



TECHNICAL ASSISTANCE REPORT

LIBERIA

Climate Policy Diagnostic

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Prepared By

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Abbreviations and Acronyms

AAID	ARREST Agenda for Inclusive Development
ACDP	Accelerated Community Development Programme
AfDB	African Development Bank
ARREST	Agriculture, Roads, Rule of Law, Education, Sanitation, and Tourism
Cat DDO	Catastrophe Deferred Drawdown Option
CBL	Central Bank of Liberia
CCKSP	Climate Change Knowledge Sharing Platform
CDD	Consecutive Dry Days
CERC	Contingent Emergency Response Component
CO2	Carbon Dioxide
COP	UNFCCC Conference of the Parties
CPAT	Climate Policy Assessment Tool
CPD	Climate Policy Diagnostic
DRM	Disaster Risk Management
DRR	Disaster Risk Reduction
ECOWAS	Economic Community of West African States
EIA	Environmental Impact Assessment
EKMS	Environmental Knowledge Management System
ELL	Electricity Law of Liberia 2015
EMDAT	Emergency Events Database
EMIS	Education Management Information System
EPA	Environmental Protection Agency
EPML	Environment Protection and Management Law 2002
ESIA	Environmental and Social Impact Assessment
ETS	Emissions Trading System
FAD	Fiscal Affairs Department
FCDO	Foreign, Commonwealth & Development Office (UK)
FDA	Forest Development Authority
FIT	Feed-in Tariff
GCA	Global Center on Adaptation
GCF	Green Climate Fund
GDP	Gross Domestic Product
GEF	Global Environment Facility
GHG	Greenhouse Gas
gal	Gallon
HFO	Heavy Fuel Oil
IDA	International Development Association
IMF	International Monetary Fund
IPP	Independent Power Producers
IWRM	Integrated Water Resource Management

JICA	Japan International Corporation Agency
kWh	Kilowatt-hour
LBR	Liberia
LCPDP	Least Cost Power Development Plan
LEC	Liberia Electricity Corporation
LERC	Liberia Electricity Regulatory Commission
LHS	Liberia Hydrological Service
LISGIS	Liberia Institute of Statistics and Geo-Information Services
LLA	Liberia Land Authority
LPG	Liquefied Petroleum Gas
LPRC	Liberia Petroleum Refining Company
LSSNP	Liberia Social Safety Nets Project
LT-LEDS	Long-Term Low Emissions Development Strategy
LTS	Long-Term Strategy
LWSC	Liberia Water and Sewer Corporation
MAC	Ministries, Agencies, Committees
MCC	Monrovia City Corporation
MDA	Ministries, Departments, Agencies
MFDP	Ministry of Finance and Development Planning
mm	milli meter
MME	Ministry of Mines and Energy
MoA	Ministry of Agriculture
MoGCSP	Ministry of Gender, Children, and Social Protection
MoT	Ministry of Transport
MoU	Memorandum of Understanding
MPW	Ministry of Public Works
MRV	Monitoring, Reporting, and Verification
MSMEs	Micro, Small, and Medium Enterprises
MW	Megawatts
NADP	National Agriculture Development Plan
NAP	National Adaptation Plan
NBFI	Non-Bank Financial Institutions
NCCSC	National Climate Change Steering Committee
NDC	Nationally Determined Contribution
NDMA	National Disaster Management Agency
NEC	National Energy Compact 2024
NEP	National Energy Policy 2009
NFRL	National Forestry Reform Law 2006
NGFS	Network for Greening Financial System
NGO	Non-Governmental Organization
NIC	National Investment Commission of Liberia
NICOL	National Insurance Corporation of Liberia
NPHIL	National Public Health Institute of Liberia

NPL	Non-Performing Loans
NRW	Non-Revenue Water
PEFA	Public Expenditure and Financial Accountability
PFM	Public Financial Management
PPCC	Public Procurement and Concession Commission
PPMPR	Public Financial Management Performance Review
RCP	Representative Concentration Pathways
REDD+	Reducing Emissions from Deforestation and Forest Degradation+
REIPPPP	Renewable Energy Independent Power Producer Procurement Program
RPS	Renewable Portfolio Standard
RREA	Rural Renewable Energy Agency
SBFN	Sustainable Banking and Finance Network
Scope 1, 2 and 3	Scope 1: Direct emissions from things the company owns or controls (like company vehicles or factories). Scope 2: Indirect emissions from the energy the company buys (like electricity). Scope 3: All other indirect emissions from the company's value chain (like suppliers, product use, travel).
SDG	Sustainable Development Goals
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
USAID	United States Agency for International Development
US\$	United States Dollar
WAMU	West African Economic and Monetary Union
WASH-C	Water, Sanitation, and Hygiene Commission
WBG	World Bank Group
WFP	World Food Programme
WSSC	Water Supply and Sanitation Commission

Preface

In response to a request from the Government of Liberia (GoL) for capacity development (CD) on climate policy diagnostic (CPD), a CD mission visited Monrovia during July 23rd—August 5th, 2025. This mission of the International Monetary Fund (IMF) was led by Mr. Suphachol Suphachalasai and comprised Mr. Daniel Bastidas, Mr. Pedro Juarros, Ms. Sunalika Singh (all FAD), Ms. Berit Lindholdt-Lauridsen (MCM), Mr. Michal Pietrkiewicz, and Mr. Nuwan Suriyagoda (FAD short-term experts).

The mission had engaging and productive discussions with Minister of Finance and Development Planning, Mr. Augustine Kpehe Ngafuan; Minister of Gender, Children, and Social Protection, Ms. Gbeme Horace-Kollie, Minister of Agriculture, Mr. J. Alexander Nuetah, Executive Director of Environmental Protection Agency (EPA), Mr. Emmanuel K. Urey Yarkpawolo; Executive Director of National Disaster Management Agency (NDMA), Mr. Ansu V.S. Dulleh, Sr.; Managing Director of Forestry Development Authority, Mr. Rudolph J. Merab; Deputy Finance Minister for Economic Management, Mr. Dehpue Y. Zuo; Deputy Finance Minister for Budget and Development Planning, Ms. Tanneh G. Brunson; Deputy Public Works Minister for Rural Development, Ms. Jocelia J. Taplah; Deputy Public Works Minister for Technical Services, Mr. Prince D. Tambah, Sr.; Deputy Minister of Gender, Children, and Social Protection, Mr. Curtis V. Dorley; and officials from Ministry of Finance and Development Planning (MFDP); Central Bank of Liberia (CBL); Environmental Protection Agency; National Disaster Management Agency; Ministry of Agriculture (MoA); Ministry of Mines and Energy (MME); Ministry of Gender, Children, and Social Protection (MoGCSP); Ministry of Public Works (MPW); Ministry of Transport (MoT); Liberia Revenue Authority; Forest Development Authority (FDA); Rural and Renewable Energy Agency; Liberia Electricity Regulatory Commission (LERC); National Water, Sanitation, and Hygiene Commission (WASH-C); Liberia Electricity Corporation (LEC); Liberia Water and Sewer Corporation (LWSC); and Liberia Petroleum Refining Company (LPRC).

The mission would like to express our sincere gratitude for the great cooperation from the staff of Department of Economic Management of Ministry of Finance and Development Planning, particularly Assistant Minister, Mr. Henry D.Z. Yanquoi; Mr. Otis Bundor; and Mr. Vowu Molubah, in effectively organizing all the discussions with the government stakeholders. The mission is grateful to the IMF Resident Representative, Mr. Joel Chiedu Okwuokei, and his team, especially Mr. Alexander Deline, for the efficient coordination and interface with the authorities and development partners before and during the mission. In addition, the mission would not have been possible without the support of Ms. Hope Samiee (FAD) in the preparation of the mission, as well as the finalization of this TA report.

Executive Summary

Climate-related risks are macro-critical considerations for Liberia (LBR). Today, about half of Liberia's population still lives below the national poverty line, and over a quarter live below the international poverty line of US\$2.15 per day. Approximately 70 percent of the population do not have access to electricity and a quarter are without access to clean drinking water. Liberia is particularly prone to floods and storms and climate change is expected to increase downside risks with potential negative impacts on the country's medium-term outlook and long-term macroeconomic stability. Extreme heat and extreme rainfall are becoming more intense and are projected to worsen with climate change. IMF's analysis shows that Liberia could face a loss of 2 percent of real gross domestic product (GDP) per capita by 2050 and up to 5 percent by 2100 under a high emission scenario and without effective adaptation. Our analysis also shows that extreme precipitation shocks reduce food production by 1.6 percentage points (p.p.), per capita GDP growth by 3.3 p.p., and increase inflation by about 2 p.p. Meaningful progress on policy reforms including in the areas of building climate resilience and embarking on a green transition are key to raising living standards and achieving lasting economic growth in Liberia.

The Climate Policy Diagnostic (CPD) identifies policy reforms that reduce balance of payment risks, boost fiscal resilience, and generate positive climate outcomes. The CPD assesses Liberia's climate policy and institutional landscape and prioritizes recommendations that create fiscal space and supports fiscal sustainability, through mobilizing additional revenues, improving spending efficiency, and minimizing fiscal costs associated with climate change and disasters. These reforms are expected to reduce import bills and external financing needs, while improving the overall investment climate of the country. At the same time, the CPD focuses on policies to address market failures and encourage more efficient use of resources, as well as minimize adverse impact on vulnerable and poor households.

A comprehensive reform is needed to promote water and food security. While Liberia is endowed with abundant freshwater resources, the increased intensity and frequency of extreme rainfalls and flooding pose significant risks to the water sector and agricultural productivity. To improve water and food security, a well-coordinated policy efforts are needed to ensure sustainable abstraction of groundwater and surface water, expand water supply provision, and promote efficient use of water. The policy levers to achieve this include reform of the legal and coordination framework, and policies to strengthen the existing water pricing framework in the urban and rural areas. An overarching water resources law should be developed to provide clear mandates and responsibilities of line ministries, counties, development partners, and civil society, and ensures accountability. To enhance the water pricing framework and support utility's financial sustainability, the authorities could (i) develop regulation on multi-year water tariff structure that support cost recovery and include social tariff, creating performance-based tariff incentives linked to utility's performance, (ii) operationalize the existing Water Supply and Sanitation Commission (WSSC) as an independent regulatory authority to oversee tariffs and performance of utility, and (iii) incentivize private sector participation in metering and billing, through performance-based contracts. To promote sustainable irrigation and water abstraction in the rural areas, the authorities could consider (i) a regulatory framework for groundwater and irrigation water abstraction, e.g. through abstraction permits and tariff structure targeting large commercial users, and (ii) introducing pilot cost-recovery mechanisms (e.g., service fees, volumetric charges) to finance the operational and maintenance costs of rural water and irrigation systems, with safeguards for small-farmers.

Efficient disaster risk management (DRF) and financing will save lives and build economic resilience. While the government has adequate contingent reserve and the Road Fund and has put in place a sizeable contingent lines of credit, entities responsible for disaster management and response receive limited budget allocations and do not have good understanding of—and access to—funds that could be made available to them in times of disasters. A heavy reliance on donor funding can be a double-edged sword, posing risks to social protection programs and disaster response efforts. The policy levers to address these challenges includes effective disaster risk financing and adaptive social protection. Liberia could (i) develop an implementation framework of the National Disaster Risk Financing Strategy that stipulates clear responsibilities of the main stakeholders, strategies for domestic and external resources mobilization, capacity building program for relevant entities, and donor engagement plans, and (ii) establish clear guidelines for the use of budgetary mechanisms for disaster response, including determination of sectoral buffers, access to contingent reserves, and coordination with the National Disaster Management Agency. Making social protection more shock-responsive would go a long way in resilience building. The government should (i) continue to scale up safety nets, through increasing budget allocation, targeting the most vulnerable, and providing the right incentives for communities to mitigate risks, (ii) improve targeting by including disaster vulnerability dimension in the social registry, and (iii) leveraging the social registry and cash transfer infrastructure to disseminate information on disaster risks.

Sustainable forestry and land-use can be supported by good fiscal policies. There is an urgent need to address competing land-use for fuel, food, and forestry—to reduce slash-and-burn agricultural practices, unsustainable fuelwood production, and forest degradation. Opportunities exist to leverage fiscal policies and incentivize climate-friendly and sustainable practices in these sectors. The policy levers to achieve this include green tax policy, smart subsidy, results-based payments, and forest information system. More specifically, the government could revise the tax scheme on logging, reducing the reliance on area-based fees and providing preferential rates for those with sustainability certification that meets international standards. To support the uptake of climate smart agriculture, sustainability-linked conditionality could be gradually introduced in support provided to farmers. In the longer term, a payment for environmental services scheme could be developed to help households and firms realize the economic value of forests particularly in areas at risk of deforestation. In addition, the forest information system could be strengthened, through the use of low-cost technologies to monitor forests, development of a monitoring, reporting, and verification (MRV) system, and maintaining a database on sustainability certificates. To promote clean cooking and reduce the use of fuelwood, fiscal incentives could be provided for the import of butane gas and/or solar stoves and their local production, while introducing targeted subsidy on the upfront cost of the same.

A robust package of fiscal policies is key to accelerating energy access and transition. A dual objective of expanding energy access and transitioning to cleaner energy is central to Liberia's development agenda. Increasing access requires significant investment in electricity grid and generation capacity, while a successful transition needs a two-pronged approach to scaling up renewable energy (RE) and shifting away from the reliance on fossil fuel imports. The fiscal policy levers to achieve this include strengthening the financial capacity of state-owned power utility, gradual fuel pricing reform, and a fiscal strategy to incentivize investment in large scale RE and the adoption of these technologies in mini-grids. To accelerate RE, Liberia could (i) develop a net-metering policy and regulation to allow self-generators to sell excess electricity generated from rooftop solar photovoltaic to the grid, (ii) introduce a

feed-in tariff (FiT) scheme to guarantee an above-market price for RE producers, and (iii) establish a RE Independent Power Producer Procurement Program with technology-specific bidding windows to attract private sector investments in utility-scale RE. Electricity tariff and fuel pricing reform would be greatly beneficial: the authorities should ensure the implementation of the multi-year cost-reflective electricity tariff adjustment mechanism including a social tariff, while phasing-out fossil fuel excise exemptions to support long-term transition to lower cost structure associated with higher share of RE and increase controls on informal fuel markets.

Strong climate governance helps streamline policy implementation and reduce costs toward building resilience. Good climate governance implies that institutions play a key role in the regulation, policy development, coordination, resource mobilization and implementation of climate actions. Despite substantial progress, Liberia presently lacks a comprehensive climate change legislative framework establishing a legal mandate for climate action. The government should introduce a comprehensive climate change law incorporating key climate governance principles, with respect to planning, implementation, monitoring, climate finance, decentralization, and roles and responsibilities of institutions. To ensure alignment, the government should (i) review the current national and sectoral legislative framework related to climate change and align with the forthcoming climate change law, and (ii) review the climate response strategy and policies/planning documents of key Nationally Determined Contribution (NDC) sectors through the lenses of the Agriculture, Roads, Rule of Law, Education, Sanitation, and Tourism (ARREST) Agenda and the forthcoming NDC 3.0. As the use of forests, land, and water cuts across multiple sectors, the government should assess the effectiveness of parallel institutional structures of key NDC sectors to identify overlapping mandates and streamline where needed, and introduce cross-ministerial approval of natural resource use. In addition, Liberia should strengthen its climate governance capacity through (i) introducing environment and climate change focal points in all ministries/agencies, (ii) operationalizing County and District Environmental Committees and update their responsibilities to include climate change, and (iii) defining the mandate of the Ministry of Planning and Development's Climate Integration and Financing Office to mainstream climate considerations into functions of the ministry including financial policy.

Strategic mobilization of climate finance and leveraging the private sector are crucial to closing the financing gap. Liberia is heavily dependent on donor support, and with a shifting landscape of international aid, the country needs to think strategically about how to mobilize capital, including private sector investments, for its climate investment needs. Liberia's climate finance landscape is at an early stage with limited awareness, institutional capacity, and integration into national climate finance planning. To help pave the way toward meeting climate financing needs, the authorities could develop a Climate Finance Strategy that includes (i) assessment of funding needs and financing gaps, and mapping of potential sources of public and private, international and domestic finance, and (ii) a proactive engagement plan for donors and investors, along with an assessment of suitable investment instruments. At the same time, they should promote green lending, through (i) introducing a green label framework, anchored in internationally recognized standards such as the Green Loan Principles and the Green Bond Principles, and (ii) developing a green lending program leveraging concessional finance to help de-risk climate investments. The authorities could also consider developing a regulatory environment with climate-related incentives conducive to private investments and provide a special investment incentive program under the National Investment Commission for sectors of climate priority. In addition, joining international platforms such as the Sustainable Banking and Finance Network (SBFN) and/or the Network

for Greening the Financial System (NGFS) would help the authorities build regulatory knowledge and learn from peer countries on best practices.

Recommendations

Table 1 presents a summary of priority recommendations. A comprehensive list of recommendations and relevant details can be found in each chapter.

Table 1. Policy Recommendations

Recommendations	Timing	Priority	Lead
Promoting Water & Food Security			
<i>Regulatory and Institutional Reform</i>			
Develop a unified and comprehensive Water Resources Law that clarifies mandates, roles, and responsibilities of line ministries, counties, development partners, and civil society, and ensures accountability in policy formulation and regulation. To do so, an integrated and holistic analysis of the current situation of the sector is warranted.	ST	H	MME, EPA, MPW, LWSC, WASH-C
<i>Sustainable Financing of Water Use and Services</i>			
Develop regulation on multi-year water tariff structure that is cost-reflective and include social tariff, creating performance-based incentives linked to parameters such as increase physical investment, reduction of NRW, metering and billing accuracy, collection rates and coverage, and rolling out pre-paid meters; Enforce license fees for commercial water producers.	ST	H	WASH-C
Separate service provision from regulation, operationalizing the existing WSSC as an independent regulatory authority to oversee LWSC's tariffs and performance.	MT	M	WASH-C
Develop a regulatory framework to incentivize private sector participation in WASH non-core functions (e.g., metering, billing) through performance-based contracts, targeting areas with weak LWSC capacity.	LT	M	WASH-C
<i>Sustainable Water Abstraction and Rural Irrigation</i>			
Develop a regulatory framework for groundwater and irrigation water abstraction via raw water abstraction permits/licensing, and legal basis for a tariff structure targeting large commercial users (e.g., mining, rubber, large agribusiness).	MT	H	MME, MPW
Introduce pilot cost-recovery mechanisms (e.g., service fees, volumetric charges) to finance O&M of rural water and irrigation systems, with safeguards for small-farmers.	LT	M	MPW
Extend import tariff exemption on solar-powered systems to incentivize rural access to clean water and irrigation.	ST	L	MFDP
Disaster Risk Management & Financing			
Develop an implementation framework of the National Disaster Risk Financing Strategy that stipulates clear ownership and responsibilities, strategies for domestic and external resources mobilization, capacity building program, and donor engagement plans including withdrawal risk mitigation.	MT	H	MFDP, NDMA
Create clear guidelines for the use of budgetary mechanisms for disaster response, including determination of sectoral buffers, access to contingent reserves, and coordination with the NDMA.	ST	H	MFDP
Scale up safety nets, through increasing budget allocation, targeting the most vulnerable, and providing the right incentives for resilience building, while developing a contingency plan for donor's withdrawal.	LT	M	MGCSP

Include disaster vulnerability dimension in the social registry to improve targeting.	MT	L	MGCSP
Leverage the social registry and cash transfer infrastructure to disseminate information on disaster risks.	MT	M	MGCSP
Sustainable Forestry & Land-Use			
Revise the tax scheme on logging, decreasing the reliance on area-based fees and providing preferential rates for those with sustainability certification that meets international standards.	MT	H	FDA
Gradually introduce sustainability-linked conditionality in the support provided to farmers to encourage uptake of smart agricultural practices, conservation agriculture, and agroforestry.	MT	L	MOA
Implement a payment for environmental services scheme, providing support to households and firms in forests at risk of deforestation.	LT	M	FDA
Strengthen the forestry information system, through the use of low-cost technologies to monitor forests, operationalizing a monitoring, reporting, and verification system, and maintaining a database on sustainability certificates.	MT	H	FDA
Provide fiscal incentives for the import of butane gas and/or solar stoves and their local production, while introducing targeted subsidy on the upfront cost of the same.	ST	H	MFDP
Accelerating Energy Access & Transition			
<i>Scaling Up Renewable Energy</i>			
Develop a net-metering policy and regulation to allow self-generators to sell excess rooftop solar PV electricity to the national grid.	ST	L	LERC
Introduce a feed-in tariff scheme as a price-based incentive and guarantee an above-market price for renewable energy producers.	MT	H	LERC
Mandate the development and implementation of long-term Integrated Resources Plan, through amendment of the 2015 Electricity Law and update of the 2009 National Energy Policy (NEP).	MT	M	MME
Introduce a Renewable Energy Independent Power Producer Procurement Program (REIPPPP) with technology specific bidding windows to attract private sector investments in utility-scale renewable energy.	LT	H	MME
<i>Electricity Tariff and Fuel Pricing Reform</i>			
Ensure the implementation of the multi-year cost-reflective electricity tariff adjustment mechanism, while protecting vulnerable households through a social tariff.	ST	H	LERC
Phase-out fossil fuel excise exemptions to support long-term transition to lower cost structure associated with higher share of renewables and increase controls on informal fuel markets.	MT	M	MFDP
Strengthening Climate Governance			
Introduce a comprehensive climate change law incorporating key climate governance principles, with respect to planning, implementation, monitoring, climate finance, decentralization, and roles and responsibilities of institutions.	MT	H	EPA
Review the current national and sectoral legislative framework on climate change and align with the forthcoming climate change law.	MT	M	EPA, MFDP
Review and align the Climate Response Strategy and policies/planning documents of key NDC sectors with the ARREST Agenda, the NAP, and the forthcoming NDC 3.0	ST	L	EPA
Assess the effectiveness of parallel institutional structures of key NDC sectors to identify overlapping mandates and streamline where needed,	ST	H	EPA, FDA, LLA, MME

and introduce cross-ministerial approval of natural resource use involving multiple sectors.			
Strengthen climate mainstreaming capacity through (i) introducing environment and climate change focal points in all MACs, (ii) operationalizing County and District Environmental Committees and update their responsibilities to include climate change, and (iii) defining the mandate of the MFDP Climate Integration and Financing Office to mainstream climate considerations into traditional functions of the ministry including financial policy.	MT	M	EPA, MFDP
Mobilizing Climate Finance			
Develop a Climate Finance Strategy building on the NDC and NAP that includes (i) assessment of funding needs and financing gaps, and mapping of potential sources of public and private, international and domestic finance, and (ii) a proactive engagement plan for donors and investors, along with an assessment of suitable investment instruments.	ST	H	MFDP, EPA
Promote green lending, through (i) introducing a green label framework, anchored in internationally recognized standards such as the Green Loan Principles and the Green Bond Principles, and (ii) developing a green lending program leveraging concessional finance to de-risk.	MT	M	CBL
Develop a regulatory environment with climate-related incentives conducive to private investments and consider a special investment incentive program under NIC for sectors of climate priority.	MT	M	NIC, MFDP
Join international platforms such as the Sustainable Banking and Finance Network and/or the Network for Greening the Financial System to build regulatory knowledge and share best practices.	ST	M	CBL
Recommendations that are characterized as short-term (ST) may be undertaken quickly by the authorities (in a year). Proposals that require longer time to implement are labeled medium-term (MT) which could take over a year but can be done within 3 years, or long-term (LT) which require 3+ years.			

I. Macro-Criticality of Climate Change

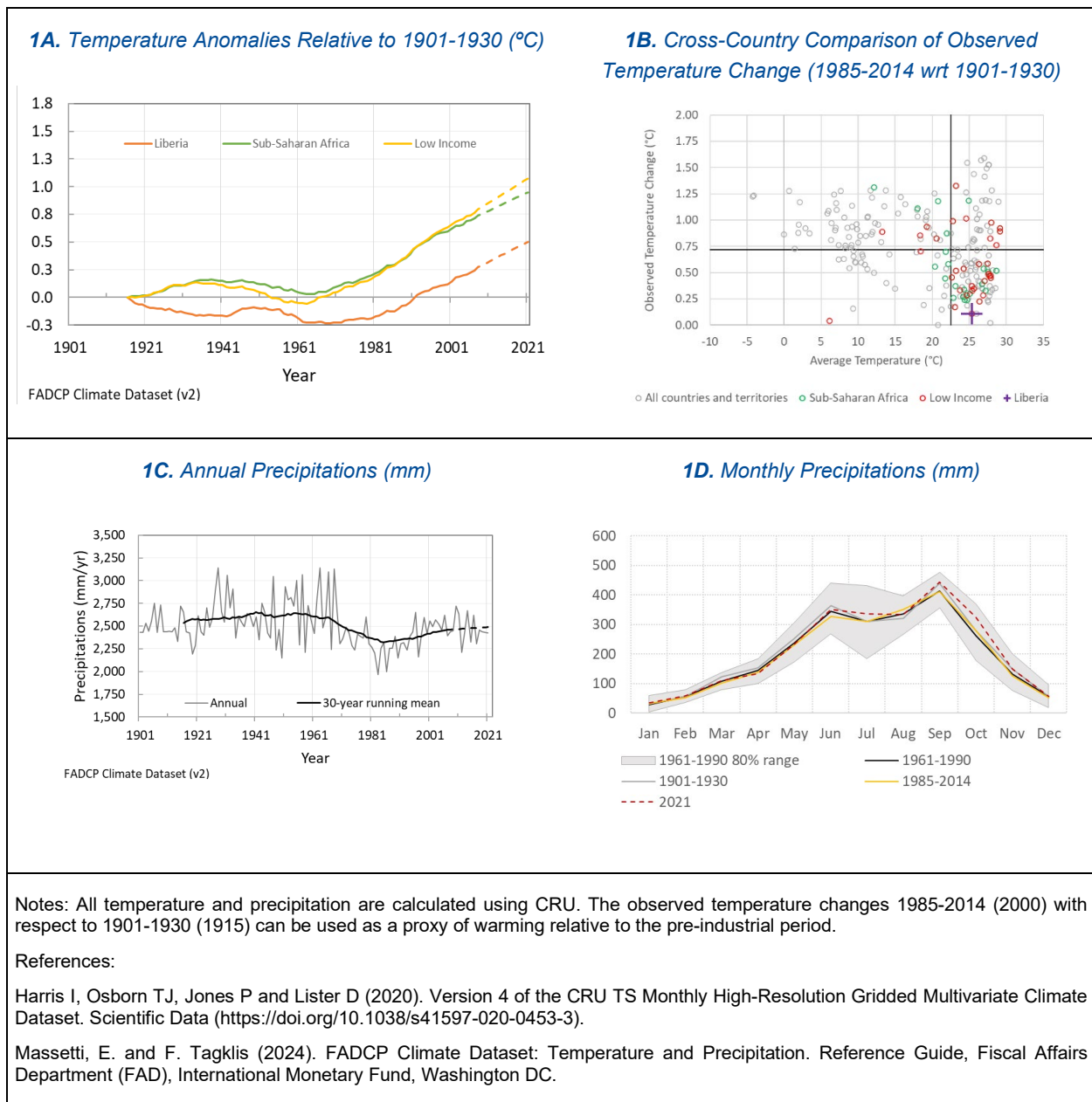
1. Liberia is highly vulnerable to climate change, which exacerbates development challenges and have significant macro-fiscal and balance of payments implications. Climate change poses a threat to macroeconomic and financial stability across the globe, with impacts unevenly distributed across countries. Liberia will not be immune, despite accounting for less than 0.01 percent of global emissions. Management of the country's climate vulnerability is limited by a lack of adaptive capacity and relatively high exposure to climate hazards. In 2020-2024 alone, natural hazards have affected over 140,000 people (Emergency Events Database (EMDAT) 2025). Further, under the continuation of current policies, a high-emissions scenario (SSP3-7.0, 90th percentile), predicts that warming in Liberia could reach 4.2°C by 2085 compared to 2000. Precipitation patterns could also shift and the intensity is likely to increase. As temperatures increase, and extreme weather events become more frequent, it will adversely affect Liberia through losses in output and productivity as well as lower potential growth. Livelihoods can be disrupted, worsening inequality and poverty, especially for already vulnerable population groups, and thus raising social spending needs when the country is already fiscally constrained. Agricultural losses will raise food insecurity and can lead to higher food imports, adding pressure to the balance of payments. Damage to public and private infrastructure - especially through storm surges, rising sea levels, and coastal erosion - can reduce asset valuations and increase financial sector risks.

A. Recent Trends

2. Liberia is among the most vulnerable countries to climate change, and even moderate warming poses significant risks. The country is characterized by a humid and tropical climate, with steadily rising average temperatures. Over the past four decades, Liberia has warmed by approximately 1.4°C relative to pre-industrial levels, though this is slower than regional trends (Figure 1A). The average annual temperature was approximately 25.2°C during the 1985–2014 baseline—about 0.3°C above pre-industrial levels—and is estimated to have reached 25.9°C by 2021 (Figure 1B). The scatter plot places Liberia in the lower-right quadrant, reflecting a high baseline temperature but slower warming compared to the median (Figure 1B).

3. Liberia is among the world's wettest countries, with the heaviest rainfall between May and October. During 1991-2020, Liberia received mean annual precipitation of 2467 milli meter (mm) (Figure 1C). Rainfall increases across the coastal regions (Jain, Matsumoto, Molise, and Jenya, 2022). While southern parts of the country receive rain all year, other regions experience two distinct seasons owing to the Western African Monsoon (World Bank, 2021). The wet season runs typically between May and November, while the dry season lasts in the winter months and is characterized by the Harmattan winds (Figure 1D). Monrovia is the wettest city in Africa with average rainfall of 5250 mm, and pluvial flooding poses important infrastructural challenges (World Bank, 2021).

