and local authorities, economic and social partners and civil society organisations; participating in the management of natural risks and disasters, in conjunction with the national and international administrations and bodies concerned, in particular the Ministry of Territorial Administration.
- **In terms of funding**, these missions involve monitoring activities to mobilise financial resources with a view to implementing the Climate Agenda, in conjunction with the Ministry of Economy and the Ministry of Finance; participating in the evaluation of climate change-related budgetary risks; participating in the identification and analysis of high-impact projects and climate-sensitive public investments, and in the adoption of appropriate measures to promote their resilience.
- **In terms of research**, innovation and communication, these missions aim to encourage the development and funding of scientific and technical research in the field of climate change, the promotion, including at the level of RLAs, of individual and institutional capacity-building, communication, awareness-raising, scientific cooperation, innovation, and the development and transfer of climate change-related technologies.

A National Facilitation Committee was set up to support the overall coordination of the Climate Agenda implementation. The National Facilitation Committee is entrusted with a number of missions, including:

- ensuring the coherence and effectiveness of Government's actions and development partners in preventing and combating climate change;
- issuing an opinion on the implementation and monitoring of national climate objectives and on all planning documents relating to the fight against climate change;
- developing and building the capacity of ministries, public bodies and other stakeholders by pooling knowledge and sharing experience and good practices in relation to climate issues;
- ensuring that the actions of each ministry or competent body are effective and that efforts are complementary;

- exploring sources of innovative financing to use them to adapt to, prevent and combat climate change;
- serving as an arbitration body for issues relating to the implementation of the Climate Agenda.

The Committee shall be composed as follows:

- Chairperson: The Minister of Environment, Protection of Nature and Sustainable Development;
- Vice- Chairs:
- The Minister of Finance;
- The Minister of the Economy, Planning and Regional Development;

Members:

- A Representative of the Presidency of the Republic;
- A Representative of the Prime Minister's Office;
- The Secretary General of the Ministry of Environment, Protection of Nature and Sustainable Development;
- The Secretary General of the Ministry of the Economy, Planning and Regional Development;
- The Secretary General of the Ministry of Finance;
- The Secretary General of the Ministry of Forestry and Wildlife;
- The Secretary General of the Ministry of Agriculture and Rural Development;
- The Secretary General of the Ministry of Water Resources and Energy;
- The Secretary General of the Ministry of Scientific Research and Innovation;
- The Secretary General of the Ministry of Livestock, Fisheries and Animal Industries;
- The Secretary General of the Ministry of Mines, Industry and Technological Development;
- The Secretary General of the Ministry of Decentralisation and Local Development;
- The Secretary General of the Ministry of External Relations;
- The Secretary General of the Ministry of Transport;
- The Secretary General of the Ministry of Public Works;
- The Secretary General of the Ministry of Territorial Administration;
- The Director General of the National Observatory on Climate Change;

Two (2) representatives of regional and local authorities, including one from the Association of United Councils and Cities of Cameroon (UCCC) and one from the Association of Regions of Cameroon;

- A representative of the civil society organisations working to combat climate change;
- Two (2) representatives from the private sector, including one from the Cameroon Business Group and one from the Cameroonian Organisation of Steel Processors.

In order to accomplish its missions, the Committee shall be assisted by a Technical Secretariat placed under the coordination of a Technical Coordinator. The Technical Secretariat

shall be responsible for:

- proposing the agenda for the Committee's proceedings;
- preparing the files to be submitted to the Committee for examination;
- providing technical guidance on mitigation, adaptation and climate finance;
- coordinating sector contributions to the development and implementation of actions under the National Climate Plan (NCP), the Climate Investment Plan and national documents such as Nationally Determined Contributions (NDCs) and the National Climate Change Adaptation Plan (NAPCC);
- monitoring the Committee's deliberations and resolutions;
- proposing to the Committee any measures to consolidate the national position on climate negotiations;
- carrying out any other mission assigned to it by the Committee.

