



Our World, Our Responsibility

Project Concept

**IMPROVED COOKING
SYSTEMS (ICS)**

**Sawula Town,
Pujehun District,
Sierra Leone**

Abbreviation



Abbreviation	Definition
\$	United States Dollar
CMC	Community Monitoring Committee
CO ₂	Carbon Dioxide
FTE	Full-Time Equivalent (Jobs)
GDfH	Global Development for Humanity
HH(s)	Household(s)
ICS	Improved Cooking Systems
SDGs	Sustainable Development Goals

Agenda



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Project Background and Timeline

Project Background

Key Challenges in Sawula, Pujehun District, Sierra Leone



Heavy Firewood Dependence: Households rely entirely on traditional firewood for cooking. Across 100 households, the annual consumption of firewood is approximately 10.3 tons*, placing increasing pressure on the surrounding forests.



High Time & Labor Burden: As nearby wood sources become depleted, households, particularly women and children, travel an average of 2.5 km and spend ~2 hours per day collecting firewood, thereby reducing time for farming, education, and income activities.



Indoor Air Pollution & Health Risks: Open-fire cooking increases women's risk of lung, cardiovascular, and eye diseases, causing 23% of chronic lung deaths, 35% of cornea and iris disorders, and a 2.6× higher risk of arterial blockage compared to clean fuels.



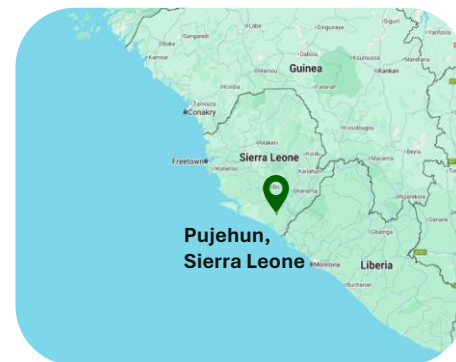
Seasonal Fuel Cost Pressure: While some firewood is collected freely, households increasingly purchase firewood during the wet season, leading to higher cash expenditures and vulnerability to price fluctuations.



Limited Access to Clean Cooking Solutions: High upfront costs, lack of flexible payment mechanisms, and weak local maintenance capacity limit access to improved or clean cooking technologies, despite clear potential for over \$60 annual savings per household.

SOLUTION

IMPROVED COOKING SYSTEMS (ICS)



*: The annual wood consumption of 10.3 tons per household includes cooking (5.4 tons), garri processing (2.4 tons), palm oil processing (2 tons), and rice processing (0.5 tons).

Project Background

Strategic Solution – ICS Overview

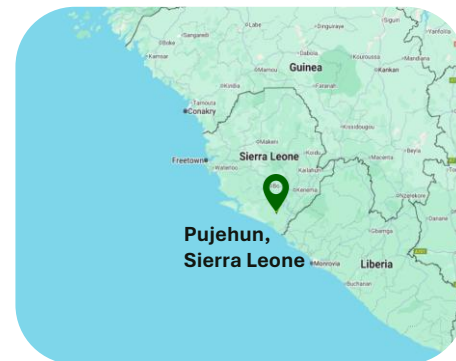


System Package (Capacity/Size): Two-units cooking systems package per household (HH) for full cooking coverage (Improved Cookstove + Biochar Stove). Consuming about 2 kg firewood or 600 g charcoal in one session and ~ 90% similar to traditional cooking practices.

Fuel Source & Efficiency: ICS systems are designed for cleaner and more efficient combustion, which reduces smoke and fuel consumption. Primarily charcoal-based with a multiple-fuel option. Usable in all seasons and weather conditions.

Beneficiaries: The project targets 100 households (approximately 600–700 people) in Sawula community, Pujehun District. Primary beneficiaries are women and children, who face the highest exposure to indoor smoke and the largest firewood collection burden.

Implementation Model (Community-Based): Distribution and monitoring will be managed by GdFH with a Community Monitoring Committee (CMC). HHs receive the ICS + Biochar package at a subsidized price of \$80 (~27% subsidy), with flexible repayment: \$16 upfront plus 4 instalments of \$16.