Figure 1. Historical Temperatures and Precipitation in Liberia

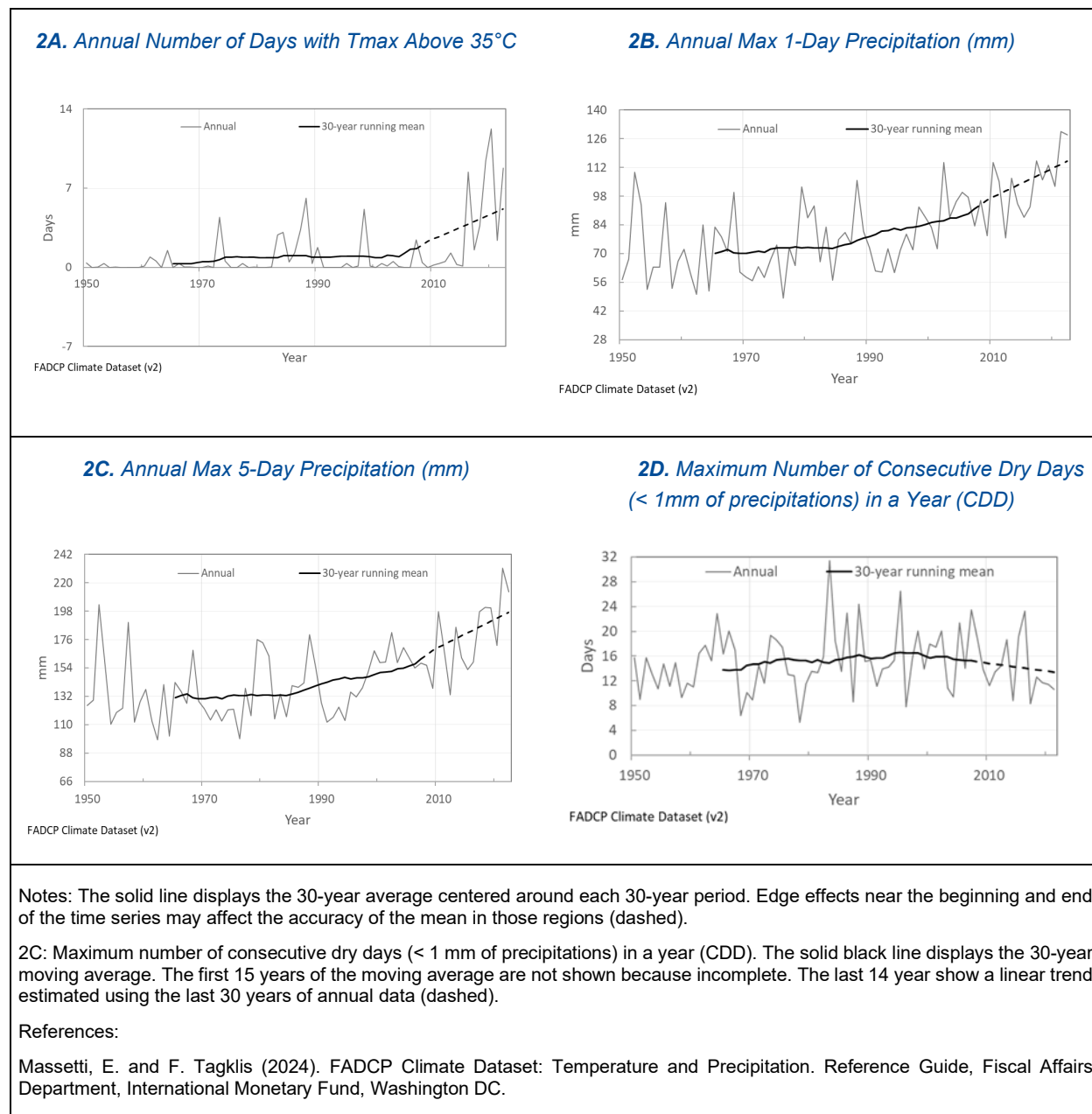


4. Extreme heat and extreme daily rainfall events are becoming more intense in Liberia. In terms of extreme weather events and natural disasters linked to climate change, the number of hot days (with maximum temperature above 35°C) has risen (Figure 2A). The intensity of maximum daily precipitation events has increased (Figure 2B, 2C). Intense precipitation events—measured by annual maximum rainfall over one or five days—have increased. The incidence of droughts, characterized by the maximum number of consecutive dry days (CDD), appears little changed (Figure 2D).

5. The country’s coastline is susceptible to coastal erosion, flooding, storm surges, and saltwater intrusion. According to the World Bank (2024), coastal erosion has been observed in West Point, New Kru Town, and areas north of the St. Paul River mouth. The New Kru Town coastline has

been eroding by 2–3 meters annually over the past 30 years, leading to a 50- to 100-meter retreat over the same period.

Figure 2. Extreme Climate Indices: Average Conditions and Recent Changes

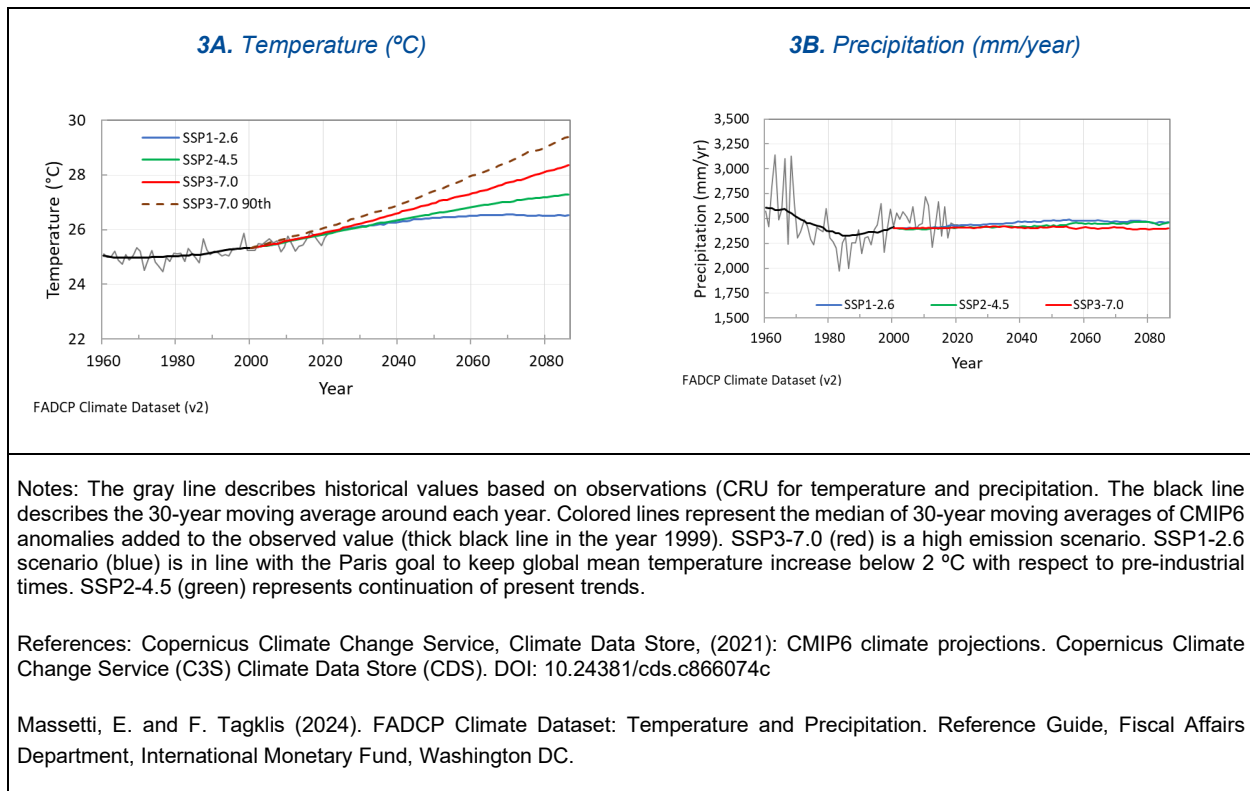


B. Future Climate Change

6. Liberia is projected to experience substantial warming by the end of the century, while future rainfall patterns remain highly uncertain. Climate projections indicate with high confidence that average temperatures in Liberia will continue to rise and median projections show temperature increases of 1.2–1.9 °C by 2050 and 1.3–2.9 °C by 2085, relative to the 1985–2014 baseline, depending on

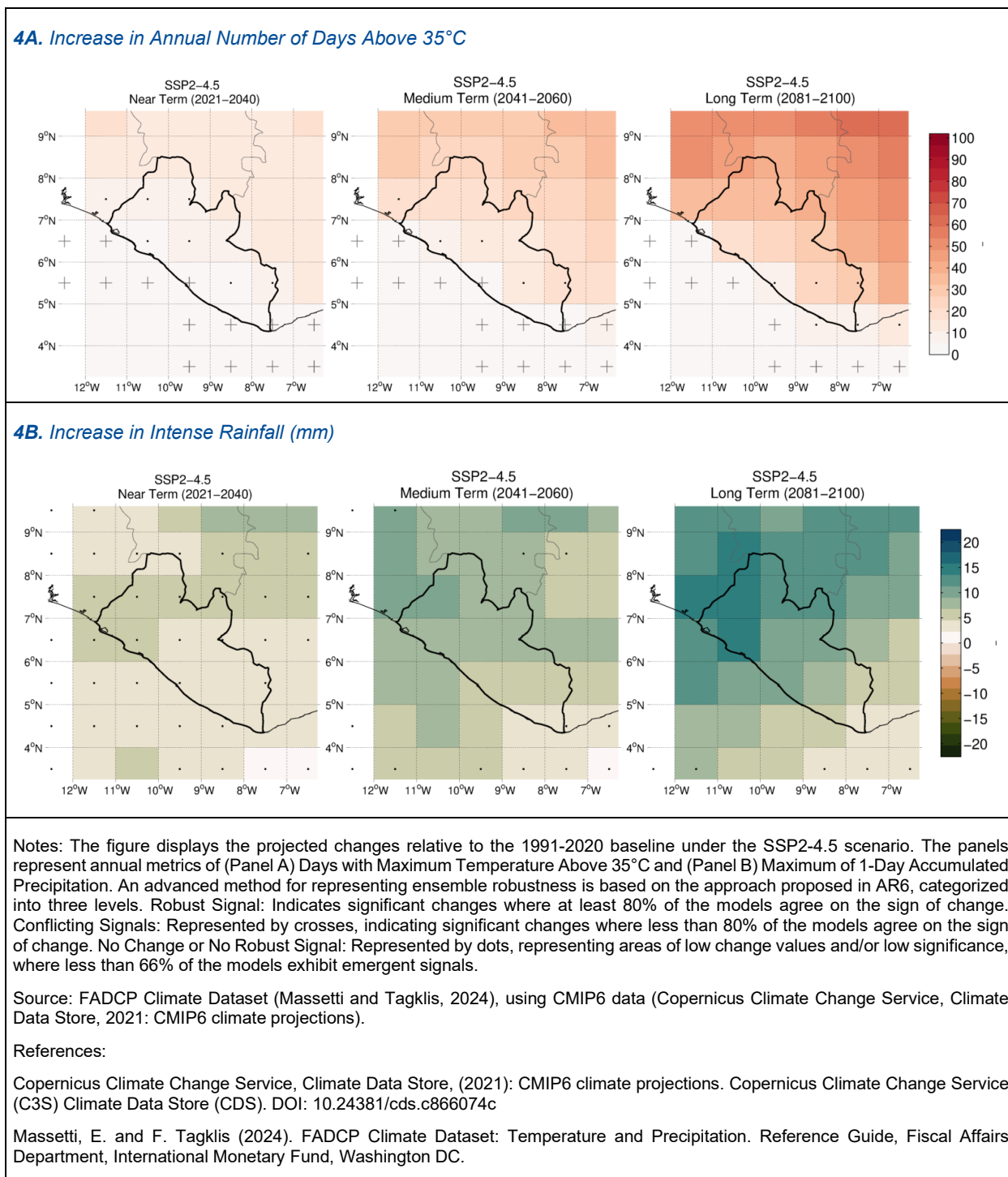
emissions pathways. In a high-emissions scenario (SSP3-7.0, 90th percentile), warming could reach 4.2°C by 2085 (Figure 3A). Projections for total annual precipitation do not indicate any statistically significant trend when compared to the current year-to-year variability (Figure 3B).

Figure 3. Time Series of Average Annual Temperature and Total Annual Precipitation



7. There are growing risks of both extreme heat and intense daily rainfall in Liberia. Figure 4 shows projected changes in Liberia in the near, medium, and long term under the SSP2-4.5 scenario (current trends). Panel A shows an increase in the number of hot days (above 35°C), with a median projection of about 19 such days per year by the end of the century. Panel B projects an increase in the intensity of extreme single-day rainfall events, with north-western areas in particular likely to experience over 15 mm more rainfall in a single day. Despite uncertainties in total annual precipitation, projections for Maximum of 1-Day Accumulated Precipitation (Rx1) day show statistically significant increases with strong agreement among climate models.

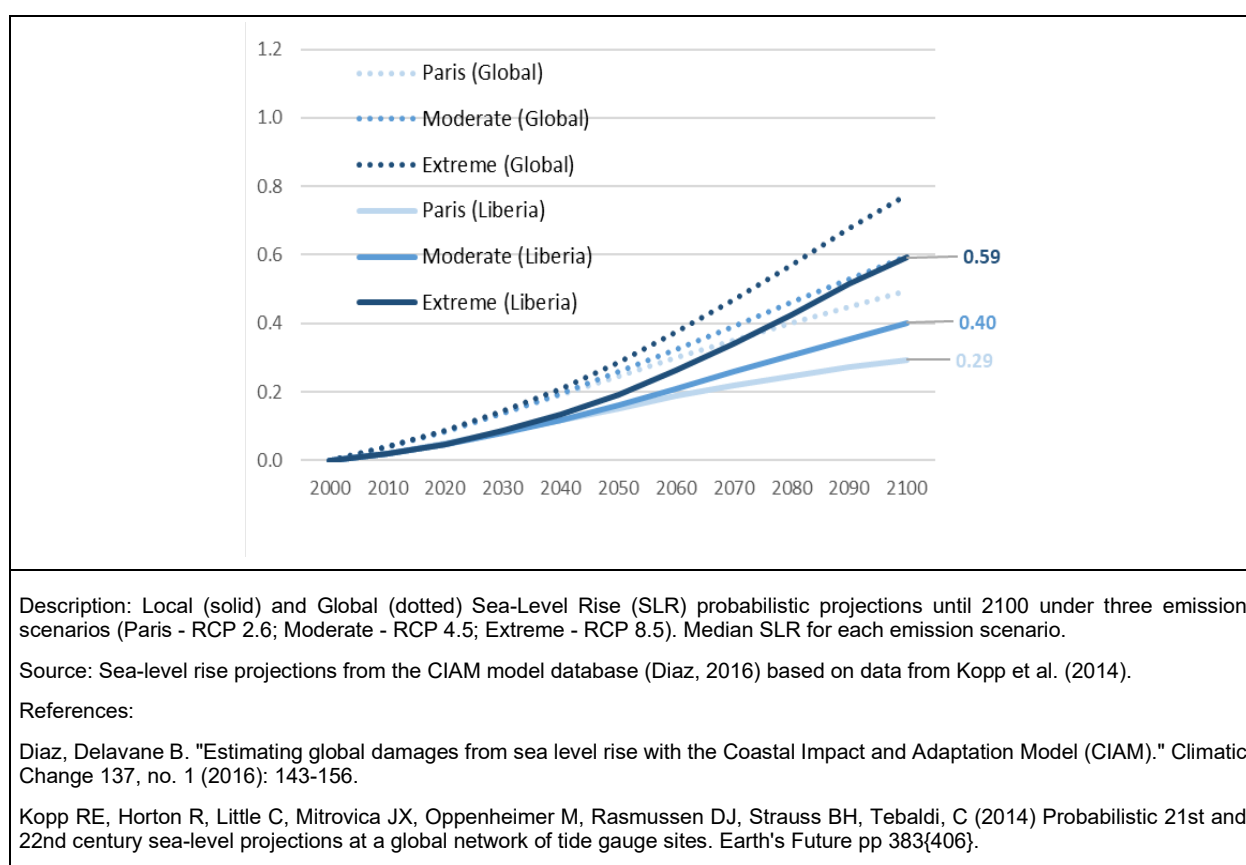
Figure 4. Projected Changes of Number of Hot Days and Extreme Precipitation Under SSP2-4.5 (Current Trends)



8. Sea-level rise, amplified by local factors, poses a threat to Liberia’s densely populated coastal areas, including the capital Monrovia. Driven by global warming, thermal expansion of oceans, and melting ice sheets, sea levels in Liberia are projected to rise. This has important implications for its 560km of coastline and the high proportion of population (60 percent) residing in low-elevation coastal

zones (World Bank, 2021). Median projections for Liberia using a moderate emission scenario (Representative Concentration Pathways, RCP 4.5) indicate that by the end of the century, the sea-level will increase by 0.40 meter with respect to its level in 2000. With an emissions scenario in line with the Paris goal of keeping global mean temperature increase below 2°C (RCP 2.6), the sea-level is projected to increase by 0.29 meter. With a very high emission scenario (RCP 8.5), the sea-level is projected to increase by 0.59 meter (Figure 5). These global projections are compounded by local conditions, including natural processes like coastal erosion and land subsidence (Doherty et al., 2022). Though the model indicates that sea level rise in Liberia will be just 2/3rd of the global SLR by 2100, the combined effects of global climate change and local vulnerabilities increase the risk to the country’s coastal zones. Land-use planning policies, such as building codes and nature based solutions, should take this into account and consider retreat strategies to reduce the risk.

Figure 5. Sea Level Rise Projections Relative to 2000 Level (in meters)

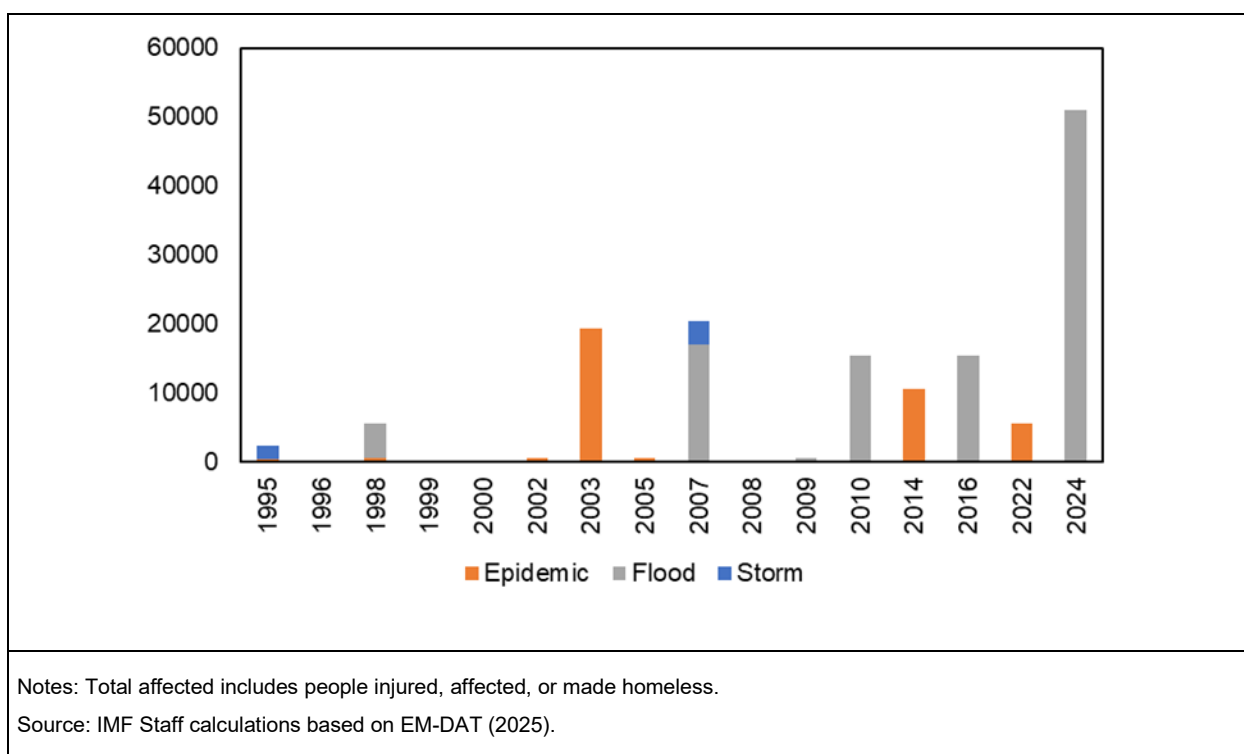


C. Economic Impact and Adaptation

9. The warming trend and rise in extreme hot days can magnify stress on natural resources and impact key economic sectors. Coupled with increased frequency of heavy rainfall—this poses challenges for agricultural planning, water resources management, and food security. While droughts have not shown a marked increase in frequency, their economic impact remains significant in a country primarily dependent upon rain-fed agriculture.

10. Though Liberia has relatively low exposure to natural disasters, they could become more frequent and intense with climate change. Since 1995, Liberia has experienced 21 climate-related disasters, primarily, flood, storms, and epidemics (Figure 6). Over 148,000 people have been affected, injured, or made homeless, and over 5,000 lives have been lost. Recurring floods impose economic and welfare losses. As an example, the economic impact of fluvial flooding in Monrovia is expected to double by 2050 (IMF, 2025).

Figure 6. Types of Disasters and Number of Affected People in Liberia (Count)

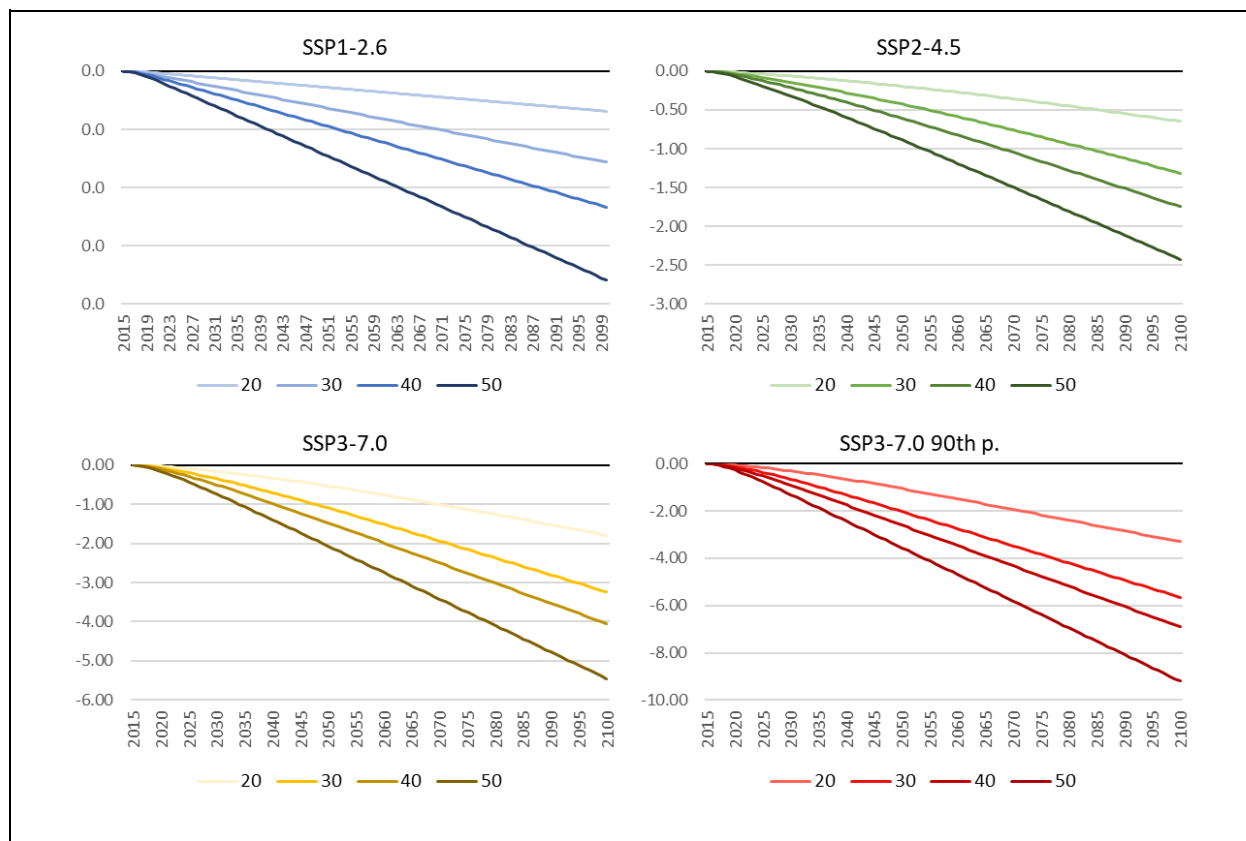


11. The warming trend predicted during the century could cause sizeable reductions in GDP per capita, especially with slow or no adaptation. In the fastest warming scenario considered for this analysis (SSP3-7.0 90th percentile: +4.2 °C compared to the year 2000), and assuming slow adaptation, GDP per capita is projected to decline by over 9 percent by 2100 with respect to what it would be if the present warming trend continues (Figure 7).¹ A scenario without adaptation at all causes damages approximately twice as large (Mohaddes and Raissi, 2024; not shown), but fast adaptation can reduce losses to a little over 3 percent of GDP per capita, for the same temperature change. These costs are relative to a world in which temperature increases along the observed trends and is already below its full potential. These estimates do not cover all potential impacts. For example, they do not include the effect

¹ While the continuation of the historical temperature trend in the future does not reduce the growth rate of the economy, the loss of GDP per capita with respect to a hypothetical no-warming scenario (higher growth) grows over time. For example, if the long-run growth rate of the economy in year 2000 was equal to 3 percent per year and the observed temperature trend reduces growth by 0.2 percentage points per year, GDP per capita in 2024 would be 5 percent below its potential. Losses grow to 7 percent in 2040, and 18 percent in 2100.

of extreme weather and sea-level rise, which needs specialized models. They also do not include the cost of adaptation, which underestimates costs estimated in the fast adaptation scenarios.

Figure 7. Reduction of Real GDP per Capita with Respect to Continuation of Present Temperature Trends (Percent)



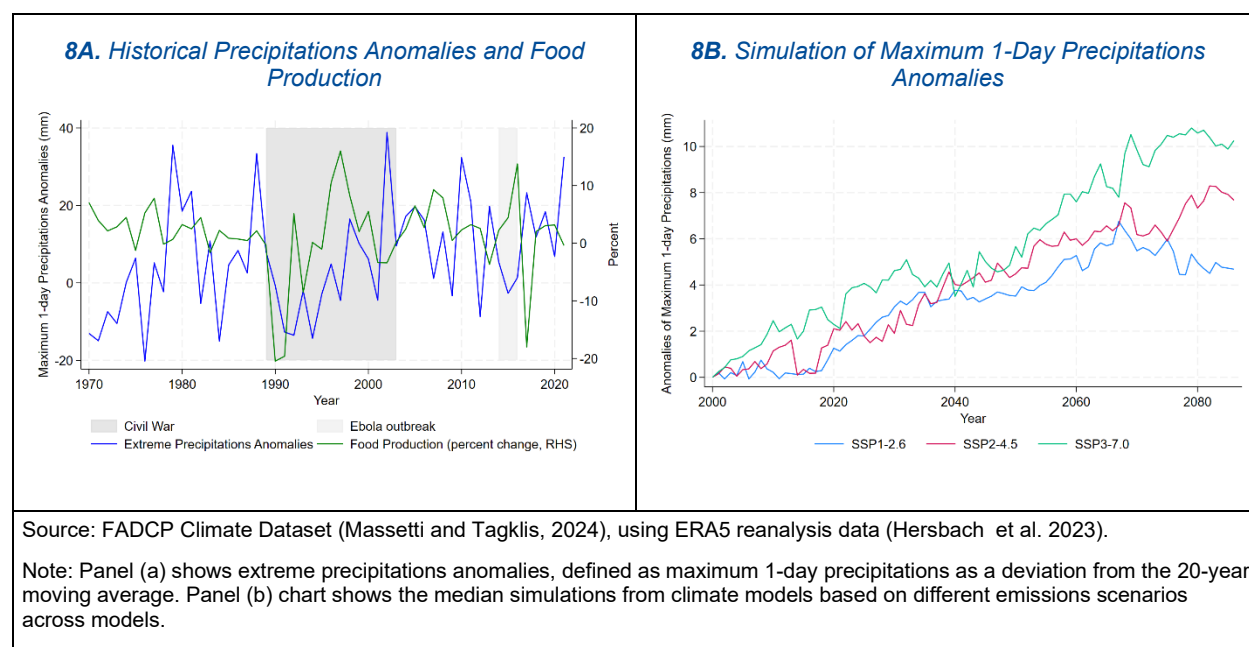
Sources: IMF Staff estimates using Kahn et al. (2021), and CMIP6 data (Copernicus Climate Change Service, Climate Data Store, 2021) processed by Massetti and Tagklis (2024).

Notes: The impact of the warming trend for each scenario is estimated using Kahn et al. (2021) under the assumption that adaptation can offset the impact of the warming trend after 20, 30, 40, or 50 years. Impacts are measured as percentage deviations of real GDP per capita relative to a reference scenario in which the warming trend follows the historical pattern. Country specific warming trends are calculated for each scenario using the bias-adjusted ensemble median projections of temperature anomalies with respect to 1985-2014 over 30-year time periods centered around each year using CMIP6 data. The SSP1-2.6 scenario is in line with the Paris goal to keep global mean temperature increase below 2 °C with respect to pre-industrial times. SSP2-4.5 represents continuation of present trends. SSP3-7.0 is a high emission scenario. SSP3-7. 90th p. uses the 90th percentile of the SSP3-7.0 ensemble instead of the median to provide a high-emission, fast-warming, pessimistic case.