Furthermore, in carrying out its missions, the National Facilitation Committee for implementing the Climate Agenda does not act in isolation. In fact, this body contributes to monitoring the implementation of NDS30 (Figure 21) because of its transversality. The various NDS30 secretariats work together with the technical secretariat for the implementation of the climate agenda in order to pool guidelines and capitalise on the efforts made in the climate field at both national and international level.

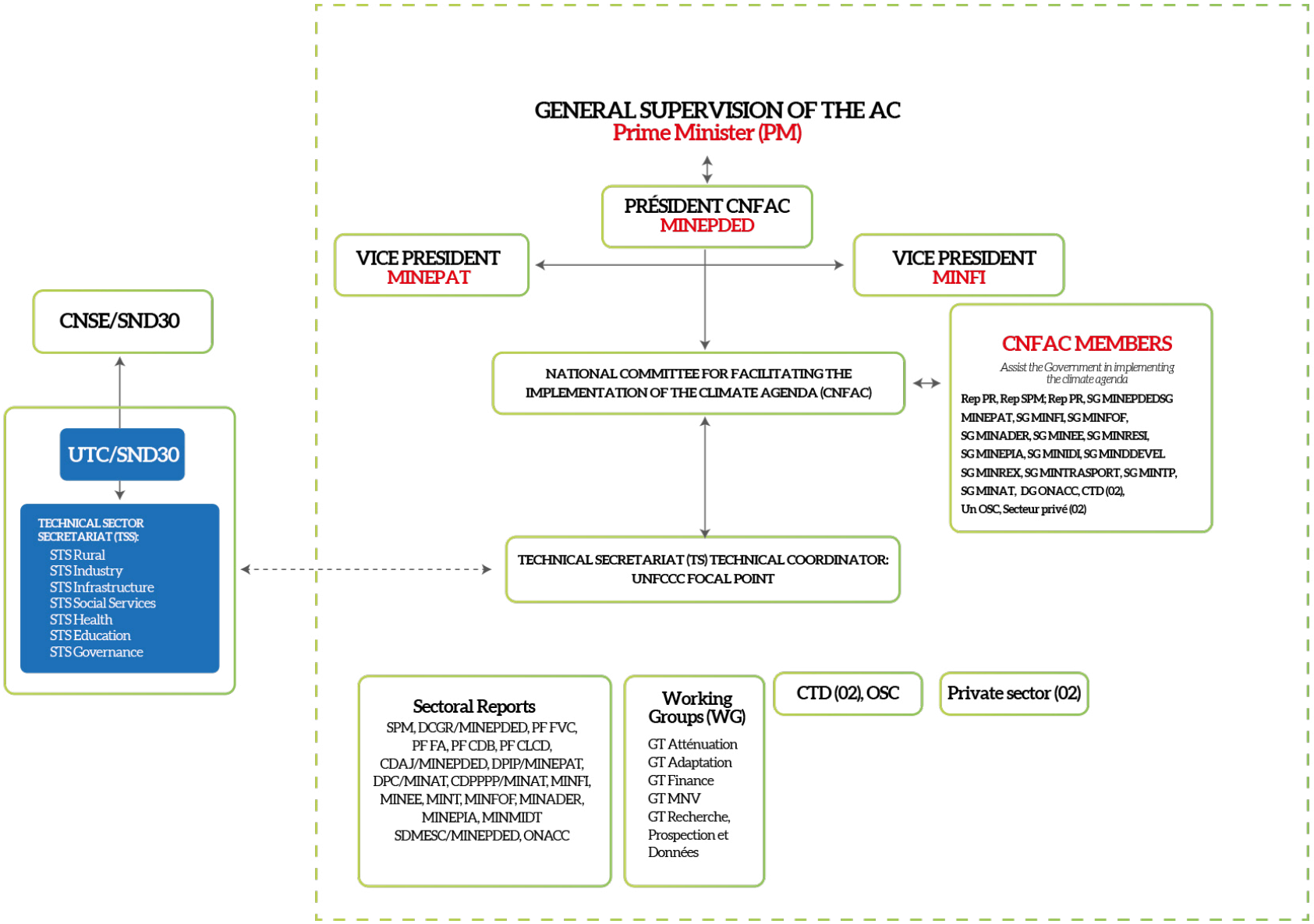


Figure 22:Simplified diagram of the NCP's governance framework and its link with the framework for implementing NDS 30

