

Climate Action for Sierra Leone

Partnerships Resource Brief



This brief outlines key information on climate change in Sierra Leone, intended to promote climate action partnerships between the Government and development partners. These are essential to mitigate and adapt to climate impacts and meet country commitments under the Paris Agreement and related international agreements.

CONTENTS

1. Climate-Related Vulnerabilities

2. Climate Action Tools

- A. Climate Finance
- B. Policy and Economic Instruments
- C. Technology Transfer
- D. Education

3. Key Country Documents

Annex: Profiles of Global Climate Funds
(available on request)

KEY TERMS

Climate Mitigation: Efforts to reduce or prevent emission of greenhouse gases that worsen climate change.

Climate Adaptation: Process of adjusting to current or expected climate change effects.

Loss and Damage: Harms from sudden-onset climate events and slow-onset processes, such as sea level rise. Can occur in natural and human systems.

**ACCELERATE
CLIMATE
ACTION
FOR ALL SDGs**



1 Climate-Related Vulnerabilities

Sierra Leone is among the 10% of countries most vulnerable to climate impacts globally.¹ The following summarizes major climate vulnerabilities for the country.²

Agriculture and Food Security

Regional climate models predict increased temperatures and highly variable rainfall levels, both

of which require adaptation in agriculture practices and production. Rice production and farmer livelihoods are especially vulnerable to changes in precipitation levels, given that rice is a staple food crop and grown mainly on smallholder farms under rain-fed conditions. This vulnerability is against a background of persistent rural poverty and impacts farmers who do not hold insurance to protect against severe weather events or possess resources to invest in irrigation and other agricultural technologies to adapt to varying rainfall levels. Climate impacts are also expected to increase incidence of pest and animal disease outbreaks that will need to be managed.

¹ University of Notre Dame Global Adaptation Index: Country Vulnerability Ranking based on scores for 2019, accessible at <https://gain.nd.edu/our-work/country-index/rankings/>

² Information drawn from Sierra Leone Nationally Determined Contribution (NDC), 2021 Update.

Extreme weather events are expected to increase. Warm spells will increase crop water requirements and constrain crop and livestock production in water-limited areas of the country. Increased high rainfall events will potentially lead to flooding. Rain-fed agriculture, which dominates in the country, faces risk of crop and livestock losses that could significantly worsen already low levels of food security.

Environment and Natural Resources

Valuable ecosystems in Sierra Leone will be severely impacted by climate change. Increased storm surges, flash floods, and high winds, accompanied by pollution, landslides, coastal erosion, deforestation, biodiversity loss, and invasive species, will further stress fragile ecosystems. The proportion of land classified as tropical dry forest, tropical very dry forest, and sub-tropical moist forest will shift, particularly in the south and east of the country. A shift in vegetation from tropical rain forest to tropical dry forest will alter the composition of flora and fauna. Existing challenges of forest management, including poor governance, weak law enforcement, lack of coordination among sector ministries, and illegal harvesting will need to be addressed to adapt to climate change impacts. Additionally, steps to reduce deforestation are required, as this increases the potential for both landslides and floods when tree roots that stabilize the ground are removed.

Fisheries and the Coastal Zone

Climate change is having profound impact on coastal environments and fisheries, including ecosystems that support fishing and tourism livelihoods. Sea level rise, loss of coastal ecosystems, inundation of major rivers, flash floods during the rainy season, and saline intrusions due to decreased water flows in the dry season all impact local livelihoods, in addition to having measurable environmental consequences. Decreased river flows, rising salinity of estuaries, loss of fish and aquatic plant species, and reduction in coastal sediments due to climate change are all likely to damage local economies and food security for coastal and riverside populations.

The coast, which will be impacted by sea level rise, beach erosion and coastal flooding, is densely populated and key to the economy because of ports and tourist facilities. Yet several coastal communities lack flood escape routes due to low road elevation.