12. Extreme precipitation shocks have significantly impacted Liberia’s economy, reducing food production, increasing inflation, and decreasing GDP growth; the intensity of these shocks is expected to rise due to climate change. Extreme precipitation and flood risks are Liberia’s most pressing climate hazards, with far-reaching consequences for food security, public health, and macroeconomic stability. These risks are exacerbated by the country’s limited adaptive capacity. As shown in Figure 8, climate models project an increase in extreme precipitation anomalies under all emissions scenarios. We estimate the short-term macroeconomic impacts of extreme precipitation shocks using high-resolution, high-frequency climate data from the FAD Climate Policy dataset (Massetti and Tagklis, 2024), defining extremes as deviations in maximum 1-day precipitation from historical trends to

capture short-duration, high-intensity rainfall events. This approach identifies shocks—rather than gradual changes—and ensures that the estimated macroeconomic effects reflect acute, weather-driven disruptions. Our analysis shows that extreme precipitation shocks reduce food production by 1.6 percentage points (p.p.), per capita GDP growth by 3.3 p.p., and increase inflation by about 2 p.p. and increase inflation by about 2 p.p., suggesting that extreme rainfall-induced food shortages translate rapidly into higher consumer prices, consistent with food being a large share of household consumption (Figure 9).² The sharp decline in food production poses immediate threats to food availability and rural livelihoods, with potential spillovers to nutrition, health, and poverty.³

Figure 8. Extreme Precipitations, Food Production and Long-Term Trends



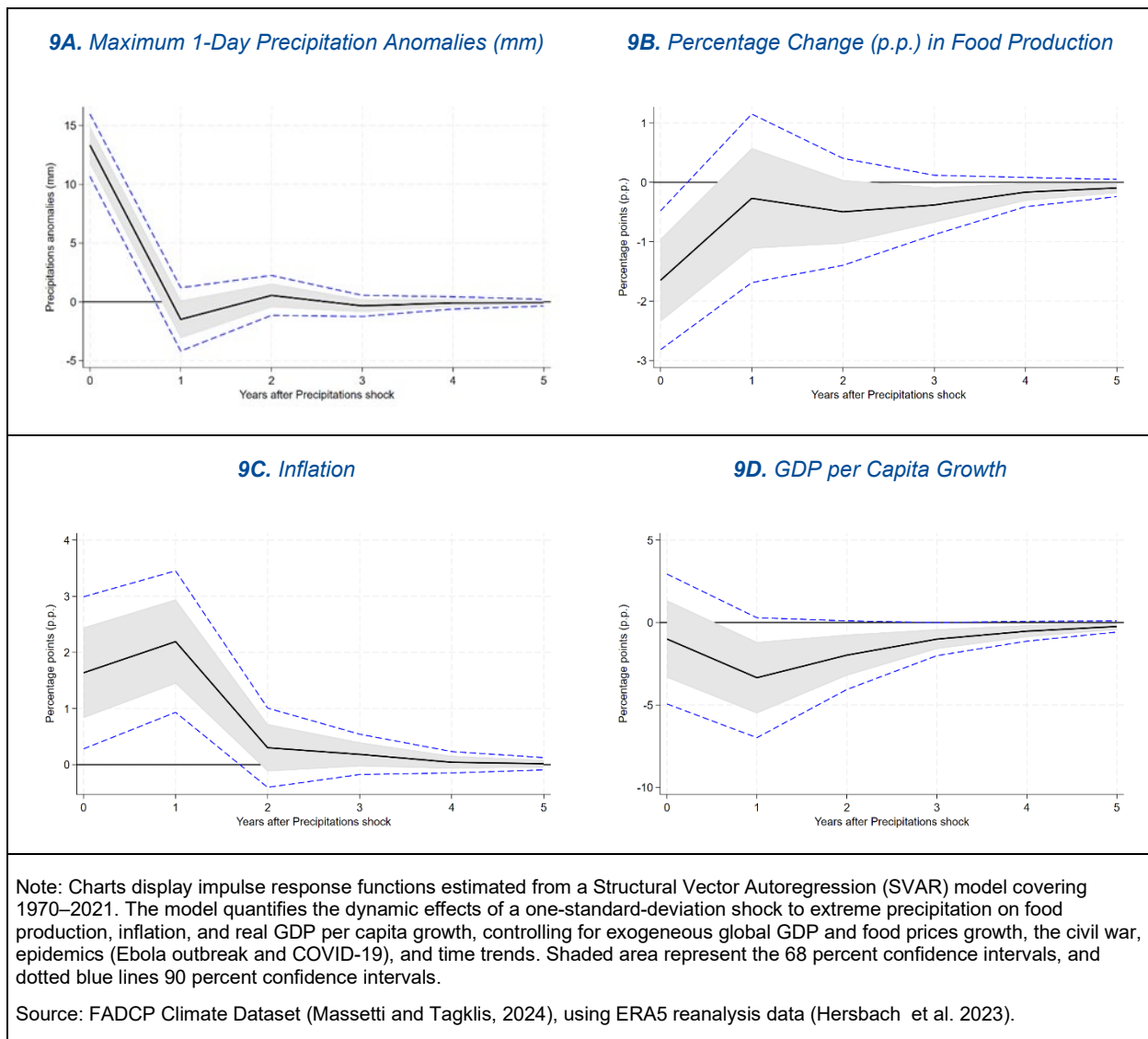
13. From a macroeconomic perspective, flood-related disruptions to domestic food supply increase reliance on imports,⁴ pressure the balance of payments, fuel inflation, and reduce fiscal revenues while increasing expenditure pressures—particularly for food subsidies, emergency relief, and reconstruction—further tightening fiscal space. These findings emphasize the need to build climate resilience in the agricultural sector through improved domestic food systems, risk-informed land-use planning, enhanced weather and climate information to encourage farmer adaptation, and scaled-up climate-resilient infrastructure and shock-responsive social protection. These measures will help reduce external and fiscal vulnerabilities amid increasingly frequent extreme weather events.

² While relatively high estimated impacts, these results align with broader findings in the climate-economy literature that link extreme weather events to contractions in economic activity in low-income countries, where adaptive capacity is low (e.g., Cavallo et al., 2022). For example, identified disasters by EM-DAT database after 2001 show average economic damages of 3 percent of GDP in low income countries.

³ Reed et. al (2022) shows that approximately 12% of individuals who experienced food insecurity between 2009 and 2020 had their status influenced by flooding events.

⁴ Liberia imports 70 percent of the rice it consumes.

Figure 9. Liberia: Impacts of Extreme Precipitations Shocks



D. From Emissions to Transition

14. Liberia submitted an updated Nationally Determined Contribution (NDC) in 2021, committing to a reduction in greenhouse gas (GHG) emissions of 64 percent by 2030 relative to business as usual. Liberia has ratified key international conventions and agreements on climate change, and in line with the requirements of the Paris Agreement 2015, Liberia’s first NDC committed to a conditional emission reduction of 15 percent. The ambition of the targets increased in the updated 2021 NDC, which included including detailed and costed mitigation actions across several sectors and committing to an unconditional emissions reduction of 10 percent by 2030, relative to its business as usual. The country also committed to an additional reduction of 54 percent, conditional upon international funding and technological and technical capacity transfers. The Environmental Protection Agency (EPA) is currently leading the update process of the NDC, which will be presented in November during the UNFCCC Conference of the Parties (COP) in Belem, Brazil.

15. More generally, the Government of Liberia (GoL) is proactively incorporating climate change adaptation and mitigation considerations into its legislation, development objectives, and planning. Liberia has implemented various climate related laws and policies. With the Environmental Protection Agency Act 2002 and the Environment Protection and Management Law 2002 (EPML) serving as the foundation for climate relevant legislation, key climate related policies include the ARREST Agenda for Inclusive Development (AAID) 2024-2029, Vision 2030, the National Policy and Response Strategy on Climate Change 2018, the National Adaptation Plan (NAP) 2020-2030, and the Reducing Emissions from Deforestation and Forest Degradation+ (REDD+) Strategy 2016. Several national and sectoral policies are currently under revision to integrate climate considerations in long-term planning.

E. Toward Macro-Critical Policy Reforms

16. Adaptation and mitigation policies must recognize that climate change and development challenges are deeply intertwined in Liberia. Home to about 5.6 million people, close to 51 percent of the country's population still live below the poverty line with limited capacity to absorb economic shocks from climate change and increasingly severe weather conditions. The Liberian economy and its people are highly vulnerable to rising temperatures, more intense rainfall, and floods, as 40 percent of the workforce is employed in the agriculture sector but over 80 percent is moderately or severely food insecure. The impact of climate change hampers poverty reduction efforts and is compounded by a lack of energy access, as only about 32.5 percent of people are connected to electricity currently. Climate change intensifies these pre-existing development challenges and adds a layer of macroeconomic and policy complexity—meaningful progress on policy reforms build climate resilience and pave the way toward a green transition are key to raising living standards and achieving long-lasting economic growth.

17. The Climate Policy Diagnostic (CPD) identifies policy reforms that reduce balance of payment risks, boost fiscal resilience, and generate positive climate outcomes. The CPD assesses Liberia's climate policy and institutional landscape and prioritizes recommendations that create fiscal space and supports fiscal sustainability, through mobilizing additional revenues, improving spending efficiency, and minimizing fiscal costs associated with climate change and disasters. These reforms are expected to reduce import bills and external financing needs, while improving the overall investment climate of the country. At the same time, the CPD focuses on policies to address market failures and encourage more efficient use of resources, as well as minimize adverse impact on vulnerable/poor households. Through this lens, the remainder of this report assesses the following development-climate nexus challenges: (i) promoting water and food security (ii) accelerating energy access and transition (iv) sustainable forestry and land-use, (iv) disaster risk management and financing, (v) strengthening climate governance, and (vi) mobilizing climate finance.

II. Promoting Water and Food Security

18. Climate-induced changes in freshwater availability—particularly the increased intensity and frequency of flooding—pose significant risks to water resources, agricultural productivity, and food security, threatening development gains; and fiscal policy play a central role in managing these risks. The country’s reliance on rain-fed agriculture and underdeveloped water infrastructure makes it especially vulnerable to seasonal and flash floods, which damage crops, erode soils, and disrupt livelihoods. These impacts increase food insecurity, elevate reliance on food imports, and weaken fiscal revenues from key productive sectors. Critically, these challenges are compounded by the fact that Liberia’s current water resource management frameworks do not adequately account for the country’s existing climate variability and hydrological risks. Planning, allocation, and investment decisions often proceed without integrating climate data or future risk projections, leaving infrastructure, institutions, and service delivery ill-prepared to manage shocks. This misalignment not only reduces the efficiency and sustainability of water use but also limits the government’s ability to anticipate and mitigate the fiscal costs of water-related disasters.

Context

19. Liberia is endowed with abundant freshwater resources; however, this natural wealth masks critical governance, infrastructure, and climate-related challenges. Liberia’s renewable internal freshwater resources per capita were approximately 38,000 m³/year in 2021—well above the “water-stress” threshold of 1,000 m³/person/year (Table 2).⁵ Less than 0.1 percent of available water is currently withdrawn, but the majority of the population relies on shallow, often unprotected groundwater sources that are highly susceptible to contamination, particularly during seasonal floods. Liberia experiences two main seasons: a wet season from May to October with high rainfall (up to 1,000 mm/month along the coast), and a dry season from November to April. During the dry months, hand pumps and shallow wells in rural highland regions and southeastern counties often dry up, leading to periodic water scarcity and longer collection times. Water use is dominated by domestic and municipal consumption (55 percent), followed by industry (36.6 percent) and agriculture (8.4 percent). In contrast, irrigation demand remains low, as the majority of farmers depend on rainfed agriculture due to large infrastructure needs, and current national plans project only modest expansion in irrigated areas.⁶

⁵ AQUASTAT.

⁶ [Liberia Water Resources Profile Overview](#), Winrock International (2021).

Table 2. Water Resources in Liberia

Water Indicator	Liberia	Sub-Saharan Africa (median)
Long-term average precipitation (mm/year)	2,391	1,032
Renewable internal freshwater resources, total (m3)	232,000	38,385
Renewable internal freshwater resources per capita (cubic meters)	38,028	1,401
Annual freshwater withdrawals, total (% of internal resources)	0.1	4.3
Total Renewable surface water (m3/year)	232,000	36,970
Total Renewable groundwater water (m3/year)	45,000	7,470
Cereal yield (kg/ha)	1,052	1,441
Water productivity, total (US\$ GDP per m3 of total freshwater withdrawal)	22.4	19.6
Mortality rate attributed to unsafe water, sanitation and lack of hygiene (per 100,000 pop)	34.6	40.7
Prevalence of moderate or severe food insecurity in the population (percent)	81.0	59.6

Source: FAO Aquastat, World Development Indicators, WHO.

20. While progress has been made since the end of the civil war, the Liberian population continues to face unsafe water and unsanitary conditions, particularly in rural areas. Access to basic drinking water increased from approximately 65 percent in 2003 to 76 percent in 2022, especially in rural areas (from 52 to 65 percent), aligning with the regional average (Figure 10). In contrast, access to basic sanitation remains critically low, improving from around 13 percent in 2003 to just 23 percent in 2022, with rural areas lagging significantly (9 percent in 2022).⁷ Only 3 percent of the population has handwashing facilities. Over half still relies on unimproved sanitation or practices open defecation. Additionally, significant inequalities in urban water access exist based on income level: nearly one in four households in the lowest wealth quintile lacked basic water services, compared to just 6.6 percent in the richest quintile. Climate change further exacerbates these challenges, leading to increased flooding and changing rainfall patterns that threaten water quality and availability, making it even more difficult for vulnerable populations to access safe and sufficient water and sanitation services.

21. Despite having a comparative advantage in agricultural production and the potential for year-round irrigation due to its dense freshwater network, agricultural yields in Liberia remain low and are expected to decline further due to climate change. Liberia is an agrarian economy with significant but underutilized resources. With 41 percent of its territory as arable land and a network of 15 major rivers and over 15,000 km² of freshwater, the country has substantial potential for irrigation expansion. However, less than 3 percent of this land is irrigated, and the sector is largely rain-fed and subsistence-based. Rice, cassava, and vegetables account for 85 percent of cultivated land and 80 percent of agricultural output, yet rice yields average only 1.48 metric tons per hectare—well below regional averages. Food insecurity affects an estimated 80 percent of the population (FAO, 2023).⁸ Infrastructure deficits in storage and logistics, limited financing, and weak institutional capacity hinder productivity. In 2024, the budget of Ministry of Agriculture (MoA) was United States Dollar (US\$) 3.4 million (less than 1 percent of the total budget), reflecting low fiscal prioritization and limiting the sector’s ability to address these challenges.⁹ Climate change will exacerbate productivity losses through more

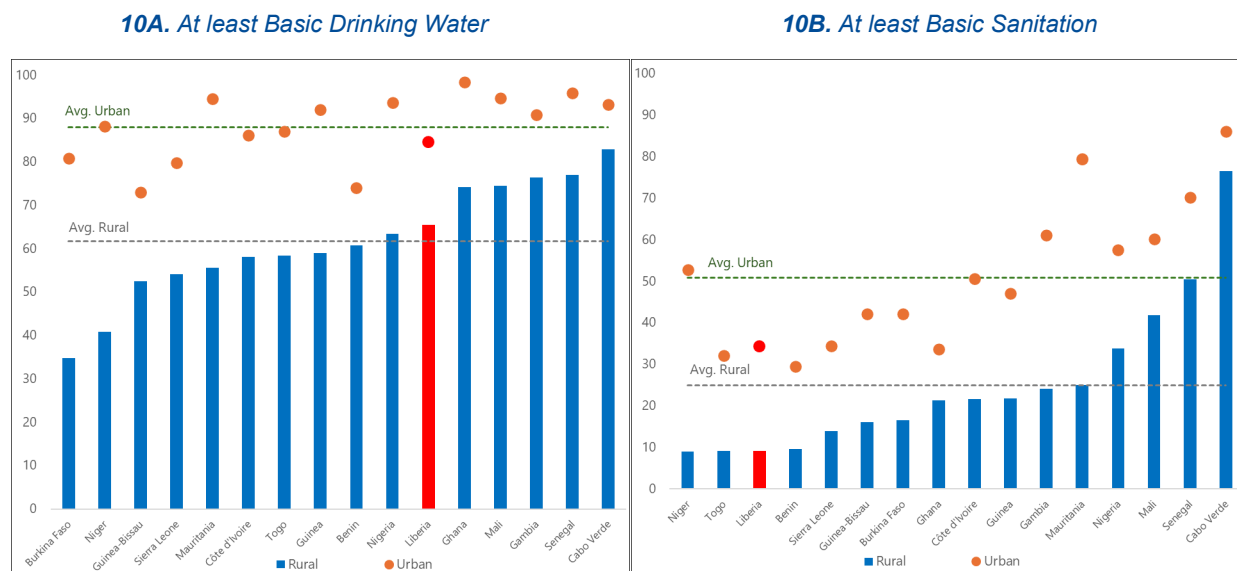
⁷ WHO/UNICEF Joint Monitoring Programme for Water Supply, Sanitation and Hygiene (JMP).

⁸ [Reed et. al \(2022\)](#) shows that approximately 12% of individuals who experienced food insecurity between 2009 and 2020 had their status influenced by flooding events.

⁹ African Union’s Malabo Declaration 2014 established at least 10 percent spending goal to support agricultural growth and development.

intense floods and higher temperatures, potentially leading to crop revenue losses of 6 to 22 percent by 2050 and pushing an additional 0.87 to 1.3 million people into poverty (Liberia’s CCDR, 2024).

Figure 10. Access to WASH Services in Rural and Urban Population (Percent) in West Africa



Source: WHO/UNICEF Joint Monitoring Programme for Water Supply, Sanitation and Hygiene (JMP).

22. Water quality in Liberia is already compromised by inadequate sanitation, unprotected water sources, and poor waste management, and climate change is expected to further exacerbate these challenges. Increased rainfall, flooding, and rising temperatures will heighten sanitation vulnerabilities and the prevalence of waterborne diseases like cholera and diarrhea. Reduced availability and compromised quality of surface water will further endanger populations relying on these sources. More intense storms may contaminate surface water and shallow wells, particularly affecting those who depend on surface water when wells dry up. Additionally, groundwater quality is increasingly at risk due to widespread use of unprotected wells and pit latrines, which are highly susceptible to contamination—especially during flooding in the wet season. Infiltration of sewage and other pollutants into shallow aquifers poses significant public health risks for communities dependent on groundwater for drinking. Currently, access to safely managed drinking water in Liberia remains below 4 percent, highlighting the urgent need for improved water quality management (Sanitation and Water for All, 2023).

23. Liberia’s WASH sector faces a severe financing gap due to excessive donor dependency, low national budget allocations, and limited government prioritization. Carappella et al. (2023) estimate that achieving SDG 6 WASH targets by 2030 will require annual investments of 3.9 percent of GDP.¹⁰ The WASH Sector Investment Plan indicated that US\$120 million per year were needed for five years to implement the National WASH Strategy, yet actual annual allocations—combining government and donor funding—cover only about 31 percent of this need.¹¹ Furthermore, on average donors financed

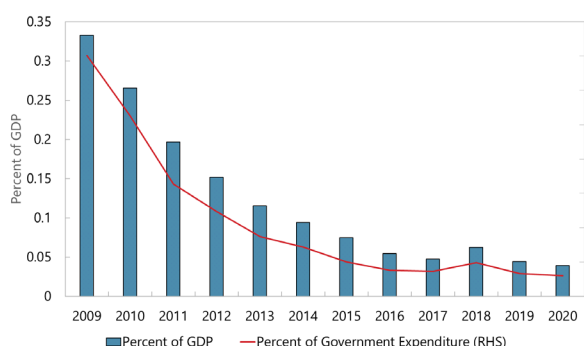
¹⁰ Carapella, P. M., Mogue, M. T., Pico-Mejia, J. C., & Soto, M. (2023). *How to Assess Spending Needs of the Sustainable Development Goals: The Third Edition of the IMF SDG Costing Tool*. International Monetary Fund.

¹¹ [WaterAid Liberia Country Programme Strategy 2023-2028](#).

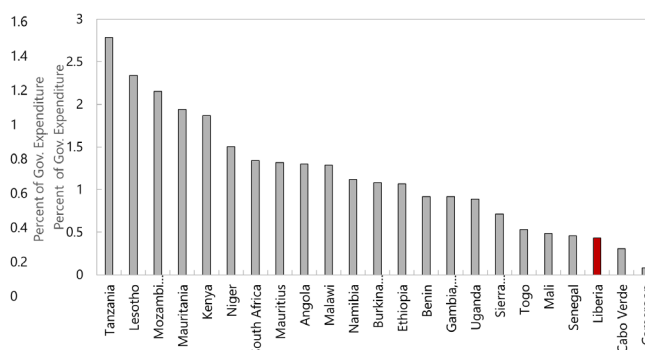
nearly 95 percent of the WASH spending and government budget allocations to WASH have been below 0.1 percent of GDP, or under 0.5 percent of total expenditure and have declined over time (Figure 11). This reflects limited fiscal space, weak political prioritization, and minimal private sector involvement, contributing to the substantial infrastructure investment gap that must be addressed to meet SDG 6 by 2030.

Figure 11. Government Expenditure in the Water and Sanitation Services

11A. Liberia: Evolution Over Time



11B. Peer Comparison: Average Over 2009-2020



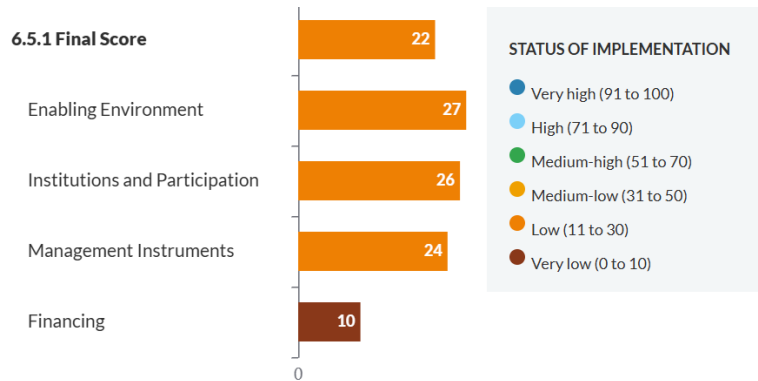
Source: IMF Staff Calculation, based on World Bank Funding a Water-Secure Future Database.

A. Water Governance

24. While Liberia’s approach to water governance is outlined in its 2007 National Integrated Water Resource Management (IWRM) Policy, full implementation has been hindered by limited institutional capacity and the absence of a dedicated water law. This policy, led by the MME with support from the MoA, EPA and others, establishes a comprehensive framework for allocating and managing water across sectors. The institutional setup aims to decentralize water governance, promote intersectoral collaboration, and ensure that water resource management supports national development and climate resilience. Liberia’s IWRM framework prioritizes water use based on economic, social, and environmental value. The order of priority is: (1) drinking water, (2) water for urban and rural sanitation, (3) water for food security, and (4) water for other uses, including industry, hydropower. The policy emphasizes watershed-based planning, stakeholder coordination, and environmental sustainability, and encourages regulatory mechanisms like water-use permits and the polluter-pays principle. However, leadership, budget, operational, and capacity constraints have impeded full implementation, as evidenced by low scores in the IWRM implementation for the SDG 6.5.1 indicator (Figure 12), placing Liberia in the bottom 25th percentile in the region.¹²

¹² Liberia’s 2023 overall score is 22, while the bottom 25th percentile is at 38.

Figure 12. Liberia: 2023 IWRM SDG Indicator (6.5.1) Assessment



Note: Enabling environment (policies, laws, plans, and strategies); management Instruments (water allocation, pricing, and other tools); institutions and participation (roles and responsibilities of actors) and financing (sustainability of funding mechanism).

Source: IWRM Action.

25. The institutional landscape for water resource management is highly fragmented, involving multiple ministries and agencies, weakening governance and investment coordination.

The 2007 IWRM policy remains largely unimplemented, and basin-level governance structures are mostly non-functional. Water resource management functions are scattered across various laws, including the Environment Protection and Management Law (EPML, 2002), Water Supply and Sanitation Law (2009), National Water, Sanitation, and Hygiene Commission Act (2012), LWSC Public Utilities Act (1973), Natural Resources Law (2003), and revised Public Health Law (2019). Overlapping mandates among key agencies (LHS, EPA, MME, MPW, Ministry of Health, LWSC, WASH Commission) undermine integrated planning and legal stability (Table 3). This overlap has led to weak interagency coordination, duplication of efforts, limited accountability, fiscal inefficiencies, and maladaptive investments (e.g., irrigation, hydropower, urban water).¹³ Further complicating coordination efforts, multiple water and sanitation strategies—including the WASH Compact (2011), the WASH Sector Strategic Plan (2012), and the One WASH Program (2018)—assign overlapping or differing roles and responsibilities to WSS sector institutions. The GOL is working on creating a Water Ministry to lead the coordination of WASH services and implement IWRM policies.

26. Although legal coordination has improved with the creation of the National Water, Sanitation, and Hygiene Commission (WASH-C), which has functioned as the mandated sector coordination body since 2017, operational challenges remain. Established under the National Water, Sanitation, and Hygiene Commission Act of 2012, the Commission is mandated to regulate, coordinate, and monitor WASH services across the country. It is empowered to develop and enforce standards, coordinate stakeholders, issue licenses, monitor compliance and sector performance, and advise the

¹³ For example, overlapping mandates between the Liberia Water and Sewer Corporation (LWSC) and the WASH Commission have created confusion regarding the licensing of commercial water producers. While LWSC is legally mandated to issue these licenses, the WASH Commission claims regulatory authority under its broader oversight role. This duplication has resulted in mostly unregulated private water operations (such as vendors and bottled water companies), lost revenue for both LWSC and the WASH Commission, and weak enforcement of water quality standards—underscoring the need for clearer institutional roles and coordination mechanisms.

government on policy, financing, and institutional reform.¹⁴ While coordination structures are active with monthly meetings, critical components like the Water Supply and Sanitation Commission (WSSC) and the National Water Resources and Sanitation Board (NWRSB) are either unestablished or only partially operational, limiting the Commission’s regulatory capacity. Despite this strong legal foundation, challenges such as underfunding, limited technical capacity, and incomplete establishment of supporting institutions like the WSSC hinder the full realization of the Commission’s mandate.¹⁵ To address operational issues, the WASH Commission is exploring a Memorandum of Understanding (MoU) with line ministries to clarify roles and reduce duplication.

Table 3. Key institutions Involved in Water Resource Management and Functions

Institution	Mandate and Functions
Ministry of Mines and Energy (MME)	Broadly responsible for all water resource management decisions, including water allocation and permitting, water policy development and implementation. Coordinates policy, basin planning, and regulation of water abstraction. Leads inter-ministerial collaboration for water sector. Creates Local Water Coordination Units (WACUs).
Liberia Hydrological Service (LHS)	Within the MME, it is responsible for hydrological monitoring (surface water, rainfall, groundwater). Measures rainfall and flow of major rivers. Also responsible for monitoring groundwater balance, as well as surface and groundwater quality and dissemination of data to public. Technically supports water use allocation and infrastructure siting.
WASH Commission (National Water, Sanitation and Hygiene Commission)	Serves as the regulatory and policy coordination body for drinking water, sanitation, and hygiene services. Oversees WASH sector strategies and liaises with both urban and rural service providers. Interfaces with EPA and MME on cross-cutting issues.
Environmental Protection Agency (EPA)	Enforces the Environmental Protection and Management Law (2003). Issues environmental permits for water abstraction and effluent discharge, and conducts environmental impact assessments. Ensures compliance with water pollution regulations and penalties in cases of water quality violations. Coordinates national adaptation planning and is the focal point for climate change.
Ministry of Health (MoH)	Responsible for drinking water quality monitoring through the National Public Health Institute of Liberia (NPHIL). Works with LWSC and local authorities to test for waterborne diseases and respond to health risks associated with water contamination.
Liberia Water and Sewer Corporation (LWSC)	A state-owned utility mandated to provide urban water supply and sanitation services. Oversees infrastructure development and operations in Monrovia, the county capitals, and all communities with a population of 5,000 and above. Authorized to license commercial water producers, although this function is currently inactive.
Ministry of Agriculture (MoA)	Oversees agricultural water use, including irrigation and watershed management. Supports farmers and local cooperatives through extension services.
Ministry of Public Works (MPW)	MPW is legally mandated to deliver rural water and sanitation, providing infrastructure and rural WASH coordination

Source: IMF Staff.

27. Planning, data systems, and climate integration in Liberia’s water sector remain limited, reflecting ongoing institutional and infrastructure challenges. The Ministry of Mines and Energy (MME), responsible for water resource management, lacks effective planning capacity for sector investments. The Liberia Hydrological Service (LHS) is historically underfunded, with much of its monitoring infrastructure degraded and non-functional. Water quality laboratories are inactive, and data systems are weak, with limited interoperability across platforms like the Environmental Knowledge

¹⁴ The WASH Commission is also responsible for leading the implementation of national strategies such as the WASH Sector Investment Plan and the WASH Capacity Development Plan, and for convening annual Joint Sector Reviews to assess progress.

¹⁵ The limited regulating role is constrained by the logistics and monitoring capacity for compliance with water quality standards across the country, as evidenced by the fact that the WASH Commission has an office in only 1 out of 15 counties. Furthermore, there is a need for capacity building at both the central and local levels.

Management System (EKMS)¹⁶ and digital ESIA (Digital Environmental and Social Impact Assessment System)¹⁷, undermining transparency and evidence-based decision-making. Additionally, there is no systematic integration of hydrological data into climate adaptation strategies (NAP) or Liberia’s NDCs. Spatial gaps in water quality testing further hinder the country’s ability to detect and respond to public health threats, such as waterborne disease outbreaks after floods.

B. Water Pricing and Financing

28. Despite recent operational and infrastructure investments, the Liberia Water and Sewer Corporation (LWSC)—the state-owned urban water and sanitation provider—continues to face deep-rooted inefficiencies and limited coverage. Operating with aging infrastructure, fiscal constraints, and increasing climate-related pressures, LWSC encounters significant service delivery challenges. Although the utility released a situational analysis as part of its Strategic Plan (2025–2029), which sets ambitious targets for financial sustainability, it lacks a corresponding investment and financing plan. The Strategic Plan reveals severe system deficiencies, with only 15,000 water customers and about 1,560 sewer connections.¹⁸ Non-revenue water (NRW) is high at 66 percent (versus a regional average of 34 percent). Other challenges include low collection efficiency (57 percent vs. 74 percent regional average), limited meter coverage (65 percent), poor service quality (10 hours of daily service vs. 20 hours regional average), and 84 percent billing accuracy. These inefficiencies lead to a high operating ratio of 1.57 (i.e., about \$3 of expenses for every \$2 of revenue), low staff productivity (28 staff per 1,000 connections vs. 6 regional average), and personnel costs consuming 85 percent of total operating expenses (Table 4).¹⁹ Internal management challenges—such as fragmented decision-making, weak inter-departmental coordination, and workforce mismatches—further reduce operational efficiency. External pressures, including rapid urbanization and climate impacts (e.g., sea erosion destroying sewer infrastructure, flooding, and sand mining), continue to exacerbate system vulnerabilities.²⁰

¹⁶ The EKMS is a digital platform managed by the EPA, which serves as a centralized data repository for environmental information, including water quality data, environmental impact assessments, land use and biodiversity information, climate and hydrological datasets, environmental regulations and permits.

¹⁷ The digital ESIA purpose is to streamline the project review and permitting process, reduce delays, and ensure better environmental and social safeguards, especially in infrastructure, water, and extractive sectors.

¹⁸ Bottled water is one of the main outputs of the (small) manufacturing sector, highlighting the low access to clean piped water.

¹⁹ For more details, please see LWSC’s Strategic Plan for 2025-2029 and World Bank’s WASH Brief: *Unlocking Service Delivery for Water Supply, Sanitation, and Hygiene in Liberia*.