5.3.4. Involvement of the private sector and civil society organisations

The involvement of the private sector and civil society organisations is crucial to strengthening climate governance. These actors play complementary roles and must, as part of their constitutional responsibility, contribute to the development and implementation of sustainable solutions. To this end, the following points should be noted:

The private sector

The private sector plays a key role in the implementation of climate plans, whether local, national or international. Its involvement is essential to achieving the objectives of reducing greenhouse gas emissions and adapting to climate change. The main contributions of this sector could include:

- Sustainable investing: Companies can direct their investments towards environmentally friendly projects and technologies, promoting a transition to a green economy.
- Innovation, research and climate-friendly entrepreneurship: The private sector, often at the forefront of research and development, can develop innovative solutions to reduce GHG emissions and improve energy efficiency.
- Public-private partnerships: Collaborating with the Government to implement climate initiatives, particularly in the areas of infrastructure, transport and energy.
- Reporting and transparency: Encouraging environmental and social reporting practices to inform stakeholders about the impacts of their activities.

Civil Society Organisations

- Advocacy and awareness-raising: Mobilising public opinion and putting pressure on political decision-makers to adopt climate-friendly policies.
- Participation in consultations: Contributing to decision-making processes by bringing different perspectives and representing communities vulnerable to climate impacts.
- Education and training: Raising community awareness on climate issues and encouraging them to adopt sustainable behaviour.
- Action: Supporting government and the private sector in implementing climate initiatives for communities; developing and implementing climate projects and building community capacity.

Collaboration between the Government, the private sector and civil society (tripartite platform for climate-specific dialogue)

As part of the implementation of the Climate Agenda, actions between the Government, the private sector and civil society should lead to:

- the creation of projects that address specific climate challenges;
- the transfer of knowledge and expertise between economic and social players to enhance the effectiveness and sustainability of actions;
- the support for community initiatives (local projects) aimed at strengthening climate resilience;

- the definition of clear criteria for measuring the contributions of Government, the private sector and civil society organisations to climate governance (transparency and accountability).

5.3.5. Implications of research and promotion of innovation

Research and promotion of innovation play a crucial role in climate governance and the fight against climate change. The main implications of this strand can be summarised as follows:

1- **Innovation and development of sustainable technologies**
   - Renewable energy: Research helps create more efficient solar, wind and other renewable energy solutions, reducing dependence on fossil fuels;
   - Carbon capture technologies: Innovation in carbon capture and storage techniques can significantly reduce industry's GHG emissions.

2- **Climate change adaptation**
   - Producing and disseminating climate information;
   - Resilience research: Developing models to better understand the impacts of climate change on ecosystems and communities, enabling effective adaptation strategies to be put in place;
   - Hazard-resistant crops: Agricultural research can help develop plant varieties that are more resistant to drought, flooding, salinity or disease, guaranteeing food security in a changing climate.

3- **Models and decision-making tools**

- Climate modeling: Research helps create models to predict the long-term effects of climate change, enabling decision-makers to develop policies based on reliable data;
- Risk assessment tools: Developing tools and methodologies to assess the climate and economic risks associated with various mitigation and adaptation options.

4- **Promoting circular economy**
   - Innovations in recycling: Research can lead to more efficient recycling methods, reducing waste and promoting the use of resources in a more sustainable way ;
   - New business practices: Promoting innovative business models that prioritise sustainability, such as renting or sharing resources instead of immediate consumption.

5- **International cooperation and knowledge sharing**
   - Research networks: Facilitating international collaborations between researchers, universities and businesses to share knowledge and innovations on climate solutions;
   - Technology transfer: Ensuring that research results benefit countries, enabling the wider adoption of innovative technologies.

