



**GOVERNMENT OF SIERRA LEONE
THE MINISTRY OF THE ENVIRONMENT**

NATIONAL CLIMATE CHANGE POLICY

FINAL, 2021

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Preface

Sierra Leone has demonstrated impressive economic development despite setbacks including the decade old civil war, EBOLA scourge, series of flood events , the mudslide of 2017 and COVID-19 pandemic, in its strides to attaining the status of a middle-income country. However, future growth is still threatened by its high vulnerability to climate change as reflected in increasing temperatures across the various ecological zones where rainfall patterns are also becoming less predictable and thus exacerbate poverty amongst the poorest people, particularly women and children. We have also witnessed an increased number of floods in recent years that threaten the lives and livelihoods of a great number of our people. In addition, the northern and coastal savannah areas often experience severe dry conditions due to decreasing annual rainfall. This explains why human capital development, environmental sustainability, poverty reduction and equitable social development remain the cardinal priorities of Sierra Leone’s development goals as enshrined in the NMTDP.

It is in this light that it is critical to have in place a National Climate Change Policy (NCCP) to ensure a climate-resilient and climate-compatible economy which addresses a low-carbon growth path for Sierra Leone while achieving sustainable development. The main purpose of this revised NCCP is to guide policymakers to make informed decisions about the national policy actions and programmes needed to contribute to the fight against climate change and how such needs can be articulated in order to seek or leverage internal and external resources from public, private and international organisations. The NCCP is an output from a series of consultations and workshops with key stakeholders. Responsibility for implementing the various components set out in the Policy will lie with various line ministries and agencies, who will work in partnership with each other and with civil society and the business community.

The Ministry of Environment, and the National Climate Change Committee stand ready and willing to lead the way in its implementation while continuing to advance national economic development. We invite all stakeholders, at home and abroad, to support us in this endeavour.

Dr. Foday Moriba Jaward

Minister, Ministry of the Environment

Acknowledgements

This revised National Climate Change Policy has been prepared with the active involvement and assistance of a wide range of stakeholders who have contributed immensely in ensuring the revision of this National Climate Change Policy.

These include the staff and management of the Ministry of Environment, Sierra Leone Meteorological Agency and the Environmental Protection Agency, as well as other related public sector Ministries, Departments and Agencies, civil society organizations and non-governmental organizations, Local Government and Chiefdom authorities, the private sector and industry, research and academic institutions, the media and press, development partners and international and inter-governmental organizations in Sierra Leone, the Sierra Leone Parliament and in particular the Parliamentary Committee on Environment. To all these distinguished stakeholders, we extend our gratitude and profound thanks for their invaluable contributions towards the revision of this Policy.

The Ministry of Environment, on behalf of the Government of Sierra Leone appreciates the efforts of National Consultant, Dr. Reynold Johnson who has previously conducted similar work with GoSL and the UNDP Office in Freetown. Development of such a document would be impossible without financial resources and technical support from the UNDP Country Office in Sierra Leone. I acknowledge the efforts of Tanzilla Sankoh, Bintu Moseray, and staff in the Finance Department are acknowledged and appreciated.

We also wish to express our sincere appreciation to the coordination institution, the Ministry of the Environment who assisted in the preparation of and facilitated the sessions of the various regional and National consultative workshops and fora during the Policy review process.

We do also sincerely recognize the immense assistance of those who have not been explicitly mentioned here, but whose contributions invaluablely enriched the finalization of the Policy.

So finally, and by no means least, the MoEnv sincerely thank the Hon. Minister Foday Moriba Jaward for his leadership, guidance and support that has enabled and enhanced the preparation and completion of the Policy.

Thank you.

Mrs. Tengbe, Permanent Secretary- Ministry of Environment

Acronyms

AF	Adaptation Fund
AFD	French Development Agency
AfDB	African Development Bank (AfDB)
AFLAC	Africa, Latin America and the Caribbean Fund
AUSAID	Australia AID
CBOs	Community Based organizations
CDM	Clean Development Mechanism
CIF	World Bank Climate Investment Funds
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DCFW	Domestic Climate Finance Window
DNA	Designated National Authority
ECGCCA	European Commission Global Climate Change Alliance
EPA-SL	Environment Protection Agency-Sierra Leone
EVD	Ebola Virus Disease
GCM	General Circulation Model
GDP	Gross Domestic Product
GEF	Global Environment Facility
GHG	Greenhouse Gas
IPCC	Intergovernmental Panel on Climate Change
ITCZ	Inter-tropical Convergence Zone
IUCN	International Union of Conservation of Nature
LDCF	Least Developed Countries Fund
LECRDS	Low Emissions and Climate Resilient Development Strategy
MoEnv	Ministry of Environment
M&E	Monitoring and Evaluation
MAFFS	Ministry of Agriculture, Forestry and Food Security
MRV	Monitoring, Reporting and Verification
MSWGCA	Ministry of Social Welfare Gender and Children's Affairs
NAMA	Nationally Appropriate Mitigation Action
NBSAP	National Biodiversity Strategic Action Plan

NCCAP	National Climate Change Action Plan
NCCP	National ClimateChange Policy
NDA	National Designated Authority
NGOs	Non-Government Organizations
NMTDP	National Medium Term Development Plan
NWSP	National Water and Sanitation Policy
PMCFW	Private and Market Climate Finance Window
SLCF	Sierra Leone Climate Fund (proposed)
SLMet	Sierra Leone Meteorological Agency
UNDP	United National Development Programme
UNFCCC	United Nations Framework Convention for Climate Change

EXECUTIVE SUMMARY

This National Climate Change Policy (NCCP) is an updated version of the five-year old policy, which seeks to incorporate emerging issues and to guide the future programming of interventions for 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 ten years. The development of this Policy is guided by a technical committee of the Ministry of Environment. This policy is therefore in tandem with national aspirations, as well as regional and international obligations. The Policy will guide and coordinate implementation of relevant provisions enshrined in the United Nations Framework Convention on Climate Change (UNFCCC) and its Kyoto Protocol, and the Paris Agreement at the national level and taking into consideration the country's National Medium-Term Development Plan (2018-2023) and the Sustainable Development Goals (SDGs).

The revised policy sets out the approaches and principles which will underpin how the policy is to be implemented. It also sets out the institutional arrangements which will guide the formulation and coordination of efforts to implement the policy and thus steer the national process over the long term. It also proposes some initial efforts to progress the policy implementation process. However, it does not itself constitute a climate change action plan or strategy which would require a separate development to be anchored on this policy with more activities and wider consultation.

There is glaring evidence of climate change in Sierra Leone, i.e., increasing temperatures; rainfall variability, including unpredictable extreme events; and sea-level rise. These manifestations affect diverse facets of Sierra Leone's socio-economic structure, especially with its high reliance on sectors that are particularly sensitive to climate change — energy production, forestry and agriculture. The Government of Sierra Leone also recognizes that climate change must be mainstreamed into policies and sectoral activities to achieve sustainable green growth.

Climate change issues are already being addressed by a number of existing national institutions, such as the ministries, non-governmental and civil society organizations and the private sector, and bi-lateral and multi-lateral donor partners.

The Ministry of Environment is mainly responsible for the national environment portfolio and operates through a number of agencies to promote climate change issues. Other ministries have established climate change units, and developed climate change indicators and action plans.

At the political level and across various sectors, climate change is being mainstreamed into national development strategies. Civil society organizations, the private sector and donor partners are all contributing to Sierra Leone's response.

As such, the vision outlined in the NCCP is:

To ensure a climate-resilient and climate-compatible economy while achieving sustainable development through equitable low-carbon economic growth for Sierra Leone.

Its principles are in conformity with the existing national policies and national statutes.

The National Climate Change Policy provides strategic direction and coordinates issues of climate change in Sierra Leone. The four core areas of the Policy are (1) adaptation, (2) mitigation and (3) Loss and Damage and (4) cross-cutting.

To address these core areas in the policy, policy directives and supporting policy objectives were outlined.

Climate-change-linked opportunities such as low-carbon economic growth could generate significant development benefits. Low-carbon growth could also open up access to international funding through initiatives such as REDD+.

The NCCP has prioritized eight (8) main areas:

- ❖ Climate Change Adaptation
- ❖ Climate Change Mitigation
- ❖ Loss and Damage
- ❖ Capacity Building, Education, Training and Awareness
- ❖ Research, Technology Development, Transfer and Systematic Observation
- ❖ Climate Change Financing
- ❖ Gender Equality
- ❖ Cross-Cutting Issues

To address the above issues, eight policy outcomes have been identified. These are (1) Vulnerability to climate change impacts through improved social, economic and ecological

resilience reduced. (2) Reduced greenhouse gas emissions. (3) Increased awareness of climate change impacts, adaptation and mitigation measures. (4) Research, technology development and transfer and systematic observations enhanced and strengthened. (5) Enhanced capacity to implement climate change related interventions (6) Climate change and its cross-cutting issues mainstreamed in development policies and in planning, development, coordination and monitoring of key relevant sectors. (7) Climate Change Finance (8) Disaster preparedness and response.

These outcomes are to be achieved through policy directives and policy objectives for three core areas encapsulating the eight prioritized main areas.

Sierra Leone's policy response to climate change will as follows:

- ❖ This revised NCCP presents the policy, analyses the current situation, and gives the broad policy vision and objectives;
- ❖ The policy will present, in greater detail, the initiatives and programmes identified in the NCCP in the form of an Action Programme for implementation to be developed by EPA-SL; and
- ❖ This revised policy will detail how climate change programmes and actions identified in can be mainstreamed and embedded in a time-bound and budgeted manner, into annual work plans of implementing units.

