



Concern is implementing a five year child survival programme in Freetown with support from Irish Aid. Photo: Concern

SIERRA LEONE CLIMATE ACTION REPORT 2016

Resilience and Economic Inclusion Team | Irish Aid | September, 2017

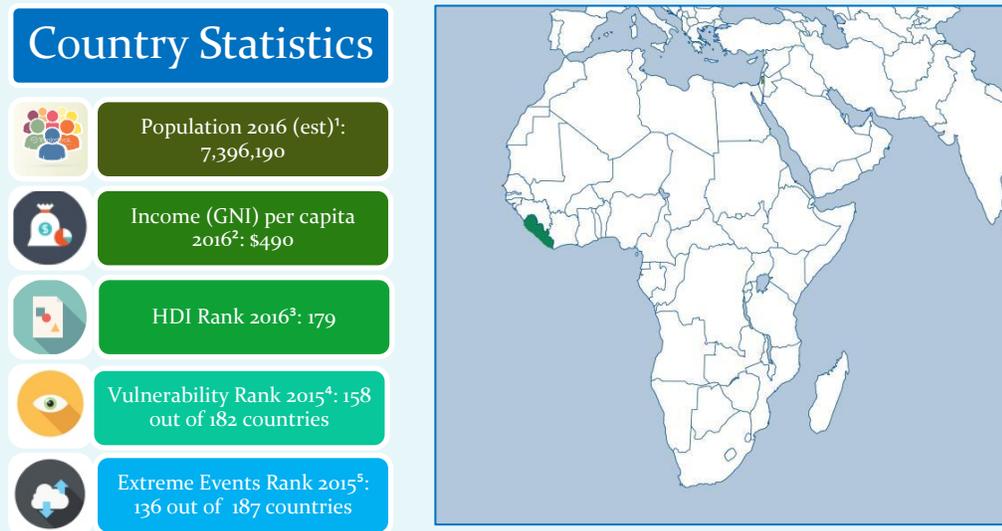
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COUNTRY CONTEXT

Sierra Leone, located on the west coast of Africa, has a total area of 71,740 km² with an estimated population of over 7 million. The socio-economic progress made after the end of civil war in 2002 has been undermined by the Ebola outbreak in 2014 and a contraction of mining activities, leaving the country in a weakened position to address the impacts of climate change. The Notre Dame Global Adaptation Initiative (ND-GAIN) Index ranks Sierra Leone as the 24th most vulnerable and 46th least ready to adapt to climate change, of the countries it covered for 2015.

The climate-sensitive agriculture sector provides livelihoods for 75% of the population and contributes more than 50% of GDP. Sierra Leone has extensive natural resources, but these are under pressure from population growth, dependence on biomass for energy needs, water pollution, and environmentally unsound mining activities, leading to high rates of deforestation, increased rates of soil erosion, and occurrence of landslides. High dependence on agriculture and natural resources, coupled with high rates of poverty, unemployment and environmental degradation, leave Sierra Leone vulnerable to climate change impacts.



¹ <https://data.worldbank.org/country/sierra-leone> Map of Sierra Leone: Irish Aid 2015

² <https://data.worldbank.org/indicator/NY.GNP.PCAP.CD?locations=SI>

³ <http://hdr.undp.org/en/countries/profiles/SLE>

⁴ <http://index.gain.org/country/sierra-leone>

⁵ The CRI indicates a level of exposure & vulnerability to extreme events, which countries should understand as warnings in order to be prepared for more frequent and/or more severe events in the future <https://germanwatch.org/en/download/16411.pdf>

Overview of Climate Finance in Sierra Leone in 2016

In 2016, Ireland provided € 299,876 in 2016 in climate finance to projects in Sierra Leone through its civil society programme. Climate relevant expenditure provided by Irish Aid to civil society organizations in 2016 was Rio marked and accounted for systematically for the first time, in cooperation with the project partners themselves.

