SHCAN
Soil Health & Climate Action Network

Final Project Report

Rocket Lorena Improved Cookstove Adoption Project in Hoima

Acknowledgements

The newly installed Rocket stoves have effectively been adopted in the community

Soil Health & Climate Action Network (SHCAN) sincerely appreciates the financial support provided by the International Development Innovation Network (IDIN) for the implementation of this pilot cookstove project.

We are also grateful to the women of Kitoba sub-county who actively participated in the training and construction process, the local artisan facilitator, the Kitoba sub-county, Bulyango Parish and local council leaders, and community members who supported and attended the first-ever community dialogue on clean energy. Special thanks to Board member Gilbert Mwebesa, who actively participated in the project.

Implementing Organisation: Soil Health & Climate Action Network (SHCAN) Ltd.
Donor: International Development Innovation Network (IDIN)
Project Location: Kitoba Sub-County, Hoima District, Uganda
Project Duration: July – December 2025
Grant Amount: USD 750

Executive Summary

The Rocket Lorena Improved Cookstove Adoption Project was implemented in Kitoba Sub-County, Hoima District, Uganda, with the objective of addressing persistent challenges related to inefficient cooking practices, indoor air pollution, and increasing pressure on forest resources. The project was designed as a pilot, community-led intervention focusing on women as primary users and change agents for clean cooking solutions at household and community levels.

The project trained ten rural women to construct Rocket Lorena improved mud cookstoves with chimneys using locally available materials. The training emphasised both theoretical understanding of clean energy and practical, hands-on construction skills. Through a rotational and peer-supported approach, participants collectively constructed cookstoves for each household, ensuring shared learning, confidence building, and ownership of the technology.
Over an eight-week implementation period, a total of eleven Rocket Lorena cookstoves were constructed and put into use.
These stoves demonstrated significant improvements over traditional three-stone fires, including substantial reductions in firewood consumption, faster cooking times, and reduced smoke exposure in kitchens.
Women reported improved comfort, reduced smoke, use of less firewood, as well as more available time for productive and household activities.

Beyond household-level benefits, the project strengthened local capacity for clean cooking dissemination. The trained women emerged as community stove champions, actively sharing knowledge and supporting other households. Some participants began offering stove construction services as a small income-generating activity, indicating early signs of economic empowerment and sustainability.

Overall, this pilot project demonstrates that low-cost, locally built improved cookstoves, when introduced through a participatory and women-led model, can deliver measurable health, environmental, and socio-economic benefits. The outcomes provide a strong foundation for scaling the approach to more households in the community and beyond Hoima District.

1.

Project Background and Context

Indoor air pollution resulting from open-fire cooking remains a major public health concern in Uganda

Access to clean and efficient cooking solutions remains a major challenge in rural Uganda, where the vast majority of households continue to rely on traditional biomass-based cooking methods. According to the Uganda Bureau of Statistics (UBOS), more than 94% of rural households depend on firewood for cooking, primarily using three-stone open fires. While 3-stone stoves are deeply entrenched due to affordability and cultural familiarity, they are highly inefficient and produce large amounts of smoke.

Indoor air pollution resulting from open-fire cooking is a major public health concern. Women and children, who spend the most time near cooking areas, are disproportionately affected, experiencing respiratory infections, eye irritation, burns, and other health complications.

An Innovations Against Poverty (IAP) report cites that approximately 20,000 deaths per year in Uganda could be directly linked to household air pollution resulting from traditional cooking fuel use.

Continued

These health risks persist largely due to limited awareness of improved cookstove technologies and lack of affordable, locally appropriate alternatives.

Kitoba Sub-County is located in Hoima District in western Uganda, near Lake Albert, and is predominantly rural and agrarian. According to the National Population and Housing Census (2025), the sub-county comprises 7,476 households with an average household size of 4.7 persons. Most residents depend on subsistence farming for livelihoods, making them particularly vulnerable to poverty and environmental degradation.

Firewood scarcity has become increasingly pronounced in Kitoba sub-county due to population growth, agricultural expansion and deforestation. Women and children are often required to walk long distances to collect fuelwood, reducing time available for farming, education, and rest.
This challenge underscores the urgent need for fuel-efficient cooking solutions that reduce dependence on wood fuel. **The Rocket Lorena Improved Cookstove Adoption Project** was developed in response to these interlinked challenges.

The project aimed to address health, environmental, and socio-economic issues holistically and sustainably by focusing on a locally built, improved stove design that could be implemented through a community-led approach.

Aisha, one of the beneficiaries couldn't hide her satisfaction with the new stove, during a monitoring visit.

2.