6- **Awareness-raising and education**
   - Educational programmes: Integrating climate change research into school and university curricula, raising the next generation's awareness of environmental challenges;
   - Public awareness: Using research to inform the public about best sustainability practices and to encourage responsible behaviour.

5.3.6. Strengthening international and regional cooperation mechanisms

Isolated action by one country is of little value in the fight against climate change: only concerted action can achieve a significant reduction in greenhouse gas concentrations in the atmosphere. Moreover, the participation of the biggest emitters of greenhouse gases is crucial to the success of any international agreement on the issue. Strengthening international and regional cooperation mechanisms is therefore essential if the climate crisis, which requires concerted efforts on a global scale, is to be tackled.

a) Boosting regional and sub-regional cooperation

- Exchange meetings on climate issues;
- Preparing international meetings so that the region can adopt a position;
- Mastering mechanisms for mobilising funding at regional and sub-regional level.

b) Strengthening international cooperation

Cooperation between partner countries is an essential element in developing concrete financial and digital instruments for the conservation, sustainable management and restoration of their forests, thus linking global finance to local action, while taking into account the priority of adaptation. The establishment of a platform will promote South-South capacity building, knowledge exchange and technical assistance, including collaborative design and testing in three key areas:

- Incentives for forest conservation and restoration: with a focus on the design and implementation of national and decentralised Payments for Environmental Services (PES) schemes;
- Innovations in the bioeconomy: with a focus on promoting a sustainable forest economy at local level and supporting indigenous forest solutions;
- Digital solutions: aiming for transparency, effectiveness and efficiency in the management of forest and land data, the transfer of financial resources and the traceability of goods, in a comprehensive manner, at all levels.

c) International and regional cooperation mechanisms

International and regional cooperation mechanisms in the area of climate change are based on a number of institutional, financial and operational mechanisms that enable administrations, regional and local authorities, the private sector and civil society to pool their efforts in the face of environmental challenges.

The key areas for improving this cooperation include inter alia:

1. Strengthened international agreements

- Financing mechanisms: Seizing the opportunities offered by global climate funds such as the Green Climate Fund, which supports developing countries in their mitigation

and adaptation efforts;

- Clear and binding commitments: Ensuring that commitments made at conferences such as COP (Conference of the Parties) are followed by concrete actions and flexible procedures for accessing finance with robust monitoring mechanisms.

2. Platforms for dialogue and collaboration

- Coalitions and partnerships: Creating international coalitions bringing together countries, businesses and NGOs to share knowledge, technologies and best practices;

- Regional networks: Promoting regional cooperation networks to address common climate challenges (such as disaster risk or water resource management).

3. Sharing technology and expertise

- Technology transfer: Facilitating the transfer of green technologies and sustainable practices between countries;

- Training programmes and capacity building: Setting up training initiatives to enhance and strengthen the skills of local actors in terms of adapting to and mitigating the impact of climate change.

4. Monitoring and evaluation of actions

- Common indicators: Establishing common performance indicators to assess the impact of actions undertaken as part of international and regional cooperation;

- Regular and transparent reporting: Publishing reports on the progress made, thereby improving transparency and accountability to stakeholders.

5. Institutional capacity building

- Supporting RLAs: Supporting RLAs in their institutional capacity building to better manage climate change-related issues;

- Integrating climate issues into development plans: Ensuring that national and regional development policies incorporate climate considerations.

6. Adapting to local needs

- Community-based approaches: Promoting approaches that take account of local needs and knowledge in project design and implementation;

- Regional adaptation plans: Developing adaptation plans specific to regional contexts, taking into account local specificities and vulnerabilities.

CHAPTER VI

MECHANISMS FOR IMPLEMENTING NCP

6- MECHANISMS FOR IMPLEMENTING NCP

For the NCP to be implemented effectively, an institutional framework that is appropriate, operational and suitable for all stakeholders is needed. • organising a high-level lobbying campaigndership for the process through its status as Political and Operational Focal Point for the United Nations Framework Convention on Climate Change (UNFCCC). MINEPDED works under the supervision of the Prime Minister's Office, in close collaboration with the National Assembly and other sector ministries to ensure that adaptation and mitigation are integrated into the country's development strategy.

