



Sierra Leoneans crossing a bridge over the river at Kroo Bay, Sierra Leone. *Photo: Paul Sheehan/Irish Aid*

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# SIERRA LEONE CLIMATE ACTION REPORT

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Resilience Policy Team | Irish Aid | November, 2015

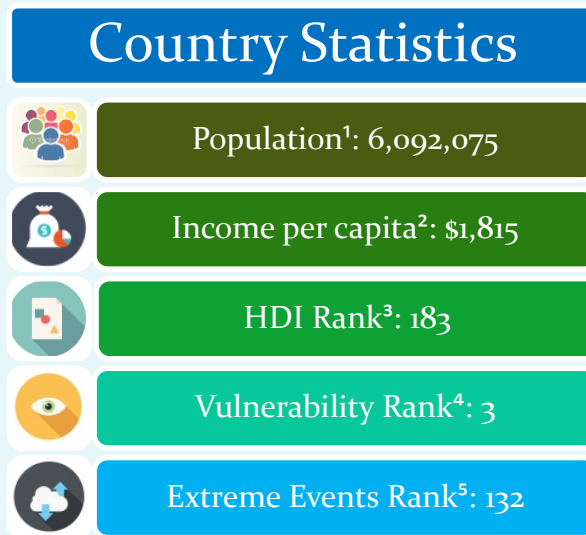
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## COUNTRY CONTEXT

Sierra Leone, located on the west coast of Africa, has a total area of 71,740 km<sup>2</sup> with an estimated population of 6 million. The average annual temperature has increased by 0.8C degrees since 1960 and projections suggest an increase in annual temperature by 1.0 to 2.6C degrees by the 2060s (McSweeney et al. 2010). According to WHO, flooding in Sierra Leone now poses the biggest threat to health, through increased exposure to water borne diseases such as cholera, diarrhoea and dysentery.



Map of Sierra Leone, Irish Aid, 2015

1 (The World Bank, 2015)

2 (The World Bank, 2015)

3 (UNDP, 2015)

4 (GAIN, 2013)

5 (Kreft, 2015)

## SIERRA LEONE, CLIMATE CHANGE AND THE UN FRAMEWORK CONVENTION ON CLIMATE CHANGE (UNFCCC)

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Sierra Leone is a member of the Least Developed Countries Group in the UNFCCC.

### RECENT CLIMATE TRENDS IN SIERRA LEONE

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Average annual temperature has increased by 0.80C since 1960. Data is limited but available data shows significantly increasing trends in the frequency of 'hot' nights. Average annual rainfall over Sierra Leone has decreased since 1960 but it is difficult to determine whether this is part of a long term trend because of the variable nature of rainfall in this region. There are insufficient daily rainfall observations available from which to determine changes in extremes (or heavy rainfall events) of daily rainfall (McSweeney et al, 2010). The National Adaptation Programme of Action suggests that flooding has increased. It notes the observation of the World Health Organisation that "floods pose the biggest threat to health... Floods increase the number of people exposed to water-borne diseases such as cholera, diarrhoeas and dysenteries... sanitation, storm-water drainage and sewage disposal are often disrupted by flood events" (MTA, 2007). Parts of Sierra Leone have also suffered droughts.

### PROJECTIONS OF FUTURE CLIMATE IN SIERRA LEONE

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The average annual temperature is projected to increase by 1.0 to 2.6-C by the 2060s. All projections indicate substantial increases in the frequency of days and nights that are considered 'hot' in the current climate. Projections of average annual rainfall vary over different models but tend towards overall increases particularly in the latter half of the year (McSweeney et al, 2010). Regional model studies suggest an increase in the number of extreme rainfall days over West Africa. Seasonally this varies between tendencies for decrease in January to March and for increase in the latter half of the year.

Coastal countries of West Africa will experience a significant negative impact from climate change. The frequency and duration of cholera outbreaks are associated with heavy rainfall in coastal West African countries. Thus climate change could possibly lead to more frequent cholera outbreaks in the sub-regions affected. However, further research is needed to quantify the climatic impacts (IPCC, 2014). In West Africa, fisheries mainly depend on coastal upwelling. These ecosystems will be affected by climate change through ocean acidification, a rise in sea surface temperatures, and changes in upwelling. For some scenarios, the International Panel on Climate Change (IPCC) references projections of a 21% decline in the annual landed value for fish by 2050 resulting in a nearly 50% decline in fisheries-related employment and a total annual loss of US\$ 311 million to the region's economy (IPCC, 2014).