²⁰ For example, evidenced by the destruction of the sewage transmission line along the beach toward Fiamah.

Table 4. LWSC’s Operational and Financial Indicators

Operating ratio (Op. Expenses / Op. Revenues)	1.57
Government Subsidies / Total Op. Expenses	50%
Salaries / Total Op. Expenses	85%
Staff productivity (per 1,000 connections)	28
Collection efficiency rate	57%
Non-Revenue water	66%
District-metered areas (DMAs) coverage	46%
Billing Accuracy	84%
Meter Coverage	65%
Continuity of Service (average hours a day)	10
Total Water Connections	15,000
Total Sewer Connections	1,560

Source: LWSC’s Strategic Plan 2025-2029.

29. LWSC’s Strategic Plan showcases efforts to overcome its financial and operational challenges. To reduce high operational costs, LWSC plans to transition to smart prepaid meters to enhance billing accuracy and strengthen revenue collection, and to invest in solar energy to lower energy expenses (e.g., installation of 1.6 megawatts (MW) at Monrovia’s water treatment plant and solar-powered boreholes). The recently approved tariff structure incorporates the option for prepaid meters, which LWSC should implement to improve collection rates (Table 5). Additionally, potential new performance contracts and a well-established regulatory framework to define the cost-recovery tariff structure could leverage tiered tariff adjustments, guaranteeing affordability for vulnerable households and small businesses.

30. Given these operational inefficiencies, LWSC is currently not financially sustainable and requires fiscal transfers to operate. The recent tariff adjustment is projected to cover no more than 75 percent of LWSC’s operational costs, reflecting limited progress toward full cost recovery. To put it in perspective, LWSC’s budget draws down on already strained fiscal space, requiring government transfers equivalent to 0.1 percent of GDP in 2024. Moreover, non-revenue water is estimated to cost another 0.1 percent of GDP (US\$4.9 million). Structural weaknesses—such as the absence of routine infrastructure maintenance, inadequate water demand forecasting, and the lack of service standards or tariff-setting guidelines—further undermine performance.

31. While the regulatory framework envisions that the WASH Commission should oversee tariff approvals, service standards, licensing, and regulatory compliance, the LWSC appears to determine and publish tariffs independently, without formal approval or review from the mandated regulator. The WSSC, within the WASH Commission, remains unestablished, and the National Water Resources and Sanitation Board (NWRSB) is not fully operational, meaning the WASH Commission currently lacks formal enforcement power over tariff setting. Until the WSSC is legally constituted and empowered, tariff changes made by the LWSC are not subject to independent regulatory oversight by the WASH Commission. This arrangement, where the LWSC—a state-owned service provider—sets its own tariffs, presents a clear conflict of interest and undermines regulatory credibility. Furthermore, the absence of independent regulation may lead to inefficiencies and a lack of incentive for the LWSC to optimize operations.

Table 5. LWSC - Tariffs for Drinkable Water and Sanitation

Water Services: US\$ per gallon			Sewage Services: US\$ per month (cont.)	
Type of Customer	Post Paid Meter	Pre-Paid Meter	Type of Customer	US\$
Family Customer	0.005	0.004	Hotels: Very Large	250
Business Customer	0.015	0.014	GOL's Ministries and Agencies	250
GOL's Ministries and Agencies	0.015	0.014	Small Commercial Centers, Public Commercial Latrine/Toilet	60
Borehole Customer	0.015	0.005	Business/Large Commercial Centers	75
Water Tracking / Shallow Wells		0.004	Churches/Mosques	30
Gantry		0.005*	Business/Large Commercial Centers (non-entertainment)	40
Flat Rate Residential	15		Churches/Mosques with school	50
Flat Rate Commercial	90		Primary/Secondary School	50
Kiosks	0.0025		University/College/Professional School Buildings	200
Sewage Services: US\$ per month			Medium Commercial Building	125
Type of Customer	US\$		Large Commercial Building	250
Residential: 1-3 bedrooms	10		Clinics	75
Residential: 4 bedrooms	20		Hospital	150
Residential: Two Apartment Building	50		Private Sanitation Company Waste Dumping: household sewage per truckload	25
Hotels: Medium	150			

Source: LWSC's tariff structure approved on July 10, 2025. All tariffs exclude GST. *: Exclude transportation costs.

32. Despite recent gains in rural water access, significant infrastructure gaps remain in sanitation and hygiene. As of 2022, fewer than 10 percent of rural Liberians—who comprise half the population—had access to basic sanitation, and less than 1 percent had hygiene services, with 57 percent practicing open defecation. Budget support for rural water remains limited. The MPW, responsible for rural WASH, has initiated projects like the Waterpoint Atlas and supports efforts to expand rural water access through borehole drilling, community water points, and sanitation infrastructure management.²¹ A roadmap to end open defecation, developed in 2019, provides a framework for Community-Led sanitation implementation, but lacks government financing. Under the Accelerated Community Development Programme (ACDP), co-financed by the Government and the United Nations Development Programme (UNDP), solar-powered water systems were deployed in Bong and Gbarpolu counties, serving about 2,000 people and enabling backstop irrigation. Additional systems in Rivercess and Gbarpolu are expected by end 2025. However, these community-managed systems are not yet integrated into national rural WASH strategies. Though promising, institutional, budget, logistical, and capacity constraints—such as staffing and equipment shortages—limit expansion. Targeted fiscal incentives are needed to support solar-powered infrastructure in off-grid communities. As climate change increases flooding frequency and

²¹ This mapping informs investment planning and helps guide the placement and rehabilitation of water infrastructure in underserved communities.

intensity, gaps in sanitation and safe water access heighten the risk of waterborne diseases, underscoring the urgent need for resilient WASH infrastructure in vulnerable rural areas.

C. Rural Water and Food Security

33. While Liberia has made progress in improving food security and water management through the 2024–2030 National Agriculture Development Plan (NADP 2024-2030) and an irrigation manual for lowland rice rehabilitation, regulatory and infrastructure gaps persist. The NADP outlines plans and targets to increase agricultural productivity, focusing on climate-resilient farming and expanding irrigation coverage by 50,000 hectares for rice cultivation. These efforts build on the 2015 Technical Manual for Irrigable Lowland Rice Development to guide the rehabilitation of water-controlled farming systems. In December 2024, the MoA launched a US\$650,000 irrigation project to reconstruct the Fangoda River Dam in Kolahun District, Lofa County, aimed at rehabilitating over 250 acres of government-owned lowlands for year-round rice cultivation. While this project marks a significant advancement in water resource management and food security planning, it serves as a starting point for discussions on scaling up irrigation infrastructure in other rice-producing areas. Irrigation demand remains low due to the dominance of rainfed agriculture, and overall investment plans for irrigation expansion are modest.

34. With rice as the national staple—and Liberia importing about 70 percent of its food—yield declines due to climate change seriously threaten food access and heighten import dependency. Rice production can decrease by as much as 13 percent by 2050 relative to the baseline under the dry/hot scenario, adding additional pressure to the already insufficient food production and malnutrition crisis. Expanding irrigation can significantly boost agricultural yields—particularly for rice—by reducing reliance on unpredictable rainfall, enabling multiple cropping seasons, and ensuring a consistent water supply, thereby unlocking the country’s untapped agricultural potential despite its abundant freshwater resources and large share of arable land.²² Early progress includes improved solar-powered irrigation systems that are stabilizing lowland rice production. However, the lack of regulated irrigation pricing, abstraction permits, or scalable community schemes limit the cost-effective expansion of irrigated land, with less than 3 percent of cropland currently irrigated.

35. Liberia’s irrigation water tariffs, user groups, and groundwater regulation are largely informal and community-driven. The country lacks a formal nationwide tariff structure for irrigation water, including licensing, volumetric fees, and abstraction rights. Rural water resource management relies on local practices and donor-funded training, resulting in limited cost recovery and oversight. Most irrigation systems are managed informally by local farming communities using rotational water allocation or gravity-fed systems for lowland rice. Where operational schemes exist, fees are set informally by local water-user groups based on land area or access schedules. While public-private partnerships have started rehabilitating larger schemes with support from the African Development Bank (AfDB) and the Global Agriculture and Food Security Program (GAFSP),²³ challenges remain in achieving equitable access, infrastructure maintenance, and cost recovery. There is no legal basis for volumetric abstraction

²² The National Rice Development Strategy (NRDS) prioritizes the rehabilitation of small-scale irrigation systems, drainage improvements, and enhanced water storage to boost domestic rice production.

²³ For more details, please see [AfDB \(2023\)](#) and [Global Agriculture and Food Security Program \(GAFSP\)](#).

charges or irrigation pricing, and governments or donors rarely recoup costs. As a result, most irrigation users pay very little, and communities sustain basic services with minimal financial sustainability.

36. Community water-user groups are central to Liberia’s irrigation management, though their establishment is in early stages. These groups, similar to Water User Associations (WUAs), assist farmers in coordinating water delivery, collecting communal contributions (money or labor), maintaining irrigation infrastructure, and resolving disputes. In areas without formal irrigation systems, community ponds and hand-dug wells are common, with groups often implementing collective-choice arrangements and graduated sanctions. However, WUGs in Liberia operate informally, with significant variation in capacity and governance. There are no regulations requiring registration or oversight by a national water agency, leaving operational and maintenance responsibilities to the community.

37. Groundwater is critical for domestic supply and small-scale irrigation, yet Liberia lacks statutory mechanisms to regulate its abstraction. Unlike many countries, Liberia does not impose abstraction permits or volumetric fees, despite international recognition of their importance. The IWRM Policy assigns monitoring of groundwater quality to the LHS at the MME, the EPA, and the MPW, but there are no mandates for limiting volumes or issuing abstraction rights. Governance relies on informal community management, with no established groundwater user associations. As a result, while groundwater availability is high, there are few mechanisms to prevent contamination or manage competing users amid growing demand. To address this gap, the mission learned that the MME is currently working on regulations for groundwater extraction by drilling companies.

Recommendations

Strengthening institutions and governance systems for effective integrated water management

- To operationalize IWRM through enforceable regulations, develop and enact a unified, consolidated, and comprehensive Water Resources Law that clarifies mandates, roles, and responsibilities of line ministries, counties, development partners, and civil society, and ensures accountability in policy formulation and regulation (i.e., ownership and rights - allocation, licensing, permits-, water pricing and enforcement and compliance - penalties, inspection powers -, among others). To do so, an integrated and holistic analysis of the current situation of the sector is warranted.

Enhance climate informed planning, data systems, and climate integration in water resources management

- Rehabilitate and digitize hydrological monitoring networks, water quality labs; expand data collection geographically and functionally (e.g., floodplain mapping, waterborne disease surveillance).
- Develop a long-term Water sector strategic plan, integrating climate resilience into water planning and costing.
- Integrate water-climate data into NAP and NDC implementation and fiscal planning for climate adaptation investments.

Promote sustainable financing of water use and services

- Develop regulation on multi-year tariff structure (social tariff, in case needed) that guarantees full cost recovery (O&M and capital cost, including environmental costs), creating performance-based incentives linked to cost-recovery milestones and performance parameters to increase physical

investment, reduce NRW, increase metering, billing accuracy, collection rates and coverage, and rolling out pre-paid meters; Enforce license fees for commercial water producers.

- Develop LWSC's investment plan, cost Strategic Plan 2025-2029, incorporating climate-resilient considerations and prioritization, identifying financing plan.
- Separate service provision from regulation, operationalizing the Water Supply and Sanitation Commission (WSSC) as an independent regulatory authority to oversee LWSC's tariffs and performance, building on existing structure.
- Develop a regulatory framework to incentivize private sector participation in WASH non-core functions (e.g., metering, billing) through performance-based contracts, targeting areas with weak LWSC capacity.

Promote sustainable water abstraction and rural irrigation

- Develop a regulatory framework for groundwater and irrigation water abstraction via raw water abstraction permits/licensing, and legal basis for a tariff structure based on abstraction volume and target large commercial users (e.g., mining, rubber, large agribusiness).
- Introduce pilot cost-recovery mechanisms (e.g., service fees, volumetric charges) to finance O&M of rural water and irrigation systems, with safeguards for small-farmers.
- Recognize and register Water User Associations (WUAs) with legal mandates for fee collection and system maintenance.
- Extend import tariff exemption on solar-powered systems to incentivize rural access to clean water and irrigation.

III. Disaster Risk Management and Financing

Context

38. Liberia has a low level of physical exposure to natural disasters and a low level of conflict, yet natural disasters have been devastating for both the economy and society. Out of 49 sub-Saharan countries, Liberia ranks as having the 14th lowest physical exposure overall. Despite low exposure to natural shocks, floods and epidemics have devastating consequences for Liberian society. Liberia is among the wettest countries in the world, and average precipitation has been increasing over the past 50 years.²⁴ The relatively high population growth rate (approximately 2 percent per year)²⁵ and very rapid, uncontrolled urbanization have led to the expansion of low-lying, flood-prone Monrovia, which is growing at about 3.4 percent per year and is now home to roughly one-third of the national population, and regularly experiences devastating floods.²⁶

39. Liberia ranks among the most socio-economically vulnerable countries in sub-Saharan Africa outside of intense conflict zones. Only eight countries in the world rank lower than Liberia in terms of the Human Development Index. In 2022, 52.3 percent of Liberia's population (2.81 million people) was multidimensionally poor, while an additional 23.3 percent (1.25 million people) was classified as vulnerable to multidimensional poverty. Almost all socio-economic indicators for Liberia paint a picture of extreme human vulnerability, with life expectancy at 63 for women and 61 for men, and women receiving an average of only 4.6 years of schooling.²⁷ At 1,884.9, Liberia has the 10th lowest per capita GDP (purchasing power adjusted) in the world.²⁸

40. Unlike many peer countries on the continent, Liberia has very low exposure to droughts. Its exposure to this arguably most socio-economically consequential natural disaster on the continent²⁹ is the lowest in Africa. While forecasts remain inconclusive, the risk of an increased prevalence of droughts remains relatively low³⁰. The country's unique abundance of water – while the source of significant shocks – can also be considered its comparative advantage.

41. While these figures may be influenced by data limitations, the Monrovia area appears to be among the most flood-exposed parts of the country. This exposure is driven primarily by poor urban

²⁴ World Bank. (2021). Liberia country climate and development profile. Climate Knowledge Portal. https://climateknowledgeportal.worldbank.org/sites/default/files/country-profiles/16806-WB_Liberia%20Country%20Profile-WEB.pdf

²⁵ World Bank. (n.d.). Population growth (annual %) – Liberia. World Bank Data. <https://data.worldbank.org/indicator/SP.POP.GROW?locations=LR>

²⁶ World Population Review. (2023). Monrovia population 2023. World Population Review. <https://worldpopulationreview.com/cities/liberia/monrovia>

²⁷ United Nations Development Programme (UNDP). (2023). Human Development Report – Liberia. UNDP Human Development Data Center. <https://hdr.undp.org/data-center/specific-country-data#/countries/LBR>

²⁸ World Bank. (n.d.). GDP per capita, PPP (current international \$). World Bank Data. https://data.worldbank.org/indicator/NY.GDP.PCAP.PP.CD?most_recent_value_desc=false

²⁹ Global Center on Adaptation (GCA). (2022). State and trends in adaptation 2022: Climate risks in Africa. GCA. https://gca.org/wp-content/uploads/2023/01/GCA_State-and-Trends-in-Adaptation-2022_Climate-Risks-in-Africa.pdf

³⁰ World Bank. (2023). Liberia country climate and development report (CCDR). World Bank. <https://www.worldbank.org/en/country/liberia/publication/afw-liberia-country-and-climate-development-report-ccdr>

planning, weak enforcement of regulations, and inadequate infrastructure, particularly vulnerable housing, and the absence of effective drainage systems. Around 65–70 percent of Monrovia’s residents live in informal, densely populated, and highly vulnerable settlements.³¹ The most comprehensive estimate of flood-related costs—the World Bank’s Flood Risk Profile for Greater Monrovia— puts the annual cost of pluvial flooding³² at about US\$ 20.4 million (based on 2020 estimates). Coastal flooding is estimated at approximately US\$ 1.1 million, and fluvial flooding at around US\$ 1.4 million.³³ Although, in the longer term, coastal degradation and coastal flooding may increase the risk of coastal flooding, non-pluvial risks in Monrovia remain relatively limited.

42. Epidemics, the second-largest source of disaster exposure in the country, are correlated with floods and the underlying vulnerability. Approximately 22 percent of all deaths in Liberia are caused by diseases strongly linked to floods, and another 46 percent are attributable to diseases with a possible or indirect link (Table 6).³⁴

Table 6. Top Causes of Death in Liberia and Their Link to Floods

Disease	Deaths per 100k People	Link with Floods	Notes
Tuberculosis	81.71	Possible/Indirect	Crowding in shelters and weakened immunity
Malaria	77.93	Strong	Floodwater creates mosquito breeding sites.
Stroke	49.77	No clear link	
Lower respiratory infections	47.76	Possible/Indirect	Higher risk in crowded, damp post-flood conditions.
Preterm birth complications	39.81	Possible/Indirect	Linked if maternal care disrupted.
Ischaemic heart disease	36.36	No clear link	
Measles	29.37	Strong	Crowding and disrupted vaccination after floods.
Diarrheal diseases	25.65	Strong	Contaminated water post-flood.

Source: World Health Organization. (n.d.). Liberia. WHO. Retrieved August 3, 2025, and Authors.

43. Public infrastructure in Liberia is in poor and declining state, undermining country’s coping abilities. PIMA and C-PIMA analyses provide further detail on the declining public capital stock and the extreme dependence on ad-hoc donor financing, which, if left unaddressed, will continue to increase vulnerability and the expected impact of floods.

³¹ World Bank. (2020). Liberia: Strategic program for climate resilience. World Bank. <https://documents1.worldbank.org/curated/en/649581593487174497/pdf/Main-Report.pdf>

³² Pluvial flooding – Flooding caused by heavy rainfall that cannot be absorbed by the ground or drained away quickly enough. It typically occurs away from rivers or the coast, often in urban areas with poor drainage; fluvial flooding – Flooding caused by rivers or streams overflowing their banks due to prolonged rainfall or snowmelt. Estimations focus on the economic cost through damage to infrastructure and the number of people directly affected.

³³ World Bank Group & Deltares. (2021, March). Flood risk profile for Greater Monrovia: Deliverable E – Final and Summary Report [Final and summary report]. World Bank/WB - GFDRR. <https://documents1.worldbank.org/curated/en/681321639115215850/pdf/Flood-Risk-Profile-for-Greater-Monrovia-Deliverable-E-Final-and-Summary-Report.pdf>

³⁴ World Health Organization. (n.d.). Liberia country profile [Country data summary]. WHO Data. Retrieved from <https://data.who.int/countries/430>

44. Among the many linkages between flooding, poor infrastructure, and epidemics is the contamination of water points and the erosion of infrastructure. For example, the main sewage treatment plant has not been operational since war, with its main sewage pipe severely damaged by coastal erosion. As a result, raw sewage flows directly into the sea, contaminating fishing points, and allowing sewage to flow into entertainment centers. Although drinking water supplied by LWSC is safe according to the entity, it serves only about 15 percent of the Monrovia population, leaving the vast majority reliant on untreated, often contaminated water sources (see the Water section for more details).

45. With growing awareness of devastating macroeconomic and social impact of natural disaster, Liberia is making progress towards building resilience to disasters through institutional and policy development. However, its extreme vulnerability, reliance on donors, and sometimes competing developmental, environmental, and social objectives mean that efforts need to go beyond policy-making and include coordination, alignment of priorities, and determination in seeking budgetary efficiencies.

A. Disaster Risk Management

46. The Act establishing the Disaster Risk Management Agency, passed in 2012, is the most important law relating to disaster risk management in the country. The Act is comprehensive. It mandates the National Disaster Management Agency (NDMA) to coordinate both preparedness and response activities, provide inputs to the formulation of legislation and policies to ensure recognition of DRM activities, mainstream DRM into the national development agenda, and coordinate information systems—including hazard mapping and the creation and management of early warning systems. The Act also mandates the Agency to develop a dedicated DRM policy, a risk reduction strategy, and a disaster management action plan, all of which are in place. In addition, it requires the NDMA to store and process information related to the resources used for disaster response.

47. The Act establishes the Board that manages the Agency and appoints its Managing Director. Despite the theoretical representation of key ministries and partner organizations on the Board³⁵, the Agency reports a lack of capacity to coordinate response activities or to lead DRM policy creation at the sectoral level, with ministries undertaking their own activities without coordinating with the Agency. Unlike in many peer countries, the Agency's Executive Director is considered a political appointee, making positioning of the agency as an expert body more challenging.

48. Despite existing legislation, the Agency remains weak, with its mandate undermined by minimal and erratic funding, dependence on donors for both expertise and resources, and a lack of recognition by other governmental bodies. Beyond the preparation of policy documents, the implementation and execution of the Agency's activities have been severely constrained by insufficient funds, weak institutional recognition, and poor coordination. The original policy guiding the DRM process in the country was passed in 2012. While relatively "soft" priorities have been implemented, and DRM is now included in the overarching AREST Agenda and some sectoral plans such as the National

³⁵ Ministry of Internal Affairs – Chairperson, Ministry of Health and Social Welfare, Ministry of Justice, Ministry of Finance, Ministry of Public Works, Ministry of Defense, Ministry of Agriculture, Ministry of Lands, Mines & Energy, Liberia National Red Cross Society, UN Country Team, Maritime Authority.

Agricultural Development Plan³⁶, many critical priorities remain unmet. For example, the country lacks a functioning risk identification mechanism; as an early warning system does not exist; and hazard mapping is limited to donor-prepared analyses that are neither integrated nor compiled in a single, accessible location for use by key sectors.

49. As a result sectors—such as the Ministry of Public Works, the Ministry of Internal Affairs, the Ministry of Lands, Mines and Energy, and municipal governments—which are crucial for reducing vulnerability to floods³⁷ through infrastructure planning, housing policy, and land-use management cannot integrate them into planning. Currently, only very basic, low-resolution maps showing flood-prone and other at-risk areas are available through the Liberia Institute of Statistics³⁸, and no such data is available on the NDMA’s website.³⁹

50. The Agency is vulnerable to both political pressures and the influence of development partners. The Green Climate Fund (GCF)–financed project, intended to establish a dedicated fund, continues to face delays due to compliance issues, including the repeated nomination of politically exposed persons to leadership positions⁴⁰. The new guiding DRM policy, adopted at the end of 2024, is another example of a policy document with weak institutional backing and little likelihood of effective implementation. According to the Agency, it was prepared primarily in response to donor requests, without stakeholder consultations, and does not reflect the NDMA’s updated priorities. Instead, it largely replicates the previous document to satisfy external requirements. In recent years, the Agency has also prepared guiding documents such as the National Disaster Risk Reduction (DRR) and Resilience Strategy and a Multi-Hazard Contingency Plan. However, due to a lack of funding and limited recognition of the Agency’s role, these documents have also not been implemented.

51. Based on the mandate overview, seven ministries and agencies with a significant DRM mandate can be identified (Table 7). Budgeting continues to be based on economic classification, rather than programs. This makes it more difficult to determine the extent of spending dedicated to DRM activities and the DRM mandate of ministries and agencies.

³⁶ Republic of Liberia, Ministry of Agriculture. (2024, July 10). National Agriculture Development Plan (NADP) 2024–2030 [Full final report]. Government of Liberia, Ministry of Agriculture. https://www.moa.gov.lr/sites/default/files/documents/NADP_2024_2030_Full%20Final_July_10.pdf

³⁷ African Development Bank & Green Climate Fund. (2024, November 24). 2023 annual performance report for SAP018: Enhancing Climate Information Systems for Resilient Development in Liberia (Liberia CIS) [Annual performance report]. Green Climate Fund.

³⁸ Liberia Institute of Statistics and Geo-Information Services (LISGIS). (n.d.). Official website. Retrieved [Access Date], from <https://lisgis.gov.lr/index.php>

³⁹ National Disaster Management Agency (NDMA), Liberia. (n.d.). Resources. Retrieved [Access Date], from <https://ndma-lr.gov.org/resources/>

⁴⁰ African Development Bank & Green Climate Fund. (2024, November 24). 2023 annual performance report for SAP018: Enhancing Climate Information Systems for Resilient Development in Liberia (Liberia CIS) [Annual performance report]. Green Climate Fund.

Table 7. Ministries and Agencies with a DRM Mandate

National Disaster Management Agency	Leads national disaster preparedness, response, and recovery; updates the Liberia Multi-Hazard Contingency Plan; manages the national disaster database; coordinates risk assessments; supports local disaster committees; integrates DRR into policy and planning.
Environmental Protection Agency	Implements environmental risk reduction projects; leads climate resilience initiatives; manages environmental data for hazard monitoring; integrates DRM into environmental governance.
Liberia Hydrological Service / Ministry of Mines and Energy	Monitors rainfall, river levels, and other hydrological parameters; provides technical input for flood forecasting and early warning systems (linked under Ministry of Mines & Energy responsibilities).
National Public Health Institute of Liberia (NPHIL)	Monitors and responds to health-related disasters and epidemics; integrates epidemic preparedness into national disaster frameworks.
Monrovia City Corporation (MCC)	Implements local sanitation, drainage, and waste management programs to reduce flood risk; coordinates municipal emergency response.
Ministry of Public Works	Repairs to public assets, provision of cars and equipment during response activities.
Ministry of Gender, Children and Social Protection	Implements social protection.

Source: IMF Staff.

B. Disaster Risk Finance

52. Liberia is at an early stage of development. It faces considerable and interrelated challenges in social and economic performance, with natural disasters being both a result of and a contributing factor to these challenges. Therefore, DRM financing—both short- and long-term—must be considered in the context of, and weighed against, multiple other priorities.

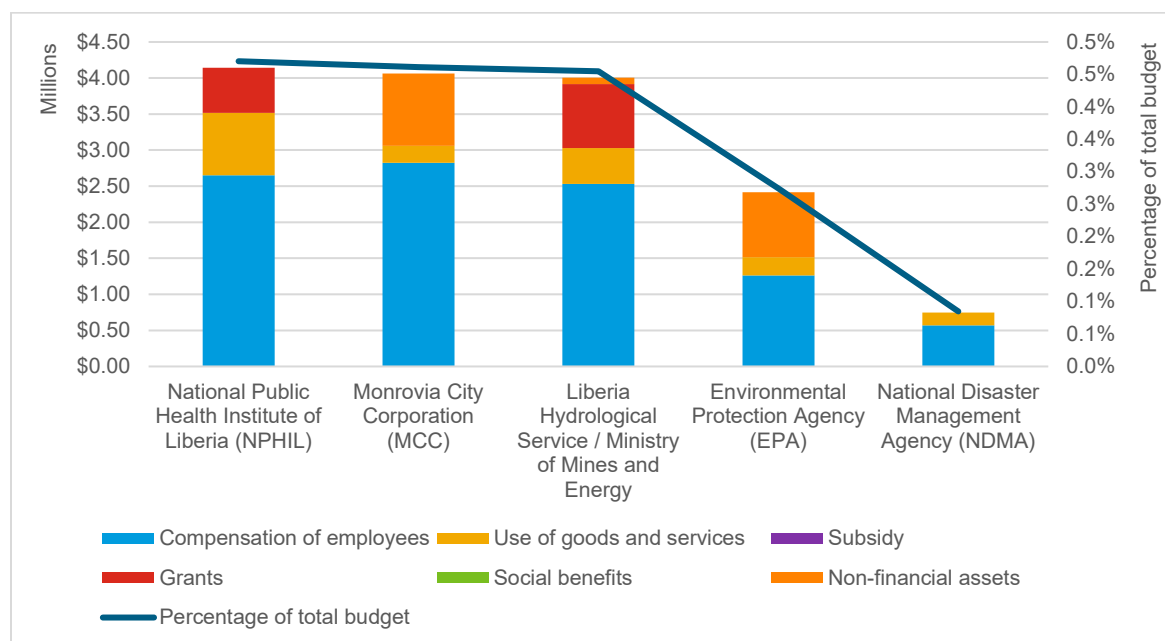
53. Capital investments, including the development of assets that contribute to resilience as well as the implementation of reconstruction works, remain low and are largely ring-fenced for roads and bridges. Significant infrastructure needs require substantial capital investments. Given the widespread gaps across sectors, strengthening resilience in nearly all basic sectors contributes to overall resilience. In the budget, capital expenditure is increasing but remains modest—13 percent in 2025, up from 9 percent in the previous year⁴¹. However, due to low execution levels and substantial budget cuts following reductions in aid, actual spending is likely to be lower.

54. Given its sizeable and predictable capital budget, the Ministry of Public Works is a major stakeholder in resilience building. It manages 47 percent of the country’s total capital budget, with 70 percent funded through the ring-fenced Road Fund. The ring-fencing of this fund, and its financing from dedicated fuel levies, provides the ministry with a reliable source of funding, which it uses to cover maintenance works and response activities, including the repair and reconstruction of public infrastructure following shocks. It also uses this funding to provide equipment during the response period. The MoA, which accounts for 7 percent of the capital budget, is the second-largest contributor to capital stock development.⁴²

⁴¹ Republic of Liberia, Ministry of Finance & Development Planning. (2025, January 6). National budget for the fiscal year 2025. Government of Liberia.

⁴² Republic of Liberia, Ministry of Finance & Development Planning. (2025, January 6). National budget for the fiscal year 2025. Government of Liberia.

Figure 13. Allocation to Ministries and Agencies with a Significant Response Mandate (FY 2025)



Source: Budget for FY 2025.

Note: Only ministries and agencies with a strong DRM mandate have been included.

55. In contract, the total budgetary allocation to ministries and agencies with a specific response mandate is under 2 percent, while the allocation to the NDMA stands at 0.08 percent of the total budget (Figure 13). The non-wage allocation to the NDMA amounts to US\$ 177,000 (or 24 percent of the total NDMA budget) in financial year 2025. However, even this allocation can be considered theoretical, as only the wage bill has been disbursed to the agency. This means that, despite its extensive mandate, the agency’s 54 employees are unable to carry out even the most basic activities.

56. The lack of financing for the agency further erodes trust among other agencies and the public in its capacity to act as an effective response body. Even when budget allocations are made, they are often not disbursed due to financial and administrative constraints. In recent years, the agency has faced significant financial challenges. For example, in 2023, only salaries were funded. In the following year 2024, salaries were funded and additional resources were made available, but of the US\$ 1.4 million allocated, only US\$ 1.1 million was received to cover operational expenses. The 2025 saw another reduction, as the budget included approximately US\$ 570,000 for salaries and US\$ 177,859 for operations, including response activities. However, even this operational funding has not been disbursed to the agency by the Ministry of Finance and Development Planning (MFDP), despite repeated requests over the past six months and the ongoing floods. According to the Ministry of Finance, the initially planned allocation was further reduced following budget cuts triggered by the withdrawal of USAID funding. As in previous years, salaries were mostly protected, with reductions affecting other operational expenses.