6.1. Implementation and communication deadlines

The NCP does not define new public policy management methods. Action implementation is the sole responsibility of the institutional structures involved in developing the NCP in compliance with Order No.0002/CAB/MINEPDED of 21 May 2024 establishing, organising and operating the institutional framework for coordinating and monitoring the implementation of the Climate Agenda in Cameroon. The structures responsible for implementing the NCP are sector ministries, agencies and specialised institutions, supervisory bodies or establishments, technical directorates, decentralised and local technical services, etc.

They are responsible for:

- implementing the NCP in compliance with their institutional and regulatory powers and responsibilities;
- arranging the finance needed to implement actions
- defining methods and means of implementing deadlines;
- monitoring and evaluating the results of the actions and preparing the reports to be submitted to the higher authorities responsible for climate change.

The institutional structure for implementing the NCP in Cameroon consists of a decision-making body at national level (the steering committee) and an operational body (NCP National Coordination). The National Coordination is responsible for implementing NCP through its regional and divisional branches. Inter-sector coordination of the implementation of NCP is fundamental to its effective implementation. It would be useful not to create an ad hoc body, but to rely on existing structures. The NCP coordination framework will therefore be based on two existing bodies: (i) the National Facilitation Committee for implementing the Climate Agenda and

(ii) the institutional framework for implementing the NDC and the Paris Agreement on Climate Change.

6.1.1. Communication

NCP successful implementation depends on continuous and active communication, in order to facilitate the acceptability and ownership of NCP's actions by all key stakeholders. Communication on climate policy is overseen by MINEPDED in collaboration with the other sector ministries concerned by NCP's actions. It thus develops a communication plan

that specifies the objectives, the target audience and the means of implementation. Communication must be aimed at all sections of society, national decision-makers, local officials, administrations, businesses, civil society, associations, children and students. Particular attention will be paid to those directly affected by or involved in NCP implementation.

6.1.2. Updating NCP

Due to knowledge development, the evolution of climate change and its impacts, the updating of NCP will follow an appropriate planning process that will take into account the progress made, new issues and challenges in terms of adaptation and mitigation, the socio-economic context, the political environment and both national and international commitments.

The National Facilitation Committee for implementing the Climate Agenda and the Ministry of Environment will determine the modalities for updating NCP by establishing the principle of periodic revision every five (5) years; this will coincide with the end of the first five-year period of the NCP, bearing in mind that the revision will take into account the results obtained by the first NCP, the effectiveness of measures implemented, the variations observed in the initial climate projections and the evolution of the vulnerability of development sectors. This revision also takes into account the mitigation efforts made and the evolution of Cameroon's international commitments (NDC).

6.2. NCP monitoring and evaluation mechanisms

6.2.1. Monitoring and evaluation objectives

NCP monitoring and evaluation plays an important role in the implementation process. It makes it possible to:

- indicate at regular intervals the state of progress of the NCP and provide visibility during its implementation,
- identify the difficulties and barriers encountered in order to remedy the shortcomings, gaps and needs;
- make recommendations aimed at filling gaps, removing barriers and overcoming difficulties in order to ensure the continuity and continued implementation of the NCP.

6.2.2. Monitoring & evaluation actors

In order to guarantee monitoring, each sector in charge of implementing NCP actions must ensure the collection of regular data/information aligned with quantitative and qualitative indicators that should inform periodic reports on the progress of actions and projects/initiatives. This data or information should be sent to the Ministry of Environment, which will summarise it.

Using tools such as the National GHG Emissions Inventory System and the NCP's MRV system, the Ministry of Environment oversees monitoring, centralises information, evaluates indicators and produces regular reports detailing the degree of implementation of actions and their performance. These reports are sent to the National Facilitation Committee for

implementing the Climate Agenda for assessment/validation. In addition to monitoring, the objective evaluation of NCP implementation may be planned and entrusted to an external body not directly involved in the process of developing and implementing NCP.