## ADAPTATION

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Sierra Leone produced a National Adaptation Plan of Action (NAPA) in 2007. It documents the resources and information that were used to prioritise adaptation interventions for Sierra Leone. A process of analysis and broad consultation with stakeholders led to a very detailed priority list of actions as follows:

1. Establishment of a National Early Warning System
2. Rehabilitation & reconstruction of meteorological/climate monitoring stations throughout the country
3. Capacity building of the Meteorological Department through training of personnel for the country's adaptation to climate change
4. Sensitization and awareness raising campaigns on climate change impacts on women relating to the three conventions of biodiversity, desertification and UNFCCC
5. Development of inland valley swamps for rice production in the Moyamba District.
6. Development of an Integrated Natural Resources and Environmental Management programme for Sierra Leone.
7. Development of irrigation and drainage systems for agricultural production in Bombali District.
8. Promotion of the use of renewable energy (solar energy) in Sierra Leone and improvement of energy efficiency and conservation of energy resources.
9. Establishment of new Forest Reserves, Protected Areas and National Parks in Sierra Leone. Management and protection of Forest Reserves and Catchment areas in Sierra Leone including Wetlands.
10. Institutional strengthening of the water resources sector in Sierra Leone
11. Improvement of energy efficiency and conservation in order to reduce dependence on firewood and charcoal.
12. Promotion of rain water harvesting and development of an Integrated Management System for fresh water bodies.
13. Development of an Integrated Coastal Zone Management Plan for Sierra Leone.
14. Rehabilitation of degraded coastal habitats in the Northern Province/Kambia district.
15. Development and enactment of appropriate policies and regulations relevant to the development of coastal communities, urban growth planning, and critical coastal ecosystems preservation
16. Establishment of a National Sea-Level Observing System in Sierra Leone
17. Establishment of a permanent study programme of the multi species fisheries in Sierra Leone
18. Delineation and restoration of vulnerable habitats and ecosystems in the western area of Sierra Leone.
19. Improvement in the quality of Fisheries related data and research
20. Monitoring and control of malaria in the Moyamba district of Southern Sierra Leone.
21. Development of appropriate water and Sanitation programme activities in the slum areas of the Western Area of Sierra Leone.

22. Monitoring and control of HIV/AIDS prevention activities in the Koinadugu district, northern Sierra Leone
23. Monitoring, evaluation and control of water and sanitation activities in slum areas of Freetown, the capital city of Sierra Leone.

In 2015 Sierra Leone also submitted an Intended Nationally Determined Contribution which include adaptation elements. This is further described below.

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## MITIGATION

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Sierra Leone submitted a “Nationally Appropriate Mitigation Action” (NAMA) under the Copenhagen Accord and the Cancún Agreements to the UNFCCC. This includes thirteen specific mitigation actions in diverse areas such as:

- Institutional strengthening and capacity building for environmental protection and management
- Sustainable management and protection of forest reserves and improved forest governance
- Developing and setting air, water and soil quality pollution standards,
- Introduction of conservation agriculture and promoting the use of other sustainable agricultural practices e.g. Agro-forestry
- Expanding clean energy utilization
- Sustainable production of charcoal and reduced dependence on firewood
- Waste management
- Public transport

More information is available in Sierra Leone’s submission to the UNFCCC in 2010. In 2015 Sierra Leone also submitted an Intended Nationally Determined Contribution which include mitigation elements. This is further described below.

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## RESOURCES:

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IPCC 5th Assessment Report (2014), Working Group II Impacts, Adaptation and Vulnerability: <http://ipcc-wg2.gov/AR5/>

UNDP climate change profile for Sierra Leone:  
[http://www.geog.ox.ac.uk/research/climate/projects/undp-cp/index.html?country=Sierra Leone&d1=Reports](http://www.geog.ox.ac.uk/research/climate/projects/undp-cp/index.html?country=Sierra%20Leone&d1=Reports)

Ministry of Transport and Aviation, National Adaptation Programme of Action Sierra Leone (2007): <http://unfccc.int/resource/docs/napa/sleo1.pdf>

