



Cookstove Project: Leveraging Carbon Financing for Sustainable Development



PREPARED BY:
GHE IMPACT VENTURE PVT LTD

PREPARED FOR:
YACHT CARBON FINANCING

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SUMMARY

The Integrated Cookstove Project in Garo Hills, Meghalaya, aims to address environmental, health, and socio-economic challenges by introducing energy-efficient cookstoves to rural households. Leveraging carbon financing, this project has successfully reduced carbon emissions, improved health conditions, and empowered local communities.

Through meticulous implementation and continuous monitoring, the project has significantly decreased deforestation and indoor air pollution, leading to healthier living environments and sustainable use of resources. The energy-efficient cookstoves reduce the need for firewood, preserving the local forests and biodiversity. This reduction in biomass usage directly translates to lower carbon emissions, helping combat climate change and generating carbon credits, which provide financial incentives to sustain and expand the project.

Health benefits are profound as the new cookstoves minimize exposure to harmful smoke, reducing respiratory and eye diseases among women and children who are most affected by indoor air pollution. This improvement in health has had a ripple effect, leading to better overall well-being and reduced healthcare costs for the communities.

Additionally, the project has facilitated gender equality by alleviating the burden on women, who traditionally spend considerable time collecting firewood and cooking over smoky fires. With more efficient cookstoves, women now have more time to engage in educational and economic activities, enhancing their role in community development and decision-making processes.



The project also reinvests the revenue from carbon credits back into the community, funding further development initiatives such as education, healthcare, and infrastructure improvements. This reinvestment creates a cycle of growth and sustainability, ensuring long-term benefits for the region.

This comprehensive report outlines the project's implementation, impact assessment, monitoring, and challenges, highlighting the substantial benefits and providing testimonials from community members who have experienced the transformative effects firsthand. The success of this project underscores the potential of integrating environmental initiatives with community development for holistic and sustainable progress.

INTRODUCTION

PROJECT OVERVIEW:

The Integrated Cookstove Project in Garo Hills is a comprehensive initiative aimed at addressing the multifaceted challenges faced by rural communities in this region. Traditional cooking practices in Garo Hills heavily rely on open fires and biomass fuels such as wood, which result in significant deforestation, high levels of indoor air pollution, and adverse health effects. The project introduces energy-efficient cookstoves designed to burn biomass more efficiently, reducing fuel consumption and smoke production.

These cookstoves not only lower the environmental impact but also improve the quality of life for users by providing a cleaner and more efficient cooking solution. The project leverages carbon financing to fund the distribution and maintenance of the cookstoves, creating a sustainable model where the generated carbon credits support ongoing community development and environmental conservation efforts. Through this integrated approach, the project aims to foster sustainable development, enhance health outcomes, and promote gender equality within the Garo Hills communities.





OBJECTIVES:

The primary objective of the Integrated Cookstove Project is to create sustainable environmental and socio-economic benefits for the Garo Hills communities. Specifically, the project aims to:

- **Reduce Carbon Emissions and Deforestation:** Lower greenhouse gas emissions and decrease deforestation by using energy-efficient cookstoves.
- **Improve Health Outcomes:** Enhance indoor air quality to reduce respiratory and eye diseases caused by traditional cooking methods.
- **Promote Sustainable Development:** Use carbon financing to support local economic growth, infrastructure, and living standards.
- **Empower Women and Ensure Gender Equality:** Alleviate the burden on women, providing more opportunities for education, income, and community participation.

REGION & COMMUNITY DETAIL:

Garo Hills, located in western Meghalaya, India, boasts a picturesque landscape characterized by rolling hills, dense forests, and fertile valleys that sustain the agrarian livelihoods of the Garo tribe. Despite its natural beauty and cultural richness, the region faces significant challenges related to deforestation and indoor air pollution due to the widespread use of traditional biomass for cooking. This reliance not only contributes to environmental degradation but also poses health risks, particularly for women and children who are most exposed to indoor smoke.