Project Timeline



#	Project Timeline - Improved Cooking Systems_SRL	Month 1				Month 2			
		1	2	3	4	1	2	3	4
Key Implementation Milestones									
1	Conduct project introductory meetings with District authorities, community leaders, women and youth groups, and key stakeholders								
2	Conduct community sensitization, household mobilization, beneficiary registration, and baseline assessments								
3	Conduct procurement planning, supplier selection, verification, and finalize supply agreements for Improved Cookstoves (ICS)								
4	Deliver Improved Cookstoves (ICS) and related materials to the project location and registered households								
5	Distribute ICS to households and conduct on-site setup and demonstration sessions at community level								
6	Provide household-level training on safe use, maintenance, efficient cooking, and contribution/repayment model								
7	Establish Community Monitoring Committee (CMC) and link households to suppliers and technicians								
8	Conduct final operation readiness checks, complete test cooking sessions, and prepare households for full operation with basic training sessions								

Project Objectives and Impact

Key Project Objectives



1

Reduce Firewood Dependence & Forest Pressure

Reduce HH firewood consumption by 50-60% within the first year through adoption of ICS, easing pressure on surrounding forest resources.

3

Reduce Time and Labor Burden

Reduce the daily work of fuel collection, which is currently about 2 hours per day and 2.5 km travel distance and, thereby freeing time for farming, education, and income-generating activities

5

Strengthen Local Capacity & Maintenance

Build local capacity through user training, linkage to local suppliers and technicians, and access to spare parts to ensure correct use and long-term functionality of ICS.

2

Improve Indoor Air Quality & Household Health

Reduce exposure to indoor air pollution by at least 60%, lowering smoke-related respiratory and health risks, particularly for women.

4

Improve Household Energy Affordability

Enable 100 households to adopt ICS through subsidies and flexible repayment, supporting ~\$60 in annual household fuel cost savings.

6

Enhance Climate Resilience & Sustainability

Reduce greenhouse gas emissions by ~400 tons of CO₂ per year while establishing community monitoring and cost-recovery mechanisms for sustained operation and future scale-up.

Key Impacts



Fuel & CO₂ Savings (tons)

ICS adoption reduces firewood consumption by **~5.15 tons per year** per HH and **avoids ~400 tons of CO₂ emissions annually** *.



Saving Impact (\$)

Households save on average **~\$60** per year by reducing purchased firewood and using fuel more efficiently with ICS.**



Employment Impact (FTE***)

The ICS generates **1.3 FTE temporary jobs** during the implementation phase and **2 permanent local jobs** in supply and maintenance services.



Labor Time Savings

Wood collection time (~2 hours per day and ~2.5 km travel) is significantly reduced through ICS adoption, lowering labor burdens on women and children.



Health & Productivity

ICS reduces indoor air pollution exposure by **≥60%**, lowering smoke-related health risks and improving household productivity.



Forest Protection & Sustainability

Reducing firewood demand decreases pressure on forests and supports community resilience, cost-sharing and local services.

The project contributes directly to the key Sustainable Development Goals (SDGs)

1 NO POVERTY



3 GOOD HEALTH AND WELL-BEING



5 GENDER EQUALITY



15 LIFE ON LAND



7 AFFORDABLE AND CLEAN ENERGY



13 CLIMATE ACTION



* The biochar stoves are more efficient in fuel reduction (50–60%) than improved cookstoves (40–50%); therefore, an overall fuel reduction effect of ~50% is used for impact analysis.

** Income estimates are based on field data indicating that approximately 30% of household firewood is purchased, while the remainder is collected free.

*** FTE stands for Full-Time Equivalent, meaning a standard full-time job with 172 working hours per month, or full 12 months work in rural and agricultural context.

Impact on Fuel & CO₂, Savings, and Employment



Fuel & CO₂ Savings (tons)

ICS reduces firewood use by **~5.15 tons/year** and avoids **~400 tons of CO₂ annually**.

Households in Sawula rely almost entirely on traditional firewood for cooking, consuming approximately 15 kg per household per day, per HH across 100 households.

The introduction of Improved Cookstoves (ICS) reduces firewood use by approximately 50%, (~5.15 tons annually) and an estimated ~400 tons of CO₂ emissions avoided per year. This eases pressure on local forest resources while delivering measurable climate benefits.



Savings (\$)

Estimated on average **~\$60** per year by reducing purchased firewood and using fuel more efficiently.

Although a large share of firewood is collected freely, approximately 30% is purchased, particularly during the wet season when collection is more difficult.