This revised policy highlights the need to strengthen partnerships at all levels with all stakeholders to build resilience, such as the NMTDP 2018-23. Enhanced partnerships to facilitate institutional learning by improving the flow of expertise from practitioners and implementers to sector policy makers, which is seen as an inherently top-down process from the national to the local.

The NCCP recognizes that the brunt of human impact of climate change falls, for the most part, on the poor, and – very often – on women and children, the aged and the physically challenged. Hence,

social protection and social safety nets to smooth out inequities and building a more cohesive society are vital for climate resilience and national development.

The Sierra Leone National Development Plan – **the New Direction Agenda 2018 -2023** indicates that Sierra Leone is committed to mainstreaming inclusive green growth in her development process. Thus, the review of the National Climate Change Policy is timely and will support the transition to low-emission development involving decoupling carbon emissions from economic growth through a series of measures across all economic sectors.

The policy also suggested that Multi Donor Budget Support (MDBS) should be used as a mechanism to mainstream the policy into the sectoral programmes and actions for implementation by the various Ministries, Departments and Agencies (MDAs).

The final component of the process, will be prepared by the MDAs that are identified as leads for specific actions. The lead MDA will develop detailed time-bound and costed implementation plans that would be linked to their operating strategies and work plans.

An inter-ministerial oversight committee should be established to create linkages with the implementing entities.

In addition to the above, intensive educational programmes should be carried out on climate change activities to enable the various sectors to implement the policy. It is further recommended that capacity-building, especially training of relevant staff at the MDA level, should form an integral part of the implementation strategy.

Policy implementation has the ultimate goal of implementing the actions under each Policy Objective as laid out in the document. In so doing, as the respective Policy Objectives are met, then in cumulation, each respective Policy Directive becomes fulfilled.

Resourcing Mobilisation Strategy for the NCCP

The realisation of the bold ambitions and actions identified in the NCCP will require substantial financial resources. To be successful, Sierra Leone will need to access both public and private sources and from both within Sierra Leone and overseas. For sustainability, it is recommended to

create a stand-alone dedicated Sierra Leone Climate Fund (SLCF). The SLCF would focus both on mitigation and adaptation activities; it would evolve in a phased manner starting with providing grant financing before evolving to offer a wider palette of financing instruments; it would aim to catalyse private sector funding through interacting with other financial intermediaries (e.g. commercial banks); and its governance structure would allow broad and equal representation from the government, civil society and the private sector leading to improved capacity of the Government to absorb international public climate finance.

The monitoring, reporting and verification of the implementation of this revised policy of Sierra Leone have been articulated with the objective of tracking the transition of Sierra Leone to a low carbon and climate resilient economy. It will be necessary to develop and apply an integrated framework for measuring, monitoring, evaluating, verifying and reporting results of response (mitigation and adaptation) actions and the synergies between them. Effective implementation of the NCCP is highly dependent on the internal “feedback” generated through monitoring, reporting and verification (MRV) processes. This policy must be able to assess the effectiveness of investment in mitigation and adaptation actions because the mobilization and continuation of financial and technological support are contingent on the effectiveness of the MRV framework. National, bilateral and multilateral financial partners and other providers of finance need the results of MRV systems to validate the effectiveness of funds they provide. Therefore, securing further financial support for the implementation of the NCCP will be dependent on the successful establishment and implementation of a MRV framework.

Section 1: Introduction and Purpose of the Revised Policy

This National Climate Change Policy (NCCP) is an updated version of the five-year old policy, which seeks to incorporate emerging issues and to guide the future programming of interventions for 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 ten years. The development of this Policy is guided by a technical committee of the Ministry of Environment which met on the 14th of May, 2021. This policy is therefore in tandem with national aspirations, as well as regional and international obligations. The Policy will guide and coordinate implementation of relevant provisions enshrined in the United Nations Framework Convention on Climate Change (UNFCCC) and its Kyoto Protocol, and the Paris Agreement at the national level and taking into consideration the Sustainable Development Goals (SDGs).

The Need for Revision of the 2015 Climate Change Policy.

Since 2015, many reforms came into effect that has a direct impact on the revision of this policy. Main developments include:

- National Elections of 2018 which ushered into governance the then opposition Sierra Leone Peoples Party (SLPP);
- Establishment of an Environment Ministry in 2021;
- Development of and validation of the National Adaptation Plan (NAP) document, 2021;
- Development and adoption of the fourth generation Poverty Reduction Strategy Paper (PRSP), National Medium-Term Development Plan (New Direction Agenda) 2018-2023;
- Development and submission of the INDC/NDC in fulfillment of the Lima call to the historic Paris Agreement 2015;
- Revision of the new Mining Act and the adopted new Petroleum Act 2011 in the energy sector;
- Creation of a Renewable Energy Directorate in the Ministry of Energy (ME);

- Creation of the National Water Resources Management Agency;
- Development of and adoption of the new Forest Act and creation of a Forestry Directorate;
- Development of and adoption of the new National Protected Areas Act (NPAA);
- The Local Content Policy in order to increase the number of Sierra Leonean nationals in various positions in foreign companies investing in the economy.
- Development of a National Framework for climate services in Sierra Leone 2020.

For this revised policy, the aforementioned reforms contributed to: (i) an improvement in some areas of the national statistics; (ii) building of national capacity and expertise; (iii) appropriate institutional framework; (iv) orientations of policies, in particular more specific policies in agriculture, forestry, land use and energy sectors.

One key reform, was the establishment of an Environment Ministry in 2021. However, one main area of weakness constraining the effective functioning of the newly established MoEnv 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 the country. As such, support provided by Sierra Leone's development partners for Climate Change is being managed in a non-programmatic manner as there is limited cross-sectoral coordination and information sharing. The capacity of the MoEnv to access and manage climate finance resources is also weak though the EPA-SL as now part of this ministry tends to be filling this gap. Taking this situation into account, the Government of Sierra Leone through this ministry has requested support from the UNDP to assist in revising the more than five-year-old National Climate Change Policy.

The Government of Sierra Leone had a 'policy on climate change' and a separate national strategy and action plan since the early 2015.

As the MoEnv has pointed out, there is therefore a need for a revised and updated institutionalized policy document which will provide a formal ground to support ongoing national climate change activities, both regulatory (in promotion of relevant laws, regulations, standards) and operational (in programme and project implementation, education etc.).

Among other benefits of such a policy, is its function as a reference point for Government's national interventions on climate change by establishing a line of transparency and accountability for all stakeholders to be guided by and by which to adjudge Government decisions in relation to managing climate change issues.

Sierra Leone is well positioned to institutionalize its National Climate Change Policy, given the reasonably substantial information and data accrued through various research, studies and reports. A common weakness of the previous climate change policy has been the formalization of policy positions that are not driven by quality data, information and evidence as there were some gaps and weaknesses in the general body of research on climate change in Sierra Leone.

1.0 The Policy Environment and Approach

1.1 Socio-economic Context and Risks

Sierra Leone has had an unstable modern history marked by a civil war from 1991-2002 and the two-year Ebola crisis (2014-2016). These events and political instability have led to severe socio-economic repercussions and contributed to the underlying vulnerabilities which persists today.

Sierra Leone is one of the poorest countries in sub-Saharan Africa and globally, with a GDP per capita of US\$499 in 2017. It ranked 182 out of 188 countries on the United Nations 2020 Human Development Index, below the average for countries with similar GDP per capita (UNDP 2020a). The overall poverty rate in Sierra Leone is 57 percent, with 10.8 percent of the population living in extreme poverty (Government of Sierra Leone 2019). Poverty rates are concentrated in rural areas where 72.4% live in poverty. In Freetown, poverty is at 18.5 percent.

Poverty is spatial as the North is the poorest, followed by the South and the East. The Comprehensive Food Security and Vulnerability Analysis (CFSVA 2015- MAFFS/WFP/FAO) reported that 49% (3,475,135.37) of people in Sierra Leone are food insecure, of which the majority are poor smallholder farmers that are living in the rural areas of the country (Government of Sierra Leone 2018).

The population is around 7.4 million (2018). The population growth rate has increased rapidly from 1.8 percent between 1985 and 2004 to 3.2 percent between 2004 and 2015. This has led to 40 percent increase from about 5 million in 2004 to more than 7 million today. At the current rate, the population will reach 10 million people by 2026 (Government of Sierra Leone 2019). Forty percent of Sierra Leone's population are youth. There is high unemployment among low and semi-skilled youth most of whom were unable to complete their education due to the civil war.

Sierra Leone's economy is small and undiversified. Sierra Leone has a mixed economic system with prominent state enterprises and a private sector. The major sectors of the Sierra Leone's economy are minerals (diamonds, iron ore, rutile, bauxite), fisheries, tourism, agriculture, and manufacturing. The economy has grown since the end of the civil war driven by agriculture and then by mining.

There were two recent economic shocks, the Ebola epidemic and the collapse of iron ore commodity prices, which lead to shrinking GDP growth. Since then, economic growth has fluctuated. Real GDP growth was weak in 2018 at 3.5% but improved slightly to an estimated 5.0% in 2019, driven by agriculture and services, and in the first half of 2019 by extractives (African Development Bank 2019).