Infrastructure

Rapid urbanization has not been accompanied by sufficient resources to manage the growth and cities lack investment funds to cope with the accelerated demand for infrastructure and services. Climate change poses additional risks, as lack of infrastructure can increase vulnerability to events such as floods, mudslides, and extreme heat periods, especially for populations in informal settlements. Water and sanitation infrastructure are sensitive to storm surge, sea level rise and flooding. Wastewater

collection and treatment facilities are often situated at the lowest point possible, as their operation often depends on gravity flow and can easily be inundated by water level rise.

Roads are by far the primary mode of transport in Sierra Leone, supplemented by river transport in some areas. Both river systems and roads are often impassable during the rainy season, when roads flood, this makes it difficult for farmers to transport their agricultural goods to market.

Disaster Preparedness and Management

Sierra Leone's vulnerability to severe droughts, floods and storms caused by climate change is significant. Already, urban, and rural seasonal flooding, recurrent flash flooding, and coastal flooding are commonly observed, leading to flooding of agricultural fields and low-lying areas and waters overflowing onto roads and into homes. Floods overwhelm existing systems, contaminating drinking water and creating sewage overflows. Multiple areas have been impacted by flooding in just the last year, extending to almost all regions of the country. There are also transboundary issues, as heavy rainfall in neighboring countries may cause floods due to overflow of transboundary rivers that extend from Guinea or Liberia into Sierra Leone. Conversely, streams and swamps dry up during severe droughts and populations, significantly reducing water availability especially to the rural poor, who depend on them in a variety of ways.





Water Resources

Water quality and availability are highly vulnerable to climate impacts, yet reliable access to clean water is essential for multiple uses, and shortages can exacerbate social vulnerability and poverty for parts of the population. Major water uses in Sierra Leone include domestic (drinking, cooking, hygiene), agriculture (irrigation), industrial (beer, spirits, soft drink, cooling, and waste disposal), and hydroelectric power production. Urban water resources are especially under strain, as rural migration to the capital of Freetown during and since the civil conflict has placed increased pressure on these resources. Shifting rainfall patterns have led to reduced flow of rivers and streams and decreased access to water, as well as a lower supply of energy that relies on water flow to meet cooling, lighting, and heating needs.

Public Health

Incidents of temperature-related morbidity and mortality are projected to increase, as climate change projections for Sierra Leone reveal a significant positive trend in warm periods and a 5 to 10% increase in warm nights. Increased temperatures are associated with increased episodes of diarrheal diseases, seafood poisoning, and higher levels of dangerous pollutants. Waterborne diseases are expected to increase with more frequent and intense flooding and heavy rains increase the likelihood of communicable disease outbreaks. More intense dry seasons in the north and west of the country, accompanied by increased temperatures, have already been linked to reduced water quality and disease outbreaks. With one of the highest malnutrition and child mortality rates in the world, climate-related health risks will place additional burden on the population and the underdeveloped and understaffed health system.

2 Climate Action Tools

This section presents four types of climate action tools around which partnerships can be formed. Examples from Sierra Leone and other countries are available.

A. Climate Finance

Government and in some cases other actors, can apply to global climate funds for support of large-scale climate mitigation and adaptation programmes with multi-million-dollar budgets.

Select multi-lateral climate funds are listed in an Annex, along with eligibility and funding criteria. There are also bi-lateral climate financing mechanisms that are similar in nature.

Potential Projects:

- Climate-smart agriculture – inputs, training, and equipment
- Coastal and marine management activities
- Disaster preparedness and response initiatives
- Green industrial growth - clean energy, transport, and waste management