Project Overview

Women were trained to construct Rocket Lorena improved mud cookstoves using locally available materials.

The Rocket Lorena stove is an improved biomass cookstove designed for firewood use, featuring an insulated combustion chamber and, in many cases, a chimney. This design enables more efficient combustion, higher heat transfer, and significantly reduced smoke compared to traditional open fires. The stove is locally constructed using materials such as anthill soil, dry spear grass, banana stems, and water, making it affordable and appropriate for rural settings.

The project aimed to introduce and promote adoption of the Rocket Lorena stove through a women-led, co-creation model that builds local capacity and ownership.

3.

Project Objectives

Overall Objective

To improve household health, energy efficiency, and environmental awareness in Kitoba sub-county through the adoption of Rocket Lorena improved cookstoves.

Specific Objectives

- To train 10 rural women in the construction and maintenance of Rocket Lorena improved cookstoves
- To reduce household firewood consumption and indoor air pollution
- To empower women with practical skills to improve their livelihoods and community leadership
- To demonstrate a scalable, community-led clean cooking model

Rocket cookstoves with chimneys help reduce exposure to toxic indoor air emissions.

4.

Project Implementation Approach

Through a co-creation and peer-support approach, women collectively constructed cookstoves for each household

The project adopted a participatory and community-led implementation approach integrated with co-creation, peer learning and support. Women were identified as the primary agents of change, given their central role in household cooking and cooking fuel management. Participants were mobilised through existing Village Savings and Loan Associations (VSLAs), which provided trusted platforms for engagement and coordination.

Community sensitisation and mobilisation activities were conducted prior to implementation to ensure informed participation and commitment. Meetings with VSLA groups and local leaders helped align expectations, select participants, and agree on suitable timelines that accommodated women's household and farming responsibilities. Training activities were designed to combine theory with practical application.
A local cookstove artican with experience in Rocket Lorena construction facilitated the sessions, ensuring technical accuracy while using locally understood language and methods. The training emphasised understanding combustion principles, stove efficiency, safety considerations, and maintenance.

The construction phase followed a rotational model in which participants took turns hosting stove construction at their homes. This approach ensured that each woman gained repeated hands-on experience while also fostering mutual support, teamwork, and accountability among all the participants.

Throughout implementation, SHCAN staff conducted regular follow-up visits to provide user support, document progress, and address emerging challenges. This ongoing engagement helped maintain quality standards and reinforced learning throughout the project period.

5.

Stove Construction & Adoption

The stoves were constructed using locally available materials such as banana stems and grass straws

Following the completion of the initial training, the project entered the stove construction and adoption phase, which spanned approximately ten weeks. During this period, participants applied the skills acquired during training to construct Rocket Lorena improved cookstoves in their own households through a rotational, peer-supported approach. This method ensured that learning was reinforced through repetition and practice.

Each participant hosted stove construction activities at her home, with other group members providing labour, guidance, and encouragement.

This collective approach reduced individual workload, strengthened social cohesion, and ensured consistent construction quality.
It also allowed participants to observe variations in kitchen layouts and adapt stove designs to suit different household contexts.

In total, eleven Rocket Lorena improved cookstoves were constructed, one for each of the ten participants and one additional demonstration stove.

Continued

The stoves were built using locally sourced materials, including anthill soil, spear grass, banana stems, bricks, and water. Chimneys were incorporated to safely channel smoke outside kitchens, which significantly improved indoor air quality.

The Rocket Lorena design provides for two pots cooking, which reduces total cooking time, firewood use and improves convenience for households. Women reported faster meal preparation, more consistent heat, and reduced need for constant fire tending compared to traditional three-stone stoves.

Adoption of the stoves was immediate among participating households, as the women were directly involved in construction and understood both the functionality and maintenance requirements. The hands-on involvement greatly increased user confidence and long-term commitment to stove use.

Hands-on skills ensured shared learning, built confidence and ownership of the stoves.

Comparison of Traditional Three-Stone Fire and Rocket Lorena Improved Cookstove

Aspect	Traditional Three-Stone	Rocket Lorena
Fuel efficiency	Very low efficiency; large amounts of firewood required per meal	High efficiency; reduces firewood use by 30–50%
Firewood consumption	One large bundle of firewood per day on average	3-5 large sticks of firewood per day
Number of pots cooked	Usually one pot at a time	Can cook two pots simultaneously
Indoor air pollution	Very high smoke levels; smoke remains inside kitchen	Very low smoke; chimney directs emissions outside
Cooking time	Slow cooking; heat loss common	Faster cooking due to efficient heat transfer
Time spent collecting firewood	High; long distances and daily collection	Significantly reduced time and frequency
Construction materials	Stones and open firewood	Local materials (anthill soil, spear grass, banana stems, water)
Maintenance & repair	No structured maintenance; unsafe setup	Easy to maintain and repair locally
Environmental impact	High pressure on forests; contributes to deforestation	Reduced deforestation due to lower fuel demand

Pictorial

Participants & the facilitator after 3-days of training


Women measure a banana stem during training


The Women gained practical skills in stove building


Chopping grass straws, which are mixed in the mud to create insulation


A participant creating a hole in the wall for the chimney


A leader gives a keynote during the energy dialogue

6.