By reducing purchased firewood and improving fuel efficiency, ICS adoption generates on average \$60 annually HHs saving. At community level, this translates into \$6,000 in annual savings, strengthening household resilience and freeing resources for food, education, and productive activities.



Employment (FTE)

Creating **1.3 FTE temporary jobs** and **2 permanent local jobs**.

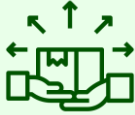
The ICS generates 1.3 FTE temporary jobs and 2 permanent local jobs.

Job Category	Job Type	FTEs
Admin & coordination	Temporary	0,5
Transport & logistics	Temporary	0,3
Training, repair & maintenance	Temporary	0,5
Total Temporary FTEs		1,3
Local ICS supply enterprise	Permanent	1
Local Repair service	Permanent	1
Total Permanent FTEs		2

Temporary jobs are for at least one year during the implementation phase, while permanent jobs reflect long-term livelihood and sustained adoption of ICS.

Operational and Implementation Framework

Major Operational Aspects



System Distribution

Two cooking units are distributed to registered households through a community-managed process, ensuring correct allocation and tracking.



Fuel Use & Efficiency

Firewood and charcoal-based ICS improve combustion efficiency, reduce smoke, and lower fuel consumption year-round.



Planning and Control

GDfH and the Community Monitoring Committee (CMC) coordinate distribution, training, and repayment schedules.



System Monitoring

The CMC monitors usage, functionality, and repayment compliance at household level, and future upgrading to more efficient systems, based on lessons learned.



Capacity Building

Households receive practical training on safe use, efficient cooking, and basic maintenance. Selected community members will be trained for local repair businesses.



Maintenance

GDfH-supported technicians will provide repairs and spare parts to ensure long-term system functionality.

Project Implementation Framework



Community Engagement



Formation and orientation of a Community Monitoring Committee (CMC), involving community leaders and GDfH, to ensure ownership, transparency, and accountability.

Operations & Service Model



Households receive two cooking units at a subsidized price, and use them under agreed guidelines, while retaining responsibility for daily cooking practices and fuel choices.

Capacity Building



Households receive practical training on safe use, efficient cooking, basic maintenance, and proper charcoal handling to ensure sustained adoption.

Maintenance & Technical Oversight



Local technicians, supported by GDfH, provide repairs, spare parts, and technical support, with periodic follow-up to ensure sustained functionality.

HHs Contribution



Beneficiary households contribute through an upfront payment, followed by instalments over two years, as agreed, supporting cost recovery and commitment.

Financial Sustainability



Recovered funds and savings support successful implementation, local services, and future expansion, upgrading to more efficient systems, and contribution to similar projects.

Project Financials

Overview of Project Financials



 INITIAL INVESTMENT COST	Improved Cookstoves \$11,000 + Awareness & Training \$1,000 + Logistics & Contingency \$1,545 = Total Investment \$13,545
 ANNUAL OPERATIONAL COST	No centralized operating costs at project level. Routine maintenance and fuel costs are covered by households. = Total Operating Costs (Project Level) \$0
 ONE TIME RECOVERY & SAVINGS	ICS Cost Recovery (Year 1, one-time) <i>Households repay the subsidized ICS cost of two units per HH (20% upfront + 4 instalments).</i> \$8,000 Fuel Cost Savings (Annual for 100 HHs)* \$6,000
SUSTAINABILITY	The project is financially sustainable with long-term expansion potential.

*: Average household fuel savings are ~ \$ 60 per year due to reduced firewood and charcoal use.