The Integrated Cookstove Project in Garo Hills aims to tackle these issues by introducing energy-efficient cookstoves. These stoves are designed to minimize fuel consumption, reduce harmful emissions, and improve indoor air quality. By promoting sustainable cooking practices, the project not only preserves local forests but also enhances health outcomes, empowering women by freeing them from the time-consuming task of gathering firewood. Through carbon financing, the project not only sustains itself but also supports broader community development initiatives, fostering economic growth and infrastructure improvements that benefit the entire region.

PROJECT IMPLEMENTATION



The implementation of the Integrated Cookstove Project in Garo Hills followed a structured approach to ensure effective delivery and maximum impact: The Integrated Cookstove Project in Garo Hills aimed to achieve its objectives of reducing environmental impact, improving health outcomes, empowering communities, and promoting sustainable development practices.

- **Baseline Survey:** Initial assessments were conducted to understand the cooking practices, fuel usage, and health impacts in the target communities.
- **Stakeholder Engagement:** Collaboration with local authorities, community leaders, and households to ensure acceptance and participation.
- **Mobilization:** One or two days prior to distribution, a team went to each village to giving the information to local community about the project & Integrated Cookstove.
- **Cookstove Distribution:** Distribution of improved cookstoves to beneficiaries at a common meeting point in each village.
- **Deployment:** Deployment of improved cookstoves to households, along with training on usage and maintenance.
- **Monitoring and Support:** Regular follow-up visits to ensure proper usage and address any issues.

BASELINE SURVEY:

The baseline survey conducted for the Integrated Cookstove Project in Garo Hills involved a systematic assessment of current cooking practices, fuel sources, and socio-economic conditions within the target communities. This initial survey provided essential data on the frequency and methods of cooking, the types of biomass used, and the prevailing health impacts of indoor air pollution. By establishing a baseline understanding of these factors, the project could accurately measure the impact of introducing energy-efficient cookstoves on fuel consumption, carbon emissions reduction, health improvements, and socio-economic benefits over the course of its implementation.



STAKEHOLDER ENGAGEMENT:

Stakeholder engagement for the Integrated Cookstove Project in Garo Hills involved convening the local community at a central location one month prior to distributing the improved cookstoves (ICS). This gathering was pivotal in fostering understanding and support among community members by providing comprehensive information about the project's objectives, benefits, and implementation timeline. It served as a platform for open dialogue, where community members could express their concerns, provide feedback, and actively participate in decision-making processes. By involving stakeholders early on and ensuring transparency, the project aimed to build trust, promote ownership, and enhance the likelihood of successful adoption and sustained use of energy-efficient cookstoves.



MOBILIZATION:

Mobilization efforts for the Integrated Cookstove Project in Garo Hills involved a proactive approach where, one or two days before distribution, They explained the functionality of the cookstoves and emphasized the benefits of using them, such as reduced fuel consumption and less smoke emissions. By promoting the adoption of ICS, the project aims to minimize the environmental impact caused by traditional biomass cooking methods, such as deforestation and air pollution. This initiative not only conserves local forests by decreasing the demand for firewood but also improves air quality within households, contributing to a healthier environment for community members in Garo Hills.



DISTRIBUTION OF COOKSTOVE:

The distribution of Integrated Cookstoves (ICS) in Garo Hills involved identifying eligible households based on set criteria and transporting the stoves to designated distribution points in each village. A team facilitated the distribution process, ensuring that each household received an ICS along with necessary instructions for installation and usage. This approach aimed to promote sustainable cooking practices, reduce environmental impact by lowering fuel consumption and emissions, and improve health outcomes through better indoor air quality. Beneficiaries were instructed to not open the ICS box. The deployment team visited each household to deploy the Cookstove.

DEPLOYMENT:

During the deployment phase of the Integrated Cookstove Project in Garo Hills, trained technicians were dispatched to villages to install the energy-efficient cookstoves directly in households. Each technician was responsible for assembling the cookstoves, including attaching handles securely with screws, to ensure they were ready for immediate use. To streamline data collection and tracking, technicians used the SurveyCTO app, which allowed them to gather detailed beneficiary information and accurately geotag each installation location. This digital approach not only facilitated efficient project management but also provided a comprehensive record of deployment activities.