Community Dialogue & Outreach

36 people attended the first-ever dialogue on clean energy in the community

Community engagement and knowledge sharing were integral components of the project's implementation strategy. To broaden awareness and encourage wider adoption, SHCAN organised a community dialogue on clean cooking and Rocket Lorena stove use.

The dialogue was held on 1 December 2025 at Bulyango Parish Headquarters in Bulyango Central Village, Kitoba Sub-County. A total of 36 participants attended the event, including the sub-county Community Development Officer, the Parish Chief, the Chairperson Local Council II, a SHCAN Board representative, Media personnel, and community members.

The event provided a platform for trained women to share firsthand experiences of building and using Rocket Lorena cookstoves. Participants spoke about reduced smoke in their kitchens, decreased firewood consumption, time savings, and improved comfort during cooking. These peer testimonies were particularly effective in building trust and interest among other community members.

Continued

Community leaders delivered remarks where they emphasised the importance of clean energy solutions for health, environmental protection, and community development. Leaders spoke about the potential impact of the project, including reducing firewood consumption and how that helps reduce climate change.
Discussions also highlighted the role of women as leaders in driving household-level innovation and behaviour change.

The dialogue concluded with agreed action points, including continued peer support, increased community sensitisation, and collaboration with local leaders to promote clean cooking technologies.

The event further strengthened community ownership and laid the groundwork for future scale-up.

Vincent, the Parish Local Council II Chairperson delivered a passionate talk on the potential impact of the project in the community.

7.

Monitoring and Evaluation

Our M&E data shows steep increase in knowledge on clean cooking in the community

Monitoring and evaluation (M&E) were integrated throughout the project to track progress, assess outcomes, and inform learning. Baseline data collection was conducted prior to stove construction to understand existing cooking practices, fuel use, time spent on cooking and firewood collection, and users' knowledge of improved cookstoves.

During implementation, SHCAN staff carried out regular monitoring visits to participating households. These visits focused on observing stove construction quality, functionality, and user satisfaction, as well as identifying challenges related to stove use or maintenance.

Endline data collection was conducted after the stoves had been in use for several weeks.

The endline assessment captured changes in firewood consumption, cooking time, indoor smoke exposure, and user perceptions. Comparisons between baseline and endline data provided evidence of project impact. Qualitative methods, including informal interviews and group discussions, were used to capture participant experiences and lessons learned. These narratives complemented quantitative findings and provided deeper insight into behavioural and social changes resulting from the project.

The M&E process confirmed that the Rocket Lorena cookstoves were effectively adopted and delivered measurable benefits. Findings from the monitoring process will inform future project design, replication, and scale-up efforts.

8.

Project Benefits and Impact

The Rocket stoves cook faster, use less firewood, and require less tending

Women and children, who spend the most time near cooking areas, will benefit from reduced exposure to indoor air pollution

The Rocket Lorena Improved Cookstove Adoption Project generated multiple interrelated benefits for participating households and the wider community in Hoima. These benefits spanned energy efficiency, health, time use, livelihoods, and environmental conservation.

01. Reduction in firewood consumption

One of the most significant impacts was the reduction in firewood consumption. Participants reported noticeable use of less firewood compared to traditional three-stone fires. This reduction eased pressure on local wood resources including the frequency and burden of firewood collection.

02. Faster cooking

Time savings was another critical benefit reported by the benefiting women. Faster cooking times and reduced fuel collection freed up time for women to engage in farming, small businesses, childcare, and rest. These gains contributed to improved household productivity and well-being.

03. Reduced exposure to smoke emissions

Health improvements were widely reported, particularly in relation to reduced smoke exposure resulting from the installation of chimneys. Women noted fewer instances of coughing, eye irritation, sneezing, and discomfort during cooking. Their kitchens were visibly clearer, and cooking environments were more comfortable.

04. Economic empowerment for women

Economic benefits also emerged from the project. Some trained women began offering stove construction services within their communities. This has created new income opportunities and demonstrated the potential for clean cooking technologies to support local livelihoods.