Sierra Leone is especially vulnerable to external shocks. Sierra Leone does not have any control over the price of its major imported goods, such as rice and fuel, which account for over 50 percent of total import value. Additionally, its dependence on primary commodity exports makes it more vulnerable. The African Development Bank projects that international iron ore prices is projected to drop from \$77.70 per dry metric ton in 2019 to \$72.40 in 2022, which is more evidence for the need for economic diversification away from extractive industries (African Development Bank 2019). Covid-19 has added additional shocks and GDP growth is expected to

fall to 1.7%. This is primarily due to the decline in commodity prices and depressed trade, FDI inflows, tourism revenue following travel restrictions and reductions in remittances. An analysis by the African Development Bank projects inflation to reach between 15.3% and 17% (African Development Bank Group 2020).

Agriculture plays a crucial role in ensuring food security, poverty reduction and improving public health. Agriculture employs more than half of the country's formal and informal workforce and accounts for about half of GDP and is a woman dominated sector (Government of Sierra Leone 2019). Although 75 percent of its land is arable, only about 10 percent is cultivated, mainly for food crops such as rice, cassava, yams, and other root crops (Government of Sierra Leone 2018). Farmers, however, have limited access to improved varieties of seeds, equipment and fertilizers. Additionally, farming is mostly rainfed, making it more vulnerable to climate impacts (Government of Sierra Leone 2018). Fisheries activities currently contribute about 10% of GDP, is a primary livelihood for 500,000 people and a main source of animal protein for over 80% of the population. Additionally, fish processing and marketing is a sector- led primarily by women, similar to agriculture, making women's work more climate sensitive (Government of Sierra Leone 2018).

1.1.1 The national climate change context

Like many least developed Sub-Saharan African countries, Sierra Leone's vulnerability to environmental and climate hazards has been taken for granted in the absence of alternatives for decades. Even under the scenario of 1.5°C of global warming, Sierra Leone will experience severe negative climate change impacts. However, climate change is not only a future concern: it is already apparent in current climate observations and trends. Extreme weather events of September 16–17, 2016 and August 14, 2017 caused the most devastating flooding and landslides the country has ever experienced. The 2017 landslide led to substantial loss of lives (over 1,000), EM-DAT (2017), livelihoods and infrastructure. In addition, warming oceans and acidification are leading to increasing rates of coral mortality, with negative implications for fisheries, tourism, biodiversity and livelihoods. Sea level rise has already led to the encroachment of saline water into aquifers and coastal areas, threatening coastal settlements.

1.1.2 Vulnerability Context

The Fifth Assessment Report of the Intergovernmental Panel on Climate Change (AR5 IPCC) indicates that Sierra Leone is among the most highly vulnerable African countries to the increasing frequency of climate change impacts. The country has been ranked as the third most vulnerable after Bangladesh and Guinea Bissau to impacts of climate change in the world, with the least capacity to respond or adapt, based on the 2013 Verisk Maplecroft Index.

Additionally, Sierra Leone's vulnerability is compounded by ageing and poorly maintained critical infrastructure. According to the African Development Bank, Sierra Leone ranked 46 out of 54 countries on the bank's Africa Infrastructure Development Index in 2020 (AfDB 2020). This points to the significant infrastructure investment needed across all sectors including water and sanitation, health, energy, transport, tourism and ICT. The poor infrastructural landscape in Sierra Leone has had a tremendously negative impact on economic diversification, health and livelihoods. Infrastructure is a centerpiece of the Medium-Term Development Plan and key to Sierra Leone's long-term development goals of becoming a middle-income country.

Limited access to the latest knowledge and technology, and wider poverty and development challenges tends to be a decisive factor in increasing the country's climate vulnerability. These factors will increase Sierra Leone's exposure, sensitivity and lower its adaptive capacity, and in turn vulnerability, to future climate impacts if they remain unattended. Climate change could create serious risks for all sectors, for instance tourism sector vulnerability to environmental and climate change hazards could be disastrous for the sector as is evidenced by the annual seaweed invasion of the country's beaches. and will likely have a negative impact on the sustainability of economic development unless action is taken to address these issues.

1.1.3 The Policy and Climate Context and Approach

Sierra Leone, like other Least Developed Countries (LDCs), is vulnerable to the impacts of climate change. While Sierra Leone 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 Sierra Leone, including agriculture, fisheries, forests, energy production related to the availability of water resources, coastal areas and health.

Like most tropical countries, the principal factor influencing Sierra Leone 's precipitation patterns is the seasonal shift of the Inter-Tropical Convergence Zone (ITCZ), a cloud and rain-bearing belt of rising air where south-easterly and north-easterly trade winds converge, in turn affecting trade wind direction and rainfall patterns. On an inter-annual and decadal basis, Sierra Leone is also influenced by the effects of the El-Niño Southern Oscillation (ENSO), which is a naturally occurring phenomenon that involves fluctuating ocean temperatures in the equatorial Pacific. Since the 1960s, observed climate data shows increases in mean annual precipitation, with an average rate of increase across Sierra Leone of **8mm per month, equal to 2.7% increase per decade**. However, trends in seasonal precipitation are not statistically significant. Sierra Leone 's coastal areas are dominated by a 'tropical wet' marine climate where mean annual precipitation **is greater than 1800 mm/year in the past ten years**. The savannah areas in the north of the country, is dominated by a drier 'tropical wet-dry' climate where **total precipitation is lower (with a mean of 1400-1800mm/year) and less well distributed throughout the year**. Savannah areas tend to have a shorter wet season and longer and drier dry season.

1.1.4 Climate Change Projections for Sierra Leone

Under the Third National Communication process, the climate of Sierra Leone has been projected for the next one hundred years. The current average temperature for the **1961-2021** period of 26.7°C is expected to increase by about 7-9 percent by the year 2100. All of the climate scenarios show an increase for the future in the normal annual maximum temperature for the whole country, ranging from 32 to 33°C for MIROC3.2 model to about 29.6 to 31.4°C for the CSIRO-MK3 model.

The annual average rainfall in Sierra Leone is **2746 mm** based on data from the National Meteorological Agency **for 1961-2021**, which varied from 3659 mm at Bonthe in the south to 2618 mm at Kabala in the North. Projection from 1961-1990 using the ECHAM4 and HDCM2 models for the rainfall values at 2100 are similar to the current climate rainfall amount, while the CSIRO-TR and UKTR models show a decrease in rainfall by about 3-10% below the current monthly and annual values. There is an indication of consistent temperature warming across all seasons and scenarios. The projected 1.5°-2.0° Celsius increase in temperature results in increased evaporation losses, decreased precipitation, and a continuation of rainfall decline.

Based on the GCM outputs, solar radiation is expected to decrease by 12% under the HADCM2, by 9% under the UKTR model, and under the CSIRO-TR and ECHAM models by 5%. In Sierra Leone, based on the last reference MAGICC/SCENGEN models, CO₂ concentration of about 350 parts per million (ppm) was determined in 1990. Double CO₂ concentration levels of about 580ppm are likely to be achieved by 2025 and about 700ppm by 2100. Sea level rise (SLR) scenarios adopted in this study are 0.2m as baseline and 0.5m, 1.0m and 2.0m by 2100.

Climate models also project those temperatures will continue to increase and that sea levels and the height of storm surges will 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 Sierra Leone 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 country's socio-economic development objectives. **It is estimated that by 2030 Sierra Leone could be exposed to cumulative annual flood-related losses totaling US\$200 million and that an extreme event similar to the serious flooding in 2016, which resulted in losses equivalent to 60% of GDP, could result in some US\$1.2 billion in losses and harm to more than 5000 people.**

Recent vulnerability studies indicate that the agriculture sector will see a decrease in crop yields due to temperature increases, frequent flooding and salinization of soils. Furthermore, coastal and touristic infrastructure and housing stock in the coastal zone will likely suffer increased damage from more intense floods, storm surges and sea level rise. **Against this background, Sierra Leone has started to take steps to combat the adverse effects of climate change.**

1.1.4 Sierra Leone Climate Change Policy Portfolio

In its strides toward addressing the current and emerging issues of climate change, Sierra Leone has rapidly increased its climate policy portfolio since its National Adaptation Plan of Action (NAPA) was produced in 2007. Sierra Leone's first National Climate Change Policy (NCCP) together with a National Climate Change Action Plan was released in 2015, followed by its

Intended Nationally Determined Contribution (INDC) in September,2015, and Third National Communication (NC3) was released in 2018 (Government of the Republic of Sierra Leone, 2018). It has also completed its NAP process which began with a NAP Framework and a NAP Communications Plan, that laid the foundation for the draft. National Adaptation Plan (NAP April, 2021) seen as key to implementing both this revised Climate Change Policy and the adaptation and mitigation components of the NDC. The draft National Adaptation Plan was validated in April,2021 to now become the Sierra Leone NAP.

