

ADVOCACY ITEM (IV): CLIMATE POLICY

GOVERNMENT ACTION FOLLOWING IPA ADVOCACY ON CLIMATE POLICY REFORM

Title: From Investor Dialogue to Climate Policy Adoption: Establishing Climate Governance Structures in Zamfara State

Background

Zamfara State's journey toward climate resilience began with a strategic engagement between the **Zamfara State Investment Promotion Agency (ZIPA)** and **GreenPAD Enterprise**, an international sustainability advisory firm. On **2nd April 2024**, a virtual meeting was convened, bringing together key stakeholders from the Ministry of Environment, ZIPA, and the Zamfara Development Management Board.

During this meeting, GreenPAD presented a proposal for transitioning Zamfara to a **low carbon economy**, integrating ESG innovation systems, and establishing a **Green Economic Zone (GEZ)**. The discussion revealed a critical gap: the absence of formal climate governance structures to support sustainable investment and policy coherence.

Advocacy Actions by ZIPA

ZIPA took decisive steps to translate investor feedback into institutional reform:

1. **Stakeholder Engagement:** Coordinated the virtual meeting with GreenPAD and key government actors to surface climate-related investment barriers.
2. **Feedback Consolidation:** Documented investor recommendations and identified the need for a climate policy framework.
3. **Formal Advocacy:** Submitted a memo to the State Executive Council recommending:
 - a. Creation of a **Climate Change Committee**
 - b. Establishment of a **Climate Change Department** under the Ministry of Environment and Forestry
 - c. Appointment of a **Special Adviser on Climate Change**
4. **Policy Formulation Support:** Collaborated with the newly formed committee to initiate drafting of the **Zamfara State Climate Change Policy Framework**

Government Response

The Zamfara State Government responded with a series of institutional reforms:

- i. **Climate Change Committee Established:** Tasked with developing the state's climate policy and coordinating inter-agency efforts
- ii. **Climate Change Department Created:** Housed under the Ministry of Environment and Forestry to serve as the operational hub for climate initiatives
- iii. **Special Adviser Appointed:** His Excellency, the Governor, appointed a Special Adviser on Climate Change to provide strategic leadership
- iv. **Climate Change Policy Framework Adopted:** The committee finalized and submitted the policy, which was formally adopted by the State Executive Council

Impact on Investment Ecosystem

These reforms have transformed Zamfara's investment narrative:

- i. Positioned Zamfara as a credible destination for **green and ESG-aligned investments**
- ii. Improved coordination between government and private sector on climate-sensitive projects
- iii. Enhanced Zamfara's visibility in global climate finance and sustainability networks

Supporting Evidence

DOCUMENT	DESCRIPTION
Meeting Minutes	Virtual meeting with GreenPAD Enterprise (2 April 2024)
Advocacy Memo	ZIPA's formal recommendation to establish climate governance structures
Formulation of Committee	Membership Committee Letter
Government Circular	Announcement of Climate Change Department under Ministry of Environment
Announcement of an Appointment	Governor's appointment of Special Adviser on Climate Change
Policy Framework Document	Finalized Zamfara State Climate Change Policy Framework

MINUTES OF VIRTUAL MEETING BETWEEN ZIPA AND GREENPAD ENTERPRISE INTERNATIONAL HOUSE, 36-38 CORNHILL, LONDON

Date: Tuesday, 2nd April 2024.

Participants

1. Honorable Commissioner, Ministry of Environment
2. Director General, ZIPA
3. Permanent Secretary, Ministry of Environment
4. Director, Climate Change, Ministry of Environment
5. Director, Corporate Communication, ZIPA
6. DAS, ZIPA
7. Executive Secretary, Zamfara Development Management Board
8. Mr. Zaks Ajia, GreenPAD Enterprise
9. Umar Abdullahi

Agenda

1. Welcome and Introductions
2. Presentation BY Greenpad enterprise
3. Q&A and Discussion
4. Wrap-up and Next Steps

1. Welcome and Introductions

The meeting commenced with a welcome address delivered by the Director General of ZIPA. This was followed by introductions of all participants, during which each attendee briefly stated their role and affiliation.

2. Presentation on Green pad Project/Opportunity

Mr. Zaks of GreenPAD Enterprise delivered a detailed presentation outlining GreenPAD's project's opportunities. Key points included:

- I. The integration of Environmental, Social and Governance (ESG) Innovation system and Technologies into Zamfara state value chain and wealth creation the project/opportunity presented by GreenPAD].
- II. Potential benefits for collaboration and sustainability initiatives. That included opportunity to be exploited, environmental impact to be created from the opportunity, social impact financial impact and governance impact to be created from the opportunity.

3. Presentation on Green Economic Zone and Zamfara Economic Opportunities

The Director General of ZIPA and representatives from the Ministry of Environment gave an insightful presentation on:

- I. The proposed Green Economic Zone initiative.
- II. Investment opportunities in Zamfara State, particularly in environmentally sustainable sectors.
- III. Strategic advantages of Zamfara State for green business ventures.

4. Q&A and Discussion

A robust discussion followed the presentations. The main points addressed included:

- I. Clarifications on potential collaboration frameworks.
- II. Key challenges and opportunities for investment in the green sector.
- III. Mutual expectations and potential areas for partnership between Zamfara State and GreenPAD Enterprise.

5. Wrap-up, Resolution, and Next Steps

Resolution:

It was resolved that GreenPAD Enterprise will provide the following:

1. **Written Details of the Project** - Comprehensive information outlining the scope, objectives, and benefits of the project.

2. **Company Profile** - An overview of GreenPAD Enterprise, including relevant experience and expertise.
3. **Agreement Proposal** - A draft proposal outlining terms of collaboration.
4. **Project Schedule** - A timeline specifying the phases and milestones for project implementation.
5. **The committee noted the need State Government to set-up committee on Climate Change while the Ministry to look into the possibility of creating Climate Change Department.**

Next Steps:

1. GreenPAD to submit the required documents on detailed technical proposal on low carbon initiative
2. ZIPA and the Ministry of Environment to review the documents and schedule a follow-up meeting within the next four weeks.
3. Designated contact persons to ensure smooth communication and progress tracking.

Meeting Adjourned at 12:47pm

Minutes Prepared By: Umar Muhammad Dir Corp Comm & Strategy ZIPA



KATSINA STATE INVESTMENT PROMOTION AGENCY

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Our Ref: _____

Your Ref: _____

Date: 3rd April, 2024

Honourable Commissioner
Ministry Environment and Forestry,
IBB way, Kano/Katsina Road
Katsina State.

RECOMMENDATION FOR THE ESTABLISHMENT OF CLIMATE GOVERNANCE STRUCTURES IN KATSINA STATE

Background

In line with Katsina State's commitment to sustainable development and the objectives of the SABER 2024 reform program, the Katsina State Investment Promotion Agency (KIPA) has engaged with key stakeholders, including GreenPAD Enterprise, to explore pathways for transitioning the state to a low-carbon economy. These engagements have revealed the urgent need for institutional frameworks to support climate-related investment and policy coherence.

Recommendation

KIPA hereby recommends the following actions to strengthen climate governance and enhance the state's investment climate:

1. **Establishment of a Climate Change Committee**
 - a. Mandated to develop a comprehensive Climate Change Policy for Katsina State
 - b. Composed of representatives from relevant MDAs, private sector, and civil society

2. Creation of a Climate Change Department

- a. To be housed under the Ministry of Environment and Forestry
- b. Responsible for coordinating climate-related programs, data management, and policy implementation

3. Appointment of a Special Adviser on Climate Change

- a. To provide strategic leadership and ensure executive-level commitment to climate initiatives
- b. To serve as liaison between the state government, investors, and development partners

4. Justification

These recommendations are based on:

- i. Feedback from international and domestic investors seeking Environmental, Social and Governance (ESG) in line with investment opportunities
- ii. The need to position Katsina State as a competitive destination for green investment
- iii. Alignment with national and global climate targets, including Nigeria's Energy Transition Plan and SDG 13

5. Expected Outcomes

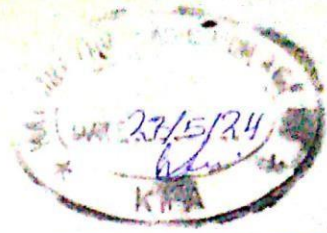
- i. Improved investor confidence and increased Foreign Direct Investment (FDI) in sustainable sectors
- ii. Enhanced policy coordination and transparency
- iii. Strengthened capacity to attract climate finance and technical assistance

6. Conclusion

KIPA respectfully submits this memo for consideration and action by the State Ministry. We remain committed to supporting the implementation of these reforms and coordinating with relevant stakeholders to ensure their success.



Ibrahim Tukur Jikamshi
Director General



49

KATSINA STATE GOVERNMENT

MINISTRY OF ENVIRONMENT

KAZP/EEC OFFICE COMPLEX, IBB WAY, (KANO ROAD), KATSINA.

Our Ref. KTS/MOENV/DCC/342/1/51 Your Ref: _____

Date: 27th May, 2024

The Director General,
Katsina State Investment Promotion Agency (KIPA),
Katsina.

ESTABLISHMENT OF KATSINA STATE CLIMATE CHANGE GOVERNANCE

This is to convey the approval of His Excellency, The Governor, Dr. Dikko Umar Radda, No. S/GH/KT/363/XI/111 dated 18th April, 2024, for the establishment of the Climate Change Governance in the state, as follows:

- i. Katsina State Council on Climate Change, with His Excellency as the Chairman, the Honourable Commissioner, Ministry of Environment as the Vice Chairman with some ten relevant Honourable Commissioners as members.
- ii. Katsina State Technical Committee on Climate Change, with the Honourable Commissioner, Ministry of Environment as the Chairman and the State Climate Change Consultant and Envoy as the Co-chairman. The Permanent Secretaries of the eleven relevant ministries are members. The Director General, Katsina State Investment Promotion Agency (KIPA) has been co-opted as a member.
- iii. Katsina State Forum on Climate Change, with the Honourable Commissioner, Ministry of Environment as the Chairman and the Permanent Secretary, Ministry of Environment as the Vice Chairman. The Katsina State Investment Promotion Agency (KIPA), as a member, is expected to delegate one of its Directors to serve as a permanent member of the forum.
- iv. Katsina State Climate Change Secretariat, domiciled in the Ministry of Environment and headed by the Director Climate Change.

2. You are hereby informed that the State Council on Climate Change had its first meeting and was inaugurated by His Excellency, The Governor, on 21st May, 2024.

3. While congratulating you for the membership and wishing to sustain the fruitful engagements, accept the assurance of my esteemed regards, please.

Hon. Musa Adamu Funtua
(Honourable Commissioner)

Musa Adamu Funtua
27/05/24

Umar ^B
Represent the Agency
as contain in Paragraph 111
pls *[Signature]*
27/05/24

"Home of Heritage and Hospitality"

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KATSINA STATE GOVERNMENT

MINISTRY OF ENVIRONMENT

JB YAKUBU SECRETARIAT, GUSAU, ZAMFARA STATE

3rd April, 2024

CIRCULAR

ESTABLISHMENT OF THE CLIMATE CHANGE DEPARTMENT UNDER THE MINISTRY OF ENVIRONMENT AND FORESTRY

In keeping with our collective commitment to building a more sustainable and resilient Zamfara State, His Excellency, Dauda Lawal the Executive Governor, has graciously approved the creation of a dedicated **Climate Change Department** within the Ministry of Environment and Forestry. This important step reflects our determination to align Zamfara with both national priorities and global climate goals, while opening new doors for investment, innovation, and partnerships that will secure a greener future for our people.

This decision comes after careful consultations with stakeholders, development partners, and private sector representatives, as well as strong recommendations from the Zamfara State Investment Promotion Agency (ZIPA).

Mandate of the Climate Change Department

The Department is expected to:

1. Develop and implement clear climate change policies and strategies for Zamfara State.
2. Coordinate climate-related programmes and projects across all Ministries, Departments, and Agencies (MDAs).
3. Work with investors and development partners to attract climate finance and drive ESG-aligned initiatives.
4. Monitor and report on climate indicators, ensuring that progress is measured and transparent.
5. Support Zamfara's transition towards a low-carbon economy.

Administrative Structure

- i. The Department will function under the supervision of the Honorable Commissioner for Environment and Forestry.
- ii. A Director of Climate Change will be appointed to lead the technical operations of the Department.
- iii. The Department will also work closely with ZIPA and other relevant institutions to deliver on its mandate.

Effective Date

This circular takes effect immediately. All MDAs are hereby directed to extend full cooperation to the newly created Climate Change Department to ensure the successful implementation of this vision. Together, we are laying the foundation for a greener, safer, and more prosperous Zamfara State.



HON. KASIMU SANI KAURA
(HONOURABLE COMMISSIONER)

“Home of Heritage and Hospitality”

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Table of Contents

PREFACE	13
ACKNOWLEDGEMENT	13
ACRONYMS	14
EXECUTIVE SUMMARY	16
SECTION 1: INTRODUCTION AND PURPOSE OF THE POLICY	18
1.0 Geographical Location of Zamfara State	19
1.1 The Policy Environment and Approach	19
1.2 Socio-economic Context and Risks	19
1.3 The State Climate Change Context	21
1.4 Vulnerability Context	23
1.5 The Policy and Climate Context and Approach	23
1.6 Climate Change Projections for Zamfara state	24
1.7 Linkage with other policies and strategies.....	26
1.8 The mandate for this Policy	26
1.9 Alignment with Nigeria’s Nationally Determined Contributions..	27
1.10 Institutional Framework/Responsibilities.	28
1.11 A Climate Resilient State (Commitment/Pathway).....	28
SECTION 2: POLICY VISION, GOAL, MISSION & GUIDING PRINCIPLES	29
2.0 POLICY VISION	29
2.1 OVERALL POLICY GOAL	30
2.2 OVERALL POLICY MISSION	30
2.3 GUIDING PRINCIPLES.....	30
2.4 Policy Pillar Outcomes.....	30
SECTION 3: PRIORITY AREAS FOR THE POLICY	32
3.0 Climate Change Adaptation	32
3.1 Climate change mitigation	32

3.3	Disaster Risk Management	33
3.4	Law Enforcement	33
3.5	Education, Capacity Building, and Awareness Creation	33
3.6	Research and Climatic Observation	34
3.7	Climate Change Financing	34
3.8	Cross-cutting issues	35
SECTION 4: POLICY DIRECTIVES		35
4.1	Implementation Arrangements	35
4.2	Roles and Responsibilities of stakeholders	37
4.3	Members of the State Council on Climate Change	38
4.4	Members of the State Technical Committee on Climate Change	38
4.5	Members of the State Forum on Climate Change	39
4.6	Zamfara State Council on Climate Change	40
4.7	Role of SCCC	41
4.8	Composition of SCCC	41
4.9	Zamfara State Technical Committee on Climate Change	41
4.10	Role of STCCC	41
4.11	Composition of STCCC	42
4.12	Zamfara State Forum on Climate Change	42
4.13	Role of SFCC	42
4.14	Composition of SFCC	43
4.15	Climate Change Secretariat	43
4.16	Role of Secretariat	44
4.17	Composition of the Secretariat	44
4.18	The Role of the General Public	44
4.19	The Role of the Private Sector	44
4.20	Role of Academia/Training Institutions	45
4.20	The Role of Development Partners	45
4.21	Role of LGA/Communities	45
4.22	Implementation, Monitoring, and Evaluation Strategy	45
SECTION 5: THE WAY FORWARD—FROM POLICY TO ACTION		47
5.0	Plan of Action (Table 3-10)	47
TABLE-3:	“CLIMATE CHANGE ADAPTATION” PLAN OF ACTION	48
TABLE-4:	“CLIMATE CHANGE MITIGATION” PLAN OF ACTION	50
TABLE-5:	“DISASTER RISK MANAGEMENT” PLAN OF ACTION	53
TABLE-6:	“LAW ENFORCEMENT” PLAN OF ACTION	55
TABLE-7:	“CAPACITY BUILDING, EDUCATION AND AWARENESS” PLAN OF ACTION	57
TABLE-8:	“RESEARCH AND CLIMATIC OBSERVATIONS” PLAN OF ACTION	59
TABLE-9:	“CLIMATE CHANGE FINANCING” PLAN OF ACTION	60
TABLE-10:	“CROSS-CUTTING” PLAN OF ACTION	61

5.3 Resource Mobilisation Framework	64
REFERENCES: AND FURTHER READING	65
ANNEX: SECTOR BACKGROUND SUMMARIES/IMPACT ASSESSMENTS.	66
6.1 Impact of climate change on Agriculture	66
<u>6.2 Impact</u> of climate change on Human settlement & Housing	68
6.3 Impact of of climate change on Human settlement & Housing	68
6.4 Impact of climate change on Water resources & Aquaculture	69
6.5 Impact of climate change on Climate change on Forestry and Biodiversity.....	70
6.6 Impact of climate change on Security	71
6.7 Impact of climate change on Tourism/ Migration	73
6.8 Impact of Climate Change on Education	74
6.9 Impacts of climate change on Health.....	74

PREFACE

It is with great honour and a deep sense of responsibility that I present the Zamfara State Climate Change Policy, a comprehensive document outlining our vision and commitment to addressing the multifaceted challenges posed by climate change. As the Governor of Zamfara State, I am keenly aware of the profound impact that climate change has had on our environment, economy, and the lives of our people. It is imperative that we not only recognize the gravity of the situation but also take proactive steps to mitigate its effects, adapt to its changing realities, and build a resilient future for our state.

Zamfara State, like many regions across Africa, is highly vulnerable to the devastating consequences of climate change. Our landscape, once rich with fertile soil and abundant natural resources, now faces increasing desertification, soil degradation, water scarcity, and unpredictable weather patterns. These challenges are exacerbated by rapid population growth, overgrazing, deforestation, and the conflicts arising from the scarcity of resources. Agriculture, the backbone of our economy, has been severely affected, leading to food insecurity, loss of livelihoods, and displacement of communities. The cascading effects of these environmental stresses have contributed to heightened poverty, unemployment, and social unrest, particularly among vulnerable groups. Recognizing these challenges, the government of Zamfara State has prioritized eight complementary pillars that form the core of our Climate Change Policy. These pillars are Climate Change Adaptation, Mitigation, Disaster Risk Management, Law Enforcement, Capacity Building, Education & Awareness Creation, Research and Climatic Observation, Climate Change Financing, and Cross-Cutting Issues which serve as a roadmap for the sustainable development of our state in the face of climate change.

We acknowledge the urgent need for collaboration and partnerships in addressing the climate crisis. The state is open to engaging with local and international stakeholders, experts, and investors to foster innovation, share knowledge, and implement practical solutions that can enhance our climate resilience. Through sustainable agriculture initiatives, clean energy projects, reforestation, and water conservation programs, we aim to build a more sustainable and self-sufficient Zamfara. Our goal is to transform the challenges posed by climate change into opportunities for growth, job creation, and improved quality of life for our people. This policy document is not just a call to action but an invitation to all climate change stakeholders both governments, organizations, investors, and individuals who can join us in this vital endeavour.

Together, we can create a future where Zamfara State, and indeed all of Nigeria, thrives in harmony with its environment, equipped to face the challenges of the 21st century.

As we embark on this journey, we remain committed to fostering transparent governance, enhancing community engagement, and ensuring that the benefits of climate action reach every corner of our state. Let this policy serve as a testament to our determination to not only address the pressing climate challenges but also to create lasting change that will resonate for generations to come. Thank you for your attention, support, and partnership. Together, we can turn the tide on climate change and secure a prosperous, sustainable future for all.

His Excellency, The Governor of Zamfara State

ACKNOWLEDGEMENT

ACRONYMS

ARCeSAL Agro climate Resilience in Semi-Arid Land scape

BAU Business as usual

BNRCC Building Nigeria's Response to Climate Change Project

BUR Biennial Update Report

CAP Climate Action Plan

CBO Community-based organisation

COP Conference of Parties (to the UNFCCC)

CRA Climate risk assessment

CSO Civil society organisation

CNG Compressed Natural Gas

DCC Department of Climate Change

FAO Food and Agricultural Organization

GCF Green Climate Fund

GDP Gross domestic product

GHG Greenhouse gas

GPC Global Protocol for Community-Scale Greenhouse Gas Emission Inventories

INGO Intergovernmental organisation

NDC Nationally Determined Contribution

IFAD International Fund for Agricultural Development

ZASEPA Zamfara State Environmental Protection Agency

ZASME Zamfara state Ministry of Environment

ZTDMB Zamfara State Dev. Management Board

ZSTCCC Zamfara State Technical Committee on Climate Change

ZSFCC Zamfara State Forum on Climate Change

ZAIPC Zamfara Investment Promotion Agency

ZASURA Zamfara State Urban Renewal Agency

ZAWMA Zamfara State Waste Management Agency

LGA Local Government Authority

LCDA Local Council Development Area

ZSREB Zamfara State Rural Electricity Board

ZASEDA Zamfara State Enterprise Develop. Agency
ZSCCP Zamfara State Climate Change Policy
ZSWAMO Zamfara State Wastewater Management Office
MDA Ministry, Department & Agency
MEMR Ministry of Energy and Mineral Resources
MER Monitoring, evaluation & reporting
MoE&WR Ministry of the Environment & Water Resources
MoH Ministry of Housing
MoT Ministry of Transportation
MPP&UD Ministry of Physical Planning & Urban Development
MRV Monitoring, reporting and verification
NDC Nationally Determined Contribution
NGO Non-governmental organisation
NREEEP National Renewable Energy and Energy Efficiency Policy
NEWMAP Nigeria Erosion Water Shed Management Project
OECD Organisation for Economic Co-operation and Development
PPP Public-private partnership
PSP Private Sector Participants
SEP Stakeholder Engagement Plan
SDGs Sustainable Development Goals
SCCC State Council on Climate Change
ULEV Ultra-low emission vehicle
UNDP United Nations Development Program
UNICEF United Nations Children’s Fund
UNWomen United Nations Entity of Gender Equality and Women’s Empowerment
UNIDO United Nations Industrial Development organization
UNFCCC United Nations Framework Convention on Climate Change

EXECUTIVE SUMMARY

Zamfara State Climate Change Policy (ZSCCP) is a five-year policy (2025-2030) that incorporates emerging issues and guides future programming of interventions for the reduction of greenhouse gas emissions in the atmosphere, as well as adapting to adverse effects of climate change and climate variability for the next five years. The development of the policy was guided by a multisectorial and a multi-disciplinary technical committee drawn from the respective MDAs, including developing partners, CSOs and the Academia. This policy is therefore in tandem with state aspirations, as well as national, regional, and international obligations. The policy will guide and coordinate the implementation of relevant provisions in the Zamfara State Development Plan (2024-2043) and other relevant state plans, closely aligned with the National Policy on Climate Change (2021-2030) and Nigeria’s Nationally Determined Contributions obligation (2021), which reflect Nigeria’s commitment to the following international treaties, i.e., the United Nations Framework Convention on Climate Change (UNFCCC), the Kyoto Protocol, the Paris Agreement, including the Sustainable Development Goals (SDGs). The policy sets out the approaches and principles that will underpin how the policy is to be implemented. It also sets out the institutional arrangements that will guide the formulation and coordination of efforts to implement the policy and thus steer the state process over the long term. It also proposes some initial efforts for

accelerating the policy implementation process, including a set of plans of action with corresponding performance indicators and estimated budgets.