57. The process of requesting response funds by the Agency from the MFDP is erratic and time-consuming, with even funds allocated to the agency requiring formal requests and justifications. Several factors contribute to the agency’s chronic underfinancing. First, disaster response has traditionally been an area where the government could mobilize external funding, reducing the

incentive to prioritize domestic budget allocations. Second, the agency struggles with timely and accurate expenditure reporting, which raises concerns about potential leakages and undermines confidence among decision-makers. Third, the government's new contingent credit instrument⁴³ has been widely misunderstood within government as direct budget support to the agency, further complicating funding decisions and limiting the resources available for operational and preparedness activities.

58. Limited financing renders the institution largely dysfunctional, appearing obsolete. Liberia has 15 counties, but most activities are concentrated in the central region. There are no funds to decentralize operations. The agency is mandated to conduct risk assessments but lacks the funding to do so. Disaster spending is ad hoc, as the agency spends whatever resources it receives. Reportedly, 2024 was the first year in history in which it had some funds to work with, but even that allocation was reportedly used to equip offices, leaving no funds available for response activities.

59. Faced with underfunding, and despite the risk of siloing resources and creating budgetary inefficiencies, the NDMA—drawing on the example of the Road Fund, which provides predictable and secure financing to the Ministry of Public Works—aims to create a dedicated, ring-fenced fund. Given the difficulty in securing and later accessing response funds, the NDMA has long lobbied for the creation of such dedicated financing. The Disaster Management Trust Fund was first legislated in the NDMA Act. It is envisioned to consist of two sub-funds: the Disaster Mitigation Fund and the Disaster Response Fund, financed by the government, donors, and specific levies. The fund would be governed by a dedicated board. While the fund has not yet been established, it is referenced in both DRM policy documents and a later-discussed Disaster Risk Financing Strategy as the main source of the agency's financing.

60. In theory, the highly flexible public financial management (PFM) system in Liberia should make reprioritization of funds for response relatively easy. With the passing of the new PFM Act in 2019, Liberia has clarified some emergency budgetary mechanisms. Despite passing of the new act, virements and reallocations continue to be governed by older legislation, which gives significant power to the Minister of Finance when it comes to reallocating funds. According to the Budget Transfer Law (2008)⁴⁴, all transfers of funds between ministries and agencies that remain under 20 percent of the original allocation are considered non-major and only require approval only from the Budget Bureau, not the Legislature. In practice, this means the Executive branch may shift up to 20 percent of allocated funds between administrative units without legislative approval. While this flexibility can be useful in times of emergency, it also creates budgetary uncertainty, as funds are frequently moved. Key ministries responsible for emergency response and resilience building often face repeated budget reductions — a practice that intensified following the significant budgetary adjustments that occurred after USAID's closure.

61. With much of the coordination of response activities conducted outside the NDMA, ministries reportedly use their own resources to respond to emergencies. However, the lack of

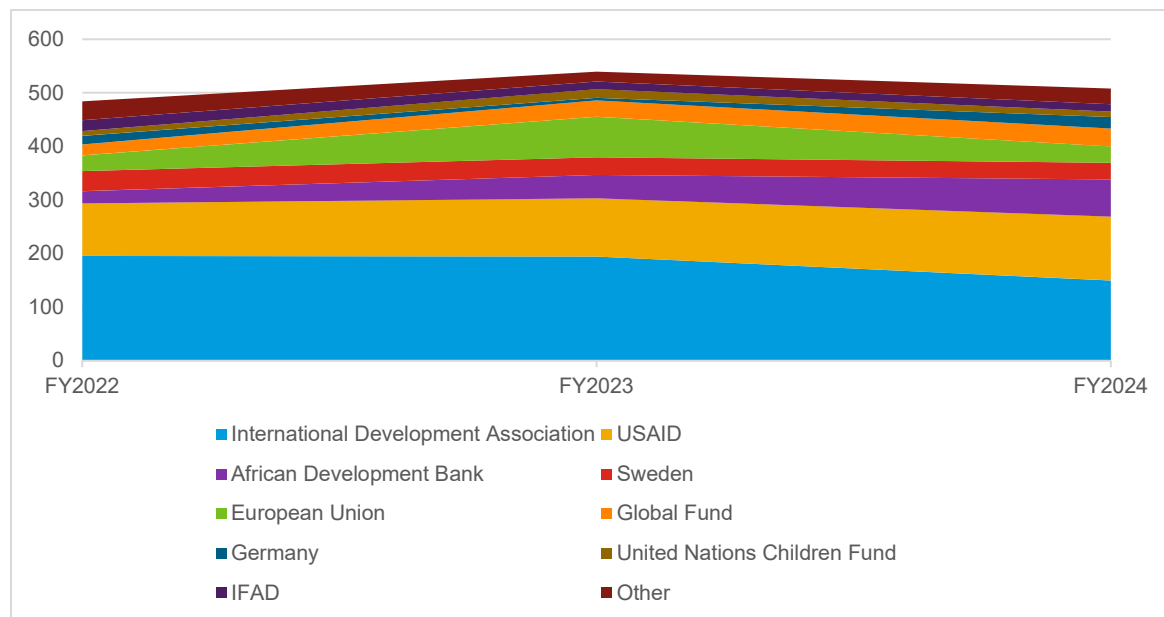
⁴³ Cat DDO (Catastrophe Deferred Drawdown Option), a contingent credit line offered by the World Bank to provide immediate liquidity to member countries after a natural disaster.

⁴⁴ Republic of Liberia, Ministry of Commerce & Industry. (2008, May 28). An act to amend section 2212 of the Revenue Code of Liberia Act of 2000 [PDF]. Ministry of Commerce & Industry. <https://moci.gov.lr/sites/default/files/documents/Revenue%20Code%20202.pdf>

programmatic budgeting and detailed expenditure reporting makes it difficult to estimate how much line ministries' budgets is allocated to response. According to the budget department, each ministry with a response mandate is expected to include buffers in its annual budget submission. However, there is currently no clear guidance on how such buffers should be established. The NDMA could support and coordinate the preparation of these buffers. While the DRM policy requires NDMA's participation in the budgeting process for DRR and response activities across sectors, in practice the agency is not consulted.

62. The contingency reserve in Liberia is a rolling fund maintained outside the consolidated fund, envisioned to finance all unforeseen expenses that cannot be postponed and access to which requires presidential approval. In the 2025 budget, the contingency reserve amounted to US\$ 18.8 million, or just over 2 percent of the total budget⁴⁵. In previous years, these allocations were smaller, typically under 1 percent of the budget⁴⁶. Unlike in many countries, according to the PFM Act, the unused resources in the contingency fund are carried forward, rather than returned to the consolidated fund. However, these allocations are generally not available for response, as they require approval by both the President and the Minister of Finance, which are difficult to obtain. In 2025 NDMA has not been able to access the reserve despite ongoing floods.

Figure 14. Development Aid in Years 2022-2024 by Source (US\$ Million)



Source: Liberia Project Dashboard, available at <https://liberiaprojects.org/>

63. International aid has been the main source of financing for response, and according to the government, “whenever there is a big disaster, we are able to mobilize large funds from partners.” In 2022–2024, the value of aid disbursed in the country was equivalent to 60, 72, and 69 percent of the

⁴⁵ This is in line with the PFM Act of 2019, which reduced the reserve cap from 5%.

⁴⁶ PEFA Secretariat & Government of Liberia. (2021, June 9). Liberia 2020 Public Expenditure and Financial Accountability (PEFA) performance assessment report [Final public report]. National Public Financial Management Performance Review (PPMPR). <https://www.pefa.org/sites/default/files/2021-09/LR-Jun21-PFMPR-Public%20with%20PEFA%20Check.pdf>

national budget, respectively. With USAID and the International Development Association (IDA) historically the main sources of development aid (Figure 14), including resilience building and preparedness—the country is currently working to estimate the gap created by the withdrawal of its major partner. While data available from donors, such as the U.S. State Department, may help in estimating this gap (for example, US\$ 3 million was provided in response to floods to support water and sanitation in 2024), the actual cost of replacing such funding may be substantially different, and the government is currently undertaking work to estimate the replacement cost following USAID’s withdrawal. According to US data, the total disbursement by the USAID in 2024 amounted to over US\$155 million (equivalent to approximately 21 percent of total approved budget).

64. In terms of securing external financing for emergencies, Liberia has made a significant step toward building financial resilience to disasters by negotiating a Cat-DDO instrument with the World Bank. The contingent credit line is sized based on the expected annual cost of responding to floods in Monrovia and has been established for a period of three years, starting on 31 December 2024. The US\$ 20 million facility can be drawn upon when a state of emergency is declared by the president in response to a disaster caused by natural hazards or a public health emergency. The Cat-DDO funding may be accessed once the President has proclaimed a state of emergency due to the occurrence or imminent threat of a disaster from a natural hazard⁴⁷. While this instrument has strong potential to enhance Liberia’s financial resilience, two key challenges must be addressed.

65. First, misunderstanding of the instrument’s function within both the MFDP and the NDMA has led to the perception that funds are already available to the NDMA to finance response activities. Second, the requirement that a state of emergency be declared as a trigger for drawdown means that funds may not be accessible for more recurrent shocks, such as the ongoing floods, as historically a state of emergency has only been declared by the President following major events such as the COVID-19 outbreak in 2020⁴⁸ and the Ebola outbreak in 2014⁴⁹, making CAT-DDO inaccessible for more frequent shocks, leaving the gap to be addressed with budgetary mechanisms.

66. To some extent this gap can be addressed with external resources, as for low- to medium-return-period events, Liberia can increasingly rely on the World Bank’s Contingent Emergency Response Component (CERC) in its programs. This component can be considered a pre-arranged financial instrument, as it allows for the rapid reprioritization of funds under an active World Bank project. Of the currently active 15 World Bank projects in Liberia, seven include a CERC clause. CERC funds can be used for up to 10 percent of the undisbursed allocation, which at present would mean that approximately US\$ 27 million could become available to Liberia for certain types of response activities. However, as CERC is in most cases a component with no initial allocation, it is financed by reallocations from other activities, which creates an opportunity cost. Liberia has used CERC components

⁴⁷ World Bank. (2024, November 11). Liberia first resilient and inclusive growth development policy financing with catastrophe deferred drawdown option: Program document (Report No. PD000145) [Program document for a proposed credit of US \$40 million and a catastrophe deferred drawdown option of US \$20 million]. International Development Association.

⁴⁸ Reuters News Article – Ebola State of Emergency Giahue, L., & Flynn, D. (2014, November 13). Liberia won’t extend Ebola state of emergency, says president. Reuters.

⁴⁹ WHO Africa News – Ebola Outbreak Liberia Over World Health Organization Regional Office for Africa. (2015, May 9). Ebola outbreak in Liberia is over. WHO Regional Office for Africa. <https://www.afro.who.int/news/ebola-outbreak-liberia-over>

in the past as part of its COVID-19 response, and the World Bank has recently conducted training to support the country's ability to prepare the manuals required for activation and to strengthen capacity⁵⁰.

67. While the sector is underdeveloped, for some low return period events, the insurance sector can create an opportunity for the government to transfer risks to the private sector. While exact data on the size of the insurance market is difficult to obtain, the consensus is that the market is still at a very early stage⁵¹. According to the Central Bank of Liberia, which regulates the insurance sector, less than 5 percent of the assets held by the financial sector in Liberia are held by insurance companies. The market currently comprises 16 licensed insurance companies and 13 licensed insurance intermediaries.

68. Now, in many cases, even third-party motor insurance is not taken out to cover private or public vehicles. While policies covering flood risks exist (typically included under fire policies), uptake remains marginal. Public assets are not required to be insured, and there is rarely fiscal space to take such insurance on a voluntary basis. As a result, the existing national insurance company, which has priority for insuring public assets, has not been profitable since the war and requires governments subsidies while offering a limited range of products, focusing primarily on health and automotive policies. While National Insurance Corporation of Liberia (NICOL) has proposed to the government a draft of a regulation proposing changes to compulsory insurance of public assets, the document has not been shared with the mission.

69. In response to this weakness, the Government of Liberia is considering creating a new regulatory body for the insurance sector, moving it away from the Central Bank. This reform, together with the policy currently under consideration for insuring public assets, is expected to strengthen the sector. While mandating insurance of public assets may help build the sector, it must be considered very carefully, as it may be expensive and, in some cases, transferring the risk to the market is effective only for certain types of public assets. In general, most public assets are not insured, although some hydropower infrastructure is covered by a private insurer. While some initial work on agricultural insurance has begun, progress has been limited.

70. Two main constraints to the use of insurance for public assets—which in some cases, though not all, may be beneficial—are the lack of adequate financing, the lack of capacity to analyze policies, and the absence of a reliable registry of public or critical assets. From this perspective the work towards building a registry of exposed critical assets is important, and NICOL is currently undertaking a survey of some critical infrastructure in the country. The company envisions implementing a committee that would maintain an updated inventory of government assets. It proposes conducting a comprehensive survey of government assets, and so far has engaged Liberia Electricity Corporation (LEC) to provide details of their infrastructure to assess insurability; the Liberia Petroleum Refining Company to conduct a risk survey of their facility, and the Monrovia airport. This work has strong

⁵⁰ GfDRR Feature Story – Emergency Preparedness Global Facility for Disaster Reduction and Recovery. (n.d.). Ready for the storm: How countries are strengthening emergency preparedness. GfDRR. Retrieved [Access Date], from <https://www.gfdr.org/en/feature-story/ready-storm-how-countries-are-strengthening-emergency-preparedness>

⁵¹ World Bank Group. (2024, March 20). Liberia country climate and development report (Project P179848) [Country climate and development report]. World Bank Group. <https://documents.worldbank.org/en/publication/documents-reports/documentdetail/099032024143525952/pdf/P1798481a4fb560431a86a1bb83f1117b00.pdf>

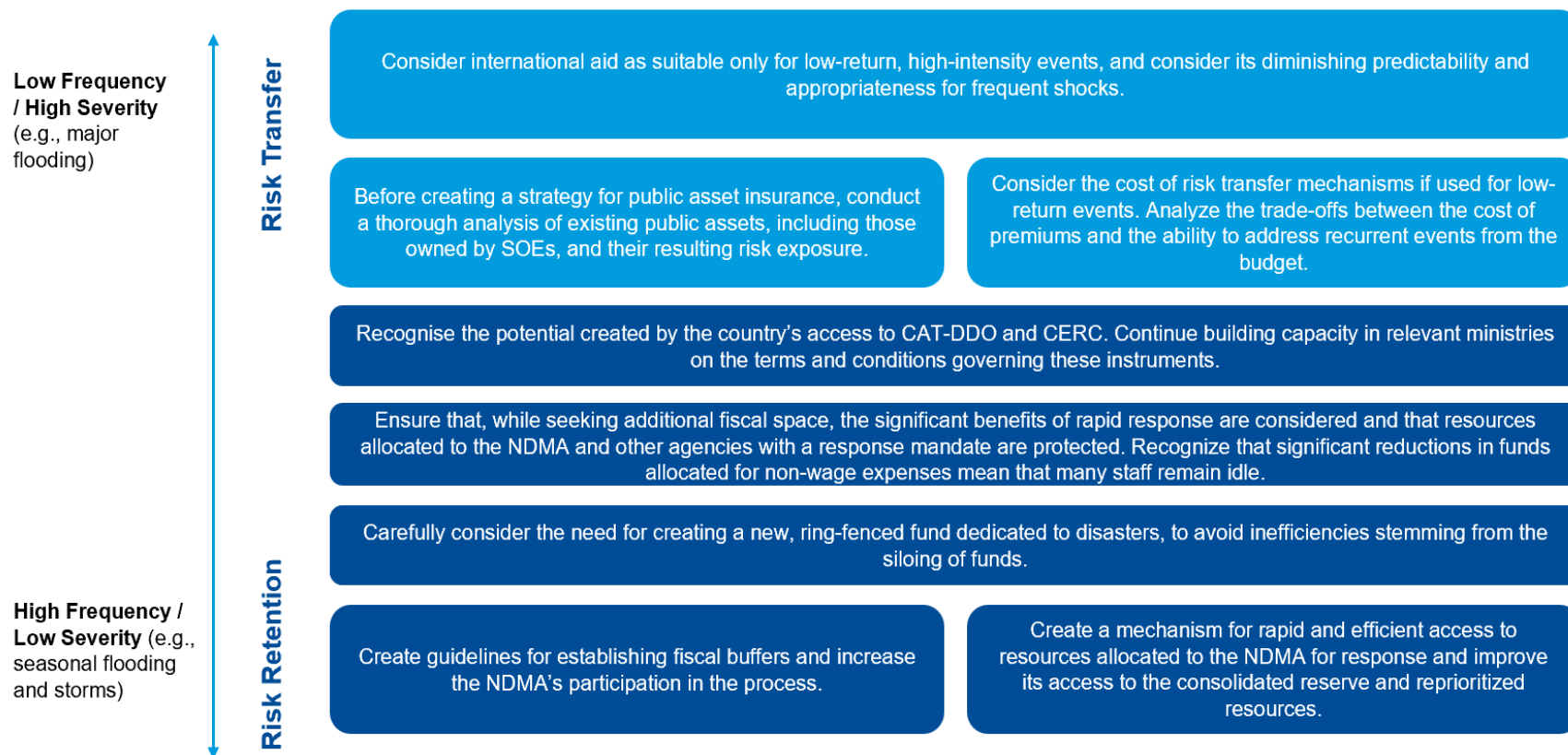
potential to inform the country's risk management strategy and, in some cases, to indeed consider transferring risk to the market.

71. To streamline financing considering varied needs, the NDMA is currently developing a disaster risk financing strategy—an important step toward building a comprehensive financing framework amid budgetary constraints. While the strategy has not yet been adopted, NDMA officials note that it faces significant constraints. The document proposes a high-level risk-layering approach; however, in the absence of data on the cost of shocks, it cannot provide detailed solutions. Similarly, without a comprehensive diagnostic of available funds, the strategy relies on significant assumptions to shape its proposed risk-layering model.

72. The focus of the strategy is on pre-arranging resources through ring-fencing funds and using financial mechanisms such as catastrophe bonds and parametric insurance, with specific reference to a potential provider of such products. Considering budgetary constraints and inefficiencies, it is surprising that the strategy currently does not address strengthening budgetary mechanisms, nor does it recognize the potential risks associated with ring-fencing resources in special funds. Furthermore, it bundles together the phases of disaster risk management, without distinguishing between the different financing mechanisms appropriate for each phase. The strategy also proposes creating a financing unit within the NDMA. However, staff report a lack of capacity, no prior consultations, and potential conflict with the MFDP.

73. The proposed strategy identifies data needs and presents ambitious plans to expand insurance coverage for public assets, homeowners, and farmers. However, it does not address budgetary mechanisms and places a very high reliance on donor funding, even as there is an emerging need for the government to increase its own contributions considering the withdrawal of external funds. Figure 15 summarizes potential areas for strengthening the risk layering approach in Liberia.

Figure 15. Potential Areas for Improvement in the Risk Layering Strategy of Liberia



Source: IMF Staff.

C. Social Protection

74. Scalable social protection mechanisms, backed by reliable data, can serve as effective channels for response delivery. In Liberia, where most risks are linked to rapid-onset, destructive events such as floods that undermine livelihoods and, for the poor, often lead to negative coping mechanisms and high socioeconomic costs, the capacity to provide timely, targeted, and appropriately sized assistance may be as critical as the government's ability to mobilize funds.

75. The Ministry of Gender, Children and Social Protection is primarily responsible for social protection in Liberia. It is currently developing a new strategy for the years 2025–2030, with the main planned focus on making safety nets more shock-responsive and on expanding the registry and its use as a targeting tool. The new system will partially rely on self-reporting to improve the registry's data, particularly in urban areas, which are currently not covered.

76. The strategy is being developed, as the country faces significant and growing constraints due to the shrinking donor space and Ministry's heavy reliance on external funding sources. Social protection in Liberia is currently almost fully financed by donors. For example, the recently closed Liberia Social Safety Nets Project (LSSNP), active from 2021 to 2023, was fully financed by partners, with IDA providing 58 percent, USAID 22 percent, and the Foreign, Commonwealth & Development Office UK (FCDO) 20 percent of the funding. The impact in reducing vulnerability was substantial, as it reached 105,378 people who benefited from the social safety net programme.⁵²

77. Changes to social protection in the country reflect not only the availability of funds but also shifting strategies of partners, such as the World Bank. The LSSNP project has now been replaced by a jobs- and employment-focused project, REALISE, which aligns with the World Bank's latest agenda prioritizing jobs and employment. Its core objectives are: grant support to vulnerable households to revive or start small businesses (target: 4,450 beneficiaries within urban communities in Montserrado and Margibi Counties); temporary employment support and employability development for vulnerable workers (target: 17,000 beneficiaries within urban communities in Montserrado and Margibi Counties); community livelihood and agricultural support (target: 16,200 beneficiary households living in rural communities); and cash transfers and strengthening of the national social protection system, providing income support to poor and food-insecure households.⁵³

78. The only safety net program coordinated outside the Ministry of Gender and Social Protection is the school feeding program⁵⁴, which is also heavily reliant on donor funding. In 2022, 3,078 schools—representing about 20 percent of all schools up to the secondary level—had school feeding programs. While a small allocation of funds is made under the Ministry of Education, the program

⁵² World Bank. (2024, September 12). Liberia: Urban resilience project (P155293) – Implementation completion and results report (Report No. ICR0000346) [Implementation completion and results report]. World Bank. <https://documents1.worldbank.org/curated/en/099091224203517005/pdf/P155293-31809c77-e9d1-4dee-92a2-cc62bc433a01.pdf>

⁵³ World Bank. (2024, January 3). Liberia: Youth opportunities project – Additional financing (P174417) – Implementation completion and results report (Report No. ICR0000321) [Implementation completion and results report]. World Bank. <https://documents1.worldbank.org/curated/en/099010324112515720/pdf/P17441713b9338051bf0a1c362d3cff11c.pdf>

⁵⁴ Republic of Liberia, Ministry of Education. (2022). Education statistics for the year 2022: Annual school census report [Final Education Management Information System (EMIS) report]. Ministry of Education. http://www.moeliberia.com/wp-content/uploads/2019/09/Final-EMIS_Education_Statistics_2022-4.pdf

is primarily financed and implemented by donors such as the World Food Programme (WFP) and, until recently, Mercy Corps. Following the suspension of USAID funding, around 27,000 schoolchildren previously supported by Mercy Corps are no longer receiving school meals. The WFP is working with the Ministry of Education to mobilize resources to sustain and expand the program to reach the affected children.⁵⁵

79. The social registry is expanding with support from partners and is creating an opportunity to improve the targeting of social protection mechanisms amid resource constraints. Under the LSSNP, 267,517 households from six counties (out of 15 in Liberia) were registered, covering around 20 percent of the total population. USAID was the main funder of the registry, creating a need for a new source of funding to expand coverage to urban populations. At present, the social registry focuses primarily on the rural population. To include the urban poor, efforts are being made to implement a demand-driven approach.

Recommendations

Disaster Risk Management

Prioritize stakeholder engagement in key DRF and DRM documents

- Define data needs to support Disaster Risk Finance strategy through a detailed implementation plan.
 - Improve the framework for collaboration with donors and partners to ensure that strategies and instruments are consulted on and well understood.
 - Create an estimate of budgetary and donor-funded response costs.
 - Consider risks related to donor withdrawal.
 - Plan for capacity building that may be required for novel, more complex solutions like contingent credit lines or insurance.
 - Define the ownership and division of responsibilities regarding the Disaster Risk Financing strategy.

Disaster Risk Financing

Improve budgeting for disasters

- Through a MoF circular create clear guidelines for DRF budgetary mechanisms.
 - Define how line ministry buffers are designed, and how the budgeting process for emergencies is coordinated by the NDMC.
 - Create guidelines for accessing the contingency reserve following shocks to increase speed.
 - Improve the transparency of virements, especially those used for shocks.
 - In the budgeting process for the NDMA, ensure that the agency's mandate is properly funded through budgetary allocations to avoid the need for creating a ring-fenced fund and to enable the agency's employees to effectively fulfil their mission, while improving the transparency of DRM spending.

⁵⁵ World Food Programme (WFP). (2025, June). Liberia country brief – June 2025 [Country brief]. World Food Programme.

Shock Responsive Social Protection

Define priority safety nets for scalability and protection

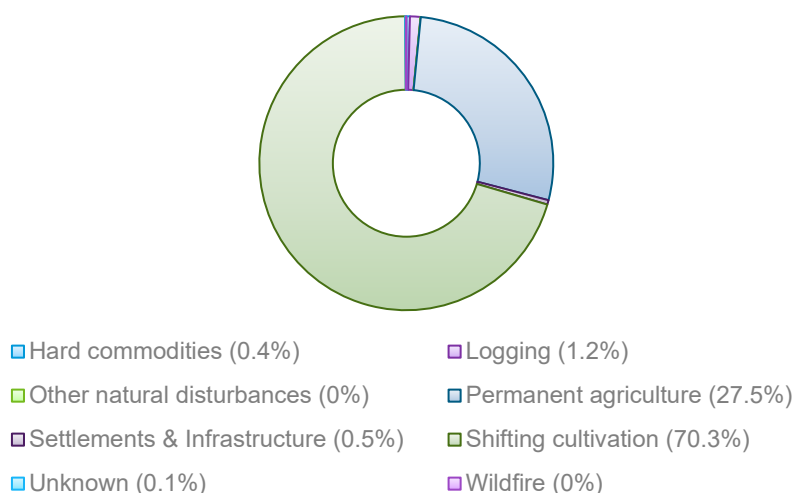
- While scaling up safety nets, consider emerging constraints to available donor funding, and focus only on the most vulnerable, while creating the right incentives and providing information for resilience building.
 - Create a method for estimating the cost of at risk donor funded projects and develop a contingency plan that prioritizes fund replacement, especially in the social protection space.
 - Include disaster vulnerability metrics in the social registry to allow for the fast identification of people at risk amid shocks.
 - Use the registry and cash transfer infrastructure to disseminate information on risks.
 - When incorporating safety nets for individuals and micro, small, and medium enterprises (MSMEs), provide information—including hazard maps—and offer incentives to encourage relocation away from risk-prone areas, particularly flood zones.

IV. Sustainable Forestry and Land-use

A. Forest-Food-Fuel Nexus

80. Liberia has experienced significant tree cover loss, highlighting the urgent need for effective forestry management. According to Global Forest Watch, from 2001 to 2024 Liberia lost approximately 2.52 million hectares of tree cover, which corresponds to 27 percent of the tree cover area recorded in the year 2000.⁵⁶ Furthermore, it is reported that 28 percent of the tree cover loss in Liberia from 2001 to 2024 occurred in areas where deforestation was the primary driver of loss, in particular for permanent agriculture (Figure 16).⁵⁷ This data underscores the critical challenges facing Liberia's forestry sector and how its sustainability requires the alignment of incentives given the competing needs to exploit the forest for timber, agriculture, or for energy-related uses (firewood and charcoal). It also presents the opportunity to anchor support for key activities, as agriculture and mining, to the implementation of smart, sustainable practices that limit the impact that these activities have on forestry,

Figure 16. Tree Cover Loss by Dominant Driver in Liberia (2001-2024)



Source: Global Forest Watch (Hansen, 2013).

81. Forestry sector overview and governance framework. Liberia's forests, covering approximately two-thirds of the national territory, are among the most biologically diverse in West Africa, representing over 40 percent of the remaining Upper Guinea Forest. They play a critical role in sustaining rural livelihoods, supporting biodiversity, regulating the climate, and generating potential revenues through commercial timber production and emerging carbon markets. The forestry sector is governed by a legislative framework that includes the National Forestry Reform Law (NFRL, 2006), the National Forest

⁵⁶ These figures do not account for any gains in tree cover that may have occurred during the same period. See [Liberia Deforestation Rates & Statistics | GFW](#)

⁵⁷ The dataset considers the tree cover extent for the year 2000 (canopy cover of minimum 30%). These represent gross losses, as tree cover gain is not considered.

Strategy (2007), the Community Rights Law with Respect to Forest Lands (2009), the Environment Protection and Management Law (2003), and the Land Rights Act (2018). These are complemented by regulations under the Forestry Development Authority (FDA) and international agreements such as the Voluntary Partnership Agreement (VPA) with the EU under the Forest Law Enforcement, Governance, and Trade (FLEGT) framework. Together, these laws and policies establish the “4Cs” approach – Commercial, Community, Conservation, and Carbon – and mandate mechanisms such as Community Benefit Sharing through Social Agreements and the National Benefit-Sharing Trust.

82. Challenges undermining community forestry effectiveness in Liberia. Community Forestry is governed by the Community Rights Law, which offers a pathway for rural communities to manage and benefit from forest resources through legally recognized Community Forest Management Agreements (CFMAs). However, implementation has been uneven, with reports of elite capture, inadequate technical support, and violations of allocation procedures. Illegal logging, often enabled by opaque contract transfers, poor traceability, and weak enforcement of chain-of-custody requirements, remains a major threat to sustainable forest management (Forest Trends, 2024). These governance gaps not only undermine Liberia’s commitments under REDD+ and its NDC targets but also erode public trust in the sector’s ability to deliver equitable and sustainable benefits.

83. The legal framework recognizes the necessity to distinguish concessions for industrial and community actors in the forestry sector. Commercial logging concessions are typically granted to private firms, allowing them to exploit forest resources for timber production, while community forestry agreements empower local communities to manage and utilize forest resources sustainably. However, both types of concessions face significant shortcomings. For commercial logging concessions, one major issue is the limited capacity to provide effective oversight and enforcement of regulations, which can lead to illegal logging and unsustainable practices that compromise forest health and biodiversity. Additionally, revenues generated from these concessions often do not adequately benefit local communities, undermining the potential for sustainable development and conservation efforts. In contrast, community forestry agreements, while intended to empower local populations, frequently suffer from inadequate support and resources. Many communities lack the technical capacity and financial resources to effectively manage their forests, which limits the success of these agreements. Furthermore, there is often insufficient clarity in the legal framework surrounding community rights, leading to conflicts over land use and access (Forest Trends, 2024).