Timelines

- 2007 National Adaptation Program of Action, First National Communication to the UNFCCC
- 2012 National Climate Change Policy Framework (NCCP), Second National Communication to the UNFCCC
- 2013 National Development Plan – the Agenda for Prosperity (2013-2018)/Third Generation Poverty Reduction Strategy Paper (2013-2018)
- 2015 Nationally Determined Contribution, National Climate Change Strategy and Action Plan
- 2018 Third National Communication to the UNFCCC
- 2018 Fourth Generation Poverty Reduction Strategy Paper/Medium-Term Development Plan (2019-2023)
- 2019 NAP Framework
- 2020 NAP Communications Strategy,
- 2021 National Adaptation Plan (NAP April, 2021)

1.1.6 Linkages with other Policies and strategies

Sierra Leone has put in place a series of legislative sectoral frameworks and strategies to integrate environment and climate change management in socio-economic development activities. **These include: The Sierra Leone Constitution, 1991; Vision 2020; the Sierra Leone Growth Development Strategies; United Nations Development Assistance Framework for Sierra**

Leone (UNDAF); National Strategy for Sustainable Development 2004; National Environmental Policy (NEP) 1994; National Forestry Act, 1988; Wildlife Policy (2000); Aquaculture and Fisheries Act (2010); National Land Policy (2002); National Environmental Action Plan 2002; Tourism policies and strategies like the National Tourism Policy 2017, the Ecotourism policy 2017 and Tourism Governance and Financial Management Strategy 2021 all have valuable consideration for climate change, environmental protection and preservation, National Climate Change Investment Plan (2013); National HIV and AIDS Policy, 2003; Energy Policy for Sierra Leone (2003); National Land Use Policy, 2005; Food Security Policy (2006); National Water and Sanitation Policy (2010); and Mines and Minerals Policy (2013); National Transport Policy (2015); National Construction Industry Policy (2015); Water Resources Act (2013); Mines and Minerals Act (1981); Disaster Preparedness and Relief Act (DPRA) (1991); Waterworks Act (1995); Environment Management Act (1996); Forestry Act (1997); Road Traffic Act (1997); Local Government Act (1998); Energy Regulation Act (2004); and National Parks and Wildlife Act (2004), Gender Equality Act (2013).

1.1.7 The mandate for this Policy

The mandate for this Policy is derived from the 1991 Constitution of Sierra Leone, which recognizes the need to shape the path for sustainable development by embracing principles of environmental protection, sustainable natural resource use and conservation of biodiversity. Specifically, section 13 (d) describes the principles of national policy and provides that the environment principle is: ‘to manage the environment responsibly in order to prevent the degradation of the environment, provide a healthy living and working environment for the people of Sierra Leone, accord full recognition to the rights of future generations by means of environmental protection, conserve and enhance the biological diversity of Sierra Leone’. This principle is consistent with Article 2 of the UNFCCC and is in tandem with the mandate of the Ministry of Environment which is to protect and foster management, development and sustainable utilization of natural resources and environment.

The NAPA for Sierra Leone, the INC, SNC and TNC, NAMA, NDC, NAP all speak explicitly to address action on climate change adaptation and mitigation. Notwithstanding the documents

cited above, activities related to climate change has operated within contextual frameworks articulated above and general environmental management. They however, provide inadequate incentives and enforcement tools for climate change mitigation and adaptation. The realization of the nature of the impacts of climate change by the Government of Sierra Leone and its stakeholders on the economic sectors of the country, necessitated a comprehensive review of the previous climate change policy that recognizes the multiple dimensions and cross-cutting nature of climate change.

1.1.7 Sierra Leone ‘s International Commitments to the Conference of Parties

Sierra Leone is committed and, in some cases, has developed domestic legislation in fulfillment of a number of climate change related international multilateral agreements, treaties, protocols and regional strategies. Sierra Leone as a ratified signatory to the UNFCCC and its Kyoto Protocol, is committed under Article 4 of the UNFCCC. The Sierra Leone Meteorological Agency (SLMet) is the Focal Point for the United Nations Framework Convention on Climate Change and they are responsible for ensuring that Government of Sierra Leone (GoSL) fulfils its obligations as a Party to the Convention, its Protocol and Agreement. The SLMet leads the engagement and dialogue with multilateral agencies on behalf of the GoSL, to establish partnerships and facilitate access to technical and financial support for low carbon initiatives, climate change mitigation and adaptation, in furtherance of national development thrust.

Additionally, Sierra Leone is committed to achieving the Sustainable Development Goals at national level with particular reference to the Goals highlighted below for the purpose of alignment with this policy.

Attaining the UN Sustainable Development Goals
Primary SDG (The SDG that the NCCPAP directly addresses)
Goal 13. Take urgent action to combat climate change and its impacts

Goal 14. Life below water

Secondary SDGs (SDGs that the NCCPAP can significantly impact)

Goal 2. End hunger, achieve food security and improved nutrition and promote sustainable agriculture

Goal 7. Ensure access to affordable, reliable, sustainable and modern energy 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

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

Commitments under the UNFCCC and Kyoto Protocol

Develop, periodically update and publish national inventories of anthropogenic emissions by sources and removals by sinks of greenhouse gases.

Formulate, implement, publish and regularly update national programmes containing measures to mitigate climate change by addressing anthropogenic emissions by sources and removals by sinks of greenhouse gases and measures to facilitate adequate adaptation to climate change.

Promote and cooperate in the development, application and diffusion, including transfer, of technologies, practices and processes that control, reduce or prevent anthropogenic emissions of greenhouse gases.

Promote sustainable management, the conservation and enhancement of sinks and reservoirs of greenhouse gases including biomass, forests and oceans as well as other terrestrial, coastal and marine ecosystems.

Prepare for adaptation to the impacts of climate change; develop and elaborate appropriate and integrated plans for coastal zone management, water resources and agriculture, and for the protection and rehabilitation of areas affected by drought and desertification, as well as floods.

Take climate change considerations into account, to the extent feasible, in their relevant social, economic and environmental policies and actions, and employ appropriate methods, for example impact assessments, formulated and determined nationally, with a view to minimizing adverse effects on the economy, on public health and on the quality of the environment, of projects or measures undertaken by them to mitigate or adapt to climate change.

Promote open exchange of relevant scientific, technological, technical, socio- economic and legal information related to the climate system and climate change, and to the economic and social consequences of various response strategies.

Promote education, training and public awareness related to climate change and encourage the widest participation in this process, including that of non- governmental organizations.

Formulate, where relevant and to the extent possible, cost-effective national programmes to improve the quality of local emission factors, activity data and/or models which reflect the socio-economic conditions for the preparation and periodic updating of national inventories of anthropogenic emissions by sources and removals by sinks of greenhouse gases.

Formulate, implement, publish and regularly update national programmes containing measures to mitigate climate change and measures to facilitate adequate adaptation to climate change.

Promote scientific, technological, technical, socio-economic and other research, systematic observation and development of data archives related to the climate system and intended to further the understanding and to reduce or eliminate the remaining uncertainties regarding the causes, effects, magnitude and timing of climate change and the economic and social consequences of various response strategies.

1.2 National Development Plans and Socio- economic Development,

1.2.1 The Medium- Term National Development Plan–the New Direction Agenda

The Sierra Leone Government's plans are laid out in this five-year national development plan,"**The Medium- Term National Development Plan–the New Direction Agenda**, which was launched in 2018. Human Capital Development is at the center of this new Medium-term National Development Plan. It is the most fundamental pathway to achieving middle-income status and sustainable development for the country in the not-too-distant future.

This policy is also aligned with the Medium-Term National Development Plan of Sierra Leone, which is the fourth generation Poverty Reduction Strategy Paper, specifically to **Goal 1 and Cluster 7 below and SGD 13 and 14 above.**

Four key national goals were identified – emerging from the consultative process and grounded in the developmental state model – for this planned period. They are as follows;

Goals	Narratives
Goal 1	A diversified, resilient green economy
Goal 2	A nation with educated, empowered, and healthy citizens capable of realizing their fullest potential
Goal 3	A society that is peaceful, cohesive, secure, and just
Goal 4	A competitive economy with a well-developed infrastructure

The new MTNDP (2019–2023) is organized around eight policy clusters and several sub-clusters (or broad result areas), which are presented below

Clusters	Narratives
Policy Cluster 1	Human capital development
Policy Cluster 2	Diversifying the economy and promoting growth
Policy Cluster 3	Infrastructure and economic competitiveness
Policy Cluster 4	Governance and accountability of results

Policy Cluster 5	Empowering women, children, adolescents and persons with disability
Policy Cluster 6	Youth employment, sports and migration
Policy Cluster 7	Addressing Vulnerabilities and building resilience
Policy Cluster 8	Means of Implementation

1.2.2 National Climate Change Institutional Framework/Responsibilities

The Ministry of the Environment (MoEnv), established in 2020 which comprises of the EPA-SL, SLMet, NPAA, Wild Life department has the mandate to lead in the development and implementation of national policies and actions for climate change mainstreaming and coordinate efforts on climate change adaptation, mitigation and resilience- building across sectors and agencies at the national and regional (administrative) levels. EPASL, within this ministry, is the focal point institution for UNFCCC finance mechanisms such as GEF, GCF, and Adaptation, whilst SLMet is the UNFCCC focal point, responsible for organizing national participation at annual COP meetings and ensuring that decisions of these meetings are domesticated in collaboration with other climate- related MDAs. In addition, a National Registry for Reduced Emissions from Deforestation and Degradation (REDD) and Non-REDD Carbon Trading is now part of this Ministry and the Designated National Authority (DNA) for issues relating to Clean Development Mechanism (CDM) designed to both attract investment and to establish an effective regulatory framework for projects approval, measurements, reporting and verification (MRV) is in the Ministry of Energy.

This Ministry of Environment will hopefully enhance collaboration with relevant- climate change related MDAs to enhance coordination, partnership and joint activity implementation and policy harmonization.

1.2.3 The Making of a low-carbon Developing State

The Low Emissions Climate Resilient Strategy (LECRDS) of Sierra Leone provides a comprehensive set of strategic action lines to guide public investment over the next 20 years in achieving sustainable and inclusive low-carbon development. This objective is broader than Sierra Leone’s past development strategies and captures a more holistic view of social, economic

and environmental well-being, in line with the United Nations' Agenda 2030 and its Sustainable Development Goals (SDGs). In particular, it not only aims to foster sustained economic growth that is low-carbon and climate- resilient but also promote social cohesion, good governance and careful management of finite natural resources.