There is convincing evidence of climate change in Zamfara state, i.e., increasing temperatures; rainfall variability, including unpredictable extreme events; and the encroachment of the Sahara Desert. These manifestations affect diverse facets of Zamfara's socio-economic structure, especially with its high reliance on sectors that are particularly sensitive to climate change—agriculture and forestry. The government of Zamfara state also recognizes that climate change must be mainstreamed into policies and sectoral activities to achieve sustainable green growth. Efforts are in place that address climate change issues by the government through the support of bilateral and multilateral donor partners and non-governmental organizations, including community efforts. The state Ministry of Environment, through the department of Climate change is responsible for the climate change portfolio and collaborates through other MDAs to implement climate change actions. Similarly, at the LGA level, desk officers have been identified to support the ward and community response accordingly. Civil society organizations, the private sector, and donor partners are all contributing to Zamfara's state response.

As such, the short version of the vision outlined in the ZSCCP is: *"A safer, greener, and climate resilient state."* Its principles conform to the existing national policies and strategies. Zamfara State Climate Change Policy provides strategic direction and coordinates issues of climate change in Zamfara State. The three core areas of the policy are (1) adaptation, (2) mitigation, and (3) crosscutting. To address these core areas in the policy, policy directives and supporting policy objectives were outlined. The policy design recognizes that climate-change-linked opportunities such as low-carbon economic growth can generate significant development benefits, including opening up access to international funding & international carbon credit markets, among others. Zamfara state climate change policy prioritizes eight (8) complementary pillars, which are:

1. Climate change adaptation
2. Climate change mitigation
3. Climate Disaster Risk Management
4. Climate related Law enforcement
5. Capacity Building, Education, and Awareness creation
6. Climatic Observation and Research
7. Climate Change Financing
8. Cross-Cutting Issues (*Gender equality, Security & WASH*)

To address the above issues, eight policy outcomes were identified. These are (i) Vulnerability to climate change impacts reduced, (ii) greenhouse gas emissions reduced, (iii) climate-related disaster preparedness and response strengthened, (iv) climate-related law enforcement strengthened, (v) awareness of climate change impacts, adaptation, and mitigation measures promoting community behaviour change improved, (vi) research & climatic observations enhanced and used for decision making, (vii) increased allocation & mobilization of climate change financial resources (viii) Climate change and its cross-cutting issues are mainstreamed in development policies and planning, coordination, and monitoring of relevant sectors.

These outcomes will be achieved through the implementation of actions and sub-activities identified in the Pillar-based plan of action.

The policy highlights the need to strengthen partnerships at all levels with all stakeholders to achieve policy coherence and in building resilience. A unique methodology adopted in the policy

formulation is the engagement and consultation of different stakeholders using a “bottom-up approach” in the policy development. Similarly, the ZSCCP recognizes that women and children, the aged, and the physically challenged persons are those most affected; therefore, they should be first to be prioritized, addressing inequities and building a more cohesive society necessary for climate resilience and the overall state development.

The development of the Zamfara state climate change policy indicates the government's commitment to mainstreaming inclusive green growth in its development process. Thus, the policy is timely and a step in the right direction to support the transition to renewable energy involving reducing carbon emissions from economic growth through a series of measures and actions across all sectors.

SECTION 1: INTRODUCTION AND PURPOSE OF THE POLICY

This Zamfara State Climate Change Policy (ZSCCP) is a five-year policy (2025-2030) that incorporates emerging issues and guides the future programming of interventions for the reduction of greenhouse gas emissions in the atmosphere, as well as adapting to the adverse effects of climate change and climate variability for the next five years. The development of this policy was guided by the constituted technical committee of the state Ministry of Environment. This policy is therefore in tandem with state development aspirations, as well as national, regional, and international obligations. The policy will guide and coordinate implementation as aligned with the National Climate Change Policy and Nigeria's Nationally Determined Contributions document in light of the provisions enshrined in the United Nations Framework Convention on Climate Change (UNFCCC), its Kyoto Protocol, and the Paris Agreement, and taking into consideration the Sustainable Development Goals (SDGs).

The following contributed to why the policy needed to be updated: (i) an improvement in some areas of the state statistics; (ii) building of the state capacity and expertise; (iii) appropriate institutional framework; (iv) orientations of policies, in particular, agriculture, forestry, land use, water resources, and energy sector (iv) the necessity of using a sector wide approach in addressing a multifaceted issue like climate change. One key reform of the state government was the establishment of the climate change department in May 2024, to ensure a coordinated response. However, an area of weakness constraining the effective functioning of the newly established Department of Climate Change (DCC) is the absence of an overarching policy to "pull" the various policies and strategies together as a cohesive whole for guiding climate adaptation and mitigation actions in Zamfara State. Because there is little cross-sectoral coordination and information sharing, the development partners' support for climate change has been managed in a non-coherent manner. The capacity of the state ministry of environment to access and manage climate finance resources needs to be strengthened, as now the introduction of the climate change department of the ministry intends to fill this gap. In light of this circumstance, the Zamfara State government, acting through the State Ministry of Environment, asked the UNDP for help in revamping the initial unofficial climate change draft policy to be transformed into being reflective of the current realities and up to international standards.

A revised and updated institutionalized policy document is therefore required, as previously mentioned, to provide a formal basis for supporting ongoing state climate change activities, both operationally (in terms of program and project implementation, education, etc.) and regulatory (in terms of promoting pertinent laws, regulations, and standards). The policy serves as a benchmark for the State Government's climate change interventions, establishing a line of accountability and transparency that all stakeholders can use to guide and judge the State Government's decisions regarding climate change management, among other advantages.

The weakness of the previously drafted climate change policy was the formalization of policy positions that were not driven by quality data, information, and evidence, including the lack of broad stakeholders' consultation and engagement. Going forward, Zamfara State is well positioned to operationalize the updated Climate Change Policy, given the reasonably substantial information and data collected through various research, studies reports, including the incorporation of lessons learnt from Lagos state climate change and success stories from Bangladesh climate change strategy.

1.0 Geographical Location of Zamfara State

Zamfara state is one of the states in the North – Western region of Nigeria. The state was created on the 23rd September 1987 and has its capital as Zamfara. The total landmass of Zamfara State is approximately 39,762 square kilometres, with a population of 3,259,846 (2006 census). The state was created in 1996 and has since experienced steady population growth.

Zamfara State is bounded to the north by the Republic of Niger, to the south by Kaduna State, to the east by Zamfara State, and to the west by Sokoto and Kebbi States.

Geographically, the state lies approximately between latitude 10°15'N and 13°10'N and longitude 5°10'E and 7°10'E of the Greenwich Meridian.

The state experiences a hot semi-arid climate (Köppen classification: BSh), characterized by high temperatures throughout most of the year. The hottest months typically occur between March and May, while relatively cooler conditions are experienced from November to February, influenced by the Harmattan winds.

Vegetation in Zamfara State falls within the Sudan Savanna zone, consisting mainly of grasslands interspersed with shrubs and drought-resistant trees such as acacia. These plants are adapted to low rainfall and often possess features like deep roots and fire resistance.

The fauna of the region includes antelopes, rodents, reptiles, birds, and insects, typical of savanna ecosystems. (Note: animals like kangaroos are *not native* to this region and were incorrectly included in the original text.)

Annual rainfall in Zamfara State ranges between 500 mm and 800 mm (50–80 cm), occurring mainly between May and September, and is often unevenly distributed.

The Policy Environment and Approach

1.2 Socio-economic Context and Risks

The socio-economic context of Zamfara State is primarily characterized by a heavy reliance on subsistence agriculture, with the majority of the population engaged in farming and livestock rearing, making it the backbone of the state's economy; however, the region faces challenges such as widespread poverty, low literacy rates, and significant insecurity issues stemming from banditry, which particularly impact the agricultural sector and overall livelihoods of the people. Agriculture is the backbone of the economy, with most people involved in subsistence farming across available arable land. Crops such as millet, maize, guinea corn, sorghum, and groundnuts are key agricultural products. Alongside crop cultivation, livestock rearing—particularly cattle, sheep, and goats—is a significant part of the rural economy. Despite the availability of land, agricultural practice is largely small-scale and rain-fed, with limited large-scale commercial farming. The people also engage in artisanal fishing in areas with rivers and seasonal water bodies. In addition, trading and craft-making—such as weaving, leatherwork, mat-making, and local fabrication—serve as supplementary sources of livelihood. These activities are important as they contribute to household income and local economic activity, particularly in rural areas. The people also engage in activities such as hunting, small-scale lumbering, and local craft production.

Cottage industries exist at a minimal level, producing goods primarily for local markets rather than large-scale export. The state produces groundnuts and groundnut oil, among other agricultural outputs. These livelihood activities are highly vulnerable to climate change and environmental factors.

Despite its agricultural potential, Zamfara State faces high levels of poverty and income disparities, with a large proportion of the population living below the poverty line. A significant disparity exists between urban centres and rural areas, with limited access to basic infrastructure and services such as healthcare and education in rural communities. Low literacy rates, especially among females, remain a major concern. Inadequate healthcare facilities, limited access to essential medicines, and a shortage of healthcare professionals contribute to poor health outcomes. Desertification and land degradation pose serious threats to agricultural productivity in parts of the state. While these challenges persist, Zamfara State has potential for economic growth through improved agricultural practices, value chain development, and the promotion of small-scale enterprises.

While there is no consistently verified official determination of the state's Gross Domestic Product (GDP), reports such as those by BudGIT provide indicative comparisons across Nigerian states. Zamfara State ranks relatively low in economic output compared to more industrialized states such as Lagos State, Rivers State, and Akwa Ibom State. The state also ranks very low on the United Nations Development Programme Human Development Index (HDI), often placing among the lowest in Nigeria alongside states such as Sokoto State and Bauchi State, indicating low levels of human development. This is largely attributed to low literacy rates, poor healthcare access, and limited economic opportunities within the state.

The population of Zamfara State is 5,801,584 based on the 2006 official census data; however, more recent estimates (2022) suggest a population exceeding 10 million. A large majority of the population—estimated at 80–90%—lives in rural areas. The population structure is youthful, with a high proportion under the age of 15 and a relatively small elderly population. Zamfara State is predominantly Hausa/Fulani, though not entirely mono-ethnic or mono-lingual. The state's economy remains largely agrarian, with an estimated 70–80% of the population engaged in farming and animal rearing.

Zamfara State is currently experiencing a high level of insecurity due to armed banditry. In June 2024, gunmen reportedly killed at least 50 people and abducted several residents in the state. In 2020, over 120,000 people were internally displaced due to the increasing frequency and intensity of attacks. Banditry has led to job losses, reduced agricultural production, displacement of farming communities, and limited trade flows, further weakening the state's socio-economic conditions.

1.3 The State Climate Change Context

Zamfara State is a state in the north-western geopolitical zone of Nigeria, created in 1996. The state shares an international boundary with the Republic of Niger to the north (approximately 250 km). It is bordered to the east by Zamfara State, to the south by Kaduna State, and to the west by Sokoto State and Kebbi State.

Zamfara State lies within the semi-arid ecological zone of northern Nigeria and is highly vulnerable to the impacts of climate change. In recent years, including around 2021, the state has experienced increasing climate-related challenges, primarily characterized by desertification, drought, irregular and unpredictable rainfall patterns, and rising temperatures. These conditions have placed Zamfara among Nigeria's frontline states affected by desertification, with direct consequences for agriculture, water availability, and rural livelihoods.

Rainfall in the state is seasonal and often erratic, typically occurring between May and September, while prolonged dry seasons dominate the rest of the year. The increasing variability in rainfall patterns, combined with land degradation and advancing desert conditions, has significantly reduced soil fertility and agricultural productivity.

In addition to drought, the state also experiences occasional flooding during peak rainy periods, further disrupting farming cycles and damaging rural infrastructure. These overlapping climate stressors—desertification, drought, flooding, and extreme heat—continue to pose serious risks to food security and economic stability in Zamfara State

Mean Annual Maximum Temperature Fluctuations in Zamfara State (1971-2023)

The mean annual maximum temperature and departures from such mean (35.3°C) were generated and plotted in Figure 1. It could be deduced that the maximum temperature in the State is also marked by several deviations (upward and downward deviations) signalling significant variability in the maximum air temperature in the state. The upper deviations represent warmer than normal years (hot years) while the downward deviations represent colder than normal years. This maximum air temperature pattern for Sokoto aligns with the Intergovernmental Panel on Climate Change (IPCC) reports of 2023 that the hottest years in records since the year 2000 all occurred in 2020s (IPCC, 2023) as well as the NASA's Global Climate Change Reports on '2009: Second Warmest year on record; end of warmest decade'

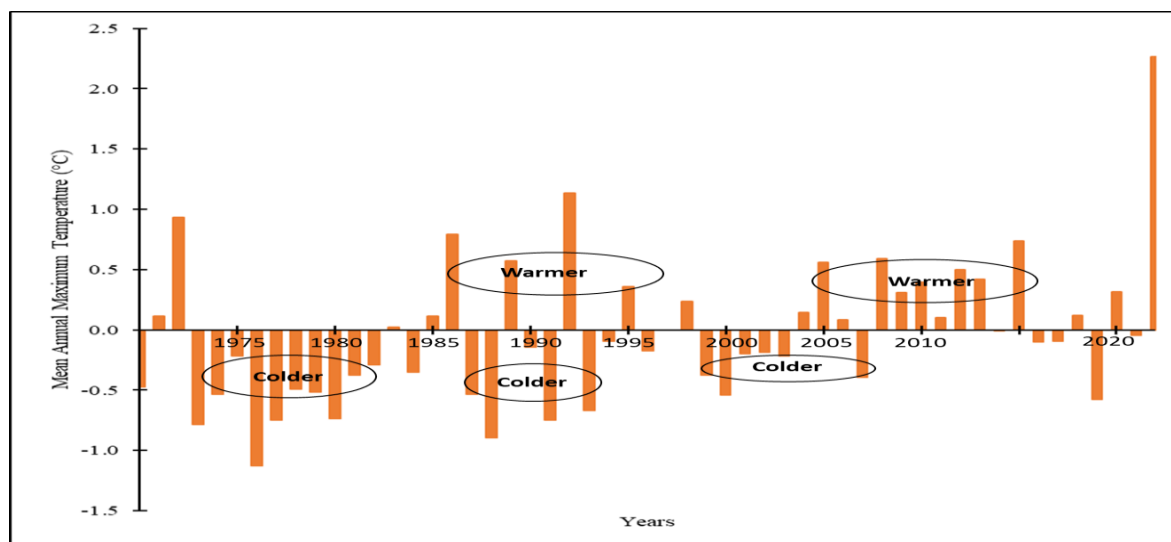


Figure 1. Mean annual maximum temperature departures from the long-term mean in Zamfara State (1971-2023)

Annual Rainfall Fluctuations in Zamfara State (1924-2023)

Annual rainfall fluctuations in West Africa, Nigeria inclusive, had also been investigated by different climate scientists (Mortimore, 1989; Nicholson, 2005, Oguntunde, *et al.*, 2011, Umar, 2013) revealed that in a wet-dry climatic environments, rainfall tends to be highly variable. In Zamfara State, the annual rainfall records for a 100-year period were sourced from NiMet and departures from the long-term of 701 mm were generated and plotted in Figure 1. It is evidently clear from Figure 1.1 that Zamfara State, like other areas located within the Sudano-Sahelian region of Nigeria had its own share of rainfall anomalies that led to droughts and floods of various intensities over the last 100 years.

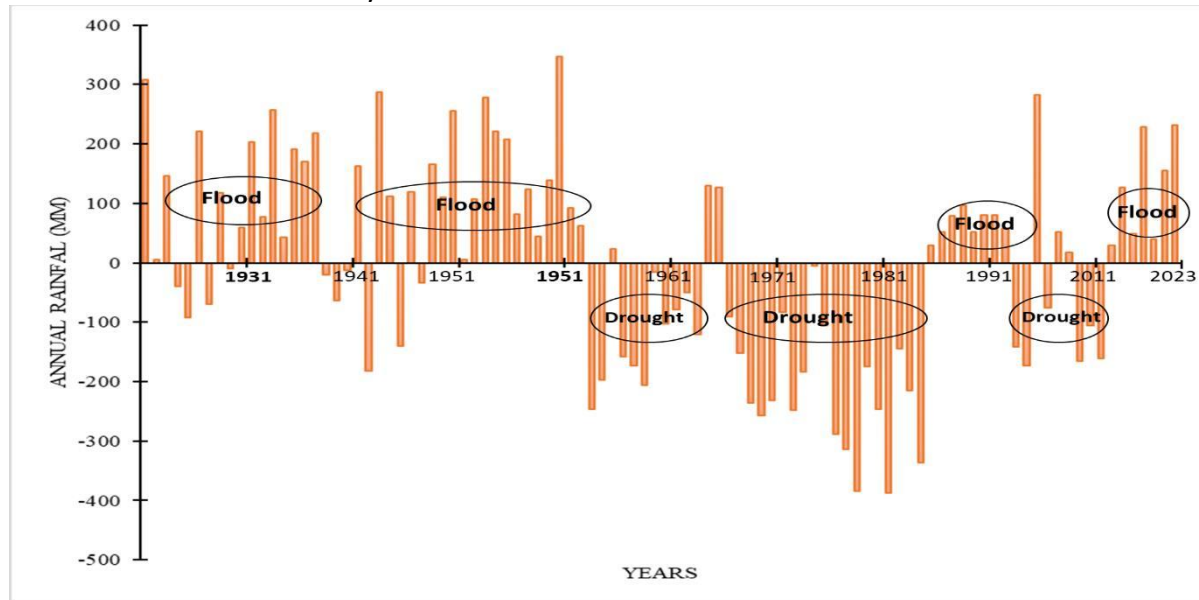


Figure 1. 1. Annual rainfall departure from the long-term mean of 632 mm (1924-2023)

1.4 Vulnerability Context

Zamfara State faces climate change concerns such as desertification, drought, floods, unpredictable rainfall patterns, and extreme weather events. The state is among the eleven states regarded as the “desertification frontline,” which informed Nigeria’s Great Green Wall initiative launched in 2014. The primary climate change risk is desertification, driven by declining and erratic rainfall, increasing drought conditions, and rising temperatures. These factors place the state at the forefront of desertification challenges in the country, significantly affecting agriculture, water availability, and rural livelihoods. The situation is further exacerbated by irregular rainfall patterns, which contribute to water stress and, in some cases, flooding during periods of intense rainfall. The following have been identified as key vulnerability factors in the state: (i) High dependence on rain-fed agriculture, as most farming practices rely on seasonal rainfall and are therefore highly susceptible to climate variability; (ii) Limited access to irrigation facilities, which constrains the ability to adapt to prolonged dry periods; (iii) Poor land management practices, including deforestation and overgrazing, which accelerate land degradation and desertification.

Zamfara State experiences multiple interacting factors that shape its risk profile, including a **hot semi-arid (tropical steppe) climate**, with high average temperatures and a long dry season. The state’s average annual temperature is typically above 30°C, reflecting its location in Nigeria’s dry northern belt. Its topography is characterized by seasonal rivers and streams, largely within the Sokoto-Rima basin, rather than direct drainage into Lake Chad. The state remains predominantly rural, with limited urbanization compared to more industrialized regions, although urban centres are experiencing gradual population growth and infrastructure pressure. Population growth rates are relatively high, contributing to increased demand for land, water, and basic services.

The state's economy is largely agrarian, with an estimated 70–80% of the population engaged in farming and livestock rearing. This underscores the high sensitivity of livelihoods to climate variability. These conditions highlight the complexity of Zamfara State's development context, demonstrating both significant vulnerability and potential opportunities. The impacts of climate change must therefore be considered not only in terms of how they affect existing socio-economic and environmental conditions, but also in shaping adaptive strategies and informing effective climate action planning within the state.

1.5 The Policy and Climate Context and Approach

Zamfara, like other states in the Northwest region, is vulnerable to the impacts of climate change. While Zamfara state has a low carbon footprint, the impact and effects of climate change may have severe consequences in multiple sectors and areas. Changes in temperature and precipitation may affect several sectors and areas across Zamfara, including agriculture, forests, energy production related to the availability of water resources, tourism and health.