05. Safer kitchens

Women reported that their kitchens are now significantly safer due to organised and more contained cooking around the stoves. They no longer worry about children getting burned by open flames or hot charcoal.

Our co-creation model helped women and their families engage in the stove construction

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9.

Challenges and Mitigation

Flexible scheduling allowed the women to participate in the project, while attending to their household and farming responsibilities.

The primary challenge faced during project implementation was prolonged wet weather conditions. Heavy rainfall disrupted stove construction schedules and extended drying times for the stoves.
In some cases, stoves took between 3-4 weeks to dry fully, compared to approximately one week under dry conditions. This delayed stove use and extended the overall project timeline.

To mitigate this challenge, stove construction activities were adjusted to take place under temporary shelters where possible.

Participants also adapted by spacing construction activities to allow adequate drying time.

Another challenge was balancing women's participation with their household and farming responsibilities. Flexible scheduling and the rotational construction model helped minimise disruptions and maintain engagement.

Despite these challenges, participants demonstrated strong commitment. Flexibility during implementation ensured that all the project objectives were ultimately achieved.

10.

Key Lessons Learned

100% of the stoves built during the project are used daily

One of the key lessons learned from this project is the importance of co-creation and hands-on participation in driving the adoption of improved technologies in rural settings. When community members are directly involved in building their own solutions (cookstoves in this case), they are more likely to understand how the technology works, properly maintain properly, and promote it to others.

The second lesson relates to the role of existing social structures, such as Village Savings and Loan Associations. Working through trusted local community structures reduces barriers to participation, strengthens accountability, and creates natural platforms for knowledge sharing and collective action.

This project highlights the value of locally adapted products.
The Rocket Lorena improved cookstoves accommodate local cooking habits, pot sizes, and fuel types and have therefore been more readily accepted as they have been adjusted to fit everyday practices.

Thirdly, this project demonstrates that even small grants can generate meaningful impact at the grassroots, when implemented properly.

Finally, this project has helped strengthen the credibility of SHCAN, both in the community and at the local council level.

11. Success Stories

The project generated several compelling success stories that illustrate its transformative impact at the household and individual levels. These stories highlight both practical benefits and personal empowerment outcomes.

Women such as Kiiza Mildred, Businge Josephine, and Nyakaisiki Aisha successfully transitioned from trainees to local stove builders. They began offering Rocket Lorena stove construction services within their communities, charging UGX 50,000 (USD 14) for labour on a two-pot stove. These women reported increased confidence, recognition within their communities, and additional income to support their households. Their experiences are a perfect demonstration of how improved cookstoves can improve the livelihoods of rural women.

Other participants shared improvements in household well-being, including cleaner kitchens, healthier relationships, and reduced daily stress associated with cooking and fuel collection.

Here are links to some of the stories.
Media Coverage: Kazi-njema News
Kemigisa Noeline: https://www.facebook.com/share/p/1Ck52kSzCe/
Nyakaisiki Aisha: https://www.facebook.com/share/v/1Cv6C25Wff/
Businge Josephine: https://www.facebook.com/share/p/1CLmuvmww6/
Kiiza Mildred: https://www.facebook.com/share/p/14Rqub8nmYL/

12.

Looking Forward

This Rocket Lorena Improved Cookstove Adoption Project has demonstrated that locally built, low-cost clean cooking technologies can deliver substantial benefits for rural households. Through a women-led, participatory approach, the project achieved improvements in energy efficiency, health, livelihoods, and environmental conservation.

The success of the project underscores the importance of community ownership, practical training, and use of locally available materials. These elements contributed to high adoption rates and sustained stove use among participating households.

Looking ahead, SHCAN plans to build on the momentum generated by this pilot by supporting trained women to reach additional households within Kitoba Sub-County.

Future efforts will focus on expanding training cohorts and strengthening linkages with local institutions. There is also potential to integrate improved cookstove adoption with broader programmes on climate action, women's economic empowerment, and sustainable agriculture. Partnerships with local government and technical institutions will be explored to support scale-up.

We are confident that this project will make a meaningful contribution to clean energy transitions, improved livelihoods, and the building of resilient rural communities in Hoima District and beyond.

Partner With Us

Our Three Areas of Focus

Sustainable Agriculture

- Soil Health Improvement Demonstrations
- Agroecology Demonstration Farm
- Agricultural Loans

Climate Action

- Bamboo Farming
- Improved Cookstove Initiatives
- Agroforestry Promotion (Coffee & Grevillea)

Improving Livelihoods

- Micro Loans for Women
- Beekeeping for Biodiversity Conservation
- Vegetable Farming
- Give-A-Pig Initiative

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