The VISION of the Sierra Leone Low Emission Climate- Resilient Strategy is *to create a new era for a harmonious relationship between the economy, environment, social and long term sustainability; shifts to a green economy and provides for the identification and implementation of early warning systems and other 'soft' adjustments and infrastructure and 'hard' engineering adaptation options; one that facilitates and promotes mainstreaming of climate change adaptation into other resource management, disaster preparedness and sustainable development programmes; it is largely driven by a government policy package that promises to create new markets and technological advancement; and one that will foster low cost and efficient and effective collaboration between businesses, academia, providers of technology, financial institutions and civil society to see green growth.*

This National Climate Change Policy plays an important foundational role in supporting Sierra Leone's LECREDS.

1.2.4 POLICY STRUCTURE, USE AND INTERPRETATION

This revised policy is in response to international and national level drivers. Foremost it lays the foundation and give a new direction and coherence to national climate change efforts taken in fulfillment of international responsibilities. These international responsibilities arise through Sierra Leone's commitments to multilateral environmental agreements and frameworks including the Paris Accord, Kyoto Protocol and the United Nations Sustainable Development Goals.

On the national level, the Policy is driven by the need to rationalize and support the various direct and indirect, partial climate change related mandates and objectives of existing national sectoral and thematic policies. This revised, coherent Climate Change policy is meant to guide

national adaptation, mitigation and resilience building actions and efforts across all sectors particularly those that, suffer from inefficiencies in an environment of limited resources.

Section 2: POLICY VISION, GOALS AND GUIDING PRINCIPLES

The Policy draws on information from the previous national documents such as: National Policy and National Climate Change Strategy and Action Plan (2015), Nationally Determined Contribution (2015); Initial National Communication (2002); Second National Communication (2012); Third National Communication (2016) Low Emission Carbon Development Strategy (2009/2012); interviews with policymakers and national consultations at subnational and national levels.

POLICY VISION

Sierra Leone'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 national sustainable development.

OVERALL POLICY GOAL

The Policy's overall goal is:

“To promote climate change adaptation, mitigation, technology transfer and capacity building for sustainable livelihoods through Green Economy measures for Sierra Leone”.

POLICY GOALS

- ❖ *Reduce climate related loss and damage across all productive sectors thereby protecting livelihoods, food security and standard of living*

- ❖ *Promote community development and redirecting economic activity away from vulnerable areas*

- ❖ *Promote a clean and healthy environment for all*

- ❖ *Transition to climate resilient infrastructure and integrated physical land use plans*

GUIDING PRINCIPLES

The Policy is guided by principles set out in the Constitution of Sierra Leone, the United Nations Framework Convention on Climate Change and the Kyoto Protocol. The principles among others include:

- ❖ *Promote national pride and respect for our country and its natural resources.*
- ❖ *Facilitate Inclusive participation of citizens across categories of gender, age, social vulnerability, religion, economic status, local communities in decision making processes addressing climate change issues.*
- ❖ *Sustainably use and conserve Sierra Leone's natural capital for inter-generational equity.*
- ❖ *Promote clean, healthy and safe environment for all Sierra Leoneans.*
- ❖ *Promote holistic development planning utilizing environmentally friendly approaches*
- ❖ *Promote Gender equality as a response both in terms of mainstreaming as well as though specific focused interventions;*
- ❖ *Build institutional and human capacity to plan and respond to climate change;*
- ❖ *Adopt new technologies and early warning systems;*
- ❖ *Develop and implement sustainable land management best practices to combat land degradation with focus on the Hinterland;*
- ❖ *Transition to renewable energy sources and energy efficiency and reduce all greenhouse gas emissions;*

- ❖ *Improve availability of and access to climate change data and information;*
- ❖ *Establish the Polluter pays principle in order to hold those responsible for polluting the environment and to make them pay the cost of mitigating the effects and supporting consequent adaptive response;*
- ❖ *Promote a human rights approach in Sierra Leone's climate response strategy;*
- ❖ *Adopt the principle within the UNFCCC that acknowledges the different capabilities and differing responsibilities of individual countries in addressing climate change. taking into consideration Sierra Leone's unique national circumstances, stage of development and capacity to act;*
- ❖ *Support Sierra Leone's development to reduce poverty and improve living standards, while at the same time upholding the social, economic and environmental pillars of sustainable development;*

Intended Policy Outcomes

The Intended Policy outcomes are expected to be as follows:

Outcome 1: Vulnerability to climate change impacts through improved social, economic and ecological resilience reduced.

Outcome 2: Reduced greenhouse gas emissions.

Outcome 3: Increased awareness of climate change impacts, adaptation and mitigation measures.

Outcome 4: Research, technology development and transfer and systematic observations enhanced and strengthened.

Outcome 5: Capacity to implement climate change related interventions enhanced.

Outcome 6: Climate change and its cross-cutting issues mainstreamed in development policies and in planning, development, coordination and monitoring of key relevant sectors.

Outcome 7: Climate Change Financial Resources Capitalized.

Outcome 8. Disaster Preparedness and Response Strategies strengthened.

2.1 SCOPE OF THE NATIONAL CLIMATE CHANGE POLICY 2020-2030

The fundamental premise of the Policy is to frame and emphasize Sierra Leone's national climate change adaptation, mitigation and resilience building efforts. It is not the intent of this Policy review to address all of Sierra Leone's climate change challenges. However, given the cross-sectional nature of climate change, there will evidently be many co-benefits to be strategically derived by good policy guidance and decisions. Examples of co-benefits, such as those related to mitigation actions include improved energy efficiency of plants, renewable energy uptake and fuel switching which might enable a range of co-benefits such as air-pollution impacts, technological innovation, energy-supply security through increased energy diversity and reduced fuel cost.

The Policy takes precedence over other national and sectoral policies that directly or indirectly or partially address climate change. It also provides guidance on how to approach climate change in national development strategies, plans, initiatives and frameworks. This is an institutional change that may require time and concerted efforts to integrate into the respective business as usual (BAU) scenario in Sierra Leone, but it is an imperative if efforts are to be effectively and efficiently coordinated in the future.

Given the latter point, the Policy is therefore also not a strategic operational plan and cannot provide recommendations on specific sectoral or thematic tactics or resource allocations or prioritizations. The Policy guides on the options of policy level instruments, tools and approaches both available and recommended to those developing more fine-grained strategies, plans, programmes and initiatives.

SECTION 3: PRIORITY AREAS FOR THE POLICY

The Policy has prioritized eight main areas for climate change management in the country. 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. As a Least Developed Country, adaptation to climate change is a priority area for Sierra Leone due to its vulnerability to adverse effects of climate change and limited adaptive capacity. Adaptation to climate change in Sierra Leone is hampered by the country's heavy dependence on natural resources, endemicity to climate sensitive diseases, high poverty and weak technical and financial resources and heavy reliance on Donor Support.

Policy Statements

The Policy will:

- (i) reduce vulnerabilities of populations in Sierra Leone 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 are able to 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 increase the concentration of greenhouse gases in the atmosphere.

Policy Statements

The Policy will:

- (i) *promote the reduction of greenhouse gas emissions; and*
- (ii) *enhance carbon sinks through re-afforestation and sustainable utilization of forest resources.*

Loss and Damage

Loss and damage due to climate change, emanates from climate extreme events such as intensive precipitation leading to flooding and landslides, thunderstorms, dryspells or drought leading to famine and poor agricultural output.

Policy Statements

The Policy will:

- (i) *promote the preparedness and response strategies to disaster management; and*
- (ii) *enhance funds for rehabilitation and compensation.*

Capacity Building, Education, Training and Awareness

Education is a catalyst for socio-economic development, and for empowering the poor, the weak and voiceless. Inadequate capacity and skills in climate change management may be a hindrance to effective implementation of climate change adaptation and mitigation activities. **Sierra Leone developed the National Education Sector Plan (NESP, 2007-2016) whose main pillars are access, equity, quality, relevance and governance.** The National Climate Change Management Policy supports **NESP** in order to enhance human and institutional capacity for building community and ecosystem resilience to climate change in Sierra Leone.

A Capacity and Training Needs Assessment Report will be developed periodically to cater for new developments. Resource mobilization mechanisms will also be established to ensure effective implementation of interventions to improve institutional, infrastructural and human capacities to implement climate change related interventions.

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 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 sustainable*

economic growth.

Research, Technology Development and Transfer, and Systematic observation

Sierra Leone recognizes and appreciates the need for technology development and transfer as well as research in climate change management. To this effect, Sierra Leone has already produced and identified technology transfer needs. However, financial resources for addressing the identified needs such as the development of climate change research agenda and enabling environment for the application of science and technology are inadequate.

Key areas include promotion of rain water harvesting technologies, development of dykes and levees in flood prone areas, adoption of climate smart agriculture, development of drought tolerant crop and livestock technologies, promotion of energy saving technologies, renewable energy technologies, and development of technologies in river course management.

Furthermore, realizing that climate change is an emerging issue, there are significant development policy and implementation gaps that would 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; and*
- (ii) *encourage resource mobilization and commitment of government for the prioritized technologies.*

Climate Change Financing

Sierra Leone is among the most vulnerable countries to climate change because its economy is predominantly agro-based and largely rain-dependent. Considering that the rural population,

which is in majority, is poor and directly depends on natural resources for its livelihood, the bulk of this population lacks the capacity to proactively finance climate change adaptation, mitigation and climate proofing activities. There is therefore, need for more predictable and reliable financing mechanisms from local and international sources.