Zamfara has a tropical steppe climate with a yearly temperature of 87.6°F. It receives about 791.61 millimetres of precipitation annually and has 54.63 rainy days

1.6 Climate Change Projections for Zamfara state

Climate change projections for Zamfara State, indicate a trend towards increasing temperatures, erratic rainfall patterns with potential for shorter rainy seasons, and more extreme weather events, significantly impacting agriculture and livelihoods in the region, with the northern parts of the state experiencing the most pronounced changes; this includes a likely decrease in the length of the rainy season and earlier cessation of rainfall compared to southern areas. Significant rise in average temperatures is expected, leading to hotter summers and potentially more heatwaves. Unpredictable rainfall patterns with potential for both droughts and intense downpours, impacting agricultural productivity. Studies show a possible decrease in the duration of the rainy season, especially in the northern parts of Zamfara State. The changes in rainfall patterns are likely to severely affect crop yields and water availability for farmers.

Climate models also project those temperatures will continue to increase and that drought level will continue to rise. Projections also indicate that average annual precipitation will decrease and that the proportion of heavy rainfall events will increase. This in turn is expected to exacerbate adverse social, economic and environmental impacts and act as an additional stress factor on systems with vulnerabilities derived from non-climate drivers.

Climate change will alter the characteristics of hazards Zamfara state is exposed to (e.g., average annual rainfall) and the nature of variability (e.g., more intense storms, irregular seasonal rainfall), which will cause associated knock-on consequences for the state's socio-economic development objectives. It is estimated that Zamfara state could be exposed to cumulative annual flood-related losses approximated to billions of Naira and that an extreme event similar to the serious flooding in 2018, which resulted in losses equivalent to 500 houses and 2,604 persons displaced and left 38 people dead¹. This can significantly lead to a 35%-55% GDP reduction, among others.

Recent vulnerability studies² indicate that the agriculture sector will see a decrease in crop yields due to temperature increases, frequent flooding and salinization of soils. Furthermore, touristic infrastructure and housing stock will likely suffer increased damage from more intense floods,

¹ SEMA (2018) Jibia flooding Report

² Average Annual Natural occurrence (2020), World bank Climate change Knowledge hub ¹⁶
WHO(2024) Climate health Vulnerability & Adaptation Assessment report in Nigeria.

storm surges and extreme heat level rise. The 2024 WHO Climate health Vulnerability & Adaptation Assessment report reveals that rising temperatures, extreme weather events and shifting disease patterns are already straining health systems, livelihoods, and well-being especially among vulnerable populations¹⁶. Against this background, Zamfara state has started to take steps to combat the adverse effects of climate change, including building health system that prioritizes resilience.

Climate Change Land Use/Land Cover Change Detection

The analysis of the Land Use/Land Cover (LULC) changes between 2023 and 2053 reveals significant transformations in the study area. The stability of water bodies, covering approximately 1.40% (Table 1.2) of the area throughout the study period, is consistent with findings from other studies³. Scrubland, on the other hand, is projected to experience an increase from 27.36% to 41.19% a notable increase is expected. However, the Shrubland is projected to decrease from 37.23% to 30.55%. This fluctuation may be attributed to the dynamics of climate change, land degradation, and human activities (Achugbu et al., 2018). A possible reason for the decline in shrubland is the prevailing insecurity which inhibits agricultural activities in the area, including due to several building expansion projects in the state.

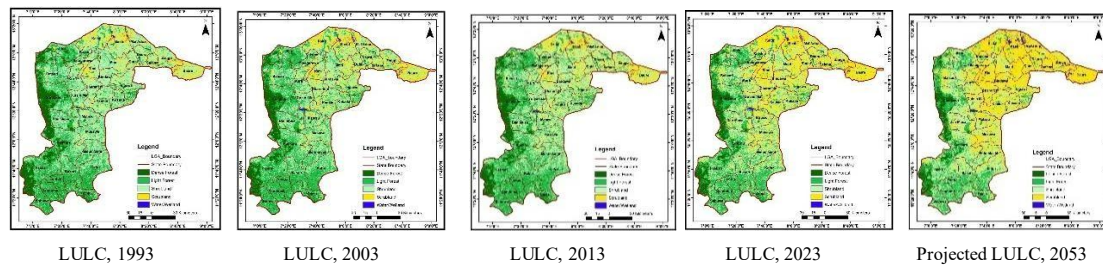


Table 1.2: LULC Statistics

LUC	Area (Km ²) 2023	Percent (%)	Area (Km ²) 2053	Percent (%)
Dense Forest	1878	7.65%	1180	4.81%
Light Forest	6610	26.93%	5412	22.05%
Shrubland	9138	37.23%	7499	30.55%
Scrubland	6717	27.36%	10111	41.19%
Water/Wetland	203	0.83%	344	1.40%
Total	24546	100	24546	100

The projected observation, revealed Dense Forest cover could decrease significantly, from 7.65% in 2023 to 4.81% by 2053. Similarly, the light Forest cover is seen to likely decrease from 26.93% to 22.05% by 2053. This decline is consistent with findings from other studies, which have reported widespread deforestation and forest degradation in Nigeria⁴. Forest regrowth and recovery is a slow process, and for a fragile landscape that the study area is, where human activities that cause deforestation are on the increase, it is no surprise that the projected record depicts a steady decline over the years. The loss of forest cover can have severe environmental and socio-economic implications, including loss of biodiversity, soil erosion, and decreased ecosystem services⁵ (Ogunjobi et al., 2020).

Zamfara State is at the risk of drought in the future given a significant downward trend in annual rainfall over the period 1922 - 2023. The projected annual rainfall at Zamfara State are 553.2mm, 544.5mm, 535.9mm, 527.3, 518.6mm and 510.0mm for 2025, 2030, 2035, 2040, 2045 and 2050 respectively. This shows a tendency for reduced annual rainfall over the stated period. The projected mean annual maximum temperature at Zamfara State is 34.3, 34.4, 34.5, 34.5, 34.6 and

³ Eniolorunda et al (2017) Toward achieving a sustainable management

⁴ Eniolorunda et al (2017) Toward achieving a sustainable management

⁵ Ogunjobi (2020) Spatio-temporal analysis of land use

34.7 in degree Celsius. The Zamfara State is likely to experience more warmer conditions in the future given a significant upward trend in annual mean maximum temperature over the period 1971 - 2022⁶.

1.7 Linkage with other policies and strategies

Zamfara State has put in place a series of legislative and sectoral frameworks and strategies that integrate environmental management and climate change considerations into its socio-economic development planning. The Zamfara State Development Plan (2024–2043) incorporates environmental sustainability and climate resilience as critical enablers of long-term economic growth, particularly given the state’s vulnerability to desertification and climate variability. Sectoral strategies—especially in agriculture, water resources, and rural development—reflect increasing alignment with environmental sustainability priorities, although implementation capacity remains evolving.

The state’s climate change policy is aligned with key national legal and policy frameworks that directly govern environmental management and climate action in Nigeria. These include the **NESREA Act**, which regulates environmental standards; the **Climate Change Act**, which establishes Nigeria’s national climate governance framework; and the **Land Use Act**, which governs land administration and has implications for land degradation and resource management. It also aligns with operational and sectoral policies such as the National Renewable Energy and Energy Efficiency Policy (2015), Nigeria Agricultural Promotion Policy (2016), National Forest Policy (2020), National Water Resources Policy (2016), Environmental Impact Assessment (EIA) Act (1992), National Biodiversity Strategy and Action Plan (2020), and the National Action Plan on Gender and Climate Change (2019). Programmatic frameworks relevant to Zamfara’s ecological context include the Great Green Wall Initiative (targeting northern Nigeria’s desertification belt) and the Nigeria Erosion and Watershed Management Project (NEWMAP), both of which address land degradation and ecosystem restoration in vulnerable states like Zamfara.

At the international level, the policy aligns with legally binding and non-binding global frameworks to which Nigeria is a party, including the **United Nations Framework Convention on Climate Change**, the **Kyoto Protocol**, and the **Paris Agreement**, which collectively guide global climate mitigation and adaptation efforts. It is also consistent with the Sendai Framework for Disaster Risk Reduction (2015), which is particularly relevant given the state’s exposure to climate-induced disasters such as droughts and floods. In addition, Zamfara benefits indirectly from international support mechanisms such as the UNDP Climate Promise and World Bank-supported programmes (including NEWMAP and regional Sahel resilience initiatives), which focus on adaptation, resilience-building, and sustainable land management in northern Nigeria.

1.8 The Mandate of the Policy

The mandate for this policy is derived from the **Constitution of the Federal Republic of Nigeria**, which provides the overarching legal basis for environmental protection in Nigeria. Section 20 mandates the state to protect and improve the environment and safeguard the country’s natural resources, including land, water, forests, and wildlife. Section 12 provides that international treaties ratified by the National Assembly can be domesticated into national law, thereby enabling the implementation of global environmental agreements. Sections 33 and 34, which guarantee the rights to life and human dignity, are increasingly interpreted within policy frameworks to include the right to a safe and healthy environment.

The **Climate Change Act** further strengthens this mandate by institutionalizing climate governance in Nigeria, including the development of national climate action plans and

⁶ Projected Annual Temperature and rainfall for Sokoto-NiMET linear trend analysis 2024.

coordination mechanisms that extend to subnational entities such as Zamfara State. This aligns with Article 2 of the **United Nations Framework Convention on Climate Change**, which focuses on stabilizing greenhouse gas concentrations and enhancing adaptive capacity.

At the state level, the Zamfara State Ministry of Environment and Natural Resources is responsible for environmental management, including land use regulation, afforestation efforts, and climate-related interventions. Given Zamfara’s position within Nigeria’s semi-arid northern belt and its classification among frontline states affected by desertification, the policy emphasizes sustainable land management, ecosystem restoration, and climate-resilient agriculture as priority areas.

Zamfara State recognizes that effective climate action requires coordinated, multi-sectoral collaboration across government agencies, development partners, and local communities. The policy therefore seeks to harmonize existing sectoral mandates and provide a coherent framework for adaptation, mitigation, and resilience-building across key sectors such as agriculture, water resources, health, and infrastructure. It is particularly designed to address structural vulnerabilities including dependence on rain-fed agriculture, land degradation, and limited adaptive capacity.

Furthermore, Zamfara State aligns its climate policy objectives with Nigeria’s commitment to the Sustainable Development Goals (SDGs), especially those related to climate action, poverty reduction, food security, water resource management, and ecosystem protection, recognizing that climate resilience is central to achieving sustainable development outcomes in the state

Attaining the Sustainable Development Goals	
Primary SDGs <i>(The SDGs that Zamfara State Climate Change Policy directly addresses)</i>	
Goal 7	Ensure access to affordable, reliable, sustainable and modern energy
Goal 13	Take urgent action to combat climate change and its impacts
Goal 15	Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.
Secondary SDGs <i>(The SDGs that Zamfara State Climate Change Policy directly addresses)</i>	
Goal 2	End hunger, achieve food security and improved nutrition and promote sustainable agriculture
Goal 3	Ensure healthy lives and promote well being for all at all ages
Goal 4	Ensure access to affordable, reliable, sustainable and modern energy for all
Goal 5	Achieve gender equality and empower all women and girls
Goal 6	Ensure availability and sustainable management of water and sanitation for all
Goal 8	Promote sustained inclusive and sustainable economic growth, full productive employment and decent work for all
Goal 9	Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation
Goal 11	Make cities and human settlements inclusive, safe, resilient and sustainable

1.9 Alignment with Nigeria’s Nationally Determined Contributions Aspirations

Zamfara's climate change state policy will contribute to Nigeria’s effort and commitment to reducing carbon emissions through unconditional and conditional targets: Specifically, the

unconditional target is to reduce emissions by 20% below business-as-usual (BAU) by 2030. And the *conditional target*: Reduce emissions by 45% below BAU by 2030 with international support. The state has made an effort to determine its carbon emission baseline and is putting mechanisms in place to report on emission reduction subsequently, especially from sectors that are the biggest emission producers (transport, stationary energy & waste). Additionally, short-, medium-, and long-term strategies have been identified for reducing emissions from the abovementioned sectors as directed by the Nigerian Nationally Determined Contribution Strategy. The comparative retrospective estimated greenhouse gas emission (GHG) in Zamfara state based on population per capita carbon emission in 2024 is 0.008⁷, compared to the overall Nigeria's population per capital emission at 0.5²⁴ in 2022.

1.10 Institutional Framework/Responsibilities.

Established in 2000, the Ministry of the Environment (MoEnv) includes the following responsibilities: (i) ecology and biodiversity; (ii) climate change; (iii) forestry and desertification control; (iv) planning, research, and statistics; and (v) waste management & environmental assessment. The state Ministry of Environment's mandate includes several focal points that are intended to ensure the conservation and sustainable management of the state's natural resources, as well as to promote environmental health and sustainability.

To lead in the development and implementation of state policies and actions for climate change mainstreaming and coordinate efforts on climate change adaptation, mitigation, and resiliencebuilding across sectors and agencies at the state and LGA (administrative) levels.

The state Ministry of the Environment will enhance collaboration with relevant climate changerelated MDAs to enhance coordination, partnership, and joint activity implementation and policy harmonization, among other things.

1.11 A Climate Resilient State (Commitments/ Pathway).

Commitments at the highest level of governance have been secured for transitioning Zamfara state into a low-carbon economy. A number of laudable actions are being implemented towards Zamfara state becoming a climate resilient state, these include the construction of rural roads to facilitate agricultural marketing, the establishment of community nurseries for agroforestry, and the development of shelterbelts to combat desertification. Furthermore, the state has distributed over 34,000 mud cooking stoves, produced 2 million seedlings, and undertaken largescale agroforestry and fuel wood conservation efforts in collaboration with the European Union. These initiatives, along with the construction of dams, boreholes, and irrigation infrastructure, have significantly contributed to the state's climate resilience. partnerships with global organizations such as the World Bank and UNDP have been instrumental in advancing climate resilience initiatives across the state. These include large-scale projects like the Agro-Climate Resilience in Semi-Arid Landscapes (ACReSAL), which is focused on renovating and constructing dams, and Nigeria Erosion and Watershed Management Project (NEWMAP), aimed at managing urban flooding and erosion. These efforts have contributed to the reduction of flood-related fatalities and property damage, a significant achievement for the state.

The government is taking concerted action to restore Zamfara as a food basket by focusing on climate-smart agriculture. The re-demarcation of forest and grazing reserves is a key initiative

⁷ Zamfara state multi-stakeholders' meeting/Vulnerability assessment & GHG Determination Report (2024).

²⁴Nigeria Population per Capital, WorldOMeter (2022).

aimed at improving pasture availability for livestock, reducing herder-farmer conflicts, and ensuring sustainable agricultural practices. The state has also emphasized the importance of irrigation systems, having distributed petrol-powered pumps to farmers and exploring partnerships for solar-powered alternatives. This initiative aims to improve water management, reduce reliance on fossil fuels, and ensure year-round agricultural productivity, which is crucial in a state susceptible to droughts and erratic rainfall patterns. Zamfara State Government has also taken action to reduce deforestation and promote cleaner energy solutions. In collaboration with the Federal Government, the state has distributed low-emission cooking stoves and is exploring the potential for solar cooking stoves to provide cleaner cooking options for households. However, there is still a need for expanded access to clean cooking technologies, as a large percentage of households still rely on firewood, which has significant health and environmental implications. The state continues to prioritize the well-being of its citizens by integrating climate considerations into its governance structure and promoting collaboration across all levels of society. These actions reflect the state's dedication to both mitigating the impacts of climate change and adapting to its challenges. However, more ground needs to be covered in putting Zamfara on a pathway to achieving climate resilience. Most importantly, the annual state budget allocation to environment and climate related issues needs to be increased. A total of N37.7 billion was allocated in 2024 which is (11.43%) of the total budget, however a 30-35% increase is required to cater for the pending initiatives.

SECTION 2: POLICY VISION, GOAL, MISSION & GUIDING PRINCIPLES

The policy draws on information from previous national documents, such as the National Climate Change Policy (2021-2030), the National Adaptation Strategy and Plan of Action on Climate Change for Nigeria, Nigeria's Nationally Determined Contribution (updated 2021), the National Climate Change Communication Strategy, interviews with policymakers, and national consultations, among others.

POLICY VISION

Zamfara's climate change policy integrates the socio-economic and environmental challenges of climate change and provides strategic guidance for adaptation, mitigation, and resilience to foster sustainable development at all levels in the state. A simpler version of the vision is: *"A safer, greener, and more resilient Zamfara state."*

OVERALL POLICY GOAL

The policy's overall goal is: *"To achieve climate change adaptation, mitigation, and capacity building for sustainable livelihoods through Green Economy measures."*

OVERALL POLICY MISSION

The policy's overall mission is to *"reduce climate-related loss and damage across all productive sectors, thereby protecting livelihoods, food security, and standards of living."*

GUIDING PRINCIPLES

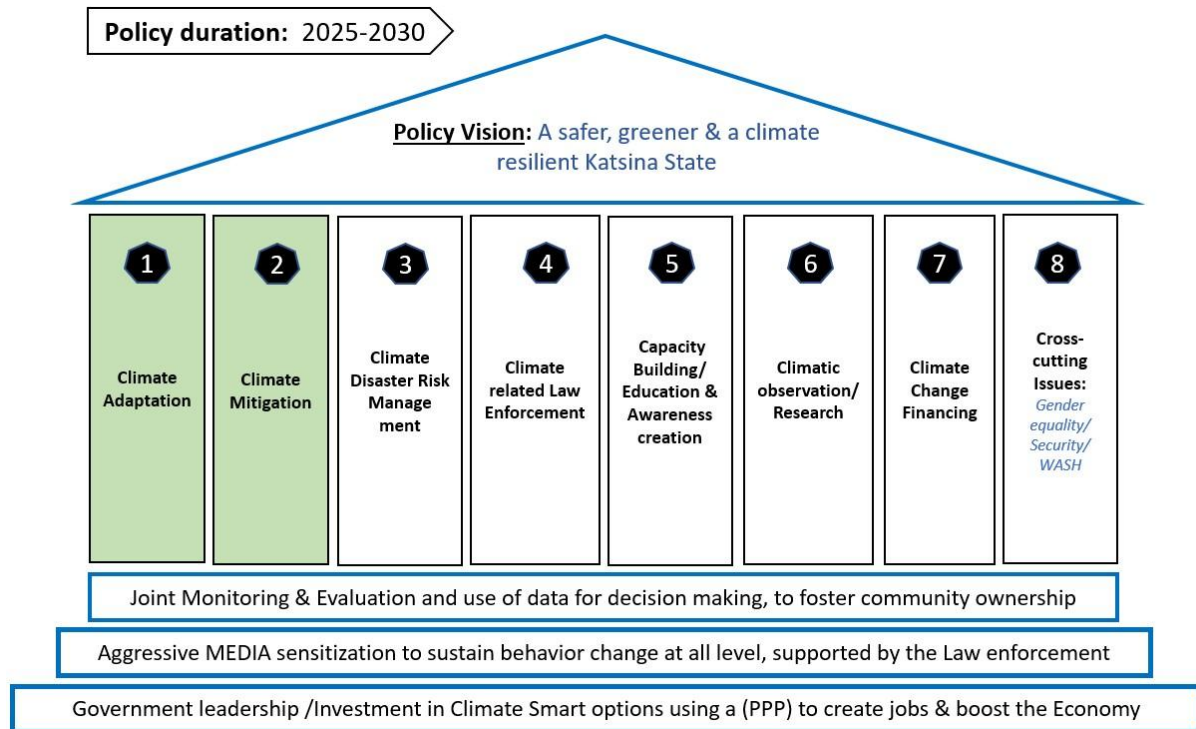
The policy is guided by principles set out in the Constitution of Nigeria, the United Nations Framework Convention on Climate Change, and the Kyoto Protocol. The principles, include:

- ❖ Adoption of a sustainable use & conservation of Sokoto state's natural capital for intergenerational equity.
- ❖ Adoption of nature-based solutions over quick-fix, unsustainable artificial approaches.
- ❖ Adoption of new technologies and early warning systems;
- ❖ Promoting gender equality and inclusion of persons with disabilities as a response, both in terms of mainstreaming as well as through specific focused interventions;
- ❖ Improve sensitization, availability of and access to climate change data and information;
- ❖ Adoption of a multi-disciplinary, multi-sectoral response built on a sector wide approach (SAWAs)
- ❖ Development and implementation of sustainable land management best practices to combat land degradation.
- ❖ Consideration to the specific needs of vulnerable groups particularly affected by climate change, including women and children.
- ❖ Adoption of an inclusive approach, with the participation of communities and the youths.
- ❖ Adoption of decisions and solutions that are data-driven.

2.4 Policy Pillar Outcomes

To ensure a holistic approach to implementation, the policy adopted 8 strategic pillars as the building blocks for the policy implementation, as shown in **figure 4**. They are: (i) Pillar 1: Climate Change Adaptation, (ii) Pillar 2: Climate Change Mitigation (iii) Pillar 3: Climate Disaster Risk Management (iv) Pillar 4: Climate related Law Enforcement (v) Pillar 5: Capacity building, Education and Awareness creation (vi) Pillar 6: Climatic Observations & research (vii) Pillar 7: Climate change finance (viii) Pillar 8: Cross-cutting issues. As seen in the policy schema below, the eight prioritized pillars are inter-linked and mutually reinforcing, built on the foundation that the Zamfara state government will provide the leadership and enabling environment, including a deliberate investment in climate-smart technologies through the public-private partnership to create jobs and boost the economy. The second foundation layer suggests employing an aggressive media sensitization in sustaining behaviour change at all levels enhanced by law enforcement. Lastly, the third foundation layer describes the conduct of joint monitoring and evaluation by all stakeholders and the use of data for decision-making, to foster community ownership and sustainability.

Figure 4: Eight strategic Pillars for Policy Implementation



The intended Policy Pillar outcomes statements are as follows:

- ❖ **Pillar 1 Outcome:** Vulnerability to climate change impacts reduced.
- ❖ **Pillar 2 Outcome:** Greenhouse gas emissions reduced.
- ❖ **Pillar 3 Outcome:** Climate change related disaster preparedness and response strengthened.
- ❖ **Pillar 4 Outcome:** Climate change related law enforcement strengthened.
- ❖ **Pillar 5 Outcome:** Awareness of climate change impacts, adaptation and mitigation measures promoting community behavior change improved.
- ❖ **Pillar 6 Outcome:** Research & Climatic observations enhanced and used for decision making
- ❖ **Pillar 7 Outcome:** Improved allocation and mobilization of Climate change financial resources.
- ❖ **Pillar 8 Outcome:** Climate change and its cross- cutting issues mainstreamed in development policies and in planning, coordination and monitoring of relevant sectors.