Sierra Leone (2010); “Note Including Mitigation Actions” ;  
[http://unfccc.int/files/meetings/cop\\_15/copenhagen\\_accord/application/pdf/sierraleonecphaccord\\_app2.pdf](http://unfccc.int/files/meetings/cop_15/copenhagen_accord/application/pdf/sierraleonecphaccord_app2.pdf)

## SIERRA LEONE'S INTENDED NATIONALLY DETERMINED CONTRIBUTION (INDC)

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The INDC of Sierra Leone has three components, one for Mitigation, one related to Adaptation and the third for Loss and Damage. This INDC is consistent with Sierra Leone's green growth pathway to development.

**Mitigation:** As current emissions levels are already very low, Sierra Leone cannot commit to a quantified target. Therefore, through their INDC, Sierra Leone intends to maintain its emission levels to be relatively low (close to the world average of 7.58 MtCO<sub>2e</sub>) by 2035 or neutral by 2050 through the reduction of the country's carbon footprint and by following green growth pathways in all economic sectors. The Business As Usual (BAU) emissions are estimated to be 6.6 MtCO<sub>2e</sub> by 2030, a small increase on 2015. This excludes downstream exploitation in the mining/extractive sector.

Sierra Leone states that this target will only be achieved with the availability of international support that will come in the form of finance, investment, technology development and transfer, and capacity building. This would require substantial donor support, estimated at approximately \$900 million.

Sierra Leone also intends to present an intensity based reduction target of 25-35 percent, by 2050 in two phases (2020-2030, 2030-2050) compared to 1990, including the use of international credits as well as the vision to hold per capita emissions in Sierra Leone's at the average world level in the longer term. These unavoidable emissions will have to be eventually compensated through sinks or removals.

**Adaptation:** Under Sierra Leone's INDC, strategies identified have been translated into adaptation actions to enable decisive and sustainable actions to be taken in addressing the adverse impacts of climate change on the national economy and move the country into a green and resilient economy. The Action Plan includes activities that will support Sierra Leone in their transition to a low-carbon and climate-resilient economy; information on financing the INDC; mobilisation of resources and monitoring, reporting and verification of impacts on Sierra Leone due to the implementation of the strategy and action plan.

**Loss and Damage:** As part of Sierra Leone's INDC, there are a number of priority actions identified: adopt the current Disaster Risk Reduction Policy into a comprehensive Climate Policy; establish the enabling legislative framework to implement the Disaster Management Department (DMD) policy and action plan; establish and/or strengthen the high-level National DMD Council, in the Office of the Vice President; and establish a National DMD agency as the primary national government agency for climate change response.

**Monitoring and Evaluation:** The monitoring, reporting and verification of the INDC implementation has been articulated with the objective of tracking the transition of Sierra Leone to a low carbon and climate resilient economy. An integrated framework for measuring, monitoring, evaluating, verifying and reporting results of response (mitigation and adaptation) actions and the synergies between them will need to be developed and applied. Effective implementation of the INDC is highly dependent on the internal "feedback" generated through monitoring, reporting and verification (MRV) processes.

**Fairness, equity and ambition:** In light of Sierra Leone's view that historical capacity and respective capacity are key factors in addressing the fairness of a contribution, the following points are considered; Sierra Leone's capacity to implement this contribution is subject to limitations; Sierra Leone's very small emissions profile (<0.1% of global emissions and per capita emissions less than 0.2tCO<sub>2</sub>/year); and Sierra Leone does not have absolute emission reduction targets, but has chosen the option of a green growth and low emissions pathway.

For more information, please access the [Climate Learning Platform](#)

## IRISH AID FUNDING TO IRISH CIVIL SOCIETY PROGRAMME PARTNERS IN SIERRA LEONE

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The following disbursements by Irish Aid were identified as relevant to climate change and/or disaster risk reduction by the beneficiary CSOs but are not included in Ireland Climate Action Reports:

- Irish Aid disbursed €159,150 to support Concern Worldwide to increase the resilience of the extreme poor/vulnerable to hazards;
- Irish Aid disbursed €556,404 to support GOAL to increase community access to water and water quality , and to improve sanitation and hygiene practises in Freetown and Kenema;
- Irish Aid disbursed €50,098 to support GOAL with environmental programming.