To this end, the Ministry of Environment leads the monitoring, centralises information, evaluates indicators and produces regular reports detailing the degree of actions implementation and their performance. These reports are forwarded to the National Facilitation Committee for implementing the Climate Agenda, which must be regularly informed of the progress of the actions and, if necessary, take any readjustment or redirection measures required.

The Committee shall decide on the methods (means and deadlines) and tools for monitoring (scorecard outlining the specific objectives, expected outcomes, result and performance indicators). The Committee may decide on the sources and collection of data, the methodology used, identify constraints and the monitoring processes to be put in place. It prepares a report for submission to the Government as part of its duties.

As far as the international community is concerned, the implementation of an MRV system ensures that GHG emission reductions achieved are measured and verified in a fully transparent manner. Such a system also guarantees donors that actions planned in NCP are being carried out properly. Countries wishing to benefit from international financing must be able to plan their financing needs, measure their implementation and compliance with their commitments, assess the associated financial costs, report on and verify the application of standards and good practices through a Measurement, Reporting and Verification (MRV) system. Thus, countries that have put in place a transparent MRV system that is recognised by the international community have more credibility with donors when it comes to attracting funding.

6.3. Capacity building

One of the most urgent and pressing challenges facing the country in fulfilling its reporting obligations under articles and decisions of the Convention and its implementation is the availability of the country's technical capacity in several areas, notably human, institutional, methodological and financial. Capacity building (table 63) is essential to increase the capacity to implement technologies, monitor emissions and calculate emission reductions resulting from policies and measures. Capacity building should therefore focus on increasing the capacity of:

- agencies responsible for data collection to understand data and develop formats that facilitate data collection;
- sectors to develop baselines/reference levels of emissions as a basis for measuring mitigation actions;
- developing functional databases to generate information on GHG emissions, the effects of mitigation actions, donor financial flows and capacity building and technology transfer activities.

NCP implementation will also have to take account of institutional, logistical and human capacity building.

6.3.1. Strengthening/reforming the political, institutional and regulatory framework

- adequate political framework;
- establishing/consolidating the national NDC architecture (including a fund mobilisation unit): actors and responsibilities;
- reforming/strengthening the legal and regulatory framework;
- creating and operating a national climate fund;
- establishing a framework for innovative financing.

6. 3.2. Strengthening governance and improving the business climate

- measures relating to participation or inclusion;
- measures relating to accountability;
- measures relating to transparency;
- measures relating to effectiveness and efficiency in the management of funds;
- general measures relating to improving the business climate.

6.3.3. Capacity-building and project design

- capacity-building in the design, implementation, monitoring and evaluation of projects/programmes eligible for the various funds, and in negotiation skills, in particular through initial and in-service training;
- project and programme designing in line with the requirements of certain targeted donors;
- supporting the private sector in project design;
- creating a bank of projects/programmes.

6.3.4. Improving communication; developing cooperation and partnerships

- developing and implementing an information, communication and lobbying strategy;
- improving/developing collaboration/cooperation with international organisations, NGOs and other TFPs;
- establishing/developing partnerships with the private sector and other resource

providers;

- strengthening collaboration/cooperation at regional level;
- donor round table: organising, holding, monitoring the results and commitment of the round table;
- organising a high-level lobbying campaign.

Table 12: Summary of capacity-building needs

Themes	Capacity building	Nature of capacity building
Strengthening/reforming the political, institutional and regulatory framework	• Reforming/strengthening the political framework; • Establishing/consolidating the national NDC architecture (including a fund mobilisation unit): actors and responsibilities; • Reforming/strengthening the legal and regulatory framework; • Creating and operating a national climate fund; • Establishing a framework for innovative financing.	Technical
Strengthening governance and improving the business climate	• Capacity-building on measures relating to participation or inclusion; • Capacity-building on accountability measures; • Capacity building on transparency measures; • Capacity building on measures related to effectiveness and efficiency in the management of funds; • Capacity building on general measures related to improving the business climate.	Technical
Capacity-building and project design	• Capacity-building in the design, implementation, monitoring and evaluation of projects/programmes eligible for the various funds, and in negotiation skills, in particular through initial and in-service training; • Capacity-building in the design of projects and programmes in line with the requirements of certain targeted donors; • Capacity-building in supporting the private sector in project design; • Capacity-building in creating a bank of projects/programmes.	Technical