SECTION 3: PRIORITY AREAS FOR THE POLICY

The Policy has prioritized eight main areas for climate change management in the State. This has been aligned with the global climate change framework. Each priority area has associated policy statements, specific objectives and sectoral strategies as elaborated below.

Climate Change Adaptation

Adaptation to climate change is any activity that reduces the negative impacts of climate change and/or takes advantage of new opportunities for sustainable development. Adaptation to climate change is a priority area for Zamfara state due to its vulnerability to the adverse effects of climate change and limited adaptive capacity. Adaptation to climate change in Zamfara is hampered by the state's heavy dependence on natural resources, endemicity to climate-sensitive diseases, high poverty, weak technical and financial resources, and heavy reliance on donor support.

Policy Statements: The policy will: (i) *reduce the vulnerabilities of populations in Zamfara and promote community and ecosystem resilience to the impacts of climate change;* (ii) *ensure that women, girls, and other vulnerable groups are engaged and involved in planning and implementing climate change adaptation interventions;* and (iii) *ensure that communities can adapt to climate change by promoting climate change adaptive development in the long term.*

Climate change mitigation

Climate change mitigation is any action to decrease the intensity of greenhouse gases in order to reduce the effects of global warming, which result in extreme weather events. Removal of carbon sinks through deforestation, biomass energy dependence, and land use changes increases the concentration of greenhouse gases in the atmosphere.

Policy Statement: The policy will: (i) *promote the reduction of greenhouse gas emissions and* (ii) *enhance carbon sinks through reforestation and sustainable utilization of forest resources.*

Climate Disaster Risk Management

Loss and damage due to climate change emanate from climate extreme events such as intensive precipitation leading to flooding and landslides, thunderstorms, and drought leading to famine and poor agricultural output. This will be one of the cardinal policy responses.

Policy Statement: The policy will: (i) *promote preparedness and response strategies for climate related disaster management and* (ii) *enhance funds for rehabilitation and compensation.*

Law Enforcement

Climate-related law enforcement is necessary for investigating and regulating crimes that affect the environment and climate change. There is evidence that the missing link in Zamfara state is the effective implementation of the law, which is the reason why the cutting of trees, illegal mining, and building of houses on waterways, among other offences, are prevalent. Adoption and operationalization of the polluter pays principle, including the enforcement of climate related tax, including the provision of tax incentives

Policy Statement: The policy will: (i) *Target large-scale environmental crimes with significant climate impacts, including industrial emissions violations, illegal logging operations, and largescale pollution incidents;* (ii) *establish systems to collect climate-related tax and offer appropriate tax incentives to those compliant*

Education, Capacity Building, and Awareness Creation

Education is a catalyst for socioeconomic development and for empowering the poor, the weak, and the voiceless, incorporating the subject of climate change into the basic and secondary school curriculum is a veritable strategy for building a critical mass of change agents in the state. Inadequate capacity and skills in climate change management may be a hindrance to the effective implementation of climate change adaptation and mitigation activities. To enhance human and institutional capacity for building community and ecosystem resilience to climate change in Zamfara. A capacity and training needs assessment will be commissioned periodically to cater to new developments. Resource mobilization mechanisms will also be established to ensure the effective implementation of interventions to improve institutional, infrastructural, and human capacities to implement climate change-related interventions. Awareness creation will adopt the use and reach of traditional and non-traditional media to reach the community with age/culturally appropriate, climate related messaging

Policy Statements: The policy will: (i) *build capacity in all sectors and at all levels in climate change to attain socio-economic development utilizing the principles of a green economy; and (ii) address capacity gaps on investment in skills and capabilities for negotiations, mechanisms for reducing emissions while supporting prudent environmental management, and sustainably (iii) incorporate climate related content in the existing basic and secondary schools' curriculum (iv)*

Research and Climatic Observation

Zamfara State recognizes and appreciates the need for climate change technology development and transfer as well as evidence-based research to support decision-making. To this effect, Sokoto State will commission an assessment to identify the relevant climate-related technologies that are needed. Similarly, the integration and coordination strengthening amongst key actors (NiMET/NISHA/Academia etc.) is necessary for quality, timely data to support decision making and for communication with the public. However, financial resources for addressing the identified needs, such as the development of a climate change research agenda and an enabling environment for the application of science and technology, are inadequate. The Key areas include the promotion of rainwater harvesting technologies, the adoption of climate-smart agriculture, the development of drought-tolerant crop and livestock technologies, the promotion of energy saving technologies, and renewable energy technologies. Climate change is an emerging issue; there are significant development policy and implementation gaps that could be addressed through research. On the other hand, both climate change adaptation and mitigation measures require innovative approaches, and these would be supported by technology development and transfer as well as systematic observation.

Policy Statements: The policy will: (i) *enhance research, technology, and systematic observation for climate change management, supported by appropriate capacity development and dedicated financing; (ii) encourage resource mobilization and commitment by the government to the prioritized strategies (iii) produce timely and quality advisories*

Climate Change Financing

Zamfara state is among the most vulnerable states in Nigeria to climate change because its economy is predominantly agro-based and largely rain-dependent. Considering that the rural population, which is in the majority, is poor and directly depends on natural resources for its livelihood, the bulk of this population cannot proactively finance climate change adaptation, mitigation, and climate-proofing activities. There is, therefore, a need for more predictable and

reliable financing mechanisms from local and international sources. The state will increase its yearly budget allocation for climate action and ensure timely budget release. Zamfara state will be positioned to benefit from the national carbon credit trading mechanism been set up at the national level, including utilizing a climate tax regime for incentives and polluters paying more.

Policy statement: The policy will prioritize (i) *enhanced financing for implementation and coordination of climate change management activities through increased state budgetary allocation and establishment of a state Climate Change Fund*, (ii) *improved access to international climate financing (both multilateral and bilateral) and private sector investments, including utilizing a new tax regime incentive and around polluters paying more.*

Cross-cutting issues

Vulnerable groups such as women, children, the elderly, and the physically and mentally challenged are particularly affected by the adverse impacts of climate change. Involving these vulnerable groups in the design and implementation of climate change management programs is essential for effective management of the impacts. Insecurity creates situations where climate change impacts are exacerbated due to existing political instability, resource scarcity, and conflict, essentially acting as a "threat multiplier" in vulnerable regions. Similarly, access to safely managed WASH enhances people's resilience to climate change because citizens remain healthy, strong, and hydrated, enabling citizens to withstand climate extremes such as heat, flooding, and drought and actively engage in climate adaptation efforts. Therefore, the incorporation of WASH, security, and gender equality & inclusion dynamics will help Zamfara state to deal with the effects of climate change.

Policy Statement: The policy will: (1) *mainstream gender and issues affecting disadvantaged groups into all climate change strategies, plans, and programs.* (ii) *Integrate security issues into climate change management through an integrated approach that would reduce poverty, protect natural resources, and reduce inequality.* (iii) *incorporate WASH as well as gender considerations in all climate change interventions, including adaptation, mitigation, capacity building, and others.*

SECTION 4: POLICY DIRECTIVES

The Zamfara State Climate Change Policy (ZSCCP) is to provide strategic direction and coordinate issues of climate change in Zamfara state. The eight policy priority pillars of the (ZSCCP) are (1) adaptation, (2) mitigation, (3) disaster management, (4) law enforcement, (5) capacity building, education, and awareness creation, (6) research, technology, and climatic observation, (7) climate change financing, and (8) cross-cutting issues. However, many of these priority areas can be grouped into **three core areas:** (1) **adaptation**, (2) **mitigation**, and (3) **cross-cutting**. A summary of the policy directives and policy objectives for these three core areas is given in the table below

Adaptation		
1.	Establish climate-resilient infrastructure and physical development, driven by increased environment budget allocation & access to climate finance	Policy Directive
2	Sectoral Climate Change Mainstreaming for a Healthy and Educated Society	Policy Directive
3	Reduce disaster and hazard risks that jeopardize productivity and livelihoods	Policy objective

4	Use education to generate shifts in the behaviours towards more climate-smart livelihoods and lifestyles.	Policy objective
5	Build agricultural resilience for state food and nutrition security.	Policy objective
6	Invest in prevention, mitigation, early warning, response and preparedness measures, particularly for flood, drought and waste management	Policy objective

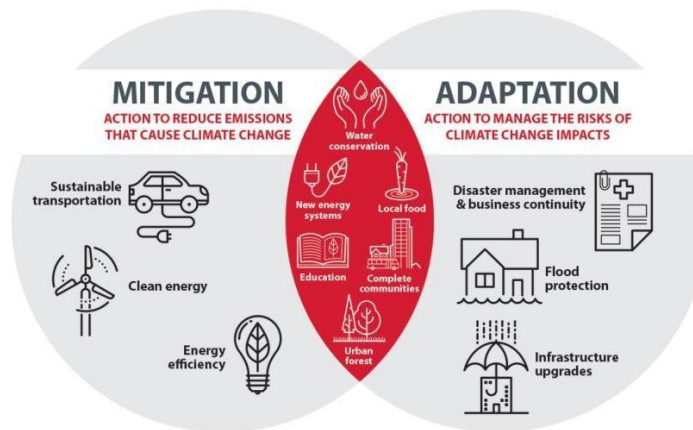
Mitigation

1	The Implementation and Use of Green and Clean Technologies	Policy Directive
2	Responsible Management and Utilization of Natural Resources	Policy Directive
3	Transition to renewable energy technologies and practices to reduce climate risk and carbon emissions.	Policy objective
4	Mainstream climate change sensitivity across the energy and extractive industries	Policy objective
5	Commit to a large-scale transition to cleaner production and service industries.	Policy objective
6	Promote paper-free electronic records and registries, including environment friendly disposal of waste	Policy objective

Cross-cutting

1	Promote equitable gender participation & inclusion considerations in state decision-making processes.	Policy Directive
2	Drive climate change decision-making that integrates gender, security and WASH, health perspectives based on current evidence.	Policy Directive
3	Drive social equity for vulnerable groups (women, youth, persons with disability, children, indigenous, and aged) in the state climate change processes.	Policy objective
4	Invest in and support the collection, management, and use of scientific data and information for implementing climate actions.	Policy objective
5	Invest in and support the collection, management, and use of scientific data and information to better understand its impact on the vulnerable population for implementing appropriate climate actions	Policy objective
6	Develop and track climate related indicators for accessing progress and impact on children, as it relates to child marriage and sexual and gender based violence	Policy objective

Building Climate Resilience



4.1 Implementation Arrangements

This section outlines the institutional arrangements and implementation plan for the climate change policy. There are many stakeholders operating across many sectors that need to be engaged in the implementation of this policy. Coordination and leadership across sectors and between stakeholder groups are critical to success. Leadership and coordination have to be seen at all levels of government. To ensure effective climate change management, leadership, and coordination must embrace the district and local levels of government as well as seek community-based engagement and action.

Key stakeholders include the government, non-governmental organizations and civil society, the private sector, academia, development partners, local communities, faith-based organizations, and identified vulnerable groups. Considering that climate change significantly impacts key sectors of the economy and is multi-sectoral as well as cross-cutting in nature, mainstreaming climate change into sectoral plans, policies, and programs, including the LGA plans, is critical. Therefore, some institutions will be involved in the sector-specific implementation of activities.

During the implementation stage, the Ministry of Environment will implement with technical guidance from the Climate Change Department as the coordinating unit and will, among others, spearhead tracking of resources allocated to key stakeholders that address specific components of the policy relevant to their mandates and area of jurisdiction.

4.2 Roles and Responsibilities of stakeholders

The Climate Change Governance in the Zamfara state was established by His Excellency, the Executive Governor of the State, Dauda Lawal via letter No. S/GH/ZA/363/XI/111 dated 18th April, 2024 to coordinate the climate change actions, policies and programmes in the state. A three tier, hierarchical arrangement was adopted. The apex body is the **Zamfara State Council on Climate Change (ZSCCC)**, is headed by His Excellency, the Governor. The second tier, next to the council is the **Zamfara State Technical Committee on Climate Change (ZSTCCC)**. The third tier, which is next to the technical committee is **Zamfara State Forum on Climate Change (ZSFCC)**. As climate change being globally and nationally environmental, it remains the major environmental problem facing the globe. Therefore, the State Climate Change Secretariat is domiciled in the Department of Climate Change, Ministry of Environment. The Director Climate Change is the head of the

secretariat, as designed and approved by His Excellency, the Governor. There is provision that more ministries, departments and agencies can be co-opted in due course, as the situation warrants.

A. Members of the State Council on Climate Change

1. His Excellency, The Executive Governor of Zamfara State - *The Chairman of the Council*
2. The Hon. Commissioner, Ministry of Environment - *The Vice Chairman of the Council*
3. The Permanent Secretary, Ministry of Environment - *The Secretary of the Council*
4. The Director Climate Change, Ministry of Environment – *Assistant Secretary of the council*
5. The Hon. Commissioner, Ministry of Agriculture and Livestock Development - *Member*
6. The Honourable Commissioner, Ministry of Water Resources - *Member*
7. The Honourable Commissioner, Ministry of Health – *Member*
8. The Honourable Commissioner, Ministry of Works, Housing and Transportation – *Member*
9. The Hon. Commissioner, Ministry of Higher, Technical & Vocational Education – *Member*
10. The Honourable Commissioner, Ministry of Basic and Secondary Education – *Member*
11. The Honourable Commissioner, Ministry of Budget and Economic Planning – *Member*
12. The Honourable Commissioner, Ministry of Women Affairs – *Member*
13. The Attorney General/Commissioner of Justice, Ministry of Justice – *Member*
14. The Honourable Commissioner, Ministry of Lands and Physical Planning – *Member*
15. The Managing Director, Zamfara Irrigation Development Authority – *Member*
16. The Director General, Zamfara State Enterprise Develop. Agency (ZASEDA) – *Member*
17. The Director General, Bureau for Statistics – *Member*
18. The Special Adviser, Department of Human Capital Development – *Member*
19. The Executive Secretary, Zamfara State Dev. Management Board (ZTDMB) – *Member*
20. The Consultant and Special Envoy on Climate Change – *Technical Adviser and Quest Speaker*

B. Members of the State Technical Committee on Climate Change

1. The Hon. Commissioner, Ministry of Environment - *Chairman of the Committee*
2. The Consultant and Special Envoy on Climate Change – *Co-Chairman of the Committee*
3. The Director Climate Change, Ministry of Environment – *Secretary to the Committee*
4. The Permanent Secretary, Ministry of Environment - *Member*
5. The Permanent Secretary, Ministry of Agriculture and Livestock Development – *Member*
6. The Permanent Secretary, Ministry of Water Resources – *Member*
7. The Permanent Secretary, Ministry of Health – *Member*
8. The Permanent Secretary, Ministry of Works, Housing and Transport – *Member*
9. The Permanent Secretary, Ministry of Higher, Technical & Vocational Education – *Member*
10. The Permanent Secretary, Ministry of Basic and Secondary Education – *Member*
11. The Permanent Secretary, Ministry of Budget and Economic Planning – *Member*
12. The Permanent Secretary, Ministry of Women Affairs – *Member*
13. The Permanent Secretary, Ministry of Justice – *Member*

14. The Permanent Secretary, Ministry of Lands and Physical Planning– *Member*
15. The Managing Director, Zamfara Irrigation Development Authority – *Member*
16. The Director General, Bureau for Statistics – *Member*
17. The Director General, Zamfara State Enterprise Develop. Agency (ZASEDA) – *Member*
18. The Special Adviser, Department of Human Capital Development – *Member*
19. The Executive Secretary, Zamfara State Dev. Management Board (ZTDMB) – *Member*
20. The Director General, Zamfara State Investment Promotion Agency (ZIPA) – *Member*
21. The Senior Special Assistant, Sustainable Development Goals (SDGs) – *Member*
22. The Dir. Gen., Zamfara State Erosion and Watershed Man. Agency (ZEWMA) – *Member*
23. Federal University Gusau (FUGUS), Gusau, Zamfara State – 2 Members
24. Zamfara State University (ZAMSUT), Talata Mafara, Zamfara State – 2 Members
25. College of Agriculture and Animal Science Bakura, Bakura, Zamfara State – 1 Member
26. Federal College of Education Technical Gusau, Gusau, Zamfara State – 1 Member
27. Zamfara State College of Arts and Science (ZACAS), Gusau, Zamfara State – 1 Member
28. College of Nursing and Midwifery Gusau, Gusau, Zamfara State – 1 Member

C. Members of the State Forum on Climate Change

1. The Hon Commissioner, Ministry of Environment - *Chairman of the Forum*
2. The Permanent Secretary, Ministry of Environment - *Vice Chairman of the Forum*
3. The Director Climate Change, Ministry of Environment – *Secretary to the Forum*
4. A Director from the Ministry of Agriculture and Livestock Development – *Member*
5. A Director from the Ministry of Water Resources – *Member*
6. A Director from the Ministry of Health – *Member*
7. A Director from the Ministry of Works, Housing and Transport – *Member*
8. A Director from the Ministry of Higher, Technical & Vocational Education – *Member*
9. A Director from the Ministry of Basic and Secondary Education – *Member*
10. A Director from the Ministry of Budget and Economic Planning – *Member*
11. A Director from the Ministry of Women Affairs – *Member*
12. A Director from the Ministry of Justice – *Member*
13. A Director from the Ministry of Lands and Physical Planning– *Member*
14. A Director from the Zamfara Irrigation Development Authority – *Member*
15. A Director from the Zamfara State Enterprise Develop. Agency (ZASEDA) – *Member*
16. A Director from the Bureau for Statistics – *Member*
17. A Director from the Department of Human Capital Development – *Member*
18. A Director from the Zamfara State Dev. Management Board (ZTDMB) – *Member*
19. A Director from the Zamfara State Investment Promotion Agency (ZIPA) – *Member*
20. A Director from the Sustainable Development Goals (SDGs) – *Member*
21. A Director from the Zamfara State Erosion & Watershed Man. Agency (ZEWMA) – *Member*
29. 29. Federal University Gusau (FUGUS), Gusau, Zamfara State – 2 Members
30. Zamfara State University (ZAMSUT), Talata Mafara, Zamfara State – 2 Members
31. College of Agriculture and Animal Science Bakura, Bakura, Zamfara State – 1 Member
32. Federal College of Education Technical Gusau, Gusau, Zamfara State – 1 Member

33. Zamfara State College of Arts and Science (ZACAS), Gusau, Zamfara State – 1 Member
Other Interested Members of Academia - *Members*
25. Interested Members of NGOs, CSOs, FBOs, CBOs, Cooperative groups etc. - *Members*
26. Membership from the Traditional, Community, Political Leaders etc. - *Members*
27. Other Interest People and Groups with Fashion in Climate and Environment – *Members*

Similarly, the following roles and responsibilities have been assigned to the identified aforementioned structures:

Zamfara State Council on Climate Change

The State Council on Climate Change (SCCC) is the apex governance structure for the Climate Change Management in Zamfara State. The Council shall be responsible for overall decision making on climate change issues. It will approve adaptation and mitigation measures to be implemented in the State, subject to final approval by the State Executive Council or as the case may be. The state council on climate change may meet as frequent as necessary, but statutorily will meet at least once in a quarter.

Role of SCCC

- a. Setting and reviewing policy direction and monitoring progress on both climate adaptation and mitigation measures.
- b. Ensuring accountability for realising the vision of the Plan.
- c. Ensuring adequate technical and professional guidance.
- d. Providing oversight to ensure resources are used efficiently.
- e. Promoting synergies among relevant stakeholders in line with their mandates.
- f. Facilitating resource mobilisation.

Composition of SCCC

The State Council on Climate Change (SCCC) shall be chaired by His Excellency, The Governor, with the Honourable Commissioner of Environment as the Vice Chairman. The Honourable Commissioners of Ministry of Water Resources; Ministry of Agriculture and Livestock Development; Ministry of Health; Ministry of Works, Housing and Transportation; Ministry of Women Affairs; Ministry of Budget and Economic Planning; Ministry of Justice; Ministry of Higher, Technical and Vocational Education and Ministry of Basic and Secondary Education are to be members. More MDAs can be added in due course, depending on the situation. The Permanent Secretary, Ministry of Environment, is to be the Secretary of the council while the State Climate Change Consultant also State Climate Envoy serves as the Quest Speaker and Technical Adviser to the council.

Zamfara State Technical Committee on Climate Change

This is next to the State Council on Climate Change (SCCC). The State Technical Committee on Climate Change (STCCC) is a committee of climate experts, scientists, policymakers, and stakeholders with task of providing technical expertise, guidance, and recommendations on climate change-related matters. The committee is to support the development, implementation, and evaluation of climate change policies, strategies, and initiatives. The state technical committee on climate change may meet as frequent as necessary but statutorily will meet at least once in a quarter.

Role of STCCC

- a. Conducting research and analysis on climate change science, impacts, vulnerability and solution.
- b. Assessing the effectiveness of existing climate policies and proposing additional and new ones.
- c. Providing technical input on climate-related projects, programmes, and investments.
- d. Advising the State Climate Change Council on climate change mitigation, adaptation, and resilience measures.
- e. Monitoring and evaluating progress towards climate goals and targets.
- f. Facilitating collaboration and knowledge-sharing among different climate stakeholders.
- g. Discussing and handling technical issues and implementing adaptation and mitigation measures approved by the State Climate Change Council.
- h. Ensuring that each of the MDAs implements the particular climate intervention(s) assigned to it, and shall subject itself to technical peer review and other synergies.