Civil Society partners Concern, Goal and World Vision are helping to build resilience to climate change through a range of projects including reducing maternal & child mortality and morbidity in Freetown and poverty alleviation in Tonkolili district; helping community groups to promote locally appropriate and sustainable approaches to improved nutrition; and strengthening programmes through the effective mainstreaming of HIV, Environment, Gender and Child Protection.

	Civil Society €
Climate Finance Adaptation (UNFCCC)	288,476
Climate Finance Mitigation (UNFCCC)	0
Climate Finance Cross-cutting (UNFCCC)	11,400
Biodiversity (UNCBD)	8,476
Desertification (UNCDD)	8,476
Disaster Risk Reduction (DRR)	N/A
Total Climate Finance	299,876

Note: *Climate Finance, Biodiversity, Desertification and DRR amounts should not be aggregated as some disbursements have multiple co-benefits. A fuller explanation of the marking for climate adaptation, climate mitigation, cross-cutting and co-benefits is set out in the Annex on Methodology.*

SIERRA LEONE: CLIMATE CHANGE TRENDS AND POLICY FRAMEWORK

RECENT CLIMATE TRENDS IN SIERRA LEONE

Sierra Leone has a predominantly hot and humid tropical climate with two distinct seasons. The Dry Season (November to April) is dominated by winds from the northeast (i.e. the North-east trades), and the rainy season (May to October). Both seasons may have some variations in the commencement and duration. Average temperatures range from 25–27°C, with slightly lower temperatures (22–25°C) during the wet season.

Average annual temperature has increased by 0.8°C 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 rainfall¹.

Sierra Leone’s National Adaptation Programme of Action (2007) 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). In August 2017, Freetown, the capital city of Sierra Leone suffered the devastating effects of flooding and mudslides. The city is particularly vulnerable due to deforestation arising from housing construction on hill tops, dumping of waste into the drains and culverts, stone mining on the hills and coastal areas as well as removal of mangroves.

PROJECTIONS OF FUTURE CLIMATE IN SIERRA LEONE

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. 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.

¹ McSweeney et al (2010): UNDP Climate Profile for Sierra Leone

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).

GREENHOUSE GAS EMISSIONS IN SIERRA LEONE

Sierra Leone's total GHG emissions in 2013 were 11.69 million metric tons of carbon dioxide equivalent (MtCO₂e), totalling 0.02% of global GHG emissions. Over half of Sierra Leone's 2013 GHG emissions were from the land-use change and forestry (LUCF) sector, which accounted for 51.3% of the country's total emissions. Within the LUCF sector, changes in forest land contributed 95 percent of the sector emissions. Agriculture was the second most significant source of emissions (25.7%) with rice cultivation and enteric fermentation from livestock contributing 58% of agricultural emissions².

As current emissions levels are already very low, in its INDC, Sierra Leone plans to maintain its emission levels to be relatively low (close to the world average of 7.58 MtCO₂e) 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 MtCO₂e 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%, 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.

² Sierra Leone: Greenhouse Gas Emissions Factsheet. USAID 2017

CLIMATE CHANGE IMPACTS AND VULNERABILITY

Two of Sierra Leone's primary food sources – rice and fish – are particularly vulnerable to climate change impacts. The country has rich soils, good rainfall and abundant water resources, yet remains a net food importer. Only 12% of arable land is cultivated – often using low-productivity techniques. Rice, accounting for the largest share of agricultural GDP and 42% of the average person's caloric intake, is highly sensitive to increased humidity and rainfall intensity and is vulnerable to pests that thrive in higher temperatures. Fish account for more than 75% of animal protein intake, and are vulnerable to rising temperatures, which alter nutrient dynamics and water quality in inland fish farms and the Atlantic Ocean³.

Climate variability and change pose significant challenges to the availability and quality of Sierra Leone's extensive water resources, which comprise surface waters connected through a network of river basins. An estimated 80% of the country's rural population obtains its water from these sources. Seasonal variations in river flows are significant, with minimal discharges occurring during the dry season, affecting water availability: an estimated 40% of the country's protected water points suffer water shortages in the dry season. Increased intensity of rainfall events increases runoff and sediment loads in rivers, affecting water quality.