As part of the installation process, technicians conducted practical training sessions with household members. They demonstrated how to light the initial fire in the cookstove and educated beneficiaries on essential maintenance procedures. This training covered topics such as cleaning the stove, proper fuel usage to optimize efficiency, and safety precautions to prevent accidents. By empowering beneficiaries with this knowledge, the project aimed to ensure sustainable adoption of the cookstoves and maximize their environmental and health benefits. The hands-on approach during deployment fostered community engagement and ownership, laying a solid foundation for the long-term success and sustainability of the project in Garo Hills.

DATA COLLECTION:

Data collection using an online platform involves gathering and managing information systematically for various purposes, including project monitoring, evaluation, and decision-making. In the context of initiatives like the Integrated Cookstove Project in Garo Hills, Collect is utilized as a digital tool to streamline data gathering processes. Field teams equipped with mobile devices use Collect to input beneficiary details, geographical coordinates (geotagging), and other relevant data directly into the application.

Collect facilitates real-time data entry, ensuring accuracy and completeness of information collected during activities such as cookstove distribution, installation, and beneficiary surveys. The platform's capabilities allow for efficient data synchronization, enabling project managers and stakeholders to access up-to-date information promptly. This digital approach not only enhances data integrity but also supports evidence-based decision-making and reporting, crucial for monitoring project progress and assessing impact effectively in Garo Hills.

Global Himalayan Expedition **atlan collect**

Beneficiary Form_GHE
 Chingseng M Sangma
 +917630096081

Surveyor Profile

1 **Name of the GHE person doing distribution** Text
Chingseng M sangma

2 **State** Choice
• Meghalaya

3 **District** Choice
• South Garo

4 **Block Name** Choice
• Gasuapara

5 **Village Name** Choice
• Boldamgre

6 **Geo Location** Location
Latitude: 25.2378977
Longitude: 90.3779252

User Profile

7 **First Name of the Beneficiary** Text
Nangban

8 **Last Name of the Beneficiary** Text
Sangma

9 **Gender** Choice
• Female

10 **Mobile number** Phone
IN(+91)-8798513542

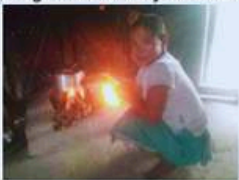
45

12 **Govt ID Proof**
• Voter ID

13 **ID Number**
JBC0596064

14 **Total Number of people in the household**
Settings: Limits: [0, 50] Soft Limits: [1, 50]
5

Agreement Form


15 **Image of Beneficiary with the Cookstove**


16 **Cookstove Serial Number**
J22VJ253596

17 **Agreement Confirmation 1**
• Yes

18 **Agreement Confirmation 2**
• Yes

19 **Agreement Confirmation 3**
• Yes

20 **Signature for Agreement**


Screenshots of Beneficiary Form

PAMPHLETS OF BENEFITS & DO'S & DON'T FOR ICS



Clean Cookstove Project
An Initiative by GHE

Faster Cooking
From cooking rice in 40 mins
To cooking rice in 15 mins

Firewood Reduction
From 15 kgs of wood usage everyday
To 7-8 kgs of wood usage everyday

Time Saved
From time used in multiple trips to collect firewood
Using time saved for livelihood activities

Health Benefits
From a smokey unhealthy kitchen
To a smoke free clean kitchen

Benefits of Integrated Cookstoves:

- **Faster Cooking:** Integrated cookstoves are designed to cook food more quickly than traditional stoves.
- **Firewood reduction:** These cookstoves require less firewood, reducing the pressure on local forests.
- **Saves your time:** By cooking faster and needing less fuel, integrated cookstoves save significant time for users.
- **Health Benefits:** The cookstoves produce very little smoke compared to traditional ones, significantly improving indoor air quality and reducing respiratory issues.