Composition of STCCC

The State Technical Committee on Climate Change (STCCC) shall be chaired by the Honourable Commissioner of Environment with the climate change consultant as the co-chairman. The Permanent Secretaries of the Ministry of Environment; Ministry of Water Resources; Ministry of Agriculture and Livestock Development; Ministry of Health; Ministry of Works, Housing and Transportation; Ministry of Women Affairs; Ministry of Budget and Economic Planning; Ministry of Justice; Ministry of Higher, Technical and Vocational Education and Ministry of Basic and Secondary Education are to be members. The members can be increased by co-opting some other MDAs in due course, as the situation warrants. The Director Climate Change, Ministry of Environment is to be the Secretary to the committee while the Climate Change Consultant Also State Special Climate Envoy serves as the Quest Speaker and Technical Adviser to the committee (as the case may be).

Zamfara State Forum on Climate Change

The State Forum on Climate Change (SFCC) is a group of stakeholders, policymakers, scientists, activists, and community members, who can jointly discuss and address issues relating to climate change. The state forum on climate change may meet as frequent as necessary but statutorily will meet at least once in a quarter.

Role of SFCC

- a. Acting as a consultative forum on climate issues and promoting collaboration and cooperation among diverse stakeholders.
- b. Bringing out issues and concerns related to the impact of climate change on human and the environment.
- c. Sharing knowledge, exchanging ideas, and formulating strategies to mitigate and adapt to climate change.
- d. Ensuring climate considerations into development planning and aiding monitoring and evaluation of climate policies, projects and programmes.
- e. Organising conferences, workshops, seminars and online discussions on climate change impacts, vulnerability and resilience.
- f. Advocating and sensitizing on renewable energy promotion, carbon emissions reduction, climate adaptation measures, and sustainable development.

Composition of SFCC

The State Forum Climate Change Forum (SFCC) shall also be chaired by the Honourable Commissioner of Environment with the Permanent Secretary as his Vice Chairman. It will comprise all traditional, religious and community leaders, as well as stakeholders involved in climate change issues in the state, including but not limited to representatives of the Ministry of Water Resources; Ministry of Agriculture and Livestock Development; Ministry of Health; Ministry of Works, Housing and Transportation; Ministry of Women Affairs; Ministry of Budget and Economic Planning; Ministry of Justice; Ministry of Higher, Technical and Vocational Education and Ministry of Basic and Secondary Education, including some other MDAs to be coopted in due course. Others include LGAs, NGOs, Inter-governmental Organisations (IGOs), Civil Society Organisations (CSOs), the media and the academia. The Director Climate Change will be the Secretary while the Climate Change Consultant also State Special Climate Envoy can serve as a Quest Speaker and Technical Adviser to the forum.

Climate Change Secretariat

The State Climate Change Secretariat (SCCS) is to be hosted by the Department of Climate Change of the Ministry of Environment. It is the administrative office responsible for coordinating and facilitating activities related to climate change with the governments, organizations, other local and international institutions.

Role of Secretariat

- a. Providing administrative supports and safeguarding climate change documents and correspondences.
- b. Supporting the development, implementation, and monitoring of climate change policies, strategies, and initiatives.
- c. Coordinating all implementation activities by various MDAs with supporting documents.

- d. Managing the activities of the three governance entities (The State Council on Climate Change, State Technical Committee on Climate Change and State Forum on Climate Change).
- e. Serving as a clearinghouse for all knowledge and materials relating to climate change actions in the state, including documents, data, agreements and instruments.

Composition of the Secretariat

The Director, Department of Climate Change, shall be the Head of the secretariat. The climate change departmental staff remain the staff of the secretariat, who are to work in synergy with the ministerial staff (as the case may be), as well as the climate change consultant also State Special Envoy on climate change.

NB: In conclusion on the functions of the 3-tier arrangement (SCCCC, STCCC & SFCC) all summaries and documentation produced by the different bodies will be publicized via a dedicated website or dedicated section of an existing website as agreed by stakeholders.

4.3 The Role of Communities

The majority of Zamfara state's population live in rural areas and are dependent on natural resources for their livelihoods and are therefore affected by the impacts of climate change and extreme weather-related events such as floods and droughts. However, the population also contributes to climate change by inducing GHG emissions through land use and deforestation. Communities must therefore be made aware of climate change impacts and human activities that cause climate change. The public must be made aware of their responsibility for environmental protection and how they can address the challenges of climate change by adopting environment-friendly technologies.

4.4 The Role of the Media

The media has an important role in creating awareness of climate change issues among stakeholders at all levels, including at the community level. The dissemination of information should be evidence-based, and, in this regard, there is a need to promote journalism that focuses on the environment and natural resources. Messages disseminated by the media promptly will empower communities to take necessary action on climate change adaptation, mitigation, and disaster risk reduction.

4.5 Role of Academia/Training Institutions

The need for more academic research and training in climate change issues in Zamfara cannot be overemphasized. In this regard, training and research institutions have a pivotal role to play. Training in climate change issues must be enhanced in order to build the capacity of individuals and organizations to mainstream climate change issues into their activities and effectively adapt and mitigate the impacts of climate change. Furthermore, homegrown research must be promoted. Scientific knowledge from research must be used for decision-making, and practical solutions that are user-friendly and sensitive to local needs must be recommended.

4.6 The Role of Development Partners

Development partners provide resources for the government and civil society organizations in Zamfara State to carry out developmental activities. Their technical and financial interventions must be harmonized in line with the State's climate change plan of action so that all stakeholders work towards a common goal. It is also important that development partners, not directly working in the area of climate change, should ensure that climate change is integrated into all their programs and projects.

4.7 Role of Local Government Areas

The 34 LGA decentralized structure in Zamfara state will be empowered to act based on the state climate plan of action. This structure is now more empowered with its direct budget allocations to do more in curbing the negative effects of climate change. They are expected to provide an avenue for communities' views to feed into decision-making. The organizations and committees at various levels, for instance, village and chiefdom, must ensure that climate change is integrated into their programs, projects, and plans.

4.3 Implementation, Monitoring, and Evaluation Strategy

The M&E strategy adopted will ensure that Zamfara State meets up with its reporting commitment and requirements, among other things. The following considerations will be adopted:

- (a). Build on existing institutions and skills;
- (b). Take into account the planned climate change governance structures;
- (c). Provide guidance on the implementation of climate change response actions, whether in the form of policies, projects, programs, or investment ventures;
- (d). Help Zamfara State fulfill her national reporting obligations; demonstrate Zamfara State's climate finance readiness; and
- (e). Provide a strong platform for attracting international climate finance flows from multilateral and bilateral development partners.

For effective and efficient monitoring, reporting, and verification, criteria with quantitative and qualitative indicators disaggregated according to gender covering various sectors will be developed and utilized in the monitoring process. This will be in tandem with national reporting tools alongside identified state-specific reporting needs. Particular attention will be paid to coverage of the activity, whether it be at the grassroots community or the LGA. The monitoring and evaluation criteria will also include the assessment of the impacts of the activity on the community and at the LGA levels, such as change in knowledge and awareness of climate change, improvement in livelihoods, and influence on decision and policy-making at all levels.

Building on the existing nationally reported indicators, the state will develop additional relevant state-level indicators to support the Monitoring, Reporting & Verification System (MRV system). This system will support the collation of reporting from ministries and departments, agencies, Civil Society organizations, youth and women groups, media Agents, etc, that have received climate change-related training and are implementing any climate change-related project. The indicators will also include vulnerability indicators that may be a mixture of process-based and

outcome-based indicators and will measure the effectiveness of community and LGA initiatives to reduce vulnerability at all levels.

Such indicators include (a) the number of people (disaggregated by sex) permanently displaced by climate change-induced floods due to storm surges and/or sea level rise; (b) a percentage of roads and other relevant infrastructure maintained or rehabilitated; and (c) number of persons that received support such as pipe-borne water, food aid, and shelter.

Where mitigation and adaptation responses support each other or provide trade-offs and enhance sustainable development will also be determined and applied. Cross-cutting indicators like:

- (a) quantifiable improvement in waste management systems in communities, health, and business facilities
- (b) a ton of soil carbon per hectare in agricultural land targeted for conservation tillage practices;
- (c) improved human health from improvements in vehicle efficiencies and reduced air pollution and replacement of kerosene lamps with renewable lamps in the home;
- (d) food shortages
- (e) an increase in the use of renewable energy mechanisms for cooking, i.e., biogas, etc.;
- (f) improvements in passenger vehicle emissions resulting in lower mobility for the poor if costs are passed onto consumers;
- (g) the restoration of land in floodplains by planting trees, which helps to reduce the impacts of floods, improve water quality, and leads to co-benefits such as restoring biodiversity and sequestering greenhouse gases.

Zamfara State Ministry of Environment/Climate Change Department will develop a comprehensive monitoring and evaluation plan that is aligned with the agreed National indicators, including those identified in the Pillar-based State Action Plans. This is important to ensure that there is accountability for tracking and reporting all the agreed performance indicators. Similarly, the state will conduct a mid-term (2027) and end-term (2031) evaluation of the state's climate change policy implementation as stipulated.

SECTION 5: THE WAY FORWARD—FROM POLICY TO ACTION

To curb the long delay associated with developing a plan of action after a policy document is developed, Sokoto State has adopted an innovative approach to developing the policy document alongside the plan of action to allow for seamless implementation. This policy will be operationalized or implemented through the 8 adopted pillar-based plans of action, with the identification of the leading and supporting agencies. Each plan of action addresses the relevant policy objectives by identifying and recommending policy implementation actions and corresponding activities. Each action is accompanied by attendant expected outcomes and performance indicator(s). Additionally, the main agencies or stakeholders charged with the responsibility of leading or supporting implementation have been identified, along with an estimated budget. The policy has a 5-year implementation period. The eight plans of action will

be the vehicle for achieving the goals of the climate policy. The policy outcomes are aligned across the 8 policy pillars, which are logically clustered into the corresponding eight plans of action to support a coherent implementation and delivery.

5.0 Plan of Action (Table 3-10)

This first phase of the policy implementation will further elaborate the mainstreaming of the strategies into existing sectorial programs and actions of relevant MDAs and collaborating CSOs/organizations (private sector, academia, LGAs, etc.). At this phase, it is important to ensure that climate change-related issues are mainstreamed during the planning and budgeting process. This should include, among others, the mapping exercise of the location and focus of collaborating organizations, including the conduct of baseline assessments of the outcome pillars to ensure there is a credible baseline for tracking progress against set targets. It is recommended that an organizational capacity assessment be conducted for the State Ministry of Environment and the Department of Climate Change to determine the capacities available and those needed to implement the plan of action.

The pillar-based plan of action is critical in achieving the policy objectives and addressing Sokoto State's climate change challenges and opportunities. The policy objectives identified will be achieved through the implementation of specific strategies and actions, as described in the eightpillar-based plan of action in **Tables 3-10** below. Specific actions and tasks, as well as estimated timelines and budgets, are identified for each policy outcome area:

TABLE-3: “CLIMATE CHANGE ADAPTATION” PLAN OF ACTION

Policy Outcome: Reduction in the Vulnerability to climate change impacts	
<p>Lead Department Department of Climate Change/ Ministry of Agriculture</p>	<p>The state's vulnerability to climate change stems from its geographical, socio-economic, and ecological characteristics. These include limited access to heat-resistant crop varieties and low public awareness of coping strategies; inadequate irrigation and water management systems that make it difficult to maintain agriculture during dry spells; poor urban planning; blocked drainage systems; lax enforcement of environmental regulations that make the state more vulnerable to floods; inadequate investments in infrastructure for water harvesting and storage; poor groundwater management, which contributes to water scarcity; weak institutional frameworks; a lack of technical expertise; and a lack of funding, which restricts the implementation of climate adaptation projects, among other things.</p>
<p>Supporting departments Ministry of Environment ZTARDA, FADAMA office, Irrigation Authority, STOWASA, Water resources.</p> <p>External Stakeholders Surwash, UNDP, IFAD, UNICEF, World Bank SDGs.</p>	<p>Required Action:</p> <ol style="list-style-type: none"> i. Encourage the adoption of Climate-Smart Agricultural (SCA) practices. ii. Recruit more extension workers to practice proper agricultural practices. iii. Adoption of Climate-Resilient Infrastructure iv. Access to modern and renewable Energy Transition v. Reduce Environmental Degradation vi. Biodiversity Conservation vii. Reduction of Desertification viii. Strengthened Agricultural Resilience ix. Institutional and Policy Strengthening x. Enhanced Livelihood Diversification

<p>Status of Action Ongoing in some supportive MDA's</p>	<p>Sub-actions/Activities:</p> <ul style="list-style-type: none"> i. Promote the use of drought-tolerant, heat-resistant, or improved crop varieties ii. Adopt flooding-controlling infrastructure measures. iii. Regularly clean and de-silt drainage channels to prevent blockages caused by waste and sediment accumulation. iv. Build additional dams in flood-prone areas to capture and manage runoff from upstream regions. Build reinforced floodwalls in densely populated regions prone to flash floods. v. Integrate infrastructure with early warning systems to provide timely alerts to communities at risk. vi. Organize a step-down training on seasonal climate prediction vii. Promote community sensitization and efforts to improve alternative refuse disposal. viii. Establish facilities where recyclable materials can be processed into reusable products, creating economic opportunities. Set up communal composting sites in urban and rural areas to manage organic waste efficiently. Establish small-scale incineration facilities to convert non-recyclable waste into energy, reducing landfill
	<ul style="list-style-type: none"> ix. Engage community members in waste clean-up and management initiatives. Provide tax incentives or subsidies to companies and individuals practicing responsible waste management. ix. Promote Cash for work activities to clear drainages and waterways x. Promote soil and water conservation methods/techniques through combined crops, livestock, and aquaculture to optimize resource use and reduce risks. xi. Improve irrigation practice techniques. xii. The State should reclaim and rehabilitate existing grazing reserves by investing in reforestation, reseeding, and infrastructure development to restore the productivity of grazing areas. Also, the State should establish new reserves and encourage the use of heat-tolerant and disease-resistant livestock breeds to enhance productivity under changing climate conditions. xiii. Provide high-quality feed and mineral supplements during periods of low forage availability. Security personnel should be deployed to protect grazing reserves and ensure the safety of herders and their livestock. Presently, there are 28 grazing reserves in Zamfara State. viii. Reduce flooding by an integrated approach that combines water storage, sustainable agriculture, and urban planning to manage floodwater effectively. The most highly prone LGs to flood are Zango, Baure, and Jibia. The government should develop and maintain an efficient network of urban and rural drainage systems to channel excess water away from vulnerable areas. Build and rehabilitate dams to store excess water during heavy rains and release it gradually to prevent flooding downstream. ix. Develop and deploy flood forecasting and early warning systems to alert communities ahead of potential flooding events. x. Use modern technology like satellite imagery and hydrological models for accurate predictions. xi. Reduce land degradation through reforestation and afforestation and reduce overgrazing. xii. Reduce pests and diseases xiii. Enforce law and compliance xiv. Promotion of solar energy and other renewable sources to reduce reliance on traditional biomass fuels. xv. Establishment of greenbelt projects to enhance vegetation cover xvi. Provision of incentives for households and businesses to adopt sustainable energy practices.

Items	Estimate cost(N) 420 new earth dams=N210,000,000,000.00, 20 grazing reserves=N2,000,000,000.00, 250,000 Economic trees= N500,000,000.00 Engagement of 786 Extension workers= N78,600,000.00, 61 New soil fertility techniques= N61,000,000.00, 4 new shelter belts= N200,000,000.00, 1000 fuel efficient stoves procured for distribution = N20,000,000.00, 4 new wind farms created= N32,000,000,000.00, 5 solar farms created= N20,000,000.00, 102 green areas created= N2,080,000,000.00 Grand Total= Total N123,959,600,000.00
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Performance Indicator	Baseline Value	Target	Data Source
<ul style="list-style-type: none"> • Number of earth dams constructed • Number of grazing reserves established • Number of economic trees planted 	80 1 Zero	420 20 250,000	<ul style="list-style-type: none"> • Ministry of Environment program reports • Ministry of Agric program reports
<ul style="list-style-type: none"> <input type="checkbox"/> Number of agricultural extension workers enhanced <input type="checkbox"/> Number of soil fertility techniques adopted <input type="checkbox"/> Number of shelter belts created <input type="checkbox"/> Number of fuelefficient stoves procured and distributed <input type="checkbox"/> Number of wind farms created <input type="checkbox"/> Number of solar farms <input type="checkbox"/> Number of green areas in each LG 	786 60 1 0 1 Zero zero	1,572 121 5 10000 5 5 At least 3 in each LG = 102	<ul style="list-style-type: none"> <input type="checkbox"/> ZTARDA implementation report. <input type="checkbox"/> Irrigation Board implementation report. <input type="checkbox"/> Forestry Department implementation report. <input type="checkbox"/> Livestock department implementation report <input type="checkbox"/> IFAD Implementation report <input type="checkbox"/> UNDP Implementation report

TABLE-4: "CLIMATE CHANGE MITIGATION" PLAN OF ACTION

Policy Outcome: Reduction in the Greenhouse gas emissions

Lead Department

Min. of Environment, Min. of Agriculture

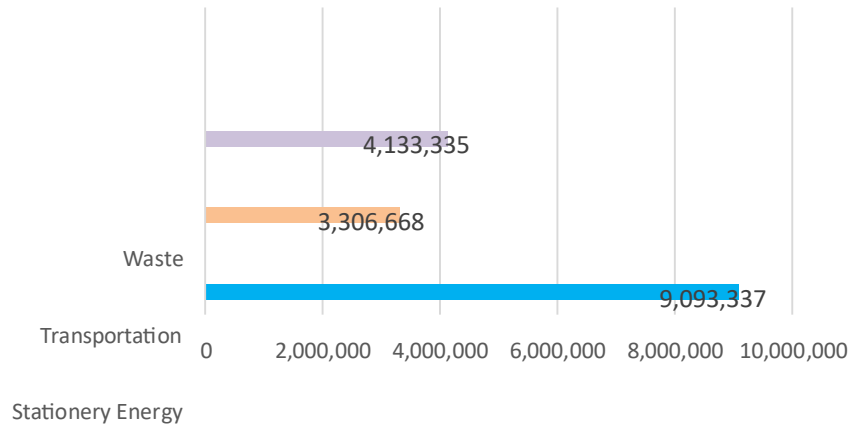
Supporting departments

ZTARDA, SEPA, FADAMA office, Min of Water resources, Ministry of Trasport, Ministry of Agriculture, Ministry of Waste management & Environmental sanitation, Energy Department

Situation Synopsis:

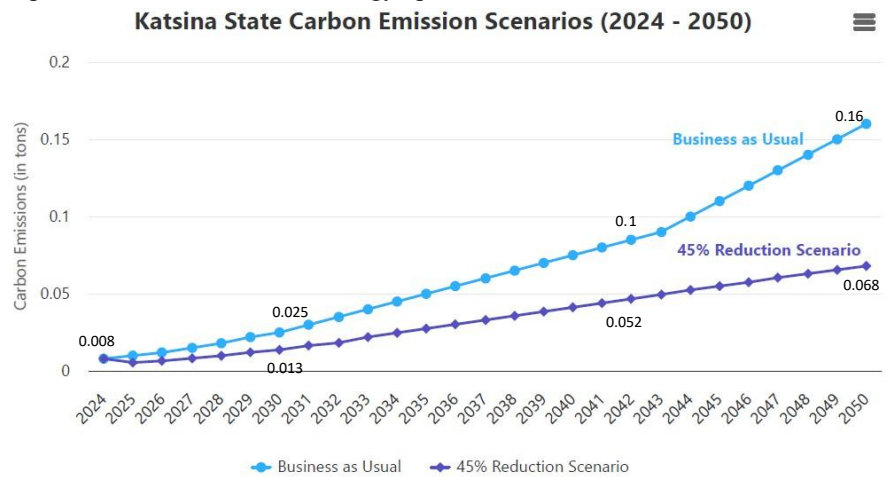
In Zamfara state, as compared to Lagos state, the largest carbon emitters compared to other sectors are the stationary energy, transport, waste, and agriculture. **Stationary energy** refers to fuel combustion emissions to generate energy for use in buildings (residential, commercial, and industrial), including solid and liquid fuels. With a rapid population increase, carbon emissions are on the rise. Additionally, the use of charcoal from wood and wood products, which is the most commonly used source of cooking energy in rural areas (75%), has steadily been on the increase, as there is no affordable alternative yet on the market. In a similar vein, the burning of household waste and open landfills, including illegal dumping, is increasing in Zamfara state, which is increasing the amount of greenhouse gas emissions. There has been a steady increase in the use of fossil-fuelled motorbikes and tricycles in Zamfara suburbs because of affordability, and it is one of the most viable means of income for young people. The increasing motorbike population is gradually increasing GHG emissions in the transport sector.

Zamfara State Carbon emmsion in tCo2e



According to (Figure-1 Sectorial Carbon emission baseline for Zamfara State – retrospective estimation- 2015)

to the retrospective simulated data, Zamfara's state produced 16,533,340 tC emissions in 2015. The stationary energy sector produced the most emissions (led by the waste sector (25%) and the transportation sector (20%). A more concerted effort is required to ensure that the three biggest GHG emitters cut their carbon emissions using various options and more renewable energy options in the state



(Figure-2 Projected Zamfara State “business-as-usual” emission vs 45% emission reduction scenario

NB: The model used a rate of 0.002 tons per year to project emissions up to 2050 for Zamfara State, including the scenario of targeting a 45% emission reduction as expected in the Nationally Determined Contribution guideline. **The projection reveals Zamfara state 2024 GHG base carbon emission per capita, against Nigeria’s carbon emission per capita 0.008 in 2022⁸.** The chart above describes the business-as-usual emission projection vs 45% emission reduction scenario tailored for Zamfara State, taking into account the population, the socio-economic factors amongst others. The light blue-line represents the “business-as-usual” emission scenario of 0.002 tons per year assumption. While the purple-line represents the targeted 45% emission reduction efforts if the proposed plan of actions are been executed exactly across the state.