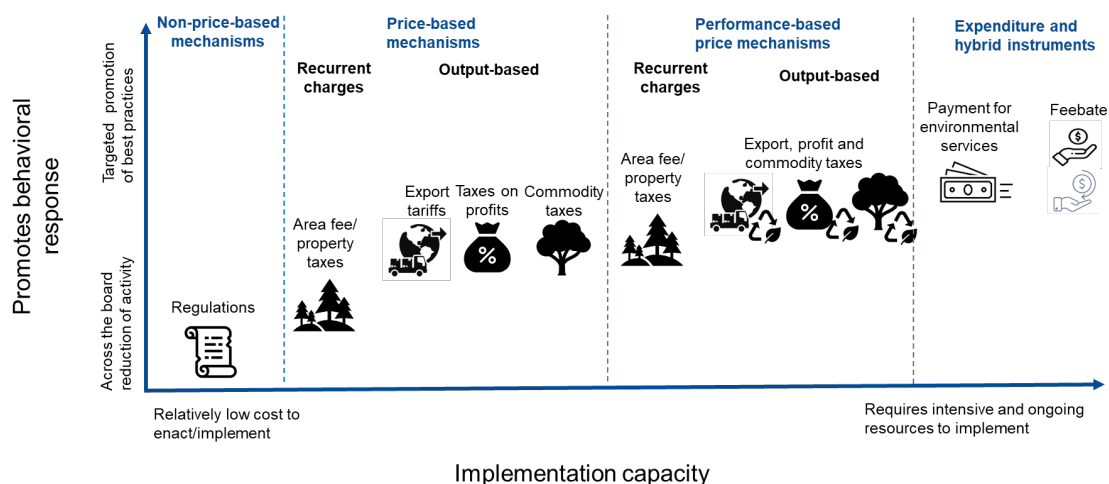
84. Systemic governance failures and compliance gaps are undermining sustainable forest Management. Liberia’s forestry sector faces entrenched governance and compliance weaknesses that undermine sustainable management and equitable benefit sharing. The FDA has limited technical capacity, poor coordination, and conflicting mandates, while fragmented laws and weak enforcement hinder effective oversight. Overlapping land use policies and minimal interagency cooperation with the Liberia Land Authority (LLA) and the EPA fuel land tenure disputes, illegal logging, and poor integration of forestry into national planning. High deforestation and degradation rates are driven by illegal logging, agricultural encroachment, and ineffective law enforcement. Community forestry programs underperform due to low technical and organizational capacity at the local level, unclear benefit sharing arrangements, and delayed REDD+ implementation. Independent reviews – including the 2012 Special Independent Investigative Body report, the 2013 LEITI audit, and the 2023/24 Liberia Forest Concession Review – have documented widespread breaches in concession allocation, contract management, and benefit

sharing. Many operators lack valid registration, adequate performance bonds, and fulfill neither financial nor in-kind obligations, leaving over US\$30 million in arrears. Weak grievance systems, delayed REDD+ implementation, and unresolved land rights issues further erode trust and threaten Liberia's ability to meet its forest conservation, climate, and development goals.

B. Fiscal Policy for Sustainable Practices and Conservation

85. Forest protection strategies typically fall into two categories: (i) regulatory instruments and (ii) price-based mechanisms (Figure 17). Regulatory instruments impose mandatory restrictions or requirements, such as bans on specific activities or mandates to adopt specific technologies. While such rules can be effective if appropriately enforced, they often overlook the economic incentives that shape household and firm behavior. In contrast, price-based mechanisms seek to align private incentives with conservation objectives by altering the relative costs of alternative land uses. These include recurrent charges, such as property taxes or area-based fees- and output-based taxes, such as stumpage fees or export levies. Output-based taxes are generally more efficient than fixed charges, which can create pressure to overexploit resources in order to recover costs. Price-based instruments can also be paired with performance-based mechanisms, and tailored to promote sustainability by varying the rates according to production methods or the adoption of environmentally friendly practices. This effectively changes the tax base of the tax from the economic activity itself to the production method, or its associated sustainability. On the expenditure side, targeted payments – such as those under payment for environmental services (PES), can incentivize households, firms, or communities to conserve rather than extract forest resources. Hybrid instruments, such as feebates, combine both fees and rebates and can be designed to be revenue neutral.

Figure 17. Fiscal Policy Instruments for Forest Conservation



Source: IMF Staff.

86. Environmental taxes are efficient instruments that expand the range of policy options for reducing environmental harm. By internalizing the social cost of environmentally damaging activities, these taxes allow such activities to continue only when their private benefit exceeds the associated social costs. This mechanism ensures that environmental damage occurs only when they generate a net social

gain. Moreover, environmental taxes do not prescribe specific technologies or methods, granting firms the flexibility to adopt the most cost-effective solutions available, including through innovation. This enhances overall efficiency and reduces the cost of achieving environmental objectives, which is particularly relevant for countries facing low institutional capacity that prevent them from implementing more resource-demanding alternatives, like regulations.

87. Current fiscal measures related to land use in Liberia present challenges that may inadvertently contribute to deforestation. The existing fiscal framework includes a variety of taxes and fees intended to regulate land use and forestry practices, but these measures often lack the effectiveness needed to promote sustainability. For example, area-based fees imposed on logging companies are designed to generate revenue for the government and encourage responsible land management. However, many firms struggle to pay these fees, leading to significant arrears and hence also impacting potential fiscal revenues. Excessive area-based fees can create strong incentives for overharvesting, leading to deforestation and land degradation. In Liberia, the financial burden on firms created by these fees has even resulted in companies abandoning concessions and leaving fallen logs behind. A reassessment of the combination of taxes, fees and charges on commercial logging activities has to be made to align incentives with a sustainable forestry management policy.

88. The effectiveness of forest taxation depends critically on the ability to target the appropriate tax base, which presents an opportunity to build on existing fiscal instruments in Liberia. Aside from paying area-based fees, industrial loggers also face stumpage taxes. While area fees incentive overharvesting, output-based taxes penalize the scale of economic activity, instead of its impact on the environment. When tax rates increase with the volume of output, firms that could otherwise expand sustainably face disincentives to grow, with relevant consequences on employment creation. A more effective approach would be to anchor taxation to the sustainability of production methods. This would allow the tax system to discourage environmentally harmful practices without deterring firms committed to expanding through sustainable means. In the context of Liberia, the tax on profits to forestry activities could be revised so it provides larger tax discounts depending on the stringency of the certification.⁵⁸

Payment for Environmental Services

89. Payment for environmental services (PES) schemes have proven effective in reducing deforestation across a range of country contexts. Under these programs, landowners – including households, firms, or communities - submit bids for restoration and conservation projects, with payments tied to environmental services such as carbon sequestration, biodiversity protection, and water protection. Several African countries, including Uganda, Tanzania and South Africa, have implemented PES schemes at various scales. A recent study covering 40 REDD+ projects across nine countries found that PES schemes can reduce deforestation by 47 percent in the first five years, although impacts tend to decline modestly for longer durations (8 to 10 years). Similarly, a randomized control trial in Uganda showed that deforestation rates in PES-supported villages declined to 2-5 percent, compared to 7-10 percent in non-participating villages. Liberia currently has one REDD+ pilot project being developed to provide support for the protection and sustainable management of forests in the Wonegizi Landscape, an

⁵⁸ It should be noted, however, that the introduction of certification mechanisms for sustainable forests will require, among others, clear forest management plans, environmental standards to be used as reference, chain of custody tracking systems, agreed auditing procedures, etc..

initiative that aims at creating benefits for the local communities and the ecosystem, and that could be replicated in other highly biodiverse areas across the country.

90. The effective implementation of a PES scheme relies on three main pillars: (i) a robust targeting mechanism, (ii) a sound methodology for estimating payments, and (iii) fiscal sustainability. First, accurately identifying areas at risk of deforestation is essential. This typically involves using forest monitoring systems and geospatial data to map deforestation risk based on proximity to recently deforested areas, distance to urban centers, and the adaptive benefits of forests—particularly in disaster-prone zones. The inclusion of poverty as a targeting criterion remains debated, as integrating poverty reduction objectives could compromise the environmental effectiveness of PES programs. Second, determining the appropriate level of payment requires balancing effectiveness and coverage, especially in fiscally constrained contexts. Several methodologies exist to determine payments, including opportunity cost and the valuation of avoided carbon dioxide (CO₂) emissions. Third, ensuring fiscal sustainability is critical. PES schemes could be financed through revenue sources linked to the ecosystem services being protected, such as hydropower revenues in the case of watershed conservation, non-timber forest products, or eco-tourism. Alternatively, linking a share of fuel excise taxes or environmental levies could provide a stable funding stream to support long-term program viability.

Improving Data Quality in the Forestry Sector

91. Remote sensing technologies have the potential to significantly enhance national forest inventory efforts. Keeping accurate and up to date forestry inventories remains a challenge for the country. Liberia conducted their first comprehensive forest inventory between 2018 and 2019, which required seven campaigns, totaling almost 10 months of up-to 8 in-field teams collecting information. To complement and effort like this, as valuable as challenging to replicate on a regular basis, satellite imagery and aerial surveys could be used, allowing for more frequent updates and a broader spatial analysis of forest conditions. These technologies, along with lower-cost remote sensing alternatives such as drone-monitoring, can also facilitate the detection of illegal logging activities and other unsustainable practices, enabling authorities to respond more swiftly and effectively. Improving the quality of information on forestry stocks could also help ensure more accurate pricing of concession permits. In particular, as investors could know the varieties of species within the concession area, and could estimate their marketability, accordingly, avoiding potential arrears for discovering expectation mismatches once the trees have been fallen.

92. Forestry tax schemes could be reassessed to include sustainability criteria. A core challenge for governments is the information asymmetry regarding firms' production practices – whether operations are conducted sustainably. In practice, authorities rely on field inspections, self-reported data or ad hoc information from civil society organizations or non-governmental organizations (NGOs). This challenge is compounded in remote areas with weak enforcement capacity where most deforestation occurs. In the short term, the government could collaborate with independent entities that offer sustainably forestry certification and are already active in the country, leveraging their expertise to close information gaps. Nonetheless, it is crucial to identify key data gaps that sustainable certification firms encounter to effectively implement this measure. Importantly, this approach could serve as a proxy for a full Monitoring, Reporting, and Verification (MRV) system, which is more costly to implement and places a higher burden on the administrative capacity of government officials.

Improving Access to Clean Cooking Technologies and Reducing Informality

93. The lack of access to clean cooking technologies remains a challenge pushing communities to rely on firewood and charcoal for cooking. In Liberia, only 33 percent of the population has access to electricity and, according to the World Bank, by 2022 less than 1 percent of its population had access to clean cooking technologies, such as butane gas or solar stoves. Firewood and charcoal remain the dominant cooking fuels, particularly in rural areas and among lower income households, and are closely associated with small-scale informal logging which is difficult to regulate and monitor. In parallel, iron ore and gold mining are among the main exports of the country, serving as a key source of employment and fiscal revenues. Nonetheless, mining also occurs informally through artisanal operations, some of which are linked to non-state armed groups. These activities often bypass environmental and work safety regulations and contribute substantially to forest degradation.

94. Liberia's clean cooking policy, outlined in the 2015 Rural Energy Strategy Master Plan, aimed to provide clean cooking technologies to all rural inhabitants by 2030. This ambitious plan sought to enhance energy access and improve health outcomes by replacing traditional cooking methods that contribute to indoor air pollution and deforestation. The strategy also included goals for electricity distribution to populations outside of Monrovia. However, progress towards these targets has been slow, with significant gaps remaining in the availability and adoption of clean cookstoves and other energy-efficient technologies. As of 2022, only 0.8 percent of the population, and mostly from urban areas, had access to clean cooking technologies. Most rural communities still rely on traditional biomass fuels, which undermines the objectives of the policy and limits its potential benefits for public health and environmental sustainability. The lack of effective implementation and monitoring mechanisms has hindered the realization of the intended outcomes, highlighting the need for renewed efforts and resources to achieve the goals set forth in the Master Plan.

95. Further support is needed to enhance access to clean cooking technologies by addressing both supply- and demand-side barriers. Butane gas is currently exempt from the excise tax charged to other fossil fuels, yet its price remains prohibiting for large portions of the population and its usage is still marginal. In parallel, given low electricity access at the current stage and the country's reliance on imported electricity to satisfy the growing demand, liquefied petroleum gas (LPG) and electric alternatives to charcoal and biomass-based stoves are not realistic in the short or medium term. To provide viable alternatives in the short run, the government could consider fiscal incentives for the importation or local production of inputs for solar stoves. In urban areas, policy efforts could focus on expanding the adoption of butane gas stoves, potential through targeted subsidies or financing schemes, including by providing support to vulnerable households to cover the upfront cost of the LPG cylinder and the stoves. On the supply side, incentives such as tax exemptions or subsidized credit could encourage domestic production and private sector participation in the clean cooking value chain. To minimize fiscal pressure, the government could seek support from development partners to co-finance these initiatives. Moreover, information campaigns could help the population understand the health risks that three-stone stove presents, (World Bank, 2020) and the benefits of switching to alternatives, like rocket stoves or ecostoves, that may even rely on charcoal but be more fuel efficient and less harmful.

Recommendations

Use price-based mechanisms to provide clear policy signals in favor of sustainable land management and conservation

- Revise the tax scheme on logging, decreasing the reliance on area-based fees. Taxes on profits for forestry activities could be reviewed to vary according to certification of sustainable practices. Sustainable certification, and its underlying key performance indicators, should be led by independent third-party firms/organizations following international standards.
- Include conditionality in the support provided to farmers, encouraging the uptake of smart agricultural practices, conservation agriculture and agroforestry.
- Long term policy objective: implement a payment for environmental services scheme, providing support to households and firms in forests at risk of deforestation.

Strengthen the forestry information system

- Work in partnership with third-party agencies that provide forestry sustainable certificates to revise the structure of the tax on profits for forestry activities.
- Explore the use of low-cost new technologies to monitor forests and provide deforestation alerts, particularly for large-scale informal logging activities.
- Long term policy objective: operationalize a Monitoring, Reporting, and Verification system with support from development partners.

Use fiscal incentives to decrease informal activity in forests and increase policy coordination

- Develop a medium-term clean cooking strategy, coordinating efforts, providing a framework to engage with stakeholders, including by addressing financial and cultural constraints.
- Subsidize the initial capital cost of solar stoves, or butane gas stoves with financial support from development partners.
- Provide fiscal incentives for the import of gas butane or solar stoves and promote their local production.

V. Accelerating Energy Access and Transition

96. Accelerating energy access and advancing the energy transition are central to Liberia's economic growth, fiscal stability, and climate resilience. The energy sector in Liberia faces persistent challenges: a generation mix dominated by hydropower and costly imported fossil fuels; one of the lowest electricity access rates in West Africa; and high technical and commercial losses undermining the utility's financial viability. Scaling up renewables, particularly through utility-scale solar photovoltaic (PV) and battery storage remains a high priority for Liberia to provide reliable and affordable electricity with least cost grid expansion alongside scaled up off grid renewable solutions to lower exposure to climate risks and global fuel price shocks. The National Energy Compact (NEC) targets raising the renewable share of installed capacity to at least 75 percent by 2030 through utility scale solar, hydropower rehabilitation, storage integration, and rural Mini grids. Achieving these goals will depend on mobilizing private capital at scale, supported by transparent procurement, predictable regulation, and long-term planning tools such as a long-term Integrated Resource Plan (IRP) and a competitive Renewable Energy Independent Power Producer Procurement Program (REIPPP).

Context

97. Liberia's energy sector remains heavily dependent on a narrow generation-mix dominated by hydropower and imported fossil fuels, making the country highly vulnerable to hydrological variability (climate risks) and external price shocks. The national installed generation capacity stands at about 126 megawatts (MW) with hydropower providing roughly two thirds of total capacity (primarily from the 88 MW Mount Coffee plant) and the remainder supplied by expensive heavy fuel oil (HFO) and diesel units. Electricity access, while gradually improving, remains among the lowest in West Africa at 32.7 percent, with rural electrification coverage below 10 percent. The Liberia Electricity Corporation (LEC) transmission and distribution (T&D) network has limited grid coverage and is underdeveloped. This has resulted in consistent T&D network technical and commercial losses, that severely undermine the service reliability and financial viability of LEC. These challenges are compounded by Liberia's dispersed and vulnerable population settlements with limited purchasing power, which further increases the cost of grid extension and reinforces the need for a balanced approach between on grid and off grid solutions to reform the electricity sector in Liberia.

98. A successful energy transition in Liberia will require a long-term and holistic strategy through diversification of supply to leverage private investments targeting increased utility-scale renewable energy penetration along with off-grid solutions for energy access. The NEC targets raising the renewable share of installed capacity from the current 67 percent to at least 75 percent by 2030, underpinned by utility scale solar PV deployment, rehabilitation and expansion of hydropower (including Mount Coffee and the proposed St. Paul 2 project) with battery storage integration to improve seasonal hydrology and electricity supply balance. Achieving these ambitions will require unlocking and mobilizing significant private capital through transparent procurement, standardized bankable Power Purchase Agreements (PPAs), predictable tariff regimes, and targeted fiscal incentives – while aligning investment priorities with a forthcoming Least Cost Power Development Plan (LCPDP). The NEC also identifies Liberia's private capital investment needs to be around US\$150 million for dedicated electricity

expansion projects currently being prepared with support from the World Bank, African Development Bank (AfDB), and several donor partners.

99. Diversification of power supply and reduction of fossil fuel dependence is essential to strengthen Liberia’s energy security while reducing fiscal costs and balance of payments pressures to unlock economic growth. Current reliance on regional power imports via the Côte d'Ivoire-Liberia-Sierra Leone-Guinea (CLSG) interconnection combined with expensive and polluting HFO and diesel imports to adjust to dry season supply risks, exposes the sector to global price volatility, while constraining household affordability and raising industrial production costs. These actions directly impact the cost of supply and electricity tariffs and undermine fiscal stability. Transitioning toward a diversified, low carbon mix – combining hydropower, solar PV, biomass, regional power imports, and distributed renewables combined with battery storage – will reduce Liberia’s fuel import bills, stabilize tariffs, and improve climate resilience while improving energy security. The LCPDP currently under preparation by the LEC and the Ministry of Mines and Energy (MME), should prioritize generation investments with low marginal cost, resilience to climate variability, and integration into both national and regional grids. A phased approach to fuel pricing reform and removal of subsidies on carbon-intensive fuels like HFO can free up fiscal space for renewable investments while sending efficient market signals.

100. Strengthening Liberia’s enabling environment to achieve long-term energy sector reforms will be critical to accelerate renewable deployment and to mobilize private capital at scale for delivering Liberia’s energy transition. Liberia should establish an IRP that sets out a 20-year forecast of electricity supply and demand with optimal long-term generation-mix decisions. This IRP that can be developed as an extension to the LCPDP under preparation by LEC can also be complemented by introducing an overarching REIPPPP to prioritize renewable generation that guides investment priorities. The REIPPPP can be further bolstered by the introduction of additional policy and regulatory measures such as Feed in Tariffs (FiTs) and a Renewable Portfolio Standard (RPS) that can be embedded into the regulatory framework to crowd-in private investment. In parallel, investment incentives such as import duty exemptions for clean energy equipment for utility-scale renewable projects including access to concessional financing from development partners as well as guarantees coupled with institutional capacity building through technical assistance will be key to deliver the investments needed at scale and speed that is required for achieving the ARREST Agenda targets for energy access, transition, and climate resilience.

101. Addressing the national utility’s operational and financial challenges will be paramount for improving the electricity sector’s long-term financial sustainability. The national utility, Liberia Electricity Corporation (LEC) is currently developing a LCPDP to address short-term electricity supply and demand challenges resulting from heavy reliance on expensive HFO and diesel generation to meet dry season and peak power demand supply shortages. However, LEC also has immediate operational challenges in terms of inefficient revenue collection and high commercial losses of around 27 percent, mostly electricity theft including some vandalism of LEC’s network equipment due to the lack of enforceability of the current Power Theft Act. In addition, technical losses of around 12 percent, mostly due to LEC’s underdeveloped electricity grid network, also contribute to these operational issues. Solutions to address some of these operational and financial issues could include conducting a study assessing gaps and challenges in the existing Power Theft Act and consider amending the law to make it practical and enforceable by introducing tiered penalties, administrative sanctions, and civil compensation

to recover LEC's lost revenue including compensation for damages to LEC's equipment. In addition, LEC and MME should ensure the regularization of all consumers who are not legally connected to the LEC grid through the deployment of prepaid meters. To improve revenue collection, LEC should also ensure that all government entities are connected to the grid through pre-paid smart meters.

A. Improving Electricity Access and Clean Cooking

102. Expanding energy access through off grid distributed renewable energy (DRE) solutions remains slow but still a high priority in Liberia. While electrification has improved along the CLSG corridor, energy access across rural and peri urban areas still remains below 10 percent. The NEC targets 70 percent of household coverage through least cost grid expansion and densification, while the Rural and Renewable Energy Agency (RREA) aims for 35 percent rural electrification by 2030, with over 75 percent from renewables. RREA is updating its strategy with a new business plan and Rural Energy Fund to accelerate Mini grids, standalone solar, and micro hydro. The World Bank's LESSAP project is extending power to health facilities and rural schools. Private off grid firms remain small-scale due to low incomes and limited capital, and while two Results Based Finance (RBF) facilities funded by the World Bank, EnDev, and Beyond the Grid seek to boost investment, significant funding gaps still persist. The expiry of Executive Order #134 in June 2025, which waived duties on off grid solar products, further constrains private investment. Fragmented LEC and RREA master plans and uncoordinated strategies underscore the need to review the economic model for off grid DRE to ensure long-term sustainability.

103. Clean cooking adoption in Liberia lags behind, with most rural households relying heavily on biomass (firewood) and charcoal, contributing to deforestation and household air pollution. As mentioned in the forestry section, charcoal and firewood collection for cooking purposes further contribute to deforestation in Liberia. The MME, in collaboration with the RREA, is preparing a national clean cooking strategy to be launched in 2026, with a particular focus on female headed households. This strategy will establish baselines and targets, while guiding investment and program design to expand access to cleaner technologies (i.e. solar cookstoves). Social tariffs for low-income households, coupled with targeted subsidies or market based incentives for solar cookstoves and other clean cooking solutions, can accelerate adoption, reduce dependence on biomass, and improve household health. Addressing clean cooking is a core element of Liberia's energy access agenda including the broader decentralization strategy to expand off-grid DRE solutions.

B. Scaling Up Renewable Energy

Accelerate Scale-up of Utility-Scale Renewable Energy

104. Addressing gaps in the enabling environment to scale up renewable energy in Liberia. Scaling up renewable energy is essential for reducing Liberia's dependence on costly fossil fuel imports, stabilizing electricity tariffs, and achieving both the NEC's and the 2025 National Development Plan (ARREST Agenda's) targets for universal access and climate resilience. While the 2015 Electricity Law, the 2009 National Energy Policy (NEP), and the 2010 Investment Act, provide a foundation for sector development, these frameworks lack the regulatory clarity, long-term planning mandates, and targeted incentives necessary to mobilize largescale private investment in renewables. Existing policies do not require a comprehensive, forward-looking planning process, nor do they provide structured mechanisms

to competitively procure renewable capacity at scale. The absence of enforceable renewable energy obligations and bankable, transparent pricing frameworks further limits investor confidence. Addressing these gaps requires a coordinated package of policy, legal, and regulatory reforms – anchored in robust sector planning, competitive procurement, enforceable renewable targets, and predictable incentives to drive private capital mobilization and accelerate renewable deployment in Liberia.

105. Overcoming fragmented energy planning and limited coordination in the Energy Sector.

Liberia's power sector suffers from fragmented and short-term planning, with the LEC and the RREA pursuing parallel, often uncoordinated strategies. While LEC is currently preparing a LCPDP to guide generation expansion, RREA has its own master plans and rural electrification strategies for miniguides and off grid solutions. However, there is no formal coordination between these planning processes, resulting in inconsistent investment priorities and a lack of alignment between grid and off grid development. This absence of a unified planning framework has prevented the country from determining an optimal generation mix, leaving the sector heavily reliant on expensive HFO and diesel generation, as well as unpredictable and costly regional electricity imports. The result is persistent price volatility, unaffordable tariffs for many households and businesses, and heightened fiscal and balance of payments pressures. Poor integration between on grid and off grid planning has also undermined the efficient allocation of scarce investment resources, slowed rural electrification, and reduced the sector's resilience to hydrological variability affecting hydropower output. A legally mandated, sector wide IRP – anchored in least cost principles and aligned with electrification and climate resilience targets – would provide a unified long-term supply and demand forecast, define the optimal generation mix, and identify priority investments for both grid and off grid solutions. With the IRP mandated in law through amendments to the 2015 Electricity Law and updates to the 2009 NEP to provide clear policy direction with updates every 3–5 years, Liberia can institutionalize coherent long-term planning, strengthen investor confidence, and set a clear pathway for its energy transition while ensuring REIPPs meet requirements for job creation, local content and community trust initiatives.

106. Addressing gaps in the procurement framework for renewable energy scale-up in Liberia.

Liberia's current procurement framework for utility scale power projects under the 2005 Public Procurement and Concessions Act is generic and lacks sector-specific guidelines for renewable energy. The PPCA-driven concession process applies broadly but does not require alignment with national planning instruments like the LCPDP or RREA's rural electrification strategies. Meanwhile, the 2009 NEP and 2015 Electricity Law authorize private participation but do not establish a transparent, competitive procurement mechanism for renewables, leading to negotiated deals with inconsistent pricing and weak investor confidence. As a solution, Liberia should establish a competitive REIPPPP to tender capacity in renewable energy projects (solar, hydropower, biomass, combined with hybrid-energy storage capacity additions). This REIPPPP should be introduced through an updated NEP to signal clear policy direction and aligned with an amended 2015 Electricity Law which mandates the IRP. The REIPPPP would ensure technology-specific bidding windows, standardized evaluation, and bankable PPAs while facilitating a market-driven, competitive tariff discovery mechanism to attract new Independent Power Producer (IPP) investments to scale-up utility-scale renewable energy projects in Liberia. By linking the REIPPPP with the IRP and aligning planning across LEC, RREA, LERC, and the Public Procurement and Concessions Commission (PPCC), Liberia can unify its power sector strategy, attract high-quality private developers, stabilize tariffs, mitigate fiscal risk, and accelerate progress toward its energy transition targets.

107. Lack of a legal mandate to ensure a minimum share of renewables in the National Supply.

The 2015 Electricity Law and the 2009 NEP set broad renewable energy objectives but stop short of establishing enforceable renewable energy targets. Without such a mandate, utilities, Independent Power Producers (IPPs), and large industrial consumers have no long-term obligation to prioritize renewable projects, which risk slowing the energy transition once early procurement gains are made. This absence of a regulatory driver currently limits certainty for investors and delays the structural shift needed to reduce reliance on expensive and volatile HFO and diesel generation. Even if Liberia succeeds in introducing an IRP and a competitive REIPPPP, there is currently no binding requirement to ensure that renewable energy will make up a defined share of the national generation mix over time. To address this, Liberia should introduce a Renewable Portfolio Standard (RPS) as a long-term regulatory tool. Once traction is achieved in attracting utility scale renewable IPPs through technology specific bidding windows under the REIPPPP, an RPS would legally require that a minimum, progressively increasing percentage of the country's electricity supply come from renewable sources.

108. Opportunities for industries to drive large-scale renewable energy deployment. Beyond guiding the national generation mix, a RPS could catalyze private investment from large industries in gold and iron ore mining, as well as agribusinesses such as rubber and oil palm, enabling them to develop their own captive renewable plants with battery storage capacity near industrial sites in Liberia. These producers could generate revenue by selling surplus power or trading Renewable Energy Certificates (RECs) under the RPS framework, while also supplying nearby communities with clean electricity. In line with IRP- driven projections, the RPS mechanism could also help re-define transmission and distribution grid expansion- priorities to bring power closer to rural communities, ensuring that Liberia's energy transition delivers broad-based- economic and social benefits.

109. Inconsistent tariffs and expiring incentives undermine renewable energy investment in Liberia. Liberia's 2010 Investment Act, the NEP, and the Electricity Law encourage private participation but lack a standardized, long-term pricing framework for renewable energy. Without predictable tariffs, developers face revenue uncertainty, making it difficult to secure financing on competitive terms. These gaps are compounded by the pending expiration of *Executive Orders #134 and #137*, which currently provide import duty exemptions and other incentives for off grid and small-scale renewable projects. No comparable incentives exist for utility scale renewable IPPs, leaving a policy vacuum that undermines investor confidence. To bridge this gap, Liberia should introduce a FiT framework as a short to medium-term measure. The FiT would offer transparent, preapproved tariffs for solar, hydro, biomass, and hybrid storage projects, enabling developers to secure financing and advance smaller or strategic projects that may not fit competitive tendering windows. Embedding FiTs in the regulatory framework – paired with fiscal measures such as import duty exemptions and concessional finance – would create a stable investment environment and accelerate renewable uptake while broader procurement mechanisms are established in the long run through the IRP, REIPPPP, and future RPS.

110. Advancing net metering can boost solar PV adoption in Liberia to diversify energy supply, but high costs, affordability challenges due to expired government incentives, policy and regulatory barriers remain. Net metering allows independent solar system owners (both households and businesses) to earn credits for the electricity they add to the distribution grid. The NEP only mentions net metering as a planned objective. In the absence of clear policy direction, the creation of new regulations for net metering is also delayed. The Ministry of Mines and Energy (MME) is currently

developing a stand-alone net metering policy that is set to be available in SEP 2025 for the regulator to start creating regulation guidelines around technical standards outlining grid compatibility and self-generation threshold requirements for net metering. The Executive Order #134 which provided import duty exemptions on solar products has also expired since June 2025 with no other incentives currently in place to make the purchase of solar rooftop home systems or solar equipment to be affordable to both households and businesses. In the absence of a definitive policy and regulatory framework and incentives, barriers remain in the adoption of net metering in the short term for Liberia to diversify its energy supply.

C. Electricity Tariff Reform

Promote the Financial Sustainability of the Electricity Sector and Energy Efficiency

111. The financial sustainability of the LEC is critical for ensuring reliable and affordable electricity supply. Within LEC's energy mix, hydropower has the lowest variable cost (0.06 US\$/kWh) but its generation capacity during the dry season is limited or null. Local generation with HFO is reportedly the most expensive in the within-grid mix (0.28 US\$/kWh) despite LEC's consumption being exempt of excise taxes. Imported electricity is often between both (reportedly around 0.15 US\$/kWh), yet its supply may be reduced if neighboring countries face domestic constraints. Currently operating at limiting capacity, the increasing demand for electric power in Liberia is often met with additional imports of either HFO or electricity, increasing the average cost per kWh. Outside of the grid, electricity costs increase drastically, underlying the need for LEC to sustain net gains in order to finance grid expansion and capacity generation, and to move towards warranting energy security.