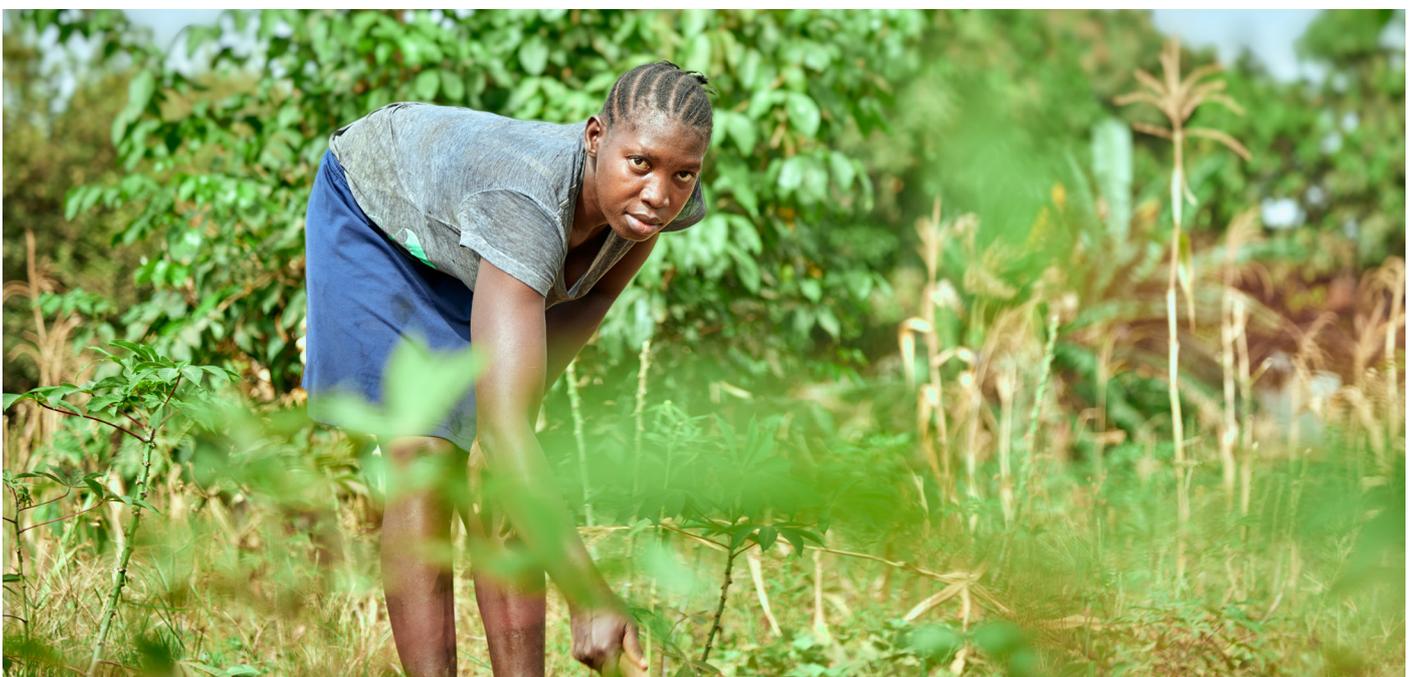
- Resilient infrastructure - water supply, sanitation, and roads
- Disease surveillance and response – animal and human
- Alternative livelihoods projects – to reduce stress on natural resources

Domestic climate funds can be tailored to specific country priorities. For example:

- a revolving loan fund for household purchases of cleaner cookstoves
- a soft loan program to support farmer-based organizations to invest in new irrigation technologies or seeds adapted to warmer temperatures.
- a grant program to support reforestation activities.

PARTNERSHIP IDEAS

- Provide technical support to Government for preparing global and bi-lateral climate fund applications. These are complex and require a range of technical expertise, often taking several months.
- Capitalize a domestic climate fund to promote high volume climate mitigation and adaptation activities and advise on fund design, including governance structure, project selection criteria, and investment impact assessment.



B. Policy and Economic Instruments

Government can design economic and policy instruments to incentivize climate-positive actions and discourage harmful activities such as deforestation and illegal fishing practices. These instruments are a tool for realizing sector policies.

TARGET 13-2



INTEGRATE CLIMATE CHANGE MEASURES INTO POLICIES AND PLANNING

The ability of these instruments to encourage climate-positive actions depends on the extent to which they offer financial or other advantages to potential users. The ability of the instruments to reduce harmful activities depends on the extent of monitoring and enforcement.