The Business as Usual (BAU) emission scenario indicates that if no climate actions are undertaken, Zamfara State's carbon emissions will double by 2050. It also highlights Zamfara’s targets for emission reduction in

	comparison to the BAU scenario. Achieving the proposed 45% emission reduction targets will require an ambitious action in all sectors including securing international funding assistance among others.		
Energy Sector	Short-term goals (2025)	Mid-term goals (2025)	Long term projections
Expand the use of renewable energy Reduce dependence on fossil fuels by leveraging renewable energy, particularly solar.	Expand small-scale solar energy projects, targeting 10% of rural households with solar home systems. Provide incentives for solar-powered street lighting in urban areas and Solar Kits. Promote the adoption of energy-efficient cooking stoves to reduce wood and charcoal usage.	Develop mid-sized solar farms to supply local grids, aiming for 20% of electricity from renewables. Implement solar mini-grids in off-grid communities to reduce the use of diesel generators. Encourage energy audits for government buildings to implement energy-saving measures.	Achieve 45% renewable energy in the state’s power mix, primarily from solar. Promote rooftop solar installations for businesses and schools. Implement a net-zero policy for new public infrastructure.
Waste Sector	Short-term goals (2025)	Mid-term goals (2025)	Long term projections

⁸ IEA Report-Nigeria carbon emission 2022: <https://www.iea.org/countries/nigeria/emissions>

<p>Expand the use of renewable energy</p> <p>Reduce emissions from industrial activities and manage waste sustainably</p>	<p>Enforce strict emissions standards for local industries</p> <p>Implement waste segregation at the source for urban areas.</p> <p>Launch small-scale biogas projects in rural communities, using agricultural waste.</p>	<p>Encourage industries to switch to energy-efficient technologies through tax incentives.</p> <p>Establish a centralized waste recycling facility in Zamfara to handle plastic, paper, and metal waste.</p> <p>Promote waste-to-energy initiatives using biomass.</p>	<p>Develop a circular economy model, aiming for 45% recycling of all solid waste.</p> <p>Implement a robust industrial carbon capture system for larger facilities.</p> <p>Achieve a significant reduction in landfill waste by diverting 45% of waste to recycling or composting.</p>
<p>Waste Sector</p>	<p>Short-term goals (2025)</p>	<p>Mid-term goals (2025)</p>	<p>Long term projections</p>
<p>Improving transport efficiency</p> <p>Reduce emissions by modernizing Zamfara transport system and promoting low-carbon options.</p>	<p>Encourage fuel-efficient practices by promoting vehicle maintenance and tire checks.</p> <p>Introduce electric motorcycle (e-motorcycle) incentives for urban and peri-urban transport, Including (CNG)</p> <p>Develop public transport routes to reduce reliance on personal vehicles.</p>	<p>Introduce electric vehicle (EV) charging infrastructure in major 3-Senatorial districts urban centres.</p> <p>Promote bicycle and pedestrian-friendly infrastructure to encourage non-motorized transport.</p> <p>Start a bus modernization program with fuel-efficient or hybrid buses and use of CNG</p>	<p>Achieve 45% of public transport fleet as electric vehicles.</p> <p>Expand EV usage to rural areas through affordable financing for electric motorcycles and vehicles.</p> <p>Implement a low-emission zone in Zamfara to limit older, high-emission vehicles.</p>
<p>Agriculture Sector</p>	<p>Short-term goals (2025)</p>	<p>Mid-term goals (2025)</p>	<p>Long term projections</p>
<p>Promote sustainable Practices / Nature based solutions</p> <p>Reduce emissions from agriculture and enhance carbon sequestration through sustainable land use.</p>	<p>Promote the use of organic fertilizers over chemical fertilizers to reduce soil degradation. (Producing insecticide & fertilizers using neem)</p> <p>Training on integrated soil fertility management (ISFM)</p> <p>Initiate farmer education programs on sustainable practices like agroforestry and conservation agriculture.</p>	<p>Establish incentives for small-scale farmers to adopt climate-smart agriculture. (Solar dryer tent)</p> <p>Launch agroforestry projects, planting 1,00,000 economic trees to create carbon sinks.</p> <p>Develop a community-based bush-burning management program to reduce land burning.</p>	<p>Achieve net-zero deforestation with robust forest management practices.</p> <p>Scale-up large afforestation projects, targeting a 45% increase in tree cover across Zamfara state.</p> <p>Promote carbon credits for local communities involved in sustainable agriculture and conservation.</p>
<p>Status of Action</p> <p>On Going/ Activities will start in 2025.</p>	<p>Sub-actions/Activities:</p> <ul style="list-style-type: none"> • Establishment of CNGs Conversion Centres • Provision of Solar Hybrid Charging Stations • Collaborations and synergy among the MDAs • Improve access to modern energy sources • Aggressive media campaign on carbon emission reduction. • Plant three (3) million seedling of economic trees annually • Provision of Mini grid Solar Energy • Procurement of electric vehicles such as tricycles, motorcycle, cars and Buses ☐ • Installation of Distributed Renewable Energy System. • Provision of climate smart and low carbon energy sources 		
<p>External Stakeholders</p> <p>UNDP, World Bank, ACRESAL, UNICEF, Academia, Mercy-Corps</p>	<p>Estimate cost</p> <p>N211,140,000.00</p>		

Performance Indicator	Baseline Value	Target	Data Source
<ul style="list-style-type: none"> Number of Economic trees planted Number Establishment of CNGs Conversion Centres Solar Hybrid Charging Stations Electric Vehicle Assembling Plant 	<ul style="list-style-type: none"> 1,600,000 None None None 	<ul style="list-style-type: none"> 10,000,000 7 Old LGAs 7 Old LGAs 3 per Senatorial Zone 	<ul style="list-style-type: none"> Min. of Environment & Department of Forestry Implementation report. Min. of Environment, Commerce and Industries Implementation report Min. of Environment, Commerce and Industries

TABLE-5: “DISASTER RISK MANAGEMENT” PLAN OF ACTION

Policy Outcome: Climate change related disaster preparedness and response strengthened.	
<p>Lead Department Zamfara State Emergency Management Agency (ZATSEMA)</p>	<p>Situation Synopsis: Zamfara State is vulnerable to the occurrence of climate-related disasters due to its geographical location in the extreme part of Northern Nigeria. According to ZATSEMA (2022), a total of 18,245 houses were affected by the various types of climate-related disasters in the Agency (NEMA), the Zamfara State Emergency Management Agency (SEMA), and the Nigerian Red Cross Society (NRCS), which identified 234 locations in Zamfara State that were impacted by floods or received internally displaced persons (IDPs) due to the flooding. This</p>
	<p>underscores the urgency of the situation and the need for urgent action. There is an urgent need for preparation for the occurrence of climate-related disasters, including having sufficient contingency plans and adequate budget lines, timely response to the occurrence of climate-related disasters such as floods, rainstorms, dust storms, and hailstorms, and implementing strategies for recovery from climate-related disasters.</p>
<p>Supporting departments</p> <ul style="list-style-type: none"> Zamfara State Environmental Protection Agency Zamfara State Urban and Regional Planning Board. Nigerian Meteorological Agency (NIMET) <p>External Stakeholders National Emergency Management Agency (NEMA), UNDP, World Bank, IOM</p>	<p>Required Action:</p> <ol style="list-style-type: none"> Create awareness about the measures to be taken to prevent floods Clear storm water drainages before the start of the rainy season. Adopt and use early warning system in place. NiMet forecasts, Climate Peace Hub Advisory, the State Government and relevant stakeholders should adhere to the warnings Construct additional storm water drainages by the Zamfara State Government and the World Bank supported National Erosion and watershed Management Project. Effective plan rural areas and urban centers to avoid the occurrence of floods and other climate related disasters. Harness flood waters to establish Earth dams to provide water for irrigation near urban centers. Increase afforestation programs to serve as wind breaks Plant more trees in urban centers to reduce heat in urban areas Continue soil erosion control projects through the NEWMAP in collaboration with the World Bank.

Status of Action Ongoing action	Sub-actions/Activities: <ul style="list-style-type: none"> • Conduct regular site visits to residential areas to observe measures adopted against floods. • Promote Local/ community participation in clearing of drainages to avert flood disasters. • Encouraging children and youths to plant trees within the school and home environments. • Assisting the victims of floods and rainstorm disasters that occurred in 2024. • Adopt the use of Zamfara State disaster assessment tool developed by the State Bureau of Statistics for a better management of disaster situations. • Increase coherence, coordination and information sharing between Government agencies, CSOs and all other actors.
Estimate cost	N2 billion Nigerian Naira

Performance Indicator	Baseline Value	Target	Data Source
The occurrence of climate related disasters in the State. Number of persons trained on climate related disaster training (disaggregated by sex) Number of persons disaggregated by sex that were provided with humanitarian relief materials (yearly)	<ul style="list-style-type: none"> • TBD/ 34 LGAs • TBD • TBD 	Reduction of climate related disasters. <ul style="list-style-type: none"> • TBD • TBD 	<ul style="list-style-type: none"> • SEMA reports • NEMA reports • Academic researches.

TABLE-6: “LAW ENFORCEMENT” PLAN OF ACTION

Policy Outcome: Climate change related Law enforcement strengthened	
Lead Departments <ul style="list-style-type: none"> • Dept. of Forestry under Min of Environment • Min of Justice 	Situation Synopsis: In Zamfara State, the climate change regulation situation is characterized by a lack of robust, dedicated legislation; some of the laws are obsolete and ineffective, i.e. <u>Many environments have</u> offenders running free due to a lack of effective law enforcement; communities experience high cutting down of trees for cooking, poaching of forest reserves is on the increase, and mandatory environmental impact assessment is being evaded by companies that should conduct them regularly. The unchecked booming excavation of the topsoil business for building purposes continues to have a devastating effect on soil degradation, leading to large gully erosion in some communities. Similarly, the incessant dumping of refuse is constantly clogging water channels in most communities; this can be attributed to the unregulated and lack of strict penalties for open refuse dumping. Despite the banning of illegal mining across the state in 2021, these activities continue to soar at some Dabar-Hajia mining sites, in Danja LGA, among others. The prevalence of wildlife trafficking is a serious threat to conservation and biodiversity loss prevention efforts in Zamfara state. Specifically, the trade in bird carcasses for traditional medicine has led to a decline in the vulture population, among others. Corruption is a significant obstacle to law enforcement, especially at high-risk entry and exit points. This calls for the declaration of a state of emergency around the lack of implementation of climate-related law enforcement.

<p>Supporting departments</p> <ul style="list-style-type: none"> • Min of Water Resources • Min of Rural and Social Development • Min of Information • Min of Lands & Physical Planning • Min of Education • Min of Internal Security & Home Affairs • Directorate of Social Development, Zamfara State Development Management Board (ZTDMB). • MURNA Foundation • National Environmental Standards and Regulations Enforcement Agency (NESREA) • Environmental Impact Assessment (EIA) <p>External Stakeholders</p>	<p>Required Action:</p> <ul style="list-style-type: none"> • Leveraging the existing state law to strengthen enforcement & conduct a comprehensive mapping to identify obsolete laws and adjustments of current laws that are not adequate. • Interpretation and application of climate change laws • Timely monitoring of the enforcement • Implement a comprehensive system of penalties to deter climate and environmental law violations. This includes imposing severe fines for illegal deforestation, pollution incidents, and failing to meet established emissions standards to ensure accountability among industries and individuals. • Introduce detailed zoning laws that specifically target regions at risk of deforestation. These regulations will limit the conversion of forested areas for agricultural or industrial use and encourage sustainable land use practices that balance economic development with environmental conservation. • Enact a tax structure for industries based on their total carbon emissions. This tax will serve as a financial incentive for companies to invest in and transition to low-carbon technologies and renewable energy sources, thereby aiding in reducing their overall environmental impact. • Require industries to adopt and implement advanced waste reduction and emissions control technologies. This mandate will ensure that companies actively work to minimize waste and reduce greenhouse gas emissions throughout their operations and supply chains. • Introduce a fee system for unsustainable groundwater extraction practices. By imposing charges on excessive groundwater use, this policy aims to encourage industries and agricultural sectors to adopt more efficient water use strategies, thereby promoting longterm water sustainability. • Establish specialized environmental courts or tribunals at the state level that are equipped to handle environmental cases more efficiently. These courts will be dedicated to swiftly addressing instances of noncompliance with environmental regulations, ensuring timely judicial action. • Mandate industries (mining/manufacturing, etc) to adopt advanced technologies specifically designed to minimize waste production and effectively control emissions. This includes implementing practices that improve efficiency in resource use, recycling materials, and adopting cleaner production methods to ensure a more sustainable impact on the environment.
<p>World Bank, UNDP, Ford Foundation, UNICEF, United Nations Environment Programme (UNEP)</p>	<ul style="list-style-type: none"> □ Develop a conflict-sensitive enforcement strategy that considers the security challenges faced in high-risk areas. This strategy will involve collaboration with local communities and stakeholders to effectively enforce environmental laws while mitigating potential conflicts arising from enforcement activities.

<p>Status of Action Some ongoing/ Yet to start</p>	<p>Sub-actions/Activities:</p> <ul style="list-style-type: none"> • Review/Amendment of the existing law on ecosystems, for example, water, forest, grass/ shrub lands, farmlands, and urban centres. • Conduct Joint Monitoring, reporting and evaluation of security operatives/ environmental agents. • Conduct effective enforcement capacity building for relevant stakeholders i.e MDAs • Collaborate with Zamfara state’s three-tier security structure to establish a strong partnership with the state's security framework, which includes community policing, state police, and federal law enforcement agencies. Engage the forestry guard to ensure effective law enforcement against environmental crimes. This collaboration will help create a cohesive strategy for protecting natural resources within the community. • Employ additional forestry guards in the Ministry of Environment to beef-up forest monitoring. It is proposed that at least ten guards be assigned to each of the 34 local government areas (LGA) across Zamfara state. Reduce the use of adhoc forest guards, as contract staff are vulnerable to comprise and corruption. • Implement a regulatory framework that includes fees for unsustainable groundwater extraction. This initiative aims to create economic incentives that encourage efficient water use among industries and individuals, thereby promoting sustainable water resource management. • Facilitate comprehensive training programs for judges and prosecutors to deepen their understanding of climate litigation. This initiative empowers the judiciary to respond effectively to climate-related cases, ultimately enhancing legal accountability for environmental transgressions. • Review and amend existing ecosystem laws by thoroughly assessing current legislation concerning ecosystems, such as laws related to water, forests, grasslands, farmlands, and urban areas. Amendments should reflect contemporary environmental challenges and promote better management of natural resources, ensuring that all ecosystems are adequately protected. • Impose financial penalties for environmental violations by establishing a clear system of financial penalties for activities such as illegal logging, pollution, and noncompliance with mandatory environmental impact assessments. These penalties will serve as deterrents to potential offenders and reinforce the importance of adhering to environmental laws. Revenue generated from these penalties will be integrated into the implementation of the state climate change policy.
<p>Estimate cost</p>	<p>20 million naira</p>

Performance Indicator	Baseline Value	Target	Data Source
<ul style="list-style-type: none"> • Number of violations successfully reported • Number of charges made • Number of convictions secured 	<ul style="list-style-type: none"> • 11,062 • 5,102 • TBD • TBD 	<ul style="list-style-type: none"> ☐ 17,000 ☐ TBD ☐ TBD TBD ☐ 	<ul style="list-style-type: none"> • Dept. of Forestry report. • Department of public report prosecution (ministry of Justice)
<ul style="list-style-type: none"> ☐ Number of cases 			

resolved through ADR mechanism	<input type="checkbox"/> TBD	TBD	
<input type="checkbox"/> No of Recruitment and Training of Forest Guards	TBD	<input type="checkbox"/>	TBD
<input type="checkbox"/> Community Outreach Campaigns conducted. Number of businesses penalized for non-compliance	<input type="checkbox"/> TBD	<input type="checkbox"/>	TBD
	<input type="checkbox"/>	<input type="checkbox"/>	

TABLE-7: "CAPACITY BUILDING, EDUCATION AND AWARENESS" PLAN OF ACTION

Policy Outcome: Awareness of climate change impacts, adaptation & mitigation measures promoting community behavior change improved	
Lead Department Ministry of Education/Ministry Information	Situation Synopsis: Zamfara State faces significant challenges in addressing climate change due to gaps in capacity building, education, and public awareness. These problems are exacerbated by socioeconomic, infrastructural, and environmental factors that limit the state's ability to respond effectively to climate-related threats such as desertification, drought, and water scarcity. Government agencies responsible for environmental management often lack personnel with specialized knowledge of climate science and sustainable development practices. Climate change topics are either missing or insufficiently covered in school curricula, particularly at the primary and secondary levels. There is a lack of coordination between governmental departments, NGOs, and local communities, resulting in fragmented efforts and duplication of initiatives. Public awareness campaigns are not widespread or consistent, and many rural communities are unaware of the causes and potential solutions to climate change. Information dissemination is often hampered by cultural beliefs, language differences, and a preference for oral traditions over written materials. The current situation calls for the adoption of new effective ways of reaching the different strata of society with climate-related information, using culturally sensitive and age-appropriate messaging. Social media's extensive reach and power to promote behaviour change have not yet been fully utilized by Zamfara State.
Supporting departments Ministry of Environment, Ministry of agriculture External Stakeholders UNDP, Umaru Musa Yar'adua University	Required Action: Conduct Educational Workshops and Public Campaigns Conduct Capacity-Building and Skills Training: Initiate routine Community Engagement Activities: Institute Climate change in primary & basic Education curriculum
Status of Action Ongoing	Sub-actions/Activities: 1. Educational Workshops and Public Campaigns <ul style="list-style-type: none"> Identify and train facilitators with expertise in climate change communication. Conduct workshops and awareness campaigns using participatory approaches across communities, public spaces and schools to explain the greenhouse effect, global warming, and individual roles in mitigating climate change. Develop culturally relevant campaign materials, including brochures, posters, and videos, in local languages.

	<ul style="list-style-type: none"> • Leverage mass media (radio, TV) and social media platforms to disseminate key messages. • Institute climate change into basic and primary teaching curriculum and a version for community participants • Use storytelling, real-life case studies, and visual aids to make topics relatable and engaging. 2.Capacity-Building and Skills Training • Identify target groups (e.g., farmers, artisans, teachers, and community leaders) for tailored training sessions. • Develop training modules on sustainable practices such as organic farming, composting, and renewable energy. • Enhance the capacity of institutions to mobilize and utilize external and domestic climate financial resources. • Promote alternative income generating activities that are climate resilient • Organize practical, hands-on demonstrations of climate-smart techniques. • Provide resource kits, including manuals and tools, to participants for continued application of learned skills. • Establish follow-up mechanisms to assess the adoption of practices and provide additional support. <p>3. Community Engagement Activities</p> <ul style="list-style-type: none"> • Collaborate with community leaders & religious leaders to organize tree-planting drives, targeting deforested or degraded areas. • Plan and execute clean-up campaigns in public spaces to promote waste management awareness. • Form and support climate action clubs in schools and communities to sustain engagement. • Host community forums (Town hall events) to discuss local climate challenges and solutions, fostering collective ownership of initiatives. • Recognize and reward outstanding community contributions to climate action to encourage participation.
Estimate cost:	200 hundred Million Naira (200,000,000 Naira)

Performance Indicator	Baseline Value	Target	Data Source
<p>1. Educational Workshops and Public Campaigns •</p> <p>Number of workshops and campaigns conducted.</p> <ul style="list-style-type: none"> • Attendance rate and diversity of participants (e.g., gender, age, and occupation). • Percentage of participants demonstrating improved understanding of the greenhouse effect, global warming, and mitigation roles (measured through pre- and postworkshop surveys). • Reach and engagement levels of campaign materials (e.g., social media shares, radio/TV audience metrics). <p>2. Capacity-Building and Skills Training</p> <ul style="list-style-type: none"> • Percentage of trainees who adopt climate-smart practices within six months of training. • Increase in local application of techniques such as sustainable farming, composting, and renewable energy use (measured through follow-up surveys or field visits). • Participant satisfaction and perceived usefulness of the training (measured through feedback forms). 	<p>TBD</p> <p>TBD</p> <p>TBD</p>	<p>TBD</p> <p>TBD</p> <p>TBD</p>	<p>1.Educational Workshops and Public Campaigns <i>State and National Curriculum Boards:</i></p> <p><i>Climate Research Institutions (e.g., NiMet):</i></p> <p><i>Community Surveys and Focus Group Discussions (FGDs):</i></p> <p>2.Capacity-Building and Skills Training</p> <p><i>Local Agricultural Extension Services:</i></p> <p><i>Ministry of Environment or Agriculture:</i></p> <p><i>International Organizations (e.g., FAO, UNEP):</i></p>

3. Community Engagement Activities <ul style="list-style-type: none"> Total trees planted and survival rates of those trees after six months. Volume of waste collected and managed during cleanup campaigns. Number of climate action clubs established and their active membership. Instances of community-led initiatives inspired by the program. 	TBD	TBD	<i>Universities and Research Institutes:</i>
	TBD	TBD	3. Community Engagement Activities <i>Community Records and Registers:</i> <i>Environmental Protection Agency reports</i> <i>Traditional and Religious Leaders reports.</i>

