



SUSTAINABLE  
INFRASTRUCTURE  
PARTNERSHIP



UNOPS



VIEW OVER FREETOWN RIVER © MICHAEL / ADOBE STOCK

# SIERRA LEONE

RURAL RENEWABLE  
ENERGY PROJECT



2024

## The International Good Practice Principles for Sustainable Infrastructure

set out ten guiding principles that policymakers can follow to help integrate sustainability into infrastructure planning and delivery. They are focused on integrated approaches and systems-level interventions that governments can make to create an enabling environment for sustainable infrastructure. This case study illustrates specific aspects of one principle in a country context, showing good practices and challenges, and considering potential for advancement or replicability.

## GUIDING PRINCIPLE 6: EQUITY, INCLUSIVENESS, AND EMPOWERMENT

Infrastructure investment must be balanced between social and economic priorities. Infrastructure should provide accessible and affordable services equitably to all, with a view to promoting social inclusion and fostering economic empowerment and social mobility, and respecting, protecting and fulfilling human rights. It should avoid harm to communities and users (especially those who are vulnerable or marginalized), be safe and promote human health and well-being.

### BACKGROUND

Access to electricity in Sierra Leone has presented an ongoing challenge, particularly in rural areas. There are only around 130,000 connected customers, and an average national electrification rate of 26 per cent (6 per cent in rural areas) (African Development Bank [AfDB/Sustainable Energy Fund for Africa [SEFA] 2019 and Sustainable Energy for All 2021). A lack of a reliable energy supply across the country has been identified as the key impediment to Sierra Leone's economic and social development (African Development Bank [AfDB/Sustainable Energy Fund for Africa [SEFA] 2019).

In 2014, with the outbreak of Ebola in West Africa, Sierra Leone found itself amid one of the most serious medical emergencies in recent history. Efforts to control the outbreak were severely hampered by a lack of access to electricity in small towns and villages. As part of the Ebola recovery efforts, the Government of Sierra Leone launched the "President's Recovery Priorities" — a multi-stakeholder programme that includes a series of initiatives to increase access to energy across the country, while significantly boosting the country's energy generation (United Nations Office for Project Services n.d.). Overall, access

to electricity in Sierra Leone has increased significantly in the last few years from around 11 per cent in 2010 to 20 per cent in 2017 (AfDB/SEFA 2019).

One of the projects developed to support the Government's energy access objectives is the Rural Renewable Energy Project (RREP). This project aims to improve service delivery and build systemic resilience to future epidemics by improving energy infrastructure.





COMMUNITY WORK FOR RURAL ELECTRIFICATION IN SIERRA LEONE

## IMPROVING RURAL RENEWABLE ENERGY ACCESS

The RREP aims to supply renewable energy in a sustainable fashion to populations that previously had no access to or were underserved by the national grid. It is implemented by the Ministry of Energy with support from the United Nations Office for Project Services (UNOPS) and funding from the United Kingdom's Foreign, Commonwealth and Development Office (FCDO).

The project was developed to support the Government of Sierra Leone's goals towards:

- a) Low emissions,
- b) Climate resilient,
- c) Gender-sensitive and
- d) Sustainable growth.

The gender aspect of the project is three-fold:

- (i) Female patients receive safer treatment and services;
- (ii) Women's needs are better integrated through consultations and;
- (iii) Women's participation in employment has improved.

The project proceeded in two phases throughout 2017 and 2018. Phase 1 involved the installation of solar power in 54 Community Health Centres (CHCs), and Phase 2 featured expanding the existing health centre solar power stations and installing distribution networks in 50 rural villages to increase access to electricity for schools, businesses and houses in 50 rural villages, essentially creating 50 independent mini-grids. Health services were strengthened by electrifying 100 CHCs (United Nations Office for Project Services n.d.).

The infrastructure activities were complemented by a competitive selection process through which private companies submitted bids for the contracts to operate the power supply network in each village. The selected companies signed a Public-Private Partnership (PPP) agreement with the Government of Sierra Leone in December 2018. Private sector participation was assessed as critical for long term sustainability.



The overall RREP, which was developed and implemented from October 2016 to December 2023, provides clean energy access that also sustainably grows the country's energy capacity. As of June 2024, a total of 4.6 megawatts (MW) of generation capacity has been installed and 22,649 households, businesses, schools, 100 CHCs and other public institutions are electrified across 93 rural communities in Sierra Leone: 289,986 females, 267,680 males and 5,576 people were enjoying clean energy (UNOPS, United Kingdom, FCDO and Government of Sierra Leone 2023).