Guideline for using Integrated Cookstove:

- **Placement of firewood:** Place the firewood on the fuel tray in the cookstove
- **Cleaning:** Cleaning of fire residuals after every use.
- **Cookstove Placement:** The cookstove should be placed on the plain surface.
- **Don't Temper:** Contact local point of contact in case of any kind of repair and maintenance of the cookstove.



Clean CookStove Guidelines

Place the firewood on the fuel tray in the cookstove

Do not use the cookstove without the fuel tray

Clean the cookstove after every use

Do not use plastic for burning in the cookstove

Place the cookstove on a plane surface

Do not use the cookstove in the rain

Contact the local SPOC for any repairs/maintenance

Do not remove the handles or try to repair the cookstove by yourself

MONITORING & EVALUATION

Monitoring the Integrated Cookstove Project involves systematically tracking and assessing the progress and performance of the project to ensure its objectives are being met. This includes regular visits to households to check the usage and condition of the cookstoves, collecting feedback from beneficiaries, and verifying the data collected through a platform.



- **Mobile App to Register Each Stove and Collect Baseline Data:** At the start of the program, each cookstove is registered using a mobile app, which collects baseline data for each household. This data includes information on current cooking practices, fuel usage, and health indicators, providing a foundation for measuring the project's impact over time.
- **Training Volunteers and Educational Campaigns:** Volunteers are trained on the proper usage and maintenance of the cookstoves. They also participate in implementing educational campaigns through digital mediums, ensuring that households understand how to use the cookstoves efficiently and safely. These campaigns help reinforce best practices and promote sustained adoption of the new technology.
- **Collaboration with Standards for Impact Monitoring and Carbon Credits:** The project works with established standards to monitor its environmental and social impacts. This includes tracking reductions in fuel consumption and smoke emissions. The data collected supports the generation of carbon credits, which can be sold to fund further community development initiatives.

CHALLENGES

The implementation of the Integrated Cookstove Project in Garo Hills faced several challenges:

- **Cultural Acceptance:** One of the main challenges was encouraging households to transition from traditional cooking methods to using the new cookstoves. Many community members were accustomed to their long-standing practices and initially resistant to change.
- **Language Barrier:** Communication difficulties arose due to the diverse linguistic landscape of the Garo Hills. To mitigate this barrier, only local technicians who spoke the native languages were hired and trained. Additionally, mobilization, distribution, deployment, and monitoring activities were conducted by local youth.
- **Logistical Issues:** The hilly and remote terrain of Garo Hills posed significant logistical challenges in transporting cookstoves and materials to the villages. Poor infrastructure and limited access roads made it difficult to reach all target households efficiently.
- **Training and Education:** Ensuring that all beneficiaries fully understood how to use and maintain the cookstoves required extensive training efforts. Some community members had limited literacy and technological skills, complicating the training process.

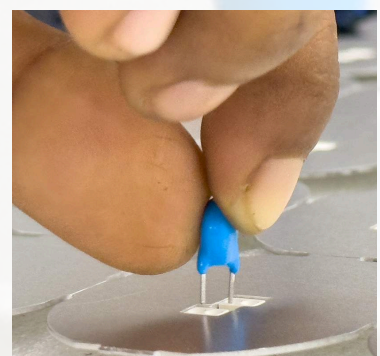




Leveraging Carbon Finance for Rural Development

LED Assembly Line

The **LED assembly** line in Tura, West Garo Hills, **Meghalaya**, was established last year and has been **operational** since **October 2023**, boasting a monthly **production capacity** of **10,000 bulbs**. This significant venture was **inaugurated** by the Honorable **Chief Minister of Meghalaya, Mr. Conrad K Sangma**, marking a milestone in local industry development. The assembly line is **managed** by a team of **local youth** who have undergone extensive training from industry experts, equipping them with the necessary skills to excel in this field. These enterprising young individuals have not only mastered the technical aspects but have also proactively engaged with local markets and suppliers to create a robust supply chain. This initiative has generated local employment opportunities, fostering economic growth and self-reliance within the community. By **leveraging local talent and resources**, the project exemplifies the power of youth-led enterprises in driving sustainable regional development and innovation.