TABLE-8: “RESEARCH AND CLIMATIC OBSERVATIONS” PLAN OF ACTION

Policy Outcome: Research & Climatic observations strengthened and used for decision making	
Lead department Min. of Environment, Agriculture and SBS	Situation Synopsis: Zamfara state is described as one of the most climate-affected regions of Nigeria due to its location in the Sahara and Sahel. It has been reported that climate change has resulted in flooding, heat waves, drought, agricultural loss, human health issues, and much more in Zamfara state. The use of research and routine data is currently limited by challenges like poor data infrastructure, inconsistent data collection practices, and a lack of coordinated data sharing across different government agencies, leading to inaccurate and unreliable information for policymaking. Despite efforts to improve data collection and utilization through a series of capacity-building initiatives, significant gaps remain in the conduct of research and climatic data in Zamfara state. Strengthening research agencies, academia, and observatory systems to support and inform the development of state and community actions to ensure evidence-based interventions are the urgent next steps for Zamfara State.
Supporting departments NiMet MBMIST and SBS External Stakeholders <ul style="list-style-type: none"> UNDP World Bank ACRESAL UNICEF Academia 	Required Action <ol style="list-style-type: none"> Creation of environmental weather monitoring system to generate and analyze timely data for decision making Institutionalization of climate research Develop a robust mapping of local communities across the state in collaboration with the State Bureau of Statistics. Creation of robust data network to support climate research Utilize state household mapping to support all government sectors, research agencies, CSO/CBO and academia to understand the region's context and develop evidence-based action and response plans – with direct links to Pillar 1,3 and 8. Funding of climate change related research, innovations and bi-annual conferences.
Status of Action To Kick Start	Sub-actions/Activities: <ol style="list-style-type: none"> Collaborate with research institutions such as Universities, NiMet for climate weather monitoring and analysis Organizations of institutional Conferences and workshops for Climate Change Creation of State Climate Change Research team Develop regional climate models for prediction Climate Change certificates program for extension works Conduct a participatory land use mapping across the thirty-four LGAs Establishment of Aerosol and pollutions data stations
Estimate cost 200, 000 000 Million Naira	

Performance Indicator	Baseline Value	Target	Data Source
i. Academic and research institutions developing	0	100	Academia/NiMet/SBS report

open-source publications			
ii. Integration into community lead information hubs, (Such as the ClimatePeace Hubs in Jibia – completed in 2025)	1	3	UNDP climate peace hub location.
iii. Number of Climate related Factsheets produced/disseminated	0	12	Bi-annual /quarterly factsheets produced
iv. Hosting of National/ International conferences on climate change	0	5	Academia

TABLE-9: “CLIMATE CHANGE FINANCING” PLAN OF ACTION

Policy Outcome: Improved allocation & mobilization of Climate Change Finance	
<p>Lead department</p> <p>Ministry of Environment Zamfara State/ Ministry of Finance / Ministry of Budget & Economic planning</p>	<p>Situation Synopsis:</p> <p>Presently there is no workable climate change finance framework in Zamfara State. It <u>has become</u> imperative to have a robust mechanism for the State to move to low-emission, climate-resilient growth paths. Finding effective ways to mobilize a variety of resources from global, regional, and national to the state, while at the same time ensuring speedy implementation of the policy framework, is critical. This can be achieved by engaging the developed countries, referred to as Annex I countries (who have accepted greenhouse gas emission reduction obligations and must submit an annual greenhouse gas inventory), and developing countries, referred to as Non-Annex I countries (who have no greenhouse gas emission reduction obligations but may participate in the Clean Development Mechanism as well as other scale holders at the global, regional, and national levels).</p> <p>This framework entails the provision of support to local communities through green-bound investment in projects and programs that are targeted towards climate adaptation and mitigation, such as sustainable forest management projects that will address reduced emissions from deforestation and forest degradation, plus conservation. Additionally, the framework will provide insight into other sources and funding for climate financing, such as carbon credit, trading, and marketing.</p>
<p>Supporting departments</p> <p>*State Ministry Finance, *State Project Unit of the Sustainable Development Goals (SDGs)</p> <p>External Stakeholders</p> <p>World Bank, Annex 1 Countries, African Development (ADB) UNDP, United Nations Industrial Development Organization (UNIDO), Bank of Industries. Federal Ministry of Environment among others organizations</p>	<p>Required Action:</p> <ul style="list-style-type: none"> • Establish a comprehensive roadmap for Zamfara state carbon credit transactions • Carry out advocacy and familiarization visits to understudy the emerging National carbon credit platform. • Conduct a comprehensive organizational capacity building assessment on carbon credits architecture, compliance and regulations for Zamfara state. • Constitute a Tink-tank group to review the Zamfara state preparedness to join the emerging National carbon credit market • Carry-out a learning visit to Lagos state to understudy how the voluntary carbon credit market involvement of the private sector. • Organize farmers into cooperatives to be organized enough to benefit from the carbon market.
<p>Status of Action</p> <p>At Proposal Stage</p>	<p>Sub-actions/Activities:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Conduct a comprehensive mapping of available voluntary carbon market available, and develop a roadmap for Zamfara state carbon credit transactions. <input type="checkbox"/> Conduct capacity building training for key stakeholders on carbon credits architecture, compliance and regulations <input type="checkbox"/> Provide financial and technical support to empower women and vulnerable groups to participation into green and circular economic activities as provide in SDG 5 e.g climate smart agriculture,

	<ul style="list-style-type: none"> □ Provide carbon credits financing for the programs to conserve local resources by establishing shelter belts and plantations of indigenous tree species in each of the LGAs of the State to achieve REDD+ □ Regeneration of the existing and degraded forest reserves aimed at REDD+ and conservation of terrestrial ecosystem as contain in SDG 15 and also to mitigates deforestation and promotes afforestation □ Conduct capacity building and training programs to multi-sectoral stakeholders including school pupils with a to educate and provide awareness on climate change adaptation and mitigation
Estimate cost	Fifty million naira (50,000,000 million)

Performance Indicator	Baseline Value	Target	Data Source
Establish Climate Change Financing Framework	Zero	TBD	National Climate Change Policy Document, Draft of the State Climate Change.
Number of persons trained on climate finance market / regulations.	Zero	TBD	Zamfara State Implementation Report
Number of cooperative framers that benefit from the established National carbon credit platform.	Zero	TBD	Zamfara State Implementation Report
Share of state budget allocation to environment & climate change	TBD	15% yearly allocation increase	Annual state budget allocations to sectors

TABLE-10: “CROSS-CUTTING” PLAN OF ACTION

Policy Outcome: Climate change and its cross- cutting issues mainstreamed in development policies and in planning, coordination and monitoring of relevant sectors.	
Lead Department <ul style="list-style-type: none"> • Ministry of Environment • Ministry of Internal Security • Ministry of Women affairs 	Situation Synopsis: Women in Zamfara State are often excluded from many decision-making processes, which can hinder effective climate action. Ensuring gender sensitivity and inclusiveness in all climate related activities is essential, as women play a critical role in climate resilience and community adaptation strategies. With the rise in gender-based violence (GBV) cases in Zamfara state, exacerbated by climate impacts such as displacement and economic stress, it is crucial to provide psychosocial support at both community and LGA levels. Establishing GBV rehabilitation centers should include programs that address the psychosocial effects of climate change on vulnerable communities. Similarly, given the security challenges in various parts of the state, particularly due to climate-related issues such as resource scarcity, a holistic strategy is necessary to reinforce security structures in flashpoint areas and security-prone local government areas (LGAs). This should include non-kinetic approaches to address the underlying socio-economic impacts of climate change. Despite recognizing the importance of Water, Sanitation, and Hygiene (WASH) programs, unhygienic practices like open defecation
	persist in Zamfara State, worsened by climate variability affecting water sources. It’s imperative to promote WASH initiatives in a coordinated manner, emphasizing the integration of climate resilience strategies to ensure access to clean water and sanitation even in changing environmental conditions.

<p>Supporting departments</p> <ul style="list-style-type: none"> Ministry of Humanitarian affairs and social development Ministry of Water Resources Budget and economic planning S.A Security <p>External Stakeholders</p> <p>UNDP, UNICEF, UNFPA, UNWOMEN, ACTION AGAINTS HUNGER, PLAN INTERNATIONAL,</p>	<p>Required Action:</p> <p>Governance and Coordination</p> <ul style="list-style-type: none"> *Establish a dedicated Climate Change Unit to harmonize efforts among stakeholders. *Involve traditional rulers, community leaders, and CSOs in policy development and implementation. *Develop inter-sectoral platforms for collaboration across agriculture, health, water resources, and urban planning. *Create a shared monitoring and evaluation (M&E) framework to track progress and adapt strategies. *Community Engagement: Prioritizing inclusivity by involving marginalized and conflict affected communities in decision-making processes and conservation efforts. *Community Collaboration: Using shared ecological goals to promote social cohesion, particularly through community-based environmental initiatives. *Conflict Resolution: Addressing competition for scarce resources with sustainable resource management, which also fosters peace and stability. *Citizen Engagement: Using participatory mechanisms like public consultations to ensure that policy-making aligns with community needs. <p>Gender and Inclusion</p> <ul style="list-style-type: none"> *Empower women with access to climate-smart tools, clean water, and energy solutions. *Promote women’s participation in decision-making and leadership in climate policies. *Develop gender-responsive programs, such as renewable energy training and cooperatives. *Collect gender-disaggregated data for targeted interventions. *Strengthen Sexual Assault Referral Centers (SARC) for displaced and vulnerable populations. *Provide psychosocial support services for communities affected by climate-related trauma. *Engage youth through mental health programs emphasizing climate resilience. <p>Security</p> <ul style="list-style-type: none"> *Strengthen insider mediation and resource management committees to address resourcebased conflicts. *Deploy security personnel and forestry guards to enforce environmental laws in high-risk areas (refer to pillar 9) *Train security personnel on climate risks and collaborative enforcement. *Scale up State Security Council meetings to address climate-security challenges effectively. *Strengthen the 3-tier security structure to ensure facilitate capacity building on climate security issues <p>Water, Sanitation, and Hygiene (WASH)</p> <ul style="list-style-type: none"> *Invest in climate-resilient water and sanitation infrastructure, such as water harvesting systems and flood-proof facilities. *Develop early warning systems for water scarcity and flooding. *Promote sustainable water use and conservation practices in communities. *Enhance groundwater monitoring and sanitation infrastructure designs to adapt to climate changes
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<p>Status of Action</p> <ul style="list-style-type: none"> InProgress Pending 	<p>Sub-actions/Activities:</p> <p>State Climate change governance and coordination:</p>
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Estimate cost

1,000,000,000

- Create a dedicated unit responsible for harmonizing efforts between ministries, local governments, private sector actors, NGOs, and international partners.
- Foster local buy-in by involving traditional rulers, community leaders, and civil society organizations in policy development and implementation.
- Develop platforms for collaboration between sectors such as agriculture, health, water resources, and urban planning.
- Organize multi-stakeholder forums for information sharing, policy review, and problem solving.
- Align funding from federal, state, and international sources to avoid duplication of efforts and ensure efficient use of resources. (See Pillar 9)

Gender □ Gender inclusiveness into climate action and Inclusion of People with Disability □ Ensure women’s access to resources such as clean water, sustainable energy, and climate smart agriculture tools.

- Address barriers to women’s participation in decision-making related to climate policy.
- Develop initiatives that empower women, such as training in renewable energy or small-scale climate-resilient farming.
- Provide support for women-led cooperatives in reforestation, water management, and clean energy projects.
- Collect and analyze gender-disaggregated data to identify how climate change affects men and women differently, enabling targeted interventions.
- Ensure gender inclusion in the design, planning, and implementation of climate change policies and programs.
- Strengthening Sexual assault referral center SARC
- Provide psychosocial support services for communities affected by extreme climate events, such as floods or droughts.
- Train social workers and healthcare providers in climate-related trauma and stress management.
- Establish community centers that offer psychosocial services, including counseling and support for displaced persons.

Security

- Strengthening insider mediation through the Community Dialogue Facilitators and Natural resources management committee and establish mediation committees to address resource-based conflicts, particularly over land and water use.
- Upscaling monthly State Security Council meeting for effective security operation using both kinetic and known kinetic approach
- Strengthening boarder security and civil military relation
- Deploy security personnel alongside forestry guards or environmental officers to enforce laws in high-risk areas (aligned to pillar5).
- Implement livelihood programs to reduce the risk of climate-induced migration and conflicts.
- Train security personnel to understand climate risks and work collaboratively with environmental enforcement units.
- Develop a replicable approach that uses NGOs, CBOs, and radio to diffuse climate change approaches and information to gather feedback on adaptation action, focused on livelihood.

WASH

- Invest in water harvesting systems, boreholes, and irrigation systems resistant to extreme weather.
- Build climate-resilient sanitation facilities in flood-prone or drought-affected areas.
- Eradication of open defecation, through construction and installation of Mobil toilets in strategic location
- Promote efficient water use and conservation practices for agriculture, households, and industries.
- Regulate and monitor groundwater usage to prevent over-extraction.
- Train communities on maintaining WASH facilities and adopting sustainable practices.
- Increase public awareness on the link between climate change, water scarcity, and sanitation.

	<ul style="list-style-type: none"> □ Integration with Climate Monitoring by developing early warning systems for water scarcity or flooding to prevent disruption of WASH services □ Technical Adaptation of WASH infrastructure (State Level review and approval of Climate resilient designs) □ Supporting for ground water monitoring through state wide geological investigations for establishment of deep aquifer system □ Water quality monitoring policies and implementation mechanisms □ Technical adaptation of sanitation infrastructure design to changing climatic conditions
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Performance Indicator	Baseline Value	Target	Data Source
i. Functional Governance, Coordination system established.	0	1	State Government
ii. Number of Vulnerable Groups Identified a) Women b) Children c) Almajiri d) PWD/PWSN	0	TBD	Bureau of Statistics Zamfara State
iii. Gender/Security/ WASH mainstreamed in action plans	0		
iv. Number of women with equitable access to resources		TBD	
v. Conflict Resolution through Resource Management mechanisms	0		
		TBD	

5.3 Resource Mobilisation Framework

A detailed resource mobilization framework will be later developed to provide a structured system for the ministry to identify, acquire, and effectively utilize various resources (like funds, personnel, partnerships) needed to achieve the policy goals, ensuring sustainability and allowing for the optimal deployment of resources at the right time and in the right place. This will ultimately lead to better service delivery and improved outcomes for Zamfara state and the entire community it serves. Essentially, the framework will serve as a strategic plan to manage resources efficiently and effectively to achieve desired results.

REFERENCES: AND FURTHER READING

Abaje, I. B., Ogoh, A. O., Amos, B. B., & Abashiya, M. (2015). Climate change, flood disaster assessment and human security in Zamfara State, Nigeria. *American Journal of Human Ecology*, 4(4), 47-56.

Abdussalam, A. F, Monaghan, A. J, Dukic, V. M, Mary H. H, Hopson, T. M, Gregor C. L and John E. T (2014). Climate Influences on Meningitis Incidence in Northwest Nigeria. *Weather, Climate, and Society*. Vol. 6. Pp 62-76. DOI: 10.1175/WCAS-D-13-00004.1

Abubakar, M., & Yaro, U. (2020). Groundwater Depletion in Northern Nigeria: Causes and Implications. *African Journal of Water Resources*.

Adejoh, I., Nwankwoala, H., & Mohammed, U. (2022). Climate Change and Agricultural Productivity in Northern Nigeria. *Nigerian Agricultural Journal*.

Alemaka, J, Sawa, B.A and Yusuf, R.O (2021). Effect of Temperature on the Incidence of CerebroSpinal Meningitis and Its Management in Funtua Local Government Area, Zamfara State, Nigeria.

Journal of Applied Sciences and Environmental Management. 25(7):1311-1316. <https://nggovernorsforum.org/index.php/99-news-from-the-states/1304-acutemalnnutrition-hits-children-in-Zamfara>, accessed 04/12/2024 13:26 pm.

Government in Desert Prone Local Government Areas of Zamfara State, Nigeria. <http://uaps2019.popconf.org/uploads-PDF>

Halliru, S. L. (2016). Climate Change and Forced Migration from Mai'adua Local

Ibrahim, A., Musa, H., & Bello, M. (2019). Climate Change and Water Resources in Northern Nigeria. *Journal of Environmental Studies*.

Inter-governmental Panel on Climate Change (IPCC, 2023). 6AR Synthesis Report: Climate Change 2023.

Zamfara State. Chapter published in a Book of Reading, *FUDMA @ 10*, Federal University Dutsinma, Chapter Thirteen, page 223-237 November, 2020.

Ladan, S. I. (2019). Shortage of Water as a Constraint to Irrigation Farming at Daberam Dam Site, Northern Nigeria. *Annals of Geographical Studies* 2 (1). 20 – 28.

Ladan, S.I. (2023). Impacts of Insecurity on Recreation and Tourism in Zamfara State, North West Nigeria. *Research Review of the Department of Geography Tourism and Hotel Management* 53 (1). 70-81.

Ladan, S.I. and Tukur, R. (2024). Completion of Sabke dam Water Supply and Irrigation Project as a Boost to Water Resource Management in Zamfara State, Nigeria. *Direct Research Journal of Agriculture and Food Science* 12 (2) 98-108.

Mortimore, M. (1989). *Adapting to drought: Famers, famine and desertification in West Africa*. Cambridge University Press.

Musa, K. A., et al. (2021). Impact of Climate Variability on Water Availability in Semi-Arid Regions. *Environmental Research Letters*.

National Air space administration (NASA, 2010): NASA's Global climate Change Reports on '2009: Second Warmest year on record; end of warmest decade'

Nicholson, S. E. (2005). On the question of the 'recovery' of the rains in the W/African Sahel. *Journal of Arid Environments*, vol. 63, Issue 3, Pp. 615-641

O.F. Ati., C.J. Stigter, and E.O. Oladipo (2002). "A comparison of methods to determine the onset of the growing season in northern Nigeria" *International Journal of Climatology*, 22,731-742.

Oguntunde, P. G., Babatunde, J. A. and Gunner, L. (2011). Rainfall trends in Nigeria, 1901-2000. *Journal of Hydrology, Issues3-4*, Pp. 207-218

Sallau, B.A. (2020). Exploiting and harnessing Torism Potential as a Source of Revenue in

Umar, A. T. (2013). Frequency and Spatial patterns of Drought in Nigeria. *Nigerian Meteorological Society Journal*, vol, 19, No. 3

Yusuf, S., Ahmed, B., & Garba, I. (2018). Water Quality Degradation in Northern Nigeria Due to Climate Change. *Journal of Water and Climate*.

ANNEX: SECTOR BACKGROUND SUMMARIES/IMPACT ASSESSMENTS.

Agriculture

6.1 Impact of climate change on Agriculture

Climate change is an ever-present reality and concern over the issue is growing every day and Zamfara state is no exception. Reports from Nigeria Meteorological Agency (NiMet) have shown an increased Maximum and Minimum temperature, incidences of floods and erosion, dry spells and drought, heat stress, water scarcity, shortage of animal feed (grains and fodder), increased disease incidences as well as high morbidity and mortality rates. These anomalies have negatively impacted agricultural sector in Zamfara state transforming pastures and croplands as well as livestock undermining production, wiping out crops, killing off livestock, making it more difficult to earn a living and extending the amount of time families must go without food.

Reduced Crop yield: Rising temperatures and changing weather patterns experienced in Zamfara state has resulted to water scarcity, heat waves, drought and flooding which in turn lead to lower crop yields for farmers.

Increase prevalence of Pests and diseases: Climate change in the Zamfara state has resulted to an increase in the prevalence of pests and plant diseases, or spread them to new regions which can result to loss of crops.

Reduce Land Quality, Degradation and Water Scarcity: Climate change drastically affects the quality of the land required to grow crops and pasture. Land is gradually becoming less productive and more vulnerable to future shocks like drought, and competition and conflict over resources is increasing as farmers fight for claim to arable land and access to clean water. Farmers in the state struggle to keep their animals healthy due to drier and more extreme weather conditions. Lack of water and warmer temperatures make it harder for crops to grow, and soil is drying to dust.

Causes Food Insecurity: High temperature in Zamfara state is said to be responsible for spoilage and contamination, compromising the quality of goods and food production resulting to people having less to eat and sell. Recently, farmers in Zamfara state aren't able to grow or raise the food they rely on to earn an income and feed their families as revealed by Abdullahi Umar and reported by premium times newspaper of February, 2024. According to him, he has recorded poor harvest on his farm annually in the past 15 years. Other farmers in his native Yanhoho village in Kaita local government of Zamfara state had the same concern. According to him, the farm where he usually gets 50 bundles of millet but now, he gets 20, there is another farm he used to get 70 bundles, now he gets between 30 to 40 bundles. Farmers are reporting record-breaking losses. It's predicted global food yields could decline by as much as 30% by 2050 if farmers aren't able to adapt to the effects of climate change.

Increased Poverty: Climate change has a direct impact on farmers' livelihoods in Zamfara state. When crops and livestock are lost, so is income. Farmers in the world's most vulnerable regions often already live at the edge of poverty Nigeria and Zamfara state inclusive. This risk is growing as climate change accelerates.

Livestock production: Livestock refers to domesticated animals reared in agricultural settings. They are major sources of meat, milk, wool, eggs and manure. Examples are: Cattle, Sheep, Goat and Poultry. Livestock production in Zamfara State contributes 20% to Agricultural Gross Domestic

Product (GDP). There are basically two systems of production: Traditional (availability of land and family labour) and Modern (large capital investment). Agricultural activities (including livestock production) are all dependent on climatic conditions, whenever climate changes adversely, it results in increased incidences of pests and diseases, water scarcity, floods and elevated temperature/heat stress, high morbidity and mortality in livestock (Nicol et al., 2015). Increased fiber/lignification of forages also results from adverse weather conditions. Where the fiber content of forages is high, the resulting impact is indigestion and low feed intake. All these climatic changes have contributed to the reduction in availability of feed for livestock production (Uyigue and Agho 2007; Atilola, 2012). Also, adverse climatic conditions severely affect production, reproduction and health of our animals. Changes in climatic conditions also causes high morbidity and mortality especially where there are extremes of temperature resulting in heat stress/stroke whereby cattle and poultry are mostly affected. Also, high humidity and extremes of temperature provides a good environment for multiplication of disease vectors resulting in high mortality rates (Das et al., 2016).

The Zamfara state Agricultural sector is adversely affected by climate change because environmental issues such as drought/dry spells, floods and extremes of temperature of temperature and rainfall adversely affect the availability of crop yield, grazing pasture for ruminants and grains for non-ruminant feeds. Increased fiber/lignification of forages also results from adverse weather conditions where high fiber content of forages results to indigestion and low feed intake. All these climatic changes have contributed to the reduction crop production, availability of feed for livestock production.