Sierra Leone has one of the highest malnutrition and child mortality rates in the world, making the country's population extremely vulnerable to climate shocks. Recurrent flooding increases exposure to waterborne diseases. More intense dry seasons (with increased temperatures) in the north and west have been linked to reduced water quality and disease outbreaks. Cholera is epidemic, with the last major outbreak in 2012 causing 300 deaths and affecting more than 20,000 people. Additionally, a warmer Atlantic Ocean poses a health risk as increased sea surface temperatures contribute to toxic algae blooms and food poisoning from consumption of shellfish and reef fish (the latter reported in Freetown in 2011 and 2012). The Ebola outbreak in 2014 revealed a deficient health system, including understaffed, unavailable or unaffordable healthcare that will be further stressed by climate change impacts.

Projected increases in the intensity of rainfall events will exacerbate the existing impacts of floods, which include loss of life and property as well as damage to critical service and transport infrastructure. Floods account for 85 percent of disaster-related mortality in the country, followed by landslides and storms. Recurrent flash flooding in urban areas and coastal flooding are common and occur every year during the rainy season⁴.

³ Sierra Leone: Country pasture/ forage resource profile (FAO)
<http://www.fao.org/ag/AGP/AGPC/doc/Counprof/SierraLeone/SierraLeone.htm>

⁴ Sierra Leone: Climate Change Risk Profile: US AID

SIERRA LEONE'S CLIMATE CHANGE POLICY FRAMEWORK

Since the year 2000, Sierra Leone has published three National Strategies on Climate Change and in 2009 adopted its first *Special Program on Climate Change*. In 2007, Sierra Leone published its National Adaptation Programme of Action (NAPA). In addition, Sierra Leone has presented two National Communications (2007 & 2012) with their respective greenhouse gas inventories to the United Nations Framework Convention on Climate Change (UNFCCC).

Sierra Leone's Environmental Protection Agency (EPA) was established in 2008, under the Office of the President, and is responsible for environment and climate change policy implementation. In 2012, the EPA established the National Secretariat for Climate Change (NSCC). It hosts a committee drawn from government, NGOs, and universities that meets quarterly to provide guidance on national climate change issues to the Secretariat. This committee has the potential and mandate to build institutional links between various agencies on the cross-cutting issues of climate change adaptation, including disaster management, agricultural development and infrastructure design and planning.

The *Sierra Leone National Development Plan – the Agenda for Prosperity 2013 -2018* commits the country to mainstreaming inclusive green growth in its development process. Implementation of the country's Intended Nationally Determined Contribution (INDC), will support the transition to low-emission development involving decoupling carbon emissions from economic growth through a series of measures across all economic sectors.

The Government proposes to strengthen the institutional and policy framework to enhance the coordination and implementation of climate change adaptation and mitigation. These reforms include:

- Review, revise the already adopted Draft Climate Policy into a comprehensive Climate Act;
- Establish the enabling legislative framework to implement the National Climate Change Strategy and Action Plan (NCCS&AP) actions;
- Strengthen the high-level National Climate Change Council (NCCC), in the Office of the President;
- Support the already established National Climate Change Secretariat as the primary national government agency for climate change response; and
- Establish a Sierra Leone Climate Fund to be a financing mechanism for priority climate change actions and interventions.

IRISH AID FUNDING FOR IRISH CIVIL SOCIETY PROGRAMME PARTNERS IN SIERRA LEONE

Civil Society partners Concern, Goal and World Vision are helping to build resilience to climate change through a range of projects including reducing maternal & child mortality and morbidity in Freetown and poverty alleviation in Tonkolili district; helping community groups to promote locally appropriate and sustainable approaches to improved nutrition; and strengthening programmes through the effective mainstreaming of HIV, Environment, Gender and Child Protection. More detail is set out in the table below.