Improving communication; developing cooperation and partnerships;	· Developing and implementing an information, communication and lobbying strategy; · Improving/developing collaboration/cooperation with international organisations, NGOs and other TFPs; · Developing partnerships with the private sector and other resource providers; · Strengthening collaboration/cooperation at regional level; • Holding donor round tables: organising, holding, monitoring the results and commitment of the round table; · Organising a high-level lobbying campaign;	Technical
Knowledge of basic climate change concepts	Basic concepts and legal framework	Technical
Climate change integration and planning	Climate change integration in sector planning	Technical
	Climate change integration in local planning tools	Technical
Implementing climate commitments	Workshop on designing a bankable climate project	Technical
	Mechanism for financing a climate project	Technical
Managing thematic working groups on climate and sector units	Capacity to work in synergy in multi-sector and multi-actor projects	Technical

Database, research, monitoring and evaluation of NDC and climate processes	Systems for monitoring and evaluating mitigation and adaptation measures and financial flows for climate	Technical
	Gender integration in climate project monitoring	Technical
Smart and low-carbon agriculture (SCA)	- Pyrolysis of agricultural residues (biochar, biogas, biofuel); - Climate monitoring and early warning system; - Promoting pastoral hydraulics and silage; - Organic agriculture; - Producing and promoting biofertilizers; - Methanisation of manure.	Technological
Renewable energy	- Promoting solar PV; - Promoting small and micro hydroelectricity; - Technological capacity for sustainable production of sustainable light bulbs.	Technological

RÉFÉRENCES BIBLIOGRAPHIQUES

AfDB. (2018) - Climate Risk Vulnerability Assessment, Project No. 50163-003. https://www.adb.org/sites/default/files/linked documents/50161-003-sd-07.pdf

Banque mondiale (2017) - Changement climatique et Gestion des risques de catastrophe au Cameroun, Washington, 69 p.

FAO. (2021) - Making climate-sensitive investments in agriculture – Approaches, tools and selected experiences. Rome, 201 p. https://doi.org/10.4060/cb1067en.

Federal Ministry of Environment Nigeria (2021) - National Climate Change Policy for Nigeria 2021 – 2030; Abuja, 47p.

GIEC (2021) - Changements climatiques (2021) - Les éléments scientifiques. Contribution du Groupe de travail I au sixième Rapport d'évaluation du Groupe d'experts intergouvernemental sur l'évolution du climat. Édit. Cambridge University Press (GB), 289 p. https://doi.org/10.1016/j.heliyon.2024.e34832

Institut National de la Statistique (INS) et ICF. International. (2012). *Enquête Démographique et de Santé et à Indicateurs Multiples du Cameroun 2011*. Calverton, Maryland, USA : INS et ICF International, 546p.

IRAD, (2000). Les cinq (5) Zones agroécologiques du Cameroun. http://www.camagro.cm/index.php?id=55

Liénou, G., Mahe, G., Paturel, J.E., Servat, E., Sighomnou, D., Ekodeck, G.E., Dezetter, A. & Dieulin, C., (2008). Evolution des régimes hydrologiques en région équatoriale camerounaise : un impact de la variabilité climatique en Afrique équatoriale ?

Martin, D., (1961). *Carte pédologique du Nord-Cameroun au 1/100000, feuille de Mora*. Paris, Orstom, 100 p.

Martin, D., (1966). Etudes pédologiques dans le Centre Cameroun (Nanga-Eboko) Mémoire ORSTOM, Paris, pp. 19-91

MINEPAT (2021). Rapport sur la situation de l'occupation du territoire national

MINEPDED (2024). *Premier Rapport Biennal Actualisé*. 209 p.