Policy statement

The Policy will prioritize enhanced financing for implementation and coordination of climate change management activities through increased national budgetary allocation, establishment of a Climate Change Fund, improved access to international climate financing (both multilateral and bilateral) and private sector investments.

Gender Equality

Women and girls are disproportionately affected by climate change and are more vulnerable to its impacts. Gender considerations are important in planning and implementation of climate change management programmes because different socioeconomic groups are impacted upon differently because of different gender roles and social constructs. The NCCP recognizes that the human impact of climate change falls, for the most part, on the poor, and – very often – on women and children, the aged and the physically challenged. As such, social protection and social safety nets to smooth out inequities and building a more cohesive society are vital for climate resilience and national development.

Policy Statements

The Policy will:

- (i) *enhance women/gender participation in decision making and policy formulation on climate change issues, supported by appropriate capacity development and dedicated financing; and*
- (ii) *encourage resource mobilization and commitment of government for the prioritized Gender concerns.*

Cross-Cutting Issues

This priority area focuses on cross cutting issues that may exacerbate vulnerability to climate change and variability or may undermine effectiveness of adaptation programmes. These include gender consideration, population dynamics and HIV and AIDS.

Vulnerable groups such as women, children, the elderly and the physically and mentally challenged are particularly affected by adverse impacts of climate change.

Involving these vulnerable groups in the design and implementation of climate change management programmes is essential for effective management of the impacts.

Population growth is a driver of climate change. High population growth exerts pressure on the environment and natural resources leading to environmental degradation which exacerbates prevalence of adverse effects of climate change.

Therefore, incorporation of demographic dynamics such as population density, urbanization, reproductive health, and family planning in development plans will help Sierra Leone deal with effects of climate change.

Policy Statements

The Policy will:

(i) *mainstream gender and issues affecting the disadvantaged groups into all climate change strategies, plans and programmes.*

(ii) *integrate population issues into climate change management in the development agenda through an integrated approach which would reduce poverty, protect natural resources and reduce inequality.*

(iii) *incorporate HIV and AIDS as well as gender considerations in all climate change interventions including adaptation, mitigation, capacity building and technology development and transfer.*

SECTION 4: POLICY DIRECTIVES

4.0 THE POLICY DIRECTIVES

The National Climate Change Policy (NCCP) is to provide strategic direction and coordinate issues of climate change in Sierra Leone.

The eight policy priority areas of the NCCP are (1) adaptation, (2) mitigation (3) loss and damage (4) Capacity Building, Education, Training and Awareness (5) Research, Technology Development and Transfer, and Systematic observation (6) Climate Change Financing (7) Gender Equality (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 are given in the **table** below.

Table .. Summary of the Policy Directives and Policy Objectives. for three core areas of Adaptation, Mitigation and Cross-Cutting.

ADAPTATION	
Establish climate resilient infrastructure and physical development	Policy Directive
Build and retrofit green towns, settlements, urban and, rural centers and critical infrastructure	Policy Objective
Reduce disaster and hazard risks that jeopardize productivity and livelihoods	Policy Objective
Implement ‘climate proofing’ adaptation and resilience building technologies across all sectors	Policy Objective
Sectoral Climate Change Mainstreaming for a Healthy, Educated Society	Policy Directive

Promote a safe, healthy, socially secure climate resilient population	Policy Objective
Use Education to generate shifts in the behaviors towards more climate-smart livelihoods and lifestyles	Policy Objective
Build agricultural resilience for national food and nutrition security	Policy Objective

MITIGATION	
The Implementation and Use of Green and Clean Technologies	Policy Directive
Transition to renewable energy technologies and practices to reduce climate risk and carbon emissions	Policy Objective
Build a diversified, climate-ready, low-carbon economy for Sierra Leone	Policy Directive
Mainstream climate change sensitivity across energy and extractive industries	Policy Objective
Commit to large scale transition to cleaner production and service industries	Policy Objective
Responsible Management and Utilization of Natural Resources	Policy Directive
Maintain Sierra Leone’s forests as a major carbon sink.	Policy Objective
Responsible management of watersheds and freshwater resources for human and ecological benefits.	Policy Objective
Maintaining the integrity of the marine and coastal environment	Policy Directive
Responsible Management and Rational Utilization of Fisheries and	Policy

other Marine and Coastal Resources.

Objective

CROSS-CUTTING

Promote Equitable Gender Participation in National Decision-Making Processes	Policy Directive
Drive social equity for vulnerable groups (women, youth, indigenous and aged) in national climate change processes.	Policy Objective
Report regularly on Sierra Leone’s corporate climate responsibility, accountability, and transparency.	Policy Objective
Drive climate change decision making that is based on leading-edge scientific evidence.	Policy Directive
Strengthening the technical capacity of national institutions to contribute to evidence-based decision-making.	Policy Objective
Invest in and support collection, management and use of scientific data and information for implementing climate actions.	Policy Objective
Develop and access finances and resources to achieve national climate change goals	Policy Directive
Lead efforts to increase national domestic budget allocations for climate change programming.	Policy Objective
Encourage and promote cooperation on climate action between the public and private sectors.	Policy Directive
Coordinate climate finance and assistance commitments from international development partners and donors.	Policy Objective
Promote conditions for employment and livelihoods in the low carbon economy.	Policy Objective
Focus on entrepreneurship, innovation and drive climate	Policy

ready micro, small, and medium enterprises.

Objective

5.0 Section 5: Implementation Arrangements

This section outlines the institutional arrangements and implementation plan for the climate change policy.

5.1 Institutional Arrangements

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 is critical for success. Leadership and coordination has to be seen at all levels of governance. In order to ensure effective climate change management, leadership and coordination must embrace district and local levels of government as well as seek community-based engagement and action.

Key stakeholders include: 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 crosscutting in nature, mainstreaming climate change into national and sectoral plans, policies and programmes is critical. Therefore a number of institutions will be involved in sector specific implementation of activities.

During implementation stage, the Ministry of Environment will implement with technical guidance from SLMet and EPA and will among others, spearhead tracking of resources allocated to key stakeholders that address specific components of the Policy relevant to their differentiated mandates.

The institutional coordination framework is presented in Figure 1.

The relevant Cabinet Committee will enable all arms of government to coordinate their actions. The Parliamentary Committee will serve to assist in lobbying for passing of environment related policies and legislations in parliament.

5.1.1 Development of an Implementation, Monitoring and Evaluation Strategy

A National Climate Change and Action Plan (NCCSAP) will be developed by EPA-SL as a complementary document to this Policy to ensure that the NCCP is effectively implemented. The NCCSAP will be expected to spell out the objectives and strategies that need to be implemented in order to address the climate related effects being faced by the country. The NCCSAP will further outline the stakeholders that are relevant for implementation of specific strategies. The strategies will be in accordance with international best practice and are consistent with the UNFCCC and related agreements that Sierra Leone subscribes to.

5.1.2 Roles and Responsibilities of stakeholders

5.12.1 General Public

The majority of Sierra Leone's population live in rural areas and are dependent on natural resources for their livelihoods and are therefore affected by 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 challenges of climate change by adopting environment friendly technologies.

5.1.2.2 Private Sector

The private sector is an important stakeholder when it comes to economic growth and job creation in the country and therefore must play an active role in climate change management. The private sector is critical in achieving a low carbon emission development for Sierra Leone through investing in cleaner technologies and provision of green jobs. Government can provide incentives for this and promote public-private partnerships to take this forward. Furthermore, the private sector should take an active part in decision making on climate change initiatives. This can be achieved through representation in the NTCCC through the Sierra Leone Chambers of Commerce and Industry (SLCCI) as a platform for providing their input and participating in climate change management in the country.

In particular, the private sector can take an active role in participating in projects for carbon emissions trading including Clean Development Mechanism (CDM), low carbon development, offsetting their emissions and investing in renewable energy.

5.1.2.3 The Media

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

5.1.2.4 Non-Governmental Organizations, Faith and Community Based Organizations

NGOs, FBOs and CBOs have an important role to play since they work closely with communities and can influence community response to climate change adaptation and mitigation. It is important for this group of stakeholders to assist the communities to integrate climate change and disaster risk reduction into their development activities in order to build community resilience.

5.1.2.5 Training and Research Institutions

The need for more research and training in climate change issues in Sierra Leone 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 to the impacts of climate change. Furthermore, home grown 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.

5.1.2.6 Development Partners

Development partners provide resources for Government and civil society organizations in Sierra Leone to carry out developmental activities. Their technical and financial interventions must be

harmonized in line with the NCCP 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 in all their programmes and projects.

5.1.2.7 Decentralized structures

Decentralization in Sierra Leone has been largely successful as structures have been put in place, providing an avenue for communities' views to feed into decision making at both district and national levels. The organizations and committees at various levels for instance, village and chiefdom ,(Local councils (Town, City, District and Provincial councils) etc) must ensure that climate change is integrated into their programmes, projects and plans.

5.1.2.8 Mainstreaming Climate Change into Sectoral and Partners' Strategic Plans

The structures established in the institutional framework will review and promote the mainstreaming of climate change into all relevant sectoral, ministerial and partner strategic plans.