Potential Instruments:

- Fee structures for use of natural resources reflecting their inherent value
- Penalties for destructive or degrading activities,

- such as pollution and use of fluorinated gases
- Tax credits for certain types of businesses, including clean energy, climate-smart agricultural inputs, recycling, composting, and clean waste incineration.
- Import duty waivers on equipment needed for agricultural adaptation, clean energy, and disaster mitigation.

PARTNERSHIP IDEAS

- Support design of credit, penalty, and fee structures for resource use around forestry, land, and water resources.
- Support design of progressive user fee structures for WASH and waste management services to promote sustainable practices.
- Support urban/rural/coastal planning strategies that promote sustainable use of natural resources and minimize risks from climate-related disasters.
- Strengthen surveillance capacity to support monitoring and enforcement of environmental regulations, even in remote areas.





C. Technology Transfer

South-south cooperation and other partnerships can introduce new technology for clean and efficient energy production, climate-smart agriculture, environmental monitoring, resilient infrastructure, and other initiatives. The private sector can play a pivotal role in scaling up technology and Government can use policy and economic instruments to encourage private sector investment.

Potential Instruments:

- Conversion of biodegradable feedstock to fertilizer
- New seed varieties (pest and disease resilient crops, low water crops, etc.)
- Low emission road construction materials
- Fishing techniques with lower environmental impact

PARTNERSHIP IDEAS

- Introduce new technologies for efficient energy production and water use.
- Fund TVET training programs for clean energy, emissions testing, climate-smart agricultural machinery, and others.
- Support rural communities and farmers to adopt climate-smart inputs and technologies, including through agricultural extension programs.
- Introduce tools for timely and efficient disaster warning and response.

D. Education

All government ministries, departments, and agencies, (MDAs) need to consider climate in their work. This extends to energy, agriculture, health programs, education programs, social services, disaster management, and others. Other actors must also be

informed and motivated to act – civil society, private sector, international partners – to respond to climate challenges and meet the global climate commitments of Sierra Leone.

TARGET **13-3**

BUILD KNOWLEDGE AND CAPACITY TO MEET CLIMATE CHANGE

PARTNERSHIP IDEAS

- Host a series of climate awareness-raising workshop for Government MDAs.
- Host climate awareness-raising sessions for business and professional groups.
- Support climate education programs in primary and secondary schools.
- Introduce climate-related topics in university courses to train specialists in a variety of fields (e.g., engineering, health, environmental management).

3 Key Documents

Sierra Leone is a party to the UN Framework Convention on Climate Change (UNFCCC). The Ministry of Environment is the implementing agency and leads development of UNFCCC documents.

Priority sectors for mitigation under the Nationally Determined Contribution (NDC) include energy; industrial processes and product use; waste; agriculture, forestry, and other land uses; and the blue economy. For adaptation, priority sectors are agriculture and food security; water resources and energy; coastal zone management; environment; disaster management; gender and social inclusion; and hard and soft infrastructure. Key documents are listed here, with some available on-line. Contact the name below for document links.

- Updated Nationally Determined Contributions-NDC (2021)
- National Adaptation Programme of Action-NAPA (2007)
- Climate Change Communications Strategy for the National Adaptation Plan (2020)
- Coastal Climate Change Adaptation Plan
- National Climate Change Policy (2021)
- National Climate Change Strategy and Action Plan
- National Disaster Risk Management Policy (2021)
- National Disaster Preparedness, Response and Recovery Plans (2021)
- Renewable Energy Policy (2016)
- National Renewable Energy Action Plan (NREAP) for 2015-2020/2030
- National Energy Efficiency Action Plan (NEEAP) for 2015-2020/2030
- Energy Efficiency Policy (2016)
- National Energy Strategic Plan (2009)
- National Land Policy, (2015)
- Land Degradation Neutrality National Report (2018) / Target Setting Leverage Plan
- Second National Biodiversity Strategy and Action Plan 2017-2026 (2017)
- National Environmental Communication Strategy 2022-2026 (2021)

THE GLOBAL GOALS

For Sustainable Development



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The opinions expressed in this publication are those of the authors and do not necessarily reflect the views of the United Nations secretariat.