MINEPDED (2015). *Plan National d'Adaptation Aux Changements Climatiques du Cameroun*. 154p.

MINEPDED. (2015). *Second National Communication on Climat Change*. 35p.

MINEPDED. (2021). *Contribution Déterminée au niveau National-actualisée*. 58p.

MINEPDED. (2021). *Étude sur la vulnérabilité et l'adaptation du Cameroun aux changements climatiques dans le cadre de la TCN et BUR1. 453p.*

MINEPDED (2015a). *Plan national d'adaptation aux changements climatiques du Cameroun*, Yaoundé, 153p.

MINEPDED (2015b). *Le Plan National d'investissement pour l'Adaptation au Changement climatique* (PNIACC), Yaoundé, 83p.

MINSANTE (2016b). *Stratégie sectorielle de Santé (2016-2027).* Yaoundé, 200p

MINSANTE, (2019). *Plan Stratégique national de Santé numérique (2020-2024).* Yaoundé, 73p.

MINSANTE, (2016a). *Plan national de développement sanitaire (PNDS-2016-2020).* Yaoundé 125p.

Morin, S. & Pahaï, J., (1986). La catastrophe de Nyos (Cameroun). *Revue Géog. Cameroun*, 6, 81-85.

Muller, J.P., (1978). La séquence verticale d'organisation des horizons meubles des sols ferrallitiques camerounais Variation en latitude en fonction du pédoclimat et de l'âge des sols. *Cah. ORSTOM, sér. Pédol.*, 16 (1), 73-82.

Olivry, J.C., (1986). *Fleuves et rivières du Cameroun*. MESRES-ORSTOM. Paris, ORSTOM, coll. Monographies hydrologiques n° 9, 733 p.

Roose, E. & Barthès, B., (2006). Soil carbon erosion and its selectivity at the plot scale in tropical and Mediterranean regions. In «*Soil erosion and carbon dynamics*», E.

Royaume du Maroc (2020) – Plan Climat National à l'horizon 2030. Secrétariat d'Etat auprès du Ministre de l'Energie, des Mines et du Développement Durable, chargé du Développement Durable, Rabat, 94 p.

Seignobos, C. & Iyebi-Mandjeck, O., (2000). Atlas de la Province de l'Extrême-Nord Cameroun. ORSTOM, Paris, 172p.

Tchawa, P. (2012) - Le Cameroun : une « Afrique en miniature » ? Les Cahiers D'Outre-Mer, Bordeaux, p. 319-338. https://doi.org/10.4000/com.6640.

Tchindjang, M., (2012). *Paradoxes et risques dans les Hautes terres camerounaises. Multifonctionnalité naturelle et sous valorisation humaine*, Mémoire d'HDR, Vol.3, Université Paris Diderot Paris7, 266p.

Tchindjang, M., (2013a). Mapping of natural hazards in Cameroon. Proceedings of the *2th^e International Cartographic Conference* (Dresde, Germany), M.F.Buchroithner Édit. ICC, 13 p.

UNICEF (2019) - Enjeux nationaux et sectoriels des changements climatiques pour un accès durable des enfants à leurs droits fondamentaux au Cameroun : Analyse Stratégique, Yaoundé, 47P.

Wakponou, A., (2004). Dynamique géomorphologique des basses terres soudano - sahéliennes dans l'Extrême – Nord – Cameroun. Thèse, Université de Reims Champagne – Ardenne, UFR Lettres et Sciences Humaines, 240p.

World Bank (2023) Climate Resilient Investment in Sub-Saharan Africa, Compendium Volume – A Focus on Infrastructure Project Design in Key Sectors, Washington, 455p.

Zakari (2021). L'élevage au Cameroun. http://ccere-cameroun.com/lelevageau-cameroun/ consulté le 21 septembre 2021

MINEPDED

MINISTRY OF ENVIRONMENT, PROTECTION OF NATURE
AND SUSTAINABLE DEVELOPMENT

Design & Print : **LeDesigner & Company**
Yaoundé - Cameroon / +237 690 96 76 66 - 676 46 31 46