6.0 SECTION 6 MONITORING AND EVALUATION

An MRV framework for Sierra Leone will:

1. Build on existing institutions and skills;
2. Take into account the planned climate change governance structures;
3. Provide guidance on the implementation of climate change response actions, whether in the form of policies, projects, programmes or investment ventures;
4. Help Sierra Leone fulfil her international reporting obligations;
5. Demonstrate Sierra Leone's climate finance readiness; and
6. 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 and covering various sectors and levels of the national economy need to be developed and utilized in the monitoring process. Particular attention should be paid to coverage of the activity whether it be at the grassroots level community, sub-national and/or national; agriculture, water resources, ecosystem, etc; local level, middle-level and high-level decisions-makers and national policy-makers. The monitoring and evaluation criteria must also include the assessment of the impacts of the activity on the community and at the national levels such as change in knowledge and awareness on climate change, improvement in the livelihoods and influence on decision and policy making at the local and national levels.

Indicators to be developed for the MRV system should include for example institutional adaptive capacity indicators that provide measures of the effectiveness of national initiatives to build institutional adaptive capacity at the county level such as the number of Ministries and Departments, Civil Society Organizations, Youth and Women Groups, Media Agents, etc, that have received training for staff operating at district/county and national levels on the cost and benefits of adaptation to climate change. The indicators should also include vulnerability indicators that may be a mixture of process-based and outcome-based indicators and should measure the effectiveness of local and national level initiatives to reduce vulnerability at the

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

Win-win and/or synergistic indicators where mitigation and adaptation responses support each other or provide trade-offs and also enhance sustainable development should also be determined and applied. Typical win-win indicators are (a) quantifiable improvement in waste management systems in communities, health and business facilities (b) ton of soil carbon per hectare in agricultural land targeted for conservation tillage practice; (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 and price rises for cereals caused by increased growth of biofuels; (e) improvements in passenger vehicle emissions resulting in lower mobility for the poor if cost passed onto consumer; and (f) the restoration of land in flood plains by planting trees, which helps to reduce impacts of floods, improve water quality, and lead to co-benefits such as restoring biodiversity and sequestering greenhouse gases.

Section 7: The Way Forward – From Policy to Action

7.0 From Policy to Action: The way forward

This Policy must be operationalized or implemented through an Action Plan and several Sector and Thematic Action Plans. Each action plan must address the relevant Policy Objectives by identifying and recommending policy implementation actions. Each action must be accompanied by attendant expected outcomes and performance indicator(s). Additionally, efforts should be made to identify and list the main agency/ agencies or stakeholders charged with implementation as well as an estimated implementation schedule of a short, medium- or long-term horizon across the 10-year implementation period. The Action Plan can be the vehicle for achieving the goals of the climate Policy. The 20 Policy Objectives in section 4 across the three core areas are logically clustered into 10 Policy Directives to aid implementation.

This revised NCCP identified Three Core Areas and Eight Policy Priority Areas for addressing Sierra Leone's climate change challenges and opportunities. The policy objectives identified in section 4 can be achieved through the development of specific strategies and actions, more particularly in the three core areas. Specific actions and tasks, as well as estimated timelines and budgets should be identified for each policy objective as part of the process in the first phase.

This first phase should further elaborate the mainstreaming of the strategies into thematic programmes and actions for national policy planning and budgeting. This should include, among others:

- ❖ Identifying the targets of the mainstreaming process
- ❖ Evaluating the impacts of climate change on socio-economic, sectoral and local development strategies and plans
- ❖ Evaluating the awareness and capacity for mainstreaming in the context of the theme
- ❖ Evaluating possible impacts (both negative and positive) of the mainstreaming process
- ❖ Developing strategies and mechanisms for mainstreaming in thematic areas, including financial, economic and policy aspects.

The Multi Donor Budget Support (MDBS) should be used as a mechanism to main stream the policy into the sectoral programmes and actions for implementation by the various Ministries, Departments and Agencies (MDAs).

The second phase, should constitute the final component of the process, which will be prepared by the MDAs that are identified as leads for specific actions. The lead MDA will develop detailed time-bound and costed implementation plans that would be linked to their operating strategies and work plans.

An inter-ministerial oversight committee should be established to create linkages with the implementing entities. In line with this recommendation, the following will constitute the nucleus of the Ministerial body:

- ❖ Environment
- ❖ Tourism
- ❖ Lands and Country Planning
- ❖ Finance and Economic Planning
- ❖ Local Government and Rural Development
- ❖ Agriculture
- ❖ Energy
- ❖ Health

The Ministry of Environment should establish a secretariat as distinct from the climate change secretariate of EPA-SL staffed with the necessary professional, technical competence to coordinate and monitor the effective implementation of the policy, programmes and plans. The secretariat should have a cost centre with a separate budget.

In addition to the above, intensive educational programmes should be carried out on climate change activities to enable the various sectors to implement the policy. It is further recommended that capacity-building, especially training of relevant staff at the MDA level, should form an integral part of the implementation strategy.

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ANNEX Sector Background Summaries/Impact Assessments

Agriculture

Impacts on Agriculture including soils

Agriculture is the largest sector in the economy of Sierra Leone providing employment for over 65 percent of the labour force, and contributing about 35 to 47 percent of the Gross Domestic Product. Rice is the staple food crop in Sierra Leone, grown mainly by small-scale farmers under rain-fed conditions. The impact of climate change is already felt in the country, in changed rainfall patterns, strong winds, thunderstorms, landslides, heat waves, floods, and seasonal drought. Transporting agricultural produce continues to be a challenge in the country; most of the roads in remote areas are impassable during the rainy season. The crop specific data required for the assessment of the impacts of climate change on agriculture was obtained from the Sierra Leone Agricultural Research Institute (SLARI). In assessing the impacts of climate on the crop production sub-sector of agriculture climate change, socio-economic and crop production data and scenarios were input into the DSSAT3 biophysical model to run the simulation of impacts of climate change.

All of the scenarios show increasingly negative trends for net rice exports—though much less so in the case of the pessimistic scenario. All three scenarios show a general increasing trend in the world price for rice. Rice productivity needs to improve to meet domestic consumption demand; increasing production will also benefit farmers, through high world prices.

The scenarios for production and yield of cassava and other roots and tubers show an increase toward 2050, with only a slight increase in the area under cultivation. Net export of cassava and other roots and tubers is shown increasing up to 2030, followed by a decline up to 2050 for all the scenarios.

Groundnut production is shown to increase as a result of expansion in area under production; productivity is shown to decrease, probably due to climate change. Depending on the scenarios, net exports are shown to increase through 2020 and decline thereafter. With decreasing

productivity, more area has to be brought under cultivation to meet the demand for groundnut as population increases, while increased land degradation forces farmers to use expensive inputs.

Coastal Resources

Impacts on Coastal Resources:

The main limiting factor for making accurate assessment of the vulnerability of the coastal sea level rise has been the lack of data of the topography of the coastal area to the desired accuracy (i.e. to allow the delineation of the appropriate contour line). Some sections of the coast, particularly the urban centres of the capital, Freetown and coastal towns of Kambia, Bonthe Sherbro Island do not have these data. As much as possible data was derived from limited information on the survey beach marks and surveys of roads within the coastal areas. The elimination of the area outside the risk zone was assisted by the availability of maps showing the 30m contour.

Climate Change is expected to impact Sierra Leone's sandy beaches in two ways: -

- a) The rise in sea levels expected from Climate Change would accelerate the rate of recession of sandy shores.
- b) Increases in littoral transport capacity arising from increases in the intensity and duration of storms.

Also, sea level rise can affect coastal structures such as the jetties along the coastline. Flooding and inundation affect some coastal segments of the Freetown peninsular (i.e. bays, estuaries and beaches). Sea level rise has the effect of augmenting a decrease in the quality and quantity of ground water resources otherwise caused by man's activities. The estimated population along the coastal areas at risk for 1m rise of sea level is about 2,315,860 persons. If no action is taken on sea level rise, a total of 26.4km square of land is estimated to be lost and areas such as the northern and southern areas are vulnerable.

The impacts of the incidences of severe weather and increase in storm frequency on the various kinds of coastline of Sierra Leone were assessed. On beaches, short term erosion is largely governed by the incidence of storms. Over longer periods, sea level rise will cause progressive

retreat. Hard engineered structures such as sea-walls will probably lead to eventual disappearance of any beaches in front of them. Offshore breakwaters will be more useful in retaining near-shore sand supplies. On cliffs and rocky coasts, sea-level rise will bring the cliff top closer to sea-level and increase the frequency of overtopping of the cliff by storm waves and rock debris, including large boulders. Recession will be greatest for soft-rock cliffs, whereas fractured hard rock cliffs will be more prone to sudden collapse, as indicated in the Sierra Leonean examples.

Wetlands present a particular problem due to their proximity to sea-level and the micro-tidal regime around Sierra Leone. Small changes in sea-level will prompt progressive retreat and migration of wetland eco-zones, unless vertical accumulation rates of wetland debris keep up with sea-level rise. Most of the wetlands of the coast of Sierra Leone are fronted by a narrow beach which will retreat over the wetland, driven by storms and sea level rise. No data on the vertical accumulation rate of wetland sediments is available for Sierra Leone.

Fisheries

Impacts on Fisheries

In assessing the impacts of climate change on productivity in Sierra Leone, the effects of temperature on annual productivity of riverine fisheries resources are evaluated on the basis of the average stream width of 250 meters for the Rokel River, the biogenic capacity of the stream, the annual water temperature, the alkalinity/acidity of the water, and the type of fish population present in the river.