Human settlement & Housing

6.2 Impact of climate change on Human settlement & Housing

Climate change perhaps is one of the biggest challenges facing humanity today. It is complex and dynamic and requires dimensional and multi-sectoral mitigation and adaptation initiatives within a dynamic action plan and policy framework to properly tackle it. Zamfara State Government recognizes the impact on the sustainable development of the State, human settlement and housing is not in exception.

In Zamfara State urban and rural settlements are already experiencing the effects of climate change. Climate change will have an economic impact on settlements and housing throughout Zamfara State due wide range of environmental hazard exacerbated by climate-related disasters and its long-term climate risks which include: -

- i. Increased frequency and severity of storm surges increased flooding and drought associated with rainfall variability and high volatiles winds. Many settlements were summered and displaced by flooding example Jibia, Sabuwar Shema etc.
- ii. Climate change affected the decrease of the nation gross domestic product (GDP) which in turn affected the State leading to the decrease in the availability funds and purchasing power for the construction and renovation of houses. Climate Change causes the state to hundred million as a result of climate change.
- iii. State inability to construct affordable houses and infrastructural facilities development such as construction of drainages and road in both urban and rural settlement.
- iv. In the Northern part of Zamfara State the wind erosion that has swept away houses
- v. Many of the communities along the Sahelian zones of the State, climate crisis is unleashing increasing desertification and render people migrants.

It is concluded that there is need for urgent action from the State at a level of policy and decision making. The following policies are also suggested and recommended for the benefit of Zamfara State.

Water resources & Aquaculture

6.3 Impact of climate change on Water resources & Aquaculture

Zamfara State, situated in the semi-arid region of northern Nigeria, faces significant challenges in water resource management due to the effects of climate change. Water resources in the state, including surface water (rivers, streams, and ponds) and groundwater (wells and boreholes), are critical for agriculture, domestic use, and livestock. Aquaculture, the farming of fish and other aquatic organisms, is an emerging sector in Zamfara State, providing food, income, and employment. However, climate change is altering rainfall patterns, increasing temperatures, and intensifying droughts, which have far-reaching impacts on the availability, quality, distribution of water resources, fish health, and production costs etc.

Reduced Water Availability: Studies indicate that annual rainfall in northern Nigeria has decreased over recent decades, with rainfall becoming more unpredictable and unevenly distributed (Ibrahim et al., 2019). Zamfara State has experienced reduced, unpredictable rainfall and driven by rising temperatures, have led to significant reductions in both surface and groundwater availability. According to Abubakar and Yaro (2020), groundwater levels in many parts of northern Nigeria, including Zamfara, have declined significantly over the past two decades. surface water becomes less reliable, increased dependence on groundwater for agriculture and domestic use has led to over-extraction, further depleting aquifers (Nwankwoala, 2015). This limits water for irrigation, livestock, and domestic use. Many fish species, such as catfish and tilapia, are sensitive to temperature changes. High temperatures can reduce dissolved oxygen levels, causing stress, reduced growth rates, and increased mortality in fish. Musa et al. (2021) found that higher temperatures in semi-arid northern Nigeria have significantly increased water loss from reservoirs and ponds, exacerbating water scarcity.

Degradation of Water Quality: Intense rainfall events cause runoff that carries pollutants such as agricultural chemicals, waste, and sediments into water bodies, degrading water quality. Yusuf et al. (2018) noted that the quality of both surface and groundwater in northern Nigeria has deteriorated due to increased runoff and sedimentation. Prolonged droughts and high evaporation rates can increase salinity levels, leading to lower water levels and heavy rainfall can introduce pollutants and sediments into aquaculture systems can inhibit fish growth and reproduction, reducing overall yields

Agriculture and Food Security: Agriculture in Zamfara depends heavily on both surface and groundwater for irrigation. Reduced water availability has led to lower crop yields, threatening food security in the state. According to Adejoh et al. (2022), climate-induced water scarcity has contributed to reduced agricultural output in northern Nigeria, affecting the livelihoods of millions of farmers.

Increased Flooding and Erosion: Although overall rainfall may decrease, when it occurs, it is often intense, leading to flash floods that damage infrastructure, erode soil, washing away fertile topsoil and contributing to land degradation, which further reduces water infiltration and exacerbates water scarcity and also reduce the capacity of reservoirs due to sedimentation. Intense rainfall events can cause flash floods that damage aquaculture infrastructure such as ponds, dikes, and water control systems, leading to economic losses for farmers.

Socioeconomic impacts: The competition for limited water resources has led to increased tensions between farmers, herders, and communities, contributing to local conflicts. As climate change reduces the availability and accessibility of water sources due to droughts or increased distances between water sources, women and girls spend more time collecting water. This exacerbates their workload and limits opportunities for education and income-generating

activities. The United Nations Women (UN Women) has highlighted that increased water scarcity leads to time poverty, where women's responsibilities for fetching water reduce their ability to engage in other productive tasks, such as farming or working outside the home (UN Women, 2018). The World Health Organization (WHO) also reports that women in developing countries bear the brunt of water scarcity, leading to increased workloads, stress, and exposure to genderbased violence (WHO, 2020). Warmer water temperatures promote algal growth in surface water bodies, reducing oxygen levels and increasing the risk of waterborne diseases like cholera, particularly during periods of drought or flooding. Water scarcity affects agricultural productivity and crops used in fish feed which is a major source of livelihood in Zamfara, leading to reduced income for farmers and increased food and fish prices.

In conclusion, climate change poses serious threats to water resources and aquaculture in Zamfara State, affecting their availability, quality, reliability, fish health, and production costs. These impacts have profound implications for agriculture, livelihoods, health, and overall socioeconomic development. Addressing these challenges requires a combination of sustainable water management practices, infrastructure investment, and policy reforms to ensure water security for the state's growing population in the face of a changing climate.

Forestry and Biodiversity

6.4 Impact of climate change on Forestry and Biodiversity

Climate change poses a significant threat to forestry and biodiversity worldwide, with its impacts being particularly severe in vulnerable regions such as Zamfara State. The far northern part of Nigeria, where the state exists, characterized by its semi-arid Sahelian and Sudan Savannah zones, is a hotspot for desertification, land degradation, and biodiversity loss. These challenges are exacerbated by rising temperatures, erratic rainfall patterns, and droughts, which alter ecosystems and undermine the survival of native flora and fauna. The region's heavy reliance on natural resources for agriculture, grazing, and fuel exacerbates deforestation and habitat destruction, further intensifying the adverse effects of climate change. Species migration, ecosystem fragmentation, and the spread of invasive species threaten the unique biodiversity of the state, while dwindling forest resources and water scarcity heighten socio-economic vulnerabilities.

Deforestation and Forest Degradation: Increased desertification due to higher temperatures and reduced rainfall, especially in arid zones of northern part of the state. Overexploitation of forests for fuel-wood and charcoal as alternative energy sources becomes more prevalent due to economic hardships caused by climate-induced crop failures. Encroachment of agricultural activities into forested areas as communities expand farmlands to counteract declining yields.

Loss of Biodiversity: Species migration or extinction due to unsuitable climatic conditions, especially for temperature and moisture-sensitive species. Reduction in habitat quality and fragmentation. Declining populations of indigenous species like baobab trees and specific wildlife adapted to the semi-arid regions of the northern Nigeria, Zamfara inclusive.

Disruption of Ecosystem Services: Reduced availability of non-timber forest products (e.g., fruits, nuts, and medicinal plants) due to changing growing seasons and extreme weather conditions.

Soil erosion and degradation exacerbated by the loss of vegetation cover. Reduced carbon sequestration capacity of degraded forests, amplifying the impacts of climate change.

Changes in Agricultural-Forest Interactions: Shift in forest composition as some crops, like millet and sorghum, replace forested areas to adapt to drier conditions. There exist the needs for increase in the needs for dependence on agroforestry practices, although climate change may still hinder their effectiveness as well.

Desertification and Land Degradation: Expansion of the Sahara Desert southwards into the Sahel belt, exacerbating land degradation in northern Nigeria, Zamfara State inclusive. Loss of arable land, affecting food security and putting further pressure on forest resources for survival. **Water**

Scarcity and Wetland Loss: Declining water levels in rivers and lakes lead to the drying up of wetlands, critical for biodiversity. Reduced regeneration capacity of floodplain forests, gallery forests and aquatic habitats become issues of serious concerns.

Increased Vulnerability to Invasive Species: The introduction and spread of invasive plant species, Neem trees etc, which outcompetes native vegetation and alter the ecosystems. **Impacts on Livelihoods Dependent on Forestry:** Decline in forest-dependent livelihoods, such as honey production, herbal medicine trade, and hunting, due to resource scarcity. Increased migration and conflict over dwindling forest and grazing resources, particularly between farmers and pastoralists.

Changes in Wildlife Patterns: Disruption of migratory routes for birds and other animals due to altered climate conditions, and vegetation clearance. Loss of key pollinators and seed dispersers, impacting forest regeneration and crop yields.

In conclusion, Zamfara State's climate and environmental factors illustrate the complex interplay between climate change and environmental degradation, highlighting the urgent need for sustainable strategies to mitigate its impacts on forestry, biodiversity, and local livelihoods. Addressing these challenges requires integrated solutions like reforestation, biodiversity conservation, and sustainable land-use practices.

Security

6.5 Impact of climate change on Security

Insecurity is on the increase in Zamfara State, Nigeria, due to persistent herder-farmer tensions, rising crime and banditry, inter-ethnic distrust, and unsustainable natural resource extraction. The region is highly vulnerable to and affected by the impacts of climate change which is compounding existing drivers of insecurity. Communities in Zamfara are amongst the worst affected by a growing crisis exacerbated by climate change risks. Nigeria has faced cycles of violence since independence in 1960. According to the Risk Index, Nigeria has one of the highest projected conflict risk indexes and is at increased risk of socio-economic vulnerability and food insecurity. Violence has reached alarming levels: the murder rate in Zamfara State was 7,400 in 2024. Particularly, insecurity is mounting in Zamfara State, due to persistent herder-farmer tensions, rising crime and banditry, inter-ethnic distrust and unsustainable natural resource extraction. These include disputes over grazing land, cattle, water points and cultivable land. The region is highly vulnerable to and affected by the impacts of climate change which is compounding existing tensions and drivers of insecurity. Communities in Zamfara are amongst the worst affected by a growing crisis related to conflict and climate change. State-level peace efforts with several armed factions in the Northwest have had some success, but these are unlikely to prove durable unless peacebuilding and security responses take account of the complex links between insecurity and climate change in order to address the underlying drivers of vulnerability to this interlinked challenge.

Environmental degradation and climate change have altered pastoral grazing routes, creating tension among farmers and herders, and escalating into violent conflict that has led to multiple victims impacting their livelihoods. Deforestation, land degradation and desertification, combined with rainfall variability due to climate change, have led to increasing scarcity in grazing pastures and low agricultural productivity. This has led to a shift in transhumance patterns of herder communities. Herder communities are migrating earlier and entering farming lands, destroying crops. Traditionally, the usual practice has been that after the harvest, the farmers invite and welcome the herders to graze on the remnants of the farms' soil. Due to climate change, pastoralists now tend to move earlier before the harvest period starts to ensure their livelihoods. This has affected their previously symbiotic relationship - causing tension and distrust. The conflict first escalated after cattle rustling intensified. Then with different influences from diverse

organized criminal structures, from terrorist groups in the northeast to easy access to arms from transnational corridors, these groups have evolved into kidnapping syndicates, where people are taken hostage for ransom. In some areas these groups demand taxes from farmers before being able to access their farms. As a response, the farmers have resorted to self-defense mechanisms. These vigilante style groups have engaged in security services relying on community-driven information. More often than not this has manifested as extra-judicial killings against Fulani people in the communities, therefore escalating the violence to a retaliation cycle, leaving thousands of people displaced and lacking stable livelihoods.

The conflict is a continuation of a decades-long cycle of inter-group violence resulting from governance gaps, such as a lack of essential services and infrastructures and a slow response (and lack of access) of justice and security. The herders harbor a feeling of exclusion from the modern world, further reinforced by abating traditionally available natural resources and basic social infrastructures such as schools, hospitals, water points, and pastures to sustain their livelihoods. In a context heavily dependent on agricultural livelihoods, the lack of pasture and the inaccessibility to arable farm and forest resources by both farmers and herders has led to a fragile situation where general peace and stability in the region and the prospects for stable livelihood for communities are extremely poor. The violent conflict has displaced entire populations. Criminal gangs have destroyed farms and villages and have targeted schools, kidnapping students in mass. Communities are now living in fear and uncertainty, and the insecurity has manifested in a lack of trust in government. Therefore, to ensure the successful implementation of any strategy, solutions must involve the affected communities throughout the entire process. Moving forward, development efforts need to be climate sensitive to ensure that agricultural livelihoods are resilient to weather and conflict shocks.

Overall, climate change amplifies existing vulnerabilities in Zamfara making it a significant driver of insecurity and conflict in the region. Addressing this issue requires coordinated efforts in sustainable resource management, conflict resolution, and community resilience building.

Tourism/Migration

6.6 Impact of climate change on Tourism/ Migration

Climate change has impacts on different sectors of the economy and human life such as tourism and migration. Zamfara as one of the States located in the extreme part of Northern Nigeria sharing boundary with Niger Republic. In fact, Zamfara State, is exposed to the dangers of climate change as it is highly susceptible to the impending threats because of its proximity to the fringes of the Sahara Desert

Impacts of Tourism and Recreation: Climate change has impacts on recreation and tourism in Zamfara State. Climate change induced conflicts such as farmers-herdsmen conflict which has transformed into the deadly banditry conflict has prevented access to tourist's sites in the State. For example, the Gimi Inselberg in Gimi village of Safana LGA, the Chamah Recreational Park in Jibia town, in Jibai LGA, the Yartsamiya Waterfalls at Yartsamiya village of Kankara LGA. In addition, the forests and forest reserves with the potential for tourism have been taken over by bandits using them as their hideout and operating base. Another example is the Kogo Forest Reserve which has been selected for conversion into a National Park but the bandits have prevented the proper takeoff of the national park project (Ladan, 2023).

Climate change induces heat waves results to high temperature especially in the months of April, May and June has discouraged recreation and tourism activities. For example there is low attendance to the viewing of Sallah Durbar during the above months due to high temperature as many people from within and outside the State prefer to remain indoors to escape the heat. In

addition, the dryness of some water bodies affects their potentials to attract recreationists and tourists. Example, the volume of water in the Sabke and Daberam dams have reduced as a result of siltation from streams and rivers that feed the two dams in Daura zone (Ladan, 2017, Ladan and Tukur, 2024). The reduction in the water volume has affected their potentials for tourism and recreation. Zamfara State is enriched with a lot of tourism potentials and sites that include natural and man-made, if properly harnessed will seriously attract people and boast revenue generation and add in-come to the already existing revenue sources of the state (Sallau, 2024). **Impacts on Migration:** The occurrence of extreme weather events such as drought in the local government areas sharing boundary with Niger republic such as Jibia, Kaita, Mashi, Mai'adua, Zango, Sandamu and Baure. In Mai'adua LGA for example, many people either migrated to SouthWestern Nigeria especially Lagos, Oyo states, etc., to serve as security guards and other lowskilled workers or petty trading leaving all or some members of their families at home (Halliru, 2016). Also, increase dryness in these LGAs has led to migration of farmers and herders to the other less arid parts of the state Such as Funtua, Kafur and Danja. Due to the location of Zamfara State at the fringes of the Sahara Desert, climate change related droughts have led to the migration of herders from Niger republic into Kaita, Zango, Baure and Sandamu LGAs of the State. In conclusion, climate change has serious impacts on the different sectors of the economy such as tourism and recreation. There are also impacts of migration due to climate change related events such as droughts within the State and from the neighbouring regions of Maradi and Zinder.

Education

6.7 Impact of Climate Change on Education

Climate change is a multifaceted crisis that affects various aspects of society, including education. In Nigeria, the intersection of climate change and education presents a critical challenge, as the impacts of climate change directly and indirectly hinder educational access, quality, and equity. Zamfara state been in the sudan savannah is seriously affected with some of these challenges. Extreme weather events, such as floods and storms, increasingly damage educational infrastructure in Zamfara leading to prolonged school closures and disrupting the academic calendar. For instance, eighteen (18) LGAs were affected by flood disaster in 2012 while in 2013 20 LGAs were affected (Abaje, et al., 2015) In addition, Climate change significantly affects the health of school-aged children, impacting their ability to learn. Increased temperatures and changing precipitation patterns have led to a rise in vector-borne diseases like malaria and dengue fever.

Climate-induced disruptions contribute to higher absenteeism and dropout rates among students. The United Nations Children's Fund (UNICEF) estimates that 10.5 million children in Nigeria are out of school, with climate change exacerbating this issue. Droughts and food insecurity force families to prioritize survival over education, leading to increased absenteeism. For instance, in northern Nigeria typical of Zamfara State, where droughts are more frequent, children often miss school to help their families with water and food collection.

In the 2020, No fewer than 48 secondary school structures have been damaged owing to rainstorm and disrepair in several parts of Zamfara State. Similarly in 2015 Government Girls Secondary School, Hajara Community Primary School, Citadel Group of Schools, all in Jibia and Government Secondary School Jani Mani. A wind stump struck Government Science Secondary School, Batagarawa, Zamfara State No fewer than 13 students were injured and property worth millions. As a result of the incident, JSS 1 and JSS 11 students as well as SSS 1 and SSS 11 students were directed to go home by the school authorities.

In conclusion, Climate change has seriously affected many sectors of human endeavour including Education. Obviously, climate change has become global phenomena of our time that is the good reason which compels Ban Ki-moon to assert that "climate change is the defining challenge of our age". Climate change adaptation needs proper blend of various geographic, climatic, human, social, traditional, historic factors and perspectives. Education can play an important role in

facilitating adaptation to the challenges posed by climate change. It can help reduce the vulnerability of communities and improve their capacity to adapt to changes in their social, economic and ecological environment, and an uncertain future.

Health

6.8 Impacts of climate change on Health

Zamfara State, located in northern Nigeria, is highly vulnerable to the impacts of climate change due to its semi-arid climate, reliance on rain-fed agriculture, and limited adaptive capacity. The changing climate has profound implications for health in the region, affecting disease patterns, food security, water availability, and overall well-being.

Increased Incidence of Heat-Related Illnesses: Rising temperatures in Zamfara State exacerbate the risk of heat-related illnesses such as heatstroke, dehydration, and heat exhaustion, especially during the dry season when temperatures soar above 40°C. Vulnerable groups, including children, the elderly, and outdoor workers such as farmers, are particularly at risk. Prolonged exposure to extreme heat can also worsen existing cardiovascular and respiratory conditions. Studies (e.g., Abdulsalam *et al.*, 2012; Alemaka *et al.*, 2021) show that high temperature has a significant impact on the occurrence of meningitis. Increasing temperature will lead to the exacerbation of meningitis in the state.

Expansion of Vector-Borne Diseases: Changes in temperature and precipitation patterns have facilitated the spread of vector-borne diseases like malaria and dengue fever in Zamfara State. Warmer temperatures and stagnant water from irregular rainfall create ideal breeding grounds for mosquitoes, leading to higher transmission rates. Historically, malaria prevalence in northern Nigeria was lower due to cooler climates, but climate change is shifting this dynamic, increasing the disease burden.

Food Insecurity and Malnutrition: Climate change has disrupted agricultural productivity in Zamfara State due to the false start of the rainy season (Ati, et al., 2001) irregular rainfall, prolonged droughts, and desertification. These factors reduce crop yields, leading to food shortages and rising food prices. As a result, malnutrition is becoming more prevalent, particularly among children under five. Malnutrition weakens the immune system, making individuals more susceptible to infections and diseases.

According to the Oxford Policy Management (OPM) in its Nutritional Smart survey of 2018, Zamfara State has 58 percent of children with stunting challenges 31.4 percent of underweight children, and 3.0 percent of children with Severe Acute Malnutrition (SAM), according to recent statistics released

Water Scarcity and Waterborne Diseases: Zamfara State faces significant water scarcity due to declining rainfall and the drying up of water sources. This situation forces communities to rely on unsafe water for drinking and domestic use, increasing the prevalence of waterborne diseases such as diarrhea, cholera, and typhoid fever. Children are disproportionately affected by these illnesses, which can be fatal if untreated.

Respiratory Issues from Dust and Air Pollution: The region's desertification and frequent dust storms, exacerbated by climate change, contribute to poor air quality in Zamfara State. Dust particles and air pollutants aggravate respiratory conditions such as asthma, bronchitis, and chronic obstructive pulmonary disease (COPD). The dry season, in particular, sees a surge in respiratory illnesses, often linked to increased dust exposure. Moreover, limited access to energy further impacts the operation of primary health care, thereby increasing children's vulnerability and making it difficult for communities, including the most vulnerable groups such as children and women to access health services. In addition, climate impacts of deforestation and cooking emissions including ineffective solid waste management, environmental pollution and the use of wood and charcoal for cooking, impact strongly on children's and women's respiratory health.

Mental Health Challenges: Climate change-induced challenges such as crop failures,

displacement, and loss of livelihoods contribute to stress, anxiety, and depression among affected populations. Farmers who rely on consistent weather patterns for their livelihoods are particularly vulnerable to the psychological impacts of climate change.

Increased Risk of Conflict and Displacement: Resource scarcity, particularly water, and arable land, has heightened tensions between farmers and pastoralists in Zamfara State. These conflicts, fuelled by climate change, displace communities and create health challenges for displaced populations, including poor access to healthcare, malnutrition, and exposure to diseases in overcrowded settings. In conclusion, climate change poses significant health challenges for Zamfara State, particularly for vulnerable populations. Tackling these impacts requires a multifaceted approach that integrates public health, environmental management, and climate adaptation strategies.