Project/ Programme	Irish Aid Funding in 2016 €	Climate Relevant €	Adaptation €	Mitigation €	Cross cutting €	Biodiversity €	Desertification €
Concern: programs to reduce maternal & child mortality and morbidity in Freetown and poverty alleviation Tonkolili district through a holistic and integrated approach to community development.	400,000	280,000	280,000	0	0	0	0
Goal: strengthen GOAL's programming through the effective mainstreaming of HIV, Environment, Gender and Child Protection	22,799	11,400	0	0	11,400	0	0
World Vision: Community groups promoting locally appropriate and sustainable approaches to improved nutrition.	16,952	8,476	8,476	0	0	8,476	8,476

ANNEX - METHODOLOGY

The Organisation for Economic Co-operation and Development (OECD) Development Assistance Committee (DAC) Rio Marker methodology underpins the UNFCCC climate finance figures totals quoted on page four and in the table above. The Rio Marker definitions were employed to identify and score disbursements as climate mitigation, adaptation or cross-cutting relevant. The Rio Markers and the anticipated Disaster Risk Management Marker⁵ work on a three-score system. Activities can be identified with;

- Principal marker of 2
- Significant marker of 1
- Or not targeted; 0.

The choice of principle, significant or not-targeted relates to hierarchy of objectives, goals and intended outcomes in the programme or project design. A principle marker is applied if the marker policy is one of the principle objectives of the activity and has a profound impact on the design of the activity. A significant marker is applied if the marker policy is a secondary objective, or a planned co-benefit, in the programme or project design. The zero marker is applied to show that the marker policy was not targeted in the programme or project design. If this is unknown, the marker is left blank.

The mapped climate finance in this report includes financial support both for activities scored as 'principal' (2) and for activities scored as 'significant' (1). This report categorises disbursements as adaptation where the scoring against the adaptation marker exceeds the scoring against the mitigation marker and vice versa. Where scoring is equal (and >0) under both adaptation and mitigation markers, the disbursement is counted as cross-cutting. In reporting bilateral climate finance we place a different weight on support for principal and significant activities. In aggregating finance for principal and significant activities, 'principal' activities are weighted with a coefficient of 100% and 'significant' activities are weighted with a coefficient of 50%. Where an activity has both adaptation and mitigation benefits, or is cross-cutting, it is weighted according to its highest score i.e. weights in mitigation and adaptation are not aggregated.

Under OECD DAC reporting guidelines, disbursements can be marked for multiple Rio Markers and policy markers. This is critical as it reflects and recognises the importance of achieving as much as possible with limited resources. Many of the Irish climate relevant disbursements have multiple co-benefits and therefore are scored under more than one Rio

⁵ An OECD DRR marker definition is nearing completion but not yet agreed. Therefore we employed a simple approach by only marking or counting those projects or programmes where objectives and/or plans explicitly included and specified disaster risk management or disaster risk reduction components. Projects or programmes where early warning systems, or risk mitigation for natural hazards were specified in the activity documentation were also considered to be relevant to DRM.

Marker and in particular may be marked for both mitigation and adaptation. However, in reporting climate finance to the UNFCCC and the EU both formats only one column in which to identify if the activity supported is climate change mitigation, adaptation or cross-cutting. A large share of Irish disbursements are marked for both mitigation and adaptation and could thus be considered as cross-cutting. However in most of these cases, one objective supercedes the other. Therefore in calculating total finance for adaptation and total finance for mitigation respectively, this report categorises all disbursements as adaptation where the scoring against the adaptation marker exceeds the scoring against the mitigation marker and vice versa. Where scoring is equal (and >0) under both adaptation and mitigation markers, the disbursement is counted as cross-cutting. This methodology means that amounts for mitigation, adaptation and crosscutting climate may be aggregated together for total climate finance. However, it is still *not* appropriate to aggregate climate with biodiversity or desertification finance as these categories contain overlaps.