112. Tariff regulation aims at ensuring financial viability of LEC's operations, while protecting consumers. The Liberia Electricity Regulatory Commission (LERC) is in charge of setting cost-recovering tariffs every three years, with the next update to happen before the end of 2025. The methodology used for this purpose is on itself updated every five years.⁵⁹ Despite the tariffs set aiming at fully recovering associated costs, LEC still faces financial struggles due to low revenue collection rates exacerbated by a high level of unpaid bills and a significant proportion of unmetered customers. This undermines its ability to cover operating costs and reinvest in infrastructure. The current tariff structure differentiates between households, industrial users, medium-voltage users, and vulnerable households,⁶⁰ defining tariffs that range between 0.15 and 0.24 US\$/kWh in urban areas. In off-grid areas, the tariffs are higher and mini-grid-specific depending on the characteristics of the projects, with recent examples being regulated at 0.45 US\$/kWh. The differentiated tariffs by consumer category allow LERC to increase average tariffs, while still protecting vulnerable users. Upcoming updates should aim not only at ensuring convergence towards cost-recovery levels but also at financing expansion of both the grid and the generation capacity.

⁵⁹ Both the Multi year tariff methodology for service providers in the electricity supply industry (2021), and the regulated tariffs set every three years are issued under section 3.3 of the Electricity Law of Liberia 2015 (ELL), that empowers LERC to regulate the electricity market within the country.

⁶⁰ LERC defines this segment as those households whose consumption does not exceed 24 Kwh.

D. Energy Pricing Reform

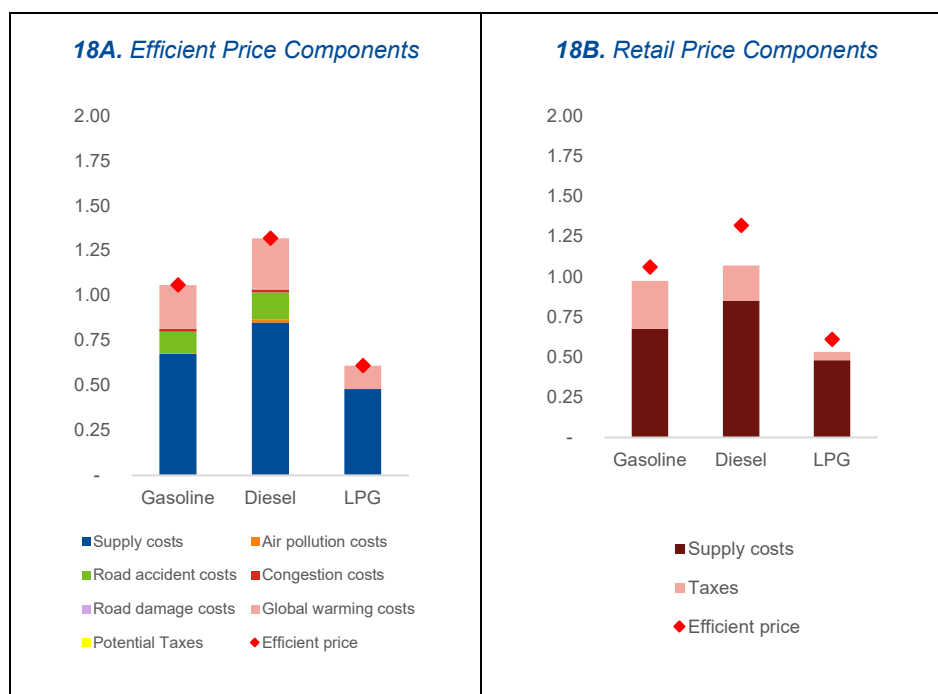
113. All fuels in Liberia are imported, and their domestic prices are regulated. In accordance with the Liberia Petroleum Refining Company (LPRC) Act and the Petroleum Law of 2002, regulation occurs on a monthly basis by the Ministry of Commerce and Industry (MoCI) in coordination with the LPRC. The prices take into account the excise taxes and surcharges applied to these products. For petroleum products, multiple taxes apply. There is an excise tax of 0.20 US\$/gallon(gl), along with a 0.05 US\$/gl surcharge that serves as a price smoothing mechanism. Additionally, there is a Road Development Charge of 0.25 US\$/gl, which contributes to the maintenance of road infrastructure. While these excise taxes were reduced in March 2024 (Executive Order No. 128) to assess their effects in the economy and reduce the cost of living, they had to be reinstated in May 2025 as a response to the decreasing financing flows from international partners that created fiscal sustainability risks.

114. Liberia has no subsidies on fossil fuels and excise taxes are set to partially account for externalities, but tax exemptions undermine the incentive system and create room for informal markets. While excise taxes in Liberia do not change by fuel to account for their specific carbon content or associated externalities, the introduction of these measures already provides a price signal for consumers. Despite the absence of developed alternatives to these fuels within the country, these taxes can still foster consumers to adjust their consumption patterns and create incentives for investments in technologies consuming less polluting sources of energy. Aligning incentives can furthermore provide clear signals to international investors and partners about the long-term policy objectives of the country and their commitment to improved energy efficiency. The introduction of exemptions, as it is the case for the consumption of LPG, or the fuel consumption by certain concessions for mining, logging or agricultural activities, as well as the exemption on taxes on HFO used for electricity generation,⁶¹ dismantles such incentives and reduces fiscal revenues that could be used to finance multiple pressing needs. Moreover, access to tax-free fuels creates incentives for increased demand that can be diverted to informal markets. This is already seen in multiple streets within the country where fuel is sold at informal posts, at a price below the regulated one. This not only reduces the excise tax collection but also impacts the income tax that could have resulted from the sales by formal gas stations gradually displaced by informal markets.

115. Fossil fuel prices in Liberia are close to their efficient levels, with Diesel showing the largest gap to bridge. In Liberia, gasoline, diesel and LPG show gaps equivalent to about 8, 19 and 13 percent of their respective efficient prices (Figure 18). The latter considers not only the supply cost, but also a monetized impact of all externalities linked to fuel consumption per unit of volume. Despite diesel showing the largest gap, its usage for electricity generation in rural areas that reduces the policy room. However, price correction could still take place gradually, as capacity generation and grid coverage expands.

⁶¹ See Executive Order No. 79.

Figure 18. Efficient Prices for Liquid Fuels in Liberia (2024)



Source: IMF staff using Climate Policy Assessment Tool (CPAT).

116. Considering the need to align incentives for investment in renewables to be attractive, and to provide clear signals to consumers, the mission modelled three reform scenarios for Liberia.⁶²

117. Reform scenario 1: Remove excise exemptions on HFO. Despite being more polluting than gasoline and diesel, HFO is currently exempt from excise taxation. This reform proposes aligning the excise on HFO with that of gasoline on a per-gallon equivalence. The tax would be phased in gradually, with the full value of 0.20 US\$/gl implemented by 2030, beginning in 2026 and increasing in equal annual increments.

118. Reform scenario 2: remove excise exemptions on HFO and introduce a FiT. On top of the Reform scenario 1, we model the introduction of a 0.10 US\$/kWh FiT designed to incentivize the development of renewable energy projects, such as solar and wind, by guaranteeing a fixed price for energy produced over a specified period. The FiT is assumed to be phased out after five years, under the expectation that the renewable energy sector will have matured.

119. Reform scenario 3: remove excise exemptions on HFO, introduce a FiT, and a carbon tax. On top of the Reform scenario 2, and as an illustrative scenario, we model the gradual introduction of a low-ambition carbon tax that would start in 2026 and reach a level of 10 US\$/tCO₂ by 2030. The

⁶² Caveat: Data on prices and energy consumption has only been partially updated with respect to the out-of-the-box version of the model, due to limited access to up-to-date information for the country at the level of detail needed. Moreover, inconsistencies between regional sources of information may require further validation to ensure the quality of the results. The exercise is presented for illustrative purposes, and the mission suggests further tailoring of the model for future steps of the interaction with the Government.

revenues collected from the tax are assumed to be recycled into the economy through additional public investment in infrastructure, and targeted transfers to vulnerable households.

Preliminary Results

120. By 2030, all suggested scenarios would bring electricity prices below current levels. By 2030, electricity prices would be between 11 and 14 percent below the current ones, while industrial prices would be between 13 to 17 percent lower than 2025 values (see Table 8). In the simulations, this occurs despite the increase in price of HFO (Oil) and is possible thanks to expanded renewable supply. Gasoline and diesel prices are mainly impacted by the introduction of a carbon tax, yet its low-ambition level at the target year translates into a gasoline and diesel price increase of 3 percent in real US\$ by 2030 with respect to 2025.

Table 7. Fuel Price Changes: 2030 vs 2025

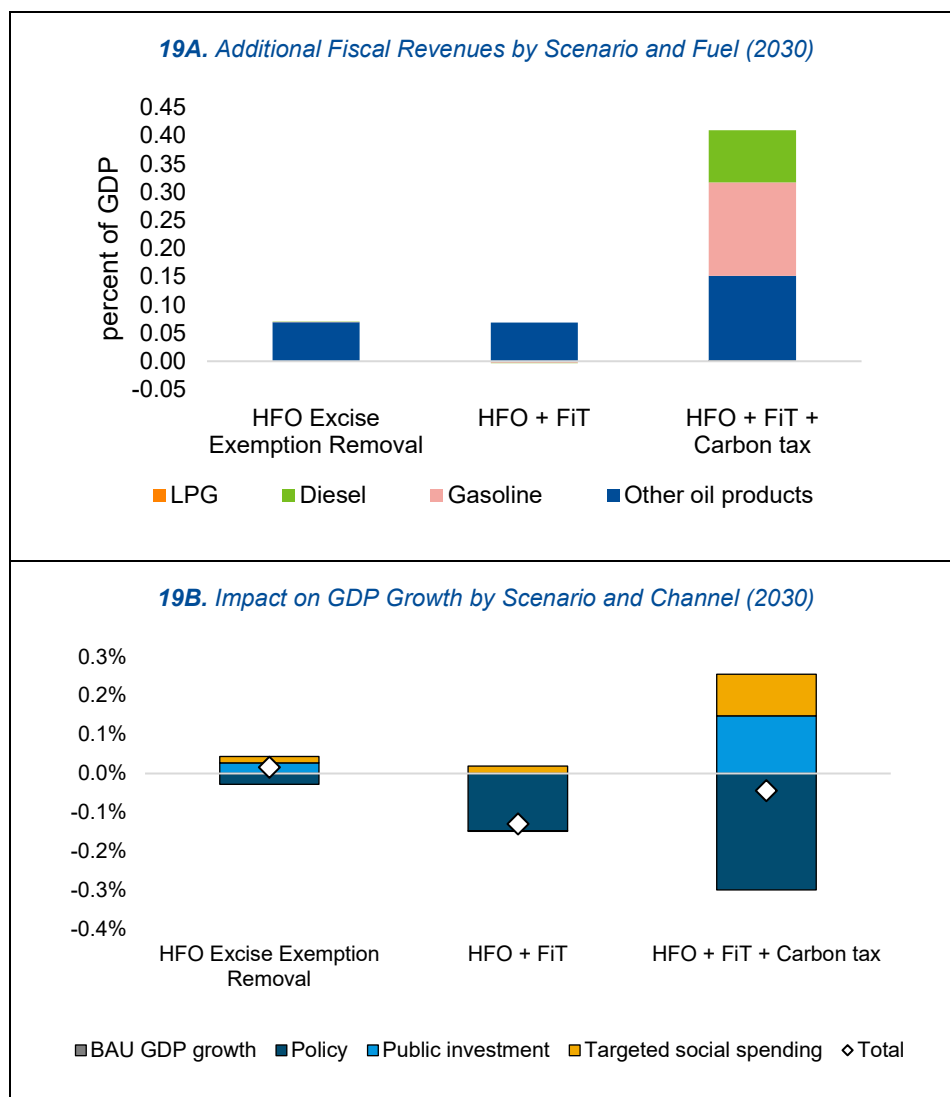
Fuel	Historical (2025)	HFO Excise Exemption Removal (2030)	HFO + FiT (2030)	HFO + FiT + Carbon tax (2030)
Electricity, residential	0.26	-14%	-13%	-11%
Electricity, industry	0.18	-17%	-16%	-13%
Coal	6.35	-1%	-1%	-1%
Oil	68.81	12%	12%	21%
Gasoline	0.86	0%	0%	3%
Diesel	0.93	0%	0%	3%
LPG	0.46	0%	0%	4%
Kerosene	0.75	0%	0%	4%

Source: IMF staff using CPAT.

121. All scenarios suggest a net gain in fiscal revenues by 2030, with modest impacts in GDP growth by 2030 whenever the case. Internal revenue mobilization can help the GoL increase their fiscal space to fund public infrastructure projects, and extend basic services coverage to rural areas. The carbon tax scenario shows the potential to increase fiscal revenues by nearly half of a percentage point of GDP by 2030, mainly through taxes on diesel and HFO (Figure 19). If implemented in parallel with investment incentives and projects on the renewable side, such a policy mix would generate alternative options for consumers, while correcting the fuel prices and allowing the government to increase fiscal revenues. The scenarios that consider the FiT measure have been designed with a conservative approach to model it in a way the government subsidizes the tariff to increase network coverage and electricity supply, while in practice the FiT is set at a value below that of the generation with HFO or through imports. In brief, the negative values shown should be considered as a lower-bound, and estimations could be improved with the support of government agencies to improve the accuracy of the data inputs pre-loaded in the tool. Despite it being a lower bound, it can be seen that the current

scenarios have a minimal negative effect on GDP growth, with the potential of making it significantly positive under the carbon tax scenario when Fit mechanism is adjusted.⁶³

Figure 19. Additional Fiscal Revenues and Impact on GDP Growth by 2030



Source: IMF staff using CPAT.

122. Improved social registry could help recycle raised funds to target social protection and support vulnerable households. As mentioned before, the current exercise assumed that the additional revenue generated is recycled to the economy partially through public investment and through transfers to households. While the latter can be an effective channel to support vulnerable households face

⁶³ Among other caveats, it should be noted that the model relies on accurate data for Energy Balances. In the case of Liberia, the multiple sources consulted either failed to classify diesel used in rural areas for electricity generation, or to account for electricity imports. While the latter was solved by contrasting information with data collected during the mission, the former poses a more complex challenge for the model, which considers the reference electricity demand to be the existing one. As mentioned before, this is mostly coming from urban areas, as the consumption of diesel for electricity generation in rural areas may not be properly identified in energy balances.

increasing energy prices, the possibility of fully exploiting such in Liberia is still limited. The country needs to strengthen the social registry to identify and target vulnerable households accurately, develop reliable payment infrastructure possibly leveraging digital financial services, and build institutional capacity within social protection agencies for management and monitoring of transfer effects. Particular relevance has to be given to ensuring adequate rural coverage of the registry.

Recommendations

Improving electricity access

- Harmonize LEC and RREA's masterplans and strategies to enable a comprehensive and unified grid expansion and rural electrification strategy to improve energy access.
- Continue investing in the transmission and distribution network to expand energy access to cover rural and peri-urban households through leastcost grid expansion and densification.
- Prioritize solar PV mini grids with battery storage capacity to manage variable costs and improve flexibility and reliability of power to expand energy access.
- Enhance RREA's Monitoring Information System (MIS) to share real-time information with LEC to track countylevel electrification progress across grid and offgrid solutions.
- Colocate health facilities, schools, and miniindustrial clusters along newly energized lines to maximize community-based (socioeconomic) impact.

Accelerate scale-up of utility-scale renewable energy

- Introduce a new net-metering policy and embed it into the regulatory framework through LERC to allow households to sell excess rooftop solar PV electricity to the national grid.
- Introduce a Feed-in-Tariff (FiT) scheme as a price-based incentive and guarantee an above-market price for renewable energy producers.
- Amend the 2015 Electricity Law and update the 2009 National Energy Policy (NEP) to mandate and adopt a sector-wide Integrated Resource Plan (IRP) that sets out a long-term electricity supply and demand forecast, optimizes the generation mix, and guides both public and private investment.
- Establish a Renewable Energy Independent Power Producer Procurement Program (REIPPPP) with technology-specific bidding windows to attract private investments to scale-up utility-scale renewable energy projects to facilitate a new market-driven, competitive tariff discovery mechanism.
- Consider a Renewable Portfolio Standard (RPS) and mandate renewable energy electricity suppliers to generate a certain percentage of their electricity from renewable sources.

Electricity tariff reform

- Ensure the implementation of the multi-year cost-reflective tariff adjustment mechanism that allows for LEC sustainability while protecting vulnerable households through a social tariff.
- Long term: Implement a time-of-use tariff structure to encourage large electricity users to switch their hours of consumption during the day, when electricity is cheaper.

Energy Pricing Reform

- Phase-out fossil fuel excise exemptions (LEC, Concessions, etc.), to support long-term transition to lower cost structure associated with higher share of renewables, and increase controls to eliminate informal fuel markets.

VI. Strengthening Climate Governance

123. Strong climate governance helps build the country's resilience to the challenges of climate change and reduce its costs. Good climate governance implies that institutions play a key role in the regulation, policy development, coordination, resource mobilization and implementation of climate actions. It involves integrating climate considerations into existing systems and processes of the public administration, enhancing them without compromising their efficiency. Ultimately, climate governance ensures that future development gains such as economic growth and stability, peace and social cohesion are not compromised by the impact of climate change while also capitalizing on green growth opportunities deriving from a transition to a low carbon economy. To ensure effective delivery of Liberia (LBR)'s NDC targets and actions and supporting sector roadmaps and the NAP, it is essential that an effective climate governance framework is put in place. This chapter examines GoL's climate governance with a focus on regulations, policies, institutions, and climate finance (Figure 20). By examining current gaps and proposing solutions, it aims to provide a roadmap for enhancing institutional capacity and ensuring coordinated efforts.

A. Legal Framework

124. Liberia was an early adopter of international climate change commitments, guiding the development of national climate governance. LBR has ratified key international conventions and agreements on climate change (UNFCCC, 2002; Kyoto Protocol, 2002; Paris Agreement, 2018).⁶⁴ These commitments are pivotal to LBR's climate governance within a national framework primarily anchored in principles of sustainable development, management, and protection of the environment and natural resources

125. GoL has established some preliminary legal elements for climate change management. The Constitution 1986 underpins the national legislative framework for environmental governance; promulgating the use of natural resources to facilitate development. Specifically, Article 7 mandates the State to manage the national economy and natural resources of Liberia to ensure the maximum feasible participation of citizens under the condition of equality in advancing welfare and economic development. Pursuant to Article 7, the Environmental Protection Agency Act (EPA Act 2002) declares the right of citizens to a clean and healthy environment, and establishes the EPA as the principal authority of Liberia for environmental management, protection and enhancement. The EPA is vested with the functions of policy development, coordination, implementation, monitoring, supervision, stakeholder consultation, and advisory in regard to environmental protection and sustainable use of natural resources. Its responsibilities include the overall integration of environmental considerations in national planning, data collection and research, determining standards/guidelines, and capacity building of line ministries in environmental and national resource management. It is mandated to identify projects and programs requiring environmental impact assessments (EIA) and review the same. It is also designated as the

⁶⁴ Among others, Liberia has also ratified Vienna Convention on the Protection of the Ozone Layer 1985, the Convention on Wetlands of International Importance (Ramsar) 1990, the Convention on Biodiversity 1993, and the United Nations Convention to Combat Desertification 1995, and the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal 1992, Rotterdam Convention on Prior Informed Consent for Hazardous Chemicals and Pesticides 2004, Stockholm Convention on Persistent Organic Pollutants (POPs) 2004.

national authority relating to regional/international conventions, treaties and agreements. The Act further lays out guidelines for institutional arrangements, calling for the establishment of an interministerial National Environmental Policy Council (appointed by the President), Environmental Units in line ministries, and District and County Environmental Committees. The Environment Protection and Management Law (EPML 2002) further substantiates the legal framework for sustainable use and governance of the environment and natural resources by EPA, relevant ministries, agencies, committees (MACs), and other stakeholders in pursuance of equitable socioeconomic development for present and future generations. It includes detailed EIA guidelines (including audit and monitoring), environmental quality standards, pollution control and licensing, environmental and natural resource management provisions, biodiversity and ozone layer protection, harmonization with regional and international commitments, and public participation in environmental decisions, among others.

126. Legislation has been issued for several sectors to lay the foundation for comprehensive climate governance. Legal and regulatory provisions for energy, WASH, waste, land use planning, forestry, and agricultural sectors have been in place for several years, providing an initial basis for regulating how the various actors address climate change. Other complementary legislation however may be pending or absent. The Local Governments Act 2018 provides for the devolution of certain administrative, fiscal and political powers, functions, and institutions to local governments. This includes certain responsibilities with respect to environmental management, agriculture and forestry, land use and spatial planning, water and sanitation services, among many others. In practice however, the decentralization process has been gradual and remains incomplete, severely impeded by a lack of technical, financial, and operational capacity and authority at the subnational level. The resource mobilization and financial management of the climate regulations are governed by the PFM and revenue legislation (for example, the Amended and Restated PFM Act 2009, Liberia Revenue Code 2009 (amended 2011, 2016), Revenue Sharing Law 2022, Liberia Revenue Authority Act 2014, Public Procurement and Concessions Act 2009, Investment Commission Act 2010, National Bureau of Concessions Act 2010). Overall, the various legislations allow for the formulation of rules and organizational practices around environmental management and leveraging national resources for economic development. These can be updated to incorporate climate change.

Gaps and Opportunities

127. Despite progress in environmental governance, GoL lacks a comprehensive climate change legislative framework establishing a legal mandate for climate action. There is no dedicated climate change framework law; the EPA Act 2002 and the EPML 2002 do not adequately incorporate key climate governance principles related to adaptation and mitigation planning, implementation, coordination, MRV, compliance, and public access and participation. No central level structure governed by these laws carries the legal mandate for climate change management. The EPA assumes the responsibilities of policy development, implementation, coordination, and technical facilitation across stakeholders as an implicit extension of its environmental mandate. The governance framework for climate is stipulated by the National Policy and Response Strategy on Climate Change 2018. It is led by the high-level interministerial National Climate Change Steering Committee (NCCSC) chaired by the President. However, the lack of a legal basis undermines its overall legitimacy and mission. The EPA has expressed its intentions to draft a holistic framework law which builds upon similar experiences of African countries Box 1. It is currently reviewing draft proposals and recruiting external consultants for the same.

Figure 20. Liberia's Climate Governance Landscape

<p>Legal Framework</p>	<p>Constitution of Liberia (1986), EPML (2002), EPA Act (2002), Agriculture Law (1973), Mining & Minerals Law (2000), Public Health (Water Pollution Control) (1975), Rural Renewable Energy Act (2009), FDA Act (1976), National Forestry Reform Law (2006), National Wildlife Conservation and Protected Area Management Law (2016), Community Rights Law (2009) and regulations (amended 2017), Fisheries and Aquaculture Management and Development Law (2019), National Disaster Management Agency Act (2012), National Water, Sanitation & Hygiene Commission Act (2012), Land Rights Act (2019), Liberia Land Authority Act (2016), Local Governments Act (2015), PFM Act (2009), Liberia Revenue Code 2009 (amended 2011, 2016), Revenue Sharing Law (2022), Liberia Revenue Authority Act (2014), Public Procurement and Concessions Act (2009), Investment Commission Act (2010), National Bureau of Concessions Act 2010)</p>			
<p>Institutional Framework</p>	<p>Climate Policy President's Office: National Climate Change Steering Committee, National Environment Policy Council EPA, National Climate Change Secretariat (housed within the EPA) MFDP; line ministries; district and county environmental committees</p>	<p>Climate Finance MFDP, Central Bank of Liberia, line ministries and other agencies</p>	<p>Planning and Budgeting MFDP line ministries, local governments</p>	<p>Climate Relevant Agencies Revenue: Liberia Revenue Authority Investment: National Investment Commission Env, Land and Forestry: LLA, FDA Water: WASH Commission, LWSC, Bureau of Hydrological Services (MME) DRM/DRF: NDMA Energy: LERC, LPRA, RREA, LPRC, LEC, Department of Energy (MME) Infrastructure and Transport: National Port Authority, Independent Seaport and Inland Ports Regulatory Authority (pending approval), National Transit Authority (NTA), IIU (MPW) Agriculture: LACRA, Seed, Fertilizer & Pesticide Regulatory Bureaus (MoA), CDA, NSL</p>
<p>Policy Framework</p>	<p>NDC 1.0 and 2.0 (3.0 forthcoming), NAPA 2008, NAP 2022, National Climate Change Policy and Response Strategy (2018), REDD+ Strategy (2016-2017), National Environmental Action Plan (NEAP), EPA Strategic Plan (2025-2029), National Environment Policy (2003)</p>	<p>Policy on incorporation of climate risks for financial institutions (under development), National Financial Inclusion Strategy (2020-2024)</p>	<p>Vision 2030, ARREST Agenda, sector investment plans</p>	<p>National Energy Policy (2009), National Integrated Water Resource Management Policy (2007), National Solid Waste Management Policy (2024), National Forest Policy & Management Strategy (2006), Disaster Risk Management Policy (2012), National Agricultural Development Plan (2024), Technical Manual for Irrigable Lowland Development (2015), National Agricultural Extension & Advisory Services Policy (2023–2030), National Rice Development Strategy II (2018-2030), other sectoral master plans</p>
<p>Climate Finance</p>	<p>GCF, GEF, CIF, National Environment Fund, donors</p>		<p>National and subnational budgets, social programs</p>	<p>Road Fund, Disaster Management Trust Fund, Liberia Agribusiness Commercialization Fund (LACF), Conservation & Wildlife Fund, EPA Fund</p>

Source: IMF Staff

Box 1. Climate Framework Laws in African Countries

As of July 2025, 6 African countries (apart from Liberia) have already adopted climate framework laws (other countries, not covered in this box, have incorporated climate change issues into their environmental laws). In addition to general objectives, three of these laws include specific commitments, such as net-zero targets. Five establish a climate change council—varying in detail and mandate—supported by a secretariat (either standalone or housed within the environment ministry). These bodies differ in their roles (advisory or decision-making), composition (chairperson, members), and mandates. Two of these laws also create a climate change directorate within the environment ministry. Some framework laws also include specific provisions on sectoral GHG targets, carbon markets, or a dedicated climate fund. Finally, several laws establish links with local authorities and mandate alignment with sectoral strategies and budgeting, in some cases backed by provisions for enforcement.

Kenya's Climate Change Act (2016, updated in 2023) establishes a strong mandate and principles to “enhance climate change resilience and low carbon development for the sustainable development of Kenya”. It creates a National Climate Change Council chaired by the President, responsible for approving the climate action plan, coordinating sectoral mainstreaming, administering a newly created Climate Change Fund housed at the Treasury, and, since 2023, regulating carbon markets. It also establishes a Climate Change Directorate within the environment ministry tasked with providing analytical support, coordinating climate strategies, and mobilizing climate finance. Ministries are required to integrate the action plan into sectoral strategies and report on emissions. The Act includes reporting requirements, enforcement provisions, and provisions for public consultation.

Nigeria's Climate Change Act (2021) includes a net-zero target for 2050-2070 among its objectives. It establishes a National Climate Change Council, chaired by the President, composed of all relevant ministers and some civil society representatives, and supported by an ad hoc Secretariat. The Council approves the climate action plan and GHG targets, reviews international agreements, coordinates climate mainstreaming, and oversees financial issues (administration of a new Climate Change Fund, work on a carbon tax and carbon emissions trading). The Secretariat provides technical and strategic support to the Council and to ministries and formulates a 5-year action plan consistent with the carbon budget established by the environment ministry. Ministries, Department, Agencies (MDAs) must create climate change desks and cost their budgets for climate change and may be held liable for failing to meet their GHG targets.

Gabon's 2022 Law ratifying a 2021 ordonnance related to climate change includes a net-zero target for 2050. It mandates the Council of ministers to adopt a national adaptation plan and identifies several deliverables (emergency response sectoral plans, GHG inventory, national emissions trading system (ETS)/ carbon credit system, creation of a fund managed by the Climate Issues Management Agency), though without clearly defined roles or timelines. It allows for administrative and criminal sanctions for non-compliance.

Uganda's National Climate Change Act (2021) gives domestic legal effect to the UNFCCC, the Kyoto Protocol, and the Paris Agreement. It creates a Policy Committee on Environment (advisory) and a National Climate Change Advisory Committee (technical) but gives the main role to the Department of Climate Change, which must develop a national climate change strategy and an action plan, prepare NDC reports, prepare GHG inventories, assess sectoral actions, provide technical expertise, support carbon credit arrangements, and mobilize climate finance. MDAs must prepare climate change action plans and establish climate units. Local governments are mandated to integrate climate change into planning and budgeting, via existing structures. The Act includes provisions to facilitate litigation on climate issues.

South Africa's Climate Change Act (2024) updates the governance structure for climate action. The Presidential Climate Commission, chaired by the President, composed of ministers and representatives of civil society, has an advisory role on climate action and just transition, and is supported by an executive director and a secretariat. The environment minister is responsible for national adaptation planning, GHG trajectory reviews, sectoral mitigation targets, the carbon budget, and the GHG inventory. Line ministries must prepare sectoral adaptation strategies and implement their sectoral mitigation targets. Local government must undertake climate change needs assessments and implementation plans via existing structures.

Zambia's Green Economy and Climate Change Act (2024) creates (i) a Green Economy and Climate Change Council, chaired by the Vice-President and composed of relevant ministers, responsible for guiding climate policy, overseeing implementation, orientating carbon markets policy, and setting GHG targets, and (ii) a Technical Committee, composed of representatives from government and civil society. It expands the responsibilities of the environment minister (adaptation and mitigation planning, emissions standards setting, managing a Green Economy and Climate Change Fund) and establishes a Department of Green Economy and Climate Change.

Source: IMF Staff.