Productivity of the riverine fisheries of the Rokel River is projected to increase under all climate change model scenarios. The estimated productivity of the Rokel River under the current (1961-1990) climate is 228 tons per kilometre (tons/km) reach of the river. All the climate change model scenarios project an increase in the productivity of the river. The highest increase in productivity is projected by the HADLEY 2 model scenario and it ranges from 3% (i.e. 236 tons per Km) increase by 2025 to about 8% (i.e. 248 tons/km) increase by 2100. The projections based on CSIRA model is the lowest of all the models considered for this study. The projected

productivity under the CSIRA varies from about 2% (i.e. 234 ton/km) increase in 2025 to about 6% (i.e. 243 tons/km) increase in 2100.

Commercial shrimp yield was estimated for current climate for the average period 1961 to 1990 and for simulated climate change to 2100 based on the model output for the GCM models (Hardly 2, UKMOTR, CSIRA and ECHAM 4). The stabilized commercial shrimp yield (SCSY) under current climate with annual temperature of about 26.7°C is 71.5kg/ha. Simulation based on the warming of the atmosphere by 2075 to about 28.7°C under the HADLEY2, 28.3°C under the UKMOTR, 28.1°C under CSIRA and 28.4°C under the ECHAM4 models shows increases from current climate.

Forestry and Biodiversity

Impacts on Forestry and Biodiversity

Under current climate, the land in Sierra Leone has the potential land cover of about 6% tropical wet forest, 49% tropical moist forest, 21% sub-tropical wet forest, and 23% sub-tropical moist forest. The overall indications from the Holdrege Life Zone classification analysis are that under an equilibrium climate, the potential land cover of Sierra Leone as projected by the GCM outputs used in this study predicted 66% (HADC), 55% (UKTR), 66% (CSIRO) and 81% (ECHAM) tropical dry forest and 30% (HADC), 55% (UKTR), 26% (CSIRO) and 13% (ECHAM) tropical very dry forest categories as a result of the projected decrease in precipitation and associated increase in bio-temperature by year 2100.

Basically, as a result of climate change, 60% of the country will be under tropical dry forest, 24% under tropical very dry forest, and 12% cover under sub-tropical moist forest particularly in the south and east of the Country. This is the reverse of the current situation and indicates a northward shift in the vegetation i.e. from tropical rain forest to tropical dry forest.

In respect of the Forest Gap simulation scheme, total biomass produced under the various climatic scenarios indicates that there is an overall gradual increase in total biomass production in the CURR, CSIR, UKTR, ECHAM, and HADC models, in ascending order of magnitude. Similarly projection trends are evident for the basal area production but with a wider difference

of 450M²/ha between CURR and CSIRO. HADC continues to dominate the total basal area production.

For species distribution per size classes, *Hanna klieneana* is by far the fastest growing species attaining the 6th diameter class (over 60cm diameter) in 25 years. The slowest growth was exhibited by seven species (*Chorolphora*, *Cordia*, *Daniella*, *Gmelina*, *Khaya*, *Nauclea* and *Parkia*) out of the twelve species used in the simulation.

Human Health

Impacts on Human Health

Most of the impacts of climate change are secondary impacts due food and nutrition insecurity, water stress and other impacts. Increased temperatures are also associated with increased episodes of diarrhoeal diseases, sea food poisoning, and increases in dangerous pollutants. Threats from higher temperatures may cause greater contact between food and pest species. Warmer seas contribute to toxic algae bloom and increased cases of human shell-fish and reef-fish poisoning. Such cases have been reported in Freetown in July-August 2011 and August 2012. Incidents of high temperature morbidity and mortality are projected to increase. Due to water shortages, the impact expected on Sierra Leone would be loss of food production and the necessity to import and/or experience food shortages. This may lead to hunger and malnutrition. The leading causes of death in Sierra Leone are non-communicable diseases – respiratory and lifestyle diseases. Cerebrovascular (stroke) that is susceptible to heat stress is among the leading causes of deaths. The problem could be exacerbated by the design and type of construction materials used in housing. Attention must be given to the design of buildings in order to reduce heat stress.

Asthma is active among young children and this is an increasing cause for concern. There is ongoing study to determine the actual incidence of asthma. There are also two climate related factors that are causing concern. The first is the fact that rising carbon dioxide levels could increase allergenic plant pollen. The second is the correlation between the outbreak of asthma affecting children and the concentration of the Saharan dust in Sahel Africa that could lead to increase of asthma. The water and sanitation sectors of the population are dependent on water.

Sources that are contaminated have implications in the spread of diseases. Typhoid was associated with and the destruction of pit latrines.

Epidemiological surveillance including entomological surveillance behaviours that promoted proliferation of rival habitats and the promotion of behavioural change are considered priorities. If the health system is efficient the country can adapt.

Tourism

Impacts on Tourism

The Tourism Sector activities including the movement of tourists are seasonally base and therefore climate variability largely affects the growth of tourism. Tourists are like birds that migrate from afar as a way of escaping extreme weather condition to places with favorable seasonal weather condition. All tourism destinations have traditional peak periods that have been interrupted by climate variation and extreme weather event like earth quakes, mudslides, volcanic eruption etc. of which Sierra Leone tourism is no exception.

The local tourism is dominated mainly by resort tourism and is location specific. The Freetown coast areas (i.e., Lumley, Tokeh, No. 2 Goderich) are the dominant areas for both stopover and cruise ship visitors. This is due to the coastal resources (white sand beaches, all inclusive hotels and sea ports and attractions) and infrastructural investments which have gone into these areas.

Seaside tourism suffers damage from most of the effects of climate change notably sea level rise , greater damage from sea surges and storms and reduce water supply . It thus put coastal and mountainous regions at risks that result to market changes.

The ripple effect of climate change on tourism is that it reduces demands on Agricultural, fishery products and the travel and transport sector becomes impacted by the reduction in the movement of tourists. The destruction of the habitat of wildlife by extreme weather event and variations hugely reduces tourism receipt. Unfavorable weather conditions in tourism destinations cause the

change in visiting destinations of tourists. Damage biodiversity resulting to climate change impacts is a recipe to closure of tourism activities in some areas.

These impacts are likely to be exacerbated, and even overshadowed, by non-climate change factors, such as deforestation, increasing riverine floods from destruction of forest, industrial farming and from poor farming practices, leading to increased near-shore sedimentation and turbidity, increased chemical pollutants from agriculture and industrial wastes, and from increase in coastal population growth.

Two socio-economic scenarios were modelled by experts that developed the Third National Communication; one without climate change variables (control scenario) and another with assumptions about a changed climate change. An independent model was also developed to examine visitor arrivals over time. For the control scenario, visitor arrivals are expected to increase by 2050. For the scenario with a changing climate, the number of visitors may fall by 2050, resulting in declines in earnings.

Water Resources

Impacts on Water Resources

In the Second National Communication of Sierra Leone, the vulnerability and adaptation of water resources to climate change in Sierra Leone is assessed by simulating the hydro climatic cycle using the monthly, spatially lumped and one dimensional water balance model, WATBAL.

In Sierra Leone, groundwater supplies most water demands (approximately 80% of production) and represents 84 percent of the country's exploitable water. The country's water sources are associated with major rock formations and their interrelationships. Existing stream flow data from the Sierra Leone Water Resources Authority indicate that several rivers are in deficit, which results in water lock offs and an overall limit in water supply. The Sewa River, Jong, and Mano areas are under stress. It is not clear whether Sierra Leone has enough storage to provide water supplies to adequately meet all demands during periods of below average rainfall. The monitoring of wells need some improvements so that the real trends may be better identified.

Additionally, more work need to be done with data collection to make it more relevant to user needs.

However, initial analysis of the Freetown Municipality, indicates that increase in population coupled with increased deforestation, after the war in 2000 increased abstraction from the Guma dam could be the main cause of lower water supplies and not so much as a direct result of less rainfall. Significant issues associated with water resources management and vulnerability and the impacts of climate change are likely to present some pressure.

A Resource Mobilization Strategy is proposed with the ultimate objective of raising the resources needed to implement the Strategy and Action Plan. Utilizing detailed information about current donors and funding patterns, this document aims to provide a strategy on how the Government of Sierra Leone can mobilize resources for activities planned to address climate change at the national and sub-national levels. The document provides information about distribution of funds and highlights the importance of improving capacity to deliver and absorb funding at country level. It is recommended that resources should be mobilized both domestically and internationally. For this reason, the SLCF should be designed to have three (3) windows: (1) Domestic Climate Finance; (2) International (Bilateral and Multilateral) Climate Finance; and (3) Private and Market Climate Finance. Detailed information on the structure and management of these Funds are contained in the underlying text in this document.

International cooperation is an important and necessary prerequisite for leveraging of inputs for the implementation of the LECRDS and NCCAP. Enhancing international cooperation, linking with international and regional programs, receiving international supports in terms of experience and technology relating to climate change mitigation and adaptation in different areas of the economy will enhance implementation and monitoring and evaluation. International cooperation with bilateral governments and multilateral organizations and institutions are required in order to mobilize resources such as knowledge, experiences and funds for implementation of the LECRDS and NCCAP, promote international collaboration in scientific and technological activities, and effectively apply and transfer climate friendly technologies.

Capacity building needs for the implementation of the LECRDS and NCCAP of Sierra Leone have been identified as (a) for gathering, processing, and providing and communicating meteorological and socio-economic data and information; (b) improving National GHG Inventories and Assessments of GHG Mitigation and Climate Change Adaptation Technologies; and improving climate Vulnerability (impacts and adaptation) Assessment