Project Financials

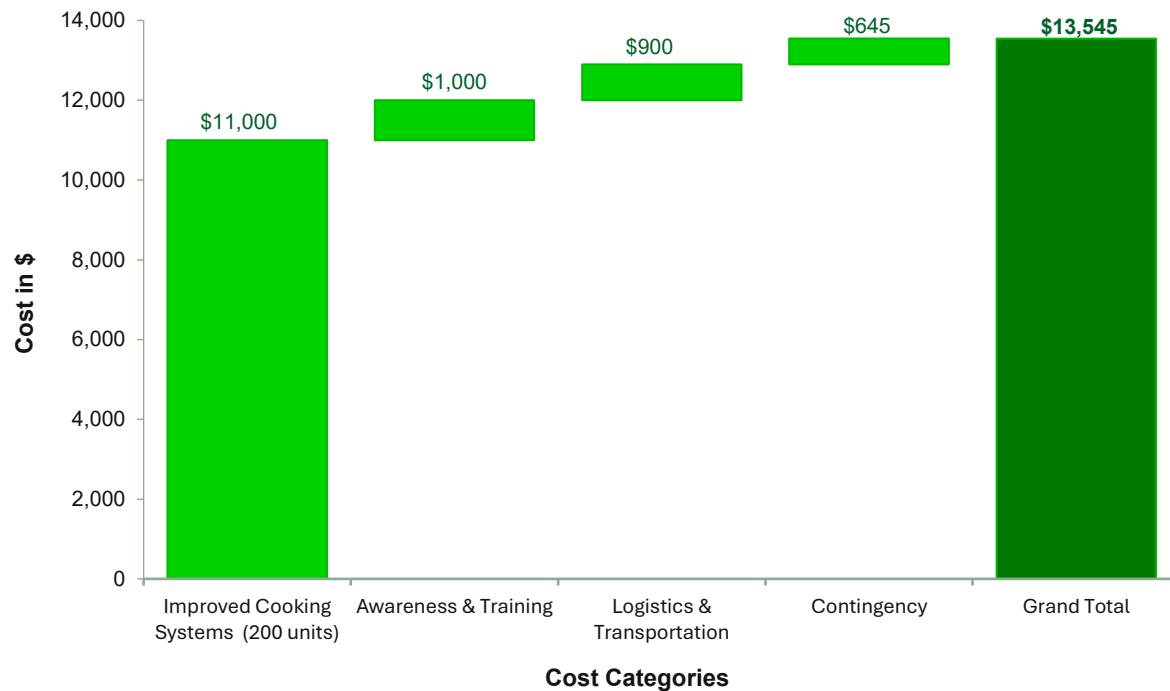
Total Initial Investment Costs



The chart presents the initial capital investment required to implement the Improved Cooking Systems (ICS) project for 100 households in Sawula, Pujehun District.

The **total** initial investment amounts to **\$13,545**, covering the procurement of 200 improved cooking systems, community awareness and user training, logistics, and contingency costs. The largest cost component is the supply of improved **cooking systems (\$11,000)**, followed by **awareness and training activities (\$1,000)**, **logistics and transportation (\$900)**, and **contingency provisions (\$645)**.

All cost estimates are based on verified supplier quotations and local market rates. The project design emphasizes cost efficiency, household co-financing, and long-term sustainability through cost recovery rather than recurrent operational expenditures.



Project Financials

Operating Costs and Saving Structure



Operating Cost Structure (ICS)

Unlike production-based projects, the Improved Cooking Systems (ICS) project has no centralized annual operating costs at project level (\$ 0).

Routine fuel purchase, daily use, and minor maintenance are borne directly by households, while technical support and monitoring are embedded in the community-based implementation model.



Household Savings & Cost Recovery (ICS)

The ICS project does not generate sales revenue.

Financial value is created through household fuel cost savings (~ \$ 60/HH/year) and one-time recovery of subsidized stove costs, ensuring affordability and long-term sustainability.

Key Impact

Overview Project Impact



Local Energy & Household System

The ICS project improves household cooking efficiency for **100 households** (200 units deployed) in Sawula, reducing reliance on traditional firewood and supporting a cleaner, more reliable household energy system year-round.



Household Income & Cost Savings

Through reduced firewood and charcoal consumption, households save on average **~\$60 per year** and **~\$6,000 annual savings across 100 households**, easing energy expenditure and freeing resources for food, education, and income-generating activities.



Job Creation and Local Services

The project generates **2 permanent (FTE) jobs** and **1.3 temporary (FTE) jobs**, including temporary roles during implementation and permanent local jobs in stove supply, repair, and maintenance, strengthening local service ecosystems.



Health, Time Savings & Environmental Benefits

ICS adoption reduces indoor air pollution exposure by **≥60%**, cuts fuel collection time by ~2 hours per day, and lowers firewood demand by ~50%, avoiding approximately 400 tons of CO₂ annually while improving household health, safety, and environmental sustainability.



Financially Sustainable and Scalable Model

The ICS model has no centralized operating costs; it ensures household cost recovery, enabling scale-up, upgrading of cooking practices, or financing similar development initiatives.

Thank You!



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Interest in Our Operations**



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