128. Existing climate-relevant legislation is fragmented; gaps undermine climate action and NDC and NAP implementation. There are some instances of missing legislations. LBR presently lacks a comprehensive Water Resources Law, and the sector is inefficiently regulated by a mix of other uncoordinated laws (EPML 2002, WASH Act 2012, WSSC Act 1973), secondary legislations (Water Quality Regulations 2018), and policies (IWRM 2007, 2013). A dedicated law can clarify mandates, roles, and responsibilities of all stakeholders, and ensure accountability in policy formulation and regulation. Other legislation is often outdated and incorporates varying levels of climate considerations.⁶⁵ Notably, the EIA requirements under the EPML 2002 do not specifically address climate change. Expanding the scope to include the same would facilitate achievement of NDC and NAP targets. The Solid and Hazardous Waste Management Regulations 2009 under the EPML 2002 are primarily concerned with pollution prevention and public health, and do not integrate climate change mitigation. This contributes to an increase in GHG emissions, improper waste disposal of waste, and lost opportunity for waste generation minimization and recycling. The NDMA Act 2012 does not explicitly require periodic and national climate risk and vulnerability assessments, though it does necessitate vulnerability assessments and hazard mapping (which may include climate hazards). The Agriculture Law 1973 does not integrate climate and has not been updated. Often, implementing regulations for the above-mentioned laws are missing or require updates. The water sector lacks regulations on tariff structure. Regulations for borehole drilling under the Mining and Minerals Law 2000 have only recently been drafted and are pending approval. Methane and fugitive emissions are also not regulated or monitored in the extractive industry, undermining NDC implementation. Finally, existing legislation often is not enforced (as detailed in the next section, governance structures mandated by these laws are weak and inefficient), and regulatory uncertainty impedes efficient climate action.

129. GoL is in the early stages of updating legislation to develop a coherent, long-term approach to climate governance. The government has identified some areas for climate reform. Several sectoral laws and regulations are currently under review. In particular, the Electricity Law 2015 is being revised to detail provisions for nuclear power and solar IPPs. Implementing regulations on borehole drilling and groundwater abstraction will be implemented in the current fiscal year. The President has endorsed a new WASH Compact which sets out to streamline institutional arrangements and mandates, and establish a new Ministry of Water. Stakeholder negotiations are ongoing, and the government expects this to be finalized in 2026. The Central Bank of Liberia is developing regulations to incorporate climate risks in the ESIA requirements for financial institutions. Additionally, LBR is developing a framework law to regulate carbon markets. Nevertheless, isolated reforms are insufficient to build and mainstream a collective understanding of climate change within the national development context. There persists a primary need to undertake a more comprehensive review of national and sectoral legislation to address the fundamental challenges outlined above, integrate key climate governance principles consistently across legal instruments, and translate them into sustainable development planning. It is essential that all relevant stakeholders be consulted as part of this process.

⁶⁵ In some instances, legal fragmentation has created sectoral inconsistencies, conflicts and insufficient coordination of policies. For example, there are overlaps between the National Forestry Reform Law 2006 and the Mining and Minerals Law 2000, the Agriculture Law 1973 and the land use laws over land use, environmental protection, and resource extraction. This has complicated enforcement and compliance.

B. Policy Framework

130. Go has developed multiple strategy documents to address various policy needs. The government's commitment to environmental sustainability is reflected in national policies such as the ARREST Agenda for Inclusive Development (AAID) and Liberia Rising Vision 2030 (2012). The National Policy and Response Strategy on Climate Change 2018 creates an overarching institutional framework for climate change management and coordination. It focuses on mainstreaming climate adaptation and mitigation across key sectors, and emphasizes alignment of national development strategies, and regional and international policies and frameworks. In compliance with the UNFCCC reporting requirements, the country has prepared and submitted its First and Second National Communication (2012 and 2021), its NDCs (2018 (revised 2021) and 2025 (forthcoming)) and its First Biennial Update Report (2021). Following the NAPA 2008, the NAP 2020-2030 further outlines actions to be implemented through sectoral strategies in agriculture, coastal zones, energy, fisheries, forestry, waste management, water resources, health, and biodiversity, and incentivizes adaptation planning at the national and regional level. Several sectoral policies/strategies integrating these targets and principles of climate change management to varying degrees have been adopted, such as the National Energy Policy 2009, National Integrated Water Resource Management (IWRM) Policy 2007, National Solid Waste Management Policy 2024, National Forest Policy & Management Strategy 2006, National REDD+ Strategy 2016, National Agricultural Development Plan 2024, the Disaster Risk Management Policy (updated 2024), and the Disaster Risk Reduction and Resilience Strategy 2020-2030. The government is revising several national policies, including the National Policy and Response Strategy to reflect current realities and improve institutional arrangements. Sectoral strategies such as energy and forestry are also being updated, and a new carbon policy is being drafted. Additionally, the Central Bank is developing a new policy on climate risks for financial institutions

Key Gaps and Opportunities

131. Improvements in data collection practices, data quality and institutional coordination are essential in enhancing the effectiveness of climate-related documents to inform policy making. The government, in collaboration with development partners, has undertaken considerable efforts to establish information sharing platforms and programs such as the Climate Change Knowledge Sharing Platform (CCKSP) and the Environmental Knowledge Management System (EKMS), among others. The penetration and efficacy of these systems, however, remain limited. More fundamentally, data collection and quality pose challenges. The EPA has identified this as a major bottleneck to tracking NDC 2.0 implementation and monitoring, and applying lessons learnt to the forthcoming NDC 3.0. In terms of mitigation related examples, the quality of greenhouse gas (GHG) inventories is inconsistent and incomplete across data sources, mainly due to technical capacity limitations and fragmentation of data across government entities and development partners. This is detrimental to the credibility of emissions baselines and trajectories, and design and evaluation of mitigation policies. Climate trends and projections for adaptation measures and disaster risk management are severely constrained by a lack of long-term forecasting, little to no analysis of the physical impacts of climate change on natural resources, and insufficient data sharing across institutions. A coordinated effort led by the EPA in building common projections for natural resources and sharing with stakeholders using the established platforms can inculcate a collective understanding of constraints, support a cross-sectoral diagnostic, and smoothen inconsistencies across sectoral strategies to make them more resilient.

132. For some sectors, there is room to better align sectoral strategies and the NDC and NAP targets. For instance, the Transport Sector Master Plan 2012-2017 and the Power Sector Master Plan are outdated and do not align with the NDC 2021. While the Agriculture Development Plan 2024-2030 is more recent and better aligned with NDC 2021, it lacks details on projects. Moving forward, there is an opportunity to update these plans and reflect renewed ambition in the forthcoming NDC 2025.

133. While adaptation and decarbonization objectives are somewhat reflected in national policies, the government lacks a long-term planning framework that sets the fundamental transformation across all sectors of the economy in the context of climate change. The absence of a long-term low emissions development strategy (LT-LEDS) for climate change can lead to policies that fail to address the root causes of climate change, resulting in inadequate mitigation and adaptation efforts. Without a strategic vision, investments in renewable energy, resilient infrastructure, and sustainable practices are often inconsistent and insufficient, jeopardizing future generations' well-being and the overall stability and health of ecosystems and societies. Long-term strategies can provide a long-term vision to inform short-term decisions, helping to avoid investments incompatible with a low-emissions, climate-resilient future. As of 2023, the EPA is engaging with partners to secure funding to develop the Long Term Vision and LT-LEDS (Box 2).

Box 2. Some Key Conclusions from the Review of the First 29 Long-Term Climate Strategies Submitted to the United Nations Framework Convention on Climate Change (UNFCCC)

Under the Paris Agreement, countries are encouraged to communicate "long-term low greenhouse gas (GHG) development strategies," setting out detailed plans for aligning their climate goals with development up to 2050. At present, 58 countries have officially submitted a long-term strategy (LTS) to the United Nations Framework Convention on Climate Change (UNFCCC), including developed economies like Japan and Canada, emerging economies like South Africa, vulnerable nations and small island states (Benin, Fiji and the Marshall Islands). The LTS makes it possible to:

- Establish a long-term vision for climate action, covering mitigation, adaptation and/or development.
- Consider fundamental changes in all sectors of the economy (macro, fiscal and distributive analysis to support the achievement of climate and other long-term policy objectives).
- Recognize the impacts of future climate change on all sectors of the economy, and describe the environmental, social, human and economic risks of inaction.
- Mention the importance of a just transition, recognizing that future transformations will disproportionately affect those whose livelihoods are tied to a high-carbon economy.

Some key points to remember:

- LTS must remain relevant and useful throughout their multi-decade implementation period. Consequently, these strategies should have appropriate legal backing and be linked to national development policies.
- There should be adequate engagement with key stakeholders in the development and implementation of strategies, particularly with vulnerable populations.
- Plans should be in place to monitor and revise strategies over time, keeping abreast of the latest scientific advances and market developments.

Source: World Resource Institute, Insights on the First 29 Long-Term Climate Strategies, submitted to the UNFCCC, September 2021, [What are Long-term Climate Strategies, and how can they help us tackle climate change? | Climate Promise \(undp.org\)](#)

134. GoL is currently implementing the AAID 2025-2029 which focuses on climate resilience.

The ARREST Agenda, through its strategic pillar of environmental sustainability, is designed to be aligned with Liberia’s NDC 2021 and NAP 2020-2030 commitments, the Sendai Framework for Disaster Risk Reduction, the African Union’s Vision 2063, the Economic Community of West African States (ECOWAS) Agenda 2050, and the Sustainable Development Goals (SDGs). The primary objective of this pillar is to enhance climate resilience while reducing GHG emissions from all sources, increasing carbon sinks, and promoting sustainable development. Towards this, the specific programs outlined are as follows: 1) environmental governance; 2) forestry, ecosystem conservation and restoration; 3) renewable energy; and 4) solid waste management. These programs have been costed at US\$ 420M for the five-year period of the plan, equivalent to five percent of the total investment cost. With the objective of helping LBR transition from a low-income to lower-middle income economy, AAID’s strategic pillars also include economic transformation, infrastructure development, rule of law, governance and anti-corruption, and human capital development. Climate change is identified as a cross-cutting issue for some of these pillars. However, the document lacks specifics on climate-related projects and how these measures will contribute to previously stated climate targets. There is an opportunity to update sectoral plans and the forthcoming NDC to align with AAID. Moving forward, the government can further integrate policy response to climate change systematically across all pillars, allowing LBR to unlock significant growth, opportunities for job creation and other development benefits, while generating a variety of cost savings that alleviate pressure on public budgets.

C. Institutional Framework

135. The institutional arrangements for climate related policy making and implementation at the national and subnational level derive from the EPA Act 2002, EPML 2002, and the National Policy and Response Strategy on Climate Change 2018. Legislation establishes the EPA, the National Environmental Policy Council, and other MACs, and calls for the creation of subnational level bodies for environmental management. The 2018 policy establishes the National Climate Change Steering Committee and its Secretariat. The national level bodies are largely operational, whereas subnational structures are not. More information is provided in Table 9. This table is not exhaustive. As outlined in Figure 20, there also exist parallel institutional arrangements for disaster risk management, climate finance, and various sectoral steering committees/technical working groups.

Table 8. Institutional Arrangements for Climate Change

No.	Institution Name	Description
1	Environmental Protection Agency	Regulatory Agency established by Law. Mandated to ensure sustainable use, management and protection of environment and natural resources. UNFCCC Designated National Authority. EPA’s board is chaired by an MFDP Representative. Coordinates with other MACs on policy development and implementation, houses the Secretariat of the NCCSC.

2	National Climate Change Steering Committee	<p>Supreme institutional body for climate change policy coordination, implementation and supervision.</p> <p>Chaired by the Office of the President, membership includes ministerial/director-level participation from relevant MACs.</p> <p>Supported by the National Climate Change Secretariat, meets quarterly.</p> <p>Established by Climate Change Response Strategy (2018)</p>
3	National Climate Change Secretariat	<p>Operational arm of the NCCSC. Housed within the EPA, provides coordination, and M&E support.</p> <p>Established by Climate Change Response Strategy (2018)</p>
4	National Environmental Policy Council	<p>Established by Law. High-level interministerial committee, chaired by the Office of the President.</p> <p>Responsible for environmental policy development, coordination, implementation, and monitoring.</p> <p>Recently became operational after 6 years. Information of efficacy, meeting schedule, agenda, composition, roles and responsibilities not immediately available.</p>
	Ministry of Finance and Development Planning (MFDP)	<p>Chair of the board of the EPA, and co-Chair of the NCCSC.</p> <p>Recently established the Climate Integration and Financing Office (November 202) with the aim of mainstreaming climate change into national policy and budget, and undertaking resource mobilization efforts for climate resilience projects.</p>
5	Other MACs	<p>Sectoral responsibilities for implementing climate policy, as per the National Policy and Response Strategy on Climate Change 2018 (FDA, MoT, MoGCSP, MME, MoA, other relevant stakeholders). Though not specified by the policy document, this should also include WASH Commission, RREA, LLA, among others.</p> <p>Additionally, the EPA Act 2002 mandates the creation of Environmental Units in MACs for environmental policy coordination. Not fully operational.</p>
6	District Environmental Committees	<p>Established by Law to coordinate environmental management at the district level. Not fully operational. Under the supervision of the EPA.</p>
7	County Environmental Committees	<p>Established by Law to coordinate environmental management at the county level. Fully operational in all 15 Counties as of 2025. Under the supervision of the EPA.</p>
8	Environmental Sector Working Group	<p>Government, NGOs, Private Sector, Vulnerable Communities' Rep, etc.</p>

Source: IMF Staff.

Key Gaps and Opportunities

136. Reliance on policy for legitimacy, fragmented evolution of legacy structures, and uncoordinated laws have resulted in institutional weaknesses and exacerbated capacity constraints. Though the NCCSC is the de-facto supreme institutional entity for climate, its authority (and the climate mandate of the EPA) is indirect due to a lack of legislative backing. Climate change management thus largely hinges on informal relationships for coordination and an inefficient administrative system. Further, the NCCSC and the National Environmental Policy Council have similar mandates, composition, and leadership. More generally, institutions have been carved out in a fragmented manner from older structures. The Ministry of Lands, Mines, Energy, Forestry, and Environment was gradually broken up to create the Environmental Protection Agency, Forest Development Authority, Liberia Land Authority, Rural Renewable Energy Agency (RREA), and the Ministry of Mines and Energy. As described earlier in the report, the creation of new institutions has not been accompanied by a logical separation of mandates, roles, and responsibilities by law. For example, the Bureau of Hydrological Services is housed at the MME. In other instances, new bodies have been formalized with similar mandates to pre-existing bodies. The WASH Commission was created in 2012 without repealing with Liberia Water and Sewer Corporation (established in 1973). Such an evolution of institutional structures has resulted in overlaps, conflicts, and competition without clear guidelines on their distinct duties, potential synergies, and coordination framework. Despite such institutional proliferation, there exist important institutional gaps. LWSC tariff-setting power remains self-regulated. The FDA and WASH Commission lack the resources to carry out their licensing and enforcement functions. Overall, the costs and inefficiencies of structures already constrained by financial, technical, and administrative capacity are exacerbated. This in turn translates to improper regulation and unsustainable use of natural resources subject to competing claims from multiple sectors. Finally, the administrative and compliance burdens associated with navigating the complex institutional lattice deter private sector participation in economically important sectors. Different MACs are exploring short-term solutions to this coordination challenge, including signing MoUs on responsibilities and operationalizing consultative forums. These have not all been effective.

137. There is room to institutionalize structures at line ministries and agencies, and across levels of government, and to mainstream climate change in the functions of the MFDP. To date, only few Environmental Units have been embedded in MACs. While the EPA has expanded its presence to all 15 counties, County Environmental Committees have only been set up in 2 counties and the establishment of District Environmental Committees is nascent. This is largely due to capacity constraints. These units and committees are important for planning, coordination, resource mobilization and effective use of resources. LBR can consider expanding the scope of these units and committees to include climate change, formalizing them in the line ministries of key NDC sectors and subnational governments (potentially as climate change focal points). Although the MFDP is co-chair of the NCCSC, there is potential for it to assume more of a leadership role in driving climate priorities. This can be initiated by capacitating and clearly defining the mandate of the newly constituted Climate Integration and Financing Office to mainstream climate change considerations into the core functions of the ministry (including financial policy), beyond what is currently envisaged (Box 3).

Box 3. Strengthening the Role of Ministries of Finance in Driving Climate Action

Ministries of Finance can mainstream climate into their three typical core functions:

Economic strategy and vision: using their responsibility for oversight or involvement in national development strategies, sector plans and capital investment planning to participate in the development of national climate strategies, greening national development and sector plans, shaping industrial and innovation strategies, and assessing investment needs for the transition—in partnership with relevant line ministries.

Fiscal policies and budget management: using their primary responsibility for fiscal policy, taxation, and budget planning and execution to design carbon taxation and new forms of environmental taxation, reform fossil fuel subsidies, introduce new fiscal incentives for green sectors, reform multi-annual expenditure frameworks and annual budgets, and green public investment and procurement strategies. The Ministry of Finance's central role in the budget formulation process is a particularly important entry point for driving climate action and investment.

Financial policy and regulation and oversight of the financial system: using their core responsibility for the regulation of state-owned banks and enterprises, sovereign wealth funds, financial institutions and debt markets, interfaces with central banks, and shareholdings and relationships with the international finance institutions and multilateral development banks to green the entire financial system, improve financial resilience and stability, and mobilize finance into sustainable investments. This can be achieved through frameworks for green bonds, catalyzing private capital, adaptation and disaster risk finance and insurance, and international climate finance—in partnership with central banks and the private sector.

To enhance these core functions, three capabilities are critical:

Leadership capability: strengthening the range of champions for climate action at the political and officials' level, strengthening the Ministry's vision, mission and mandate to drive climate action, and creating clear responsibilities and organizational structures for climate leadership.

Coordination capability: driving effective collaboration across government and with the private sector, civil society and international financial institutions, and multilateral platforms and processes supported by effective strategies for consultation and communication.

Human and analytical capability: ensuring dedicated staffing resources for climate action, upgrading expertise in climate policy, and revamping tools and analytical approaches for data collection and economic decision-making.

Source: Coalition of Finance Ministers for Climate Action.

138. LBR can consider enhancing coordination with development partners to promote information sharing and foster ownership of the climate agenda. There is a heavy reliance on development partners to initiate policy and program development, implementation, and monitoring. This stifles the ability of the government to retain knowledge and staff, assess needs, shape policy priorities and continue programs independently. There is room to improve coordination frameworks with development partners to promote systematic two-way information sharing on policy implementation and funding sources, lay greater emphasis on technical capacity building, and build ownership and accountability within government institutions. Towards this, the EPA has begun trainings for program implementation and financial focal points in sector institutions. It has also helped set up the School of Environmental Studies and Climate Change at the University of Liberia. The donor dashboard under the MFDP can also be leveraged; adding features and more details would enhance collaboration with and among donors.

Recommendations

Strengthen the legislative framework for climate action

- Introduce a comprehensive climate change law incorporating key climate governance principles related to climate change adaptation and mitigation (planning, implementation, monitoring, climate finance, decentralization, roles and responsibilities of institutions)

- Develop and adopt implementing regulations:
 - Formalize the mandate of the NCCSC as the institutional body informing LBR's climate policy, exercising coordination, and supervising implementation of climate action;
 - Clarify and coordinate the roles and responsibilities of the EPA, NCCSC, NCCSC-Secretariat, National Environmental Policy Council, and other relevant institutions;
 - Consider regulations assigning responsibilities for policy, coordination, planning and reporting on climate change to subnational governments.
- Review the current national and sectoral legislative framework on climate change (including but not limited to EPML, EPA Act, National Forestry Reform Law, Minerals and Mining Law, NDMA Act, Local Governments Act, Agriculture Law), and align with the forthcoming climate change law.

Improve the policy framework for climate action

Review and align the Climate Response Strategy and policies/planning documents of key NDC sectors with the ARREST Agenda, the NAP, and the forthcoming NDC 3.0.

Advance the institutional framework for climate action

- Assess the effectiveness of parallel institutional structures of key NDC sectors to identify overlapping mandates and streamline where needed, and introduce cross-ministerial approval of natural resource use involving multiple sectors.
- Introduce and operationalize environment and climate change focal points in all MACs to improve interministerial coordination.
- Operationalize County and District Environmental Committees and update their responsibilities to include climate change.
- Define the mandate of the MFDP Climate Integration and Financing Office to support mainstreaming of climate change and climate finance considerations into the traditional functions of the ministry including financial policy.
- Improve the consultation and coordination framework with development partners to promote information sharing on policy implementation and funding sources, and foster ownership of the climate agenda within government institutions.

VII. Mobilizing Climate Finance

139. Liberia is highly vulnerable to the effects of climate change and requires substantial climate investments in the coming years to adapt the impacts of climate change. At the same time, the Liberian economy is heavily dependent on donor support, and with a shifting landscape of international aid, Liberia need to think strategically about how to mobilize capital, including private sector investments, for its climate investment needs.

140. Liberia's climate finance landscape is at an early stage with limited awareness, institutional capacity, and integration into national climate finance planning. As part of this climate diagnostic, a climate finance assessment has been conducted to evaluate the coherence of Liberia's climate change policy framework with its fiscal planning, investment priorities, and financing strategies, as wells as the robustness of its climate information architecture, the flow of climate finance, and the prevailing business environment. This assessment of Liberia's climate finance mobilization readiness can inform the development of a national climate finance strategy in line with the country's climate policy objectives.

A. Climate Finance Policy and Strategy

141. Liberia's commitment to the Paris Agreement - and the credibility and rigor of its climate policies - is essential for mobilizing climate finance. While general awareness of climate finance remains low in Liberia, there is growing recognition within the government of the need to align climate policy and financing with national development and public investment planning.

142. The establishment of a Climate Change Integration and Finance Office within the MFD provides a dedicated institutional platform for mainstreaming climate finance policy across national development strategies, economic policy, fiscal budgeting, sectoral planning and investment frameworks. The office is also well-positioned to lead the implementation of climate risk management across the public sector, enhance climate-related communication and coordination, and build climate awareness and capacity across ministries and agencies.

143. Given Liberia's continued reliance on donor funding, it is crucial to optimize access to and utilization of concessional finance. In a shifting donor landscape, the country must adopt a strategic approach to financing climate action. This includes actively managing donor relations, leveraging tools such as the project dashboard to tag climate-related initiatives, developing a robust pipeline of projects and program proposals, and using donor mapping to proactively seek funding opportunities.

Develop a Climate Finance Strategy

144. The Absence of an integrated climate finance strategy is causing a misalignment between climate policy goals and financial planning. To ensure coherence between climate policies and financing strategies, Liberia should consider developing a national climate finance strategy. This strategy should be grounded in the country's economic vision, fiscal policies, and financial policy framework (see box 3 Strengthening the role of Ministries of Finance in Driving Climate Action). It should estimate the funding required to meet climate targets, identify domestic budget contributions, assess financing gaps, and map potential sources of public and private, international and domestic finance. A prioritized investment plan

across mitigation and adaptation building on Liberia’s NDC and NAP should be included, along with an exploration of fiscal tools such as green taxes, subsidies, and sustainable debt instruments.

145. A well-articulated climate finance strategy would signal national commitment and direction, which is essential for attracting investment. It should provide a comprehensive overview of climate finance flows—public and private, domestic and international, and include a proactive engagement plan for donors and investors, along with an assessment of suitable investment instruments.

B. Climate Information Architecture

146. A robust climate information architecture⁶⁶ is essential for enhancing market confidence, safeguarding financial stability, and mobilizing climate finance. It requires high-quality, **reliable climate data⁶⁷**; globally harmonized and **consistent climate-related disclosures**; and internationally recognized **principles for climate transition taxonomies⁶⁸**. Such an architecture enables investors, policymakers, and stakeholders to access critical information, validate alignment with the Paris Agreement, make informed investment decisions and manage climate-related risks – ultimately, helping to redirect capital towards climate activities.

147. In Liberia, data availability is sparse (see para 125), and there is a need for more forward-looking and granular climate data. This data gap limits private investors’ ability to assess climate-related investment opportunities in Liberia, and it hinders government’s ability to effectively track the implementation of its NDC, NAP and overall climate investment flows.

148. Liberia does not have a climate transition taxonomy – a strategic tool that classify economic activities that are progressing toward lower greenhouse gas emissions and greater climate resilience. A taxonomy aligned with Liberia’s NDC would enable the government, financial institutions, and investors to identify and prioritize investments that support climate action. While many countries are developing their own taxonomies to guide sustainable finance, this process is resource-intensive and complex. As a practical first step, Liberia could consider introduction a green label framework building on internationally recognized standards such as the [Green Loan Principles](#) or the [Green Bond Principles](#)⁶⁹. Such a framework would serve as a foundational mechanism to classify and promote climate-aligned investments, while laying the groundwork for a taxonomy in the future.

149. Climate-related non-financial disclosure is not yet mandated by the Central Bank of Liberia. While commercial banks are exposed to climate-related risks, they do not have a systematic approach to climate risk management. Climate change poses both physical risks (e.g., flooding) and transition risks (shifts to a low-carbon economy) for the financial sector, which can increase non-performing loans (NPLs). In Liberia, floods can directly damage assets and disrupt businesses and supply chains, leading to

⁶⁶ IMF Staff Climate Notes 2021/003: “Strengthening the Climate Information Architecture”

⁶⁷ Climate-related non-financial data typically includes Scope 1, 2, and 3 greenhouse gas (GHG) emissions, water consumption, and energy usage. However, this is not an exhaustive list. The specific data points reported will vary depending on the reporting entity, the nature of its activities, reporting framework used, regulation, and investor expectations.

⁶⁸ See “Activating Alignment – Applying the G20 Principles for Sustainable Finance. Alignment with focus on Climate Change Mitigation” (2023).

⁶⁹ For additional information on green loans, visit www.lsta.org, [Green Loan Principles](#)
For additional information on green bonds, visit www.icmagroup.org, [Green Bond Principles](#)

loan defaults. Banks with significant exposure to carbon-intensive sectors, e.g., cement, oil and gas may face elevated NPLs as these sectors struggle to shift to low-carbon operation. Beyond risk management, climate-related disclosure also plays a critical role in generating consistent climate data for investors and policymakers.

Develop Climate Finance and Climate Risk Management Awareness

150. The Central Bank of Liberia is currently updating its strategic framework and is considering the integration of climate finance opportunities and climate risk management. While the National Financial Inclusion Strategy (2020–2024) primarily focused on expanding access to financial services, incorporating climate finance into this strategy could significantly enhance its impact. The Central Bank is engaging with the World Bank Group (WBG) on a financial stability assessment and capacity-building initiatives related to climate risk. It is also collaborating with regional central banks, sharing experiences on climate finance, and closely following developments in climate-related reporting and taxonomy within the West African Economic and Monetary Union (WAMU).

C. Climate Finance Outlook – Trends and Finance Flows

151. Liberia needs to mobilize both national and international climate finance to meet its climate commitments. The estimated cost of implementing Liberia's climate strategies – covering both mitigation and adaptation - is approximately US\$12 billion by 2030⁷⁰.

152. The capital and financial markets are shallow. Liberia's financial Landscape counts nine commercial banks, primarily owned by Pan-African groups, and several non-bank financial institutions (NBFIs). The country does not have an active stock exchange. Loan maturities beyond one year are rare due to the absence of a capital market and the reliance of banks on short-term deposits.

153. The financial sector is further constrained by weak credit infrastructure, including the absence of a private credit bureau and an international credit rating. Liberia also lacks the necessary regulatory and policy frameworks, institutional capacity, and operational procedures to effectively mobilize climate finance. High investment risks, coupled with the absence of appropriate de-risking mechanisms, deter private sector participation. Financial literacy is low, and awareness of climate finance instruments and opportunities is limited. Additionally, the country faces a shortage of bankable project pipelines and lacks the foundational elements required to develop them.

154. The annual climate finance flows to Liberia are estimated to range between US\$20 and 50 million⁷¹, depending on the year, and the pace of project disbursements. The absence of climate finance tracking systems makes it challenging to accurately monitor and report these flows. Most climate finance comes from multilateral climate funds such as GCF, Adaptation Fund, Global Environment Facility (GEF), bilateral donors such as EU, USAID and the Japan International Corporation Agency (JICA), and development finance institutions, like the WBG and the AfDB. Strong partnerships with multilateral climate funds, donors and UN organizations are essential to mobilize both financial resources and technical

⁷⁰ Liberia Country Climate and Development Report (2024).

⁷¹ Climate Policy Initiative.

assistance. Private sector climate flows remain limited due to high investment risk, weak de-risking mechanisms and limited pipeline of bankable projects.

Promote Green Lending

155. To strengthen Liberia’s climate finance mobilization, it is essential to diversify funding sources and develop domestic debt markets. One strategic entry point is the introduction of a green label framework, anchored in internationally recognized **industry guidelines** such as the Green Loan Principles and the Green Bond Principles, which can serve as the foundation for a broader sustainable finance strategy. This should be **complemented by a green lending program** that incentivizes financing for climate-aligned activities such as energy efficiency, green buildings, solar energy solutions, and clean cookstoves without lowering prudential and conduct requirements or supervisory standards. Leveraging concessional finance and donor-supported programs to design blended finance structures, and create specialized credit lines will be critical to mobilizing private sector investment in climate-related projects. Moreover, this presents a strategic opportunity to build capacity in local financial markets around green finance - enhancing awareness, technical expertise, and institutional readiness to support Liberia’s climate and development goals, as a first step toward climate transition finance.

D. The Business Environment – Ready for Private Sector Investments

156. Liberia recognizes the critical role of private sector investment, particularly in key sectors such as energy and agriculture, and is actively engaging stakeholders in the development of its NDC 3.0. However, mobilizing climate finance requires a broad mix of policies that foster a conducive business environment. In addition to structural reforms aimed at strengthening macroeconomic fundamentals and deepening financial markets, attention must be given to the regulatory environment, including business registration, access to public services, and overall ease of doing business. Governance and political risk factors—such as contract enforcement, expropriation risks, capital mobility, rule of law, regulatory quality, corruption, and political stability—also play a pivotal role. An IMF study indicates that ambitious reforms in governance, business regulation, and external sector policies can lead to a 20 percent increase in climate finance flows⁷².

Recommendations

Develop a climate finance strategy

- Establish an integrated climate finance strategy that builds on the NDC and NAP, and estimates funding needs, assesses financing gaps, and maps potential sources of public and private, international and domestic finance.
- Develop a proactive engagement plan for donors and investors, along with an assessment of suitable investment instruments.

⁷² IMF Staff Climate Notes 2024/005: [“Harnessing Renewables in Sub-Saharan Africa: Barriers, Reforms, and Economic Prospects.”](#)

Develop climate finance and increase climate risk management awareness

- Join international platforms such as the Sustainable Banking and Finance Network (SBFN) and/or the Network for Greening the Financial System (NGFS) to build regulatory knowledge and share best practices.

Promote green lending

- Introduce a green label framework, anchored in internationally recognized standards such as the Green Loan Principles and the Green Bond Principles.
- Develop a green lending program leveraging concessional finance to de-risk.

Improve the business environment

- Develop a regulatory environment with climate-related incentives conducive to private investments
- Consider a special investment incentive program under the National Investment Commission of Liberia (NIC) for sectors of climate priority for Liberia, e.g., feed-in tariffs in renewable energy.