Based on the project closure exercise (Nick Gardner, former UNOPS Country Manager 2023), clinic electrification increased health-related consultations for general diseases between 21 – 26 percentage points, and 22 - 26 per cent for maternal health issues prior to the COVID-19 pandemic. During the COVID-19 pandemic there was a 3 per cent increase in consultations, and there was also an increase in supply at clinics: treatment clinics had 27 per cent more working appliances and 25 per cent more vaccines/drugs stored in refrigeration.

## POWERING CRITICAL HEALTH FACILITIES

By improving access to a reliable electricity supply in health facilities, the RREP enabled improved delivery of health services through, for example, the operation of medical equipment, proper refrigeration and storage of medical supplies, and provision of 24-hour healthcare services. With the supply of 24 hours of solar light, the medical personnel were able to continue with their laboratory work and referral system for more hours, without bearing the cost of buying lamps and batteries.

Before the project intervention, delivering a baby at night was especially risky for women in Sierra Leone because health facilities could be without lighting. According to a United States Agency for International Development (USAID)-funded project (Advancing Partners & Communities n.d.) 79 per cent of peripheral health posts lacked continuous electrical power (Climatetracker.org 2022). Maternal and child health was greatly improved with the improvement in electricity supply, which resulted in increased visits to antenatal and community health clinics to give birth in a safer environment.





Personnel from CHC were interviewed as part of the project impact monitoring process (UNOPS and FCDO 2021). The respondents emphasized that mini-grid electricity was helping to provide better services compared to other structures where there was no light. With light secured and provided for 24-hours in CHC, it helps to detect medical complications during childbirth and in newborns, which was difficult before using torchlight only. Monitoring will be important to determine if these measures lead to lower maternal and infant mortality.

Medical personnel also stated that more pregnant women were coming to deliver at the hospital rather than giving birth at home, which reduces the risks from medical complications as well.

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## PARTICIPATION AND EMPOWERMENT OF WOMEN

The project conducted an analysis to identify gender-related challenges and opportunities, which then informed the development and adoption of a Gender Action Plan to respond to the findings of the analysis. Implementation of the

action plan included consultations with women at all stages of design and implementation and working with the private sector operators to train women to participate in construction and operation activities with provision of equal pay for equal work.

For example, one of the operators, Power Leone, partnered with the Barefoot Women Solar Engineers Association to hire and train local women to assemble and install electricity meters and to become maintenance engineers, thereby providing employment and skills for female workers. There remains a need for strengthened efforts to increase the number of women employed in such projects in Sierra Leone (One Earth 2022).

The Barefoot Women is a local association of women who, inspired by their own experiences, decided to come together to electrify rural clinics to improve healthcare. Understanding the harsh conditions pregnant women suffer during childbirth, they figured out that by installing solar panels in clinics, they could provide a stable, clean, cheap and sustainable energy source. They have managed to light up over 60 community clinics in different locations across northern Sierra Leone (One Earth 2022).

## REPLICABILITY

While the RREP in Sierra Leone sought to address issues that were identified during the Ebola epidemic, the challenges that it addressed are common to many countries and relevant for many different situations. As such, it is highly relevant and replicable in other countries and contexts.

For rural clinics, especially those that are not connected to the national grid, electricity is an expensive commodity. This situation was exacerbated by the COVID-19 crisis, when financial and human resources were diverted to fight the pandemic, and many CHCs still lack funds for basic repairs and maintenance. Without CHCs being able to deliver reliable services, many women will continue to seek care and give birth under stressful and dangerous conditions, either in ill-equipped facilities or at home.

Focusing on health centres as critical social infrastructure, the case provides inspiration for achieving: a) provision of electricity to health facilities, especially for female patients, b) consultation with women at all phases of the project and c) participation of women in training and employment.

## KEY INSIGHTS



- ▶ Reliable electricity supply has contributed to more effective service delivery at CHCs in Sierra Leone, which increases the likelihood of better health outcomes for people who rely on those services.
- ▶ With many deliveries happening at night, electric light is critical for ensuring safe and comfortable conditions for healthcare practitioners and patients. Due to the constant electricity, more supplies are kept in proper condition, which facilitates outreach to neighboring communities to offer inoculations and related services.
- ▶ The original experience of the local association Barefoot Women in Sierra Leone should be documented and reviewed as an inspiration to replicate in other countries.



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## ACKNOWLEDGEMENTS

The Sustainable Infrastructure Partnership (SIP) is a platform led by the United Nations Environment Programme (UNEP) to promote and support integrated approaches to sustainable infrastructure planning and development. This case study was developed by Nadine Puechguirbal, with guidance from Joy Aeree Kim, Rowan Palmer, Joseph Price and Chengchen Qian (all UNEP). The SIP would like to thank Ariful Islam, Nick Gardner and Victoria Chendeka (all UNOPS) for their valuable inputs, and is grateful to Désirée Leon and Daniyal Moazzam (both UNEP) for her support.

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