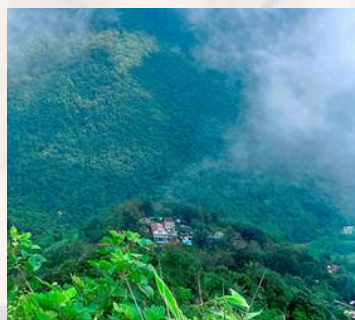
Eri Silk Weaving Centre

This initiative is currently in the **planning stages**, with enthusiastic participation from local artisans and farmers. We are actively finalizing the operational details of the center to ensure efficient execution. **Scheduled to begin in year two** due to its capital expenditure (capex) and operational expenditure (opex) requirements, this phased approach underscores our commitment to meticulous preparation and sustainable development practices. By fostering **community engagement and harnessing local expertise**, we aspire to not only achieve project success but also catalyze lasting socio-economic benefits for the region, promoting resilience and prosperity.



Food Processing Units:

We have identified Self-Help Groups (SHGs) interested in partnering to establish a **central food processing unit** that will **benefit a significant portion of the community**. We are currently finalizing the project details. Due to its capital expenditure (capex) and operational expenditure (opex) intensive nature, the project is **scheduled** to commence in **year three**. This phased approach ensures thorough preparation and sustainable implementation. By **collaborating with SHGs** and leveraging local resources, we aim to enhance **community livelihoods and drive economic growth**, creating **new job opportunities** and promoting **local agricultural productivity**.





Eco-Homestay Development:

The project has been segmented into two distinct phases:

- **Skill Development:** This phase has been **successfully completed**, focusing on identifying and **training local participants** interested in establishing and operating homestays. The training program, **conducted over five days in May 2023**, covered essential topics including **gastronomy, marketing, hospitality, and financial management**.
- **Infrastructure Development:** The upcoming phase involves **setting up eco-homestays with the trained hosts**. This step hinges on generating the required **capital through** the sale of **carbon credits**, slated for later this year. This phased approach ensures comprehensive preparation and **sustainable implementation**, aiming to leverage local talent and resources for long-term community benefit.

How it works



A view of GHE's carbon neutral accommodation

TESTIMONIALS



Crystalin Marak
Lower Rongbu, Meghalaya

I am grateful to you for the awareness about cookstove and its benefits. Using this cookstove has been a blessing for me. It saves firewood, cooks fast, and produces no smoke. Thank you, GHE team, for your dedication.

Nekas Momin

Naringre Marchonggittim, Meghalaya

Cooking has been less painful now as before my eyes would pain due to the smoke Now I can cook without eyes pain



Ladia CH Sangma

Boldamgre, Meghalaya

I'm very pleased with this cookstove. It's incredibly easy to use, and ever since I started using it, it has saved me a lot of time. Now, I can dedicate that extra time to helping my child with their studies. Additionally, it creates a safe environment for me and my family by emitting very little smoke.





Conclusion:

The Integrated Cookstove Project in Garo Hills has successfully demonstrated the potential for leveraging carbon financing to achieve sustainable development goals. By introducing energy-efficient cookstoves, the project has significantly reduced fuel consumption, improved indoor air quality, and enhanced the overall health and well-being of the community. The active engagement of local technicians and youth in mobilization, distribution, deployment, and monitoring ensured effective communication and cultural acceptance, overcoming language barriers and resistance to change.

Despite facing logistical challenges and the need for extensive training and education, the project's comprehensive approach ensured that beneficiaries were well-informed and capable of maintaining the new cookstoves. The deployment of digital tools for data collection and geotagging further enhanced the project's ability to monitor and evaluate its impact accurately.

Ultimately, the project not only achieved its environmental and health objectives but also fostered a sense of ownership and empowerment within the community. By addressing the challenges encountered and leveraging local resources, the Integrated Cookstove Project has created a sustainable model for future initiatives aimed at promoting clean energy solutions and improving livelihoods in rural areas. The success of this project underscores the importance of community-centered approaches and innovative financing mechanisms in driving sustainable development.