Sustainable Development Verified Impact Standard

HOLISTIC DEVELOPMENT OF NORTH EAST INDIA THROUGH CLEAN ENERGY ACCESS

SDG13 VENTURES PTE LTD

Project Title	Holistic development of North East India through clean energy access
Version	1.1
Date of Issue	22 July 2022
Project Location	North Eastern States of India[1]
Project Proponent(s)	SDG13 Ventures Pte Ltd
Assessor Contact	KBS Certification Services Pvt. Ltd. 414-424, Om Shubham Tower, Faridabad-121001, Haryana-India

[1] Meghalaya, Arunachal Pradesh, Assam, Manipur, Mizoram, Nagaland & Tripura States

Project Lifetime	01/07/2022 – 30/06/2032; 10 Years
History of SD VISta Status	First Attempt
Other Certification Programs	Verified Carbon Standard
Expected Future Assessment Schedule	01 July 2022 (Expected date of completion of project validation)

CONTENTS

1 SUMMARY OF SDG CONTRIBUTIONS

The project will generate unique benefits in terms of the planet, the local population and their prosperity. The proposed grouped project activity seeks to reduce greenhouse gases emissions by disseminating fuel- efficient cookstoves in North East part of India, which includes seven hilly states. Northeast India (officially North Eastern Region, NER) is the easternmost region of India representing both a geographic and political administrative division of the country. It comprises eight states – Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Tripura and Sikkim. The proposed grouped project activity seeks to increase access of households and communities to improved cookstoves by disseminating high thermal efficiency and low greenhouse gas emitting cooking stoves known as Improved Cook Stoves (ICS) to the rural and semi-urban households of North Eastern states. Their old low efficiency and high greenhouse gas emitting stoves would be replaced. The implementation of the project activity, will result in the reduction of firewood consumption & consequent emissions from combustion leading to climate change mitigation in a sustainable manner. Overall objectives are reduction of greenhouse gases, conservation of forests and woodlands as well as improved health conditions of ICS users due to improved indoor air quality along with drudgery reduction in everyday cooking. The Himalayan states of India, viz. Arunachal Pradesh, Assam, Himachal Pradesh, Jammu & Kashmir, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim, Tripura, Uttarakhand and West Bengal are biodiversity hotspots, with a high percentage of their geographical area under forest cover. Many of them have a history of forest conservation and have seen many community-driven movements (Ishizaka, 2013).

The effects of firewood consumption in Indian Himalayan states for cooking and heating purposes have been studied widely. Affluent households with higher levels of firewood consumption are expected to collect or indirectly procure (via market) higher amounts of firewood from forests. Both demand for and supply of firewood is also expected to vary seasonally and thus determine their pattern of fuel stacking.

Table 1: Snapshot of Indian Himalayan States Wherein the Group Project is Planned to be Implemented.

States	Share of geographical area in the Indian Himalayan Region	Share of rural households using firewood as fuel for cooking
Arunachal Pradesh	0.16	0.85
Assam	0.03	0.81

States	Share of geographical area in the Indian Himalayan Region	Share of rural households using firewood as fuel for cooking
Manipur	0.04	0.82
Meghalaya	0.04	0.94
Mizoram	0.04	0.81
Nagaland	0.03	0.92
Sikkim	0.01	0.71
Tripura	0.02	0.93

Source: ENVIS Centre on Himalayan Ecology, Census 2011, Forest Survey of India (various years), Maps of India

Usage of inefficient firewood leads to indoor air pollution and land use patterns have been showing a decrease in forest land cover and increase in degraded land. Increasing pressure from human and livestock population and indiscriminate and illegal exploitation of forest resources are among factors that have led to further intensification of the problem. A trend of forests turning into open scrubs has been observed. Degradation of forest lands has exacerbated the already existing problem of desertification. There is a need to maintain adequate forest cover in the state to mitigate climate change effects.

The purpose of the project is to reduce the demand for non-renewable biomass for household cooking needs. AS indicated in the above table that more than 70% of households in the identified project region still cook using traditional biomass stoves and open fires. The project aims to reduce the environmental and social burdens caused by inefficient biomass cooking by introducing energy efficient wood stoves to low- income households.

Row number	Estimated Project Contribution by the End of Project Lifetime	SDG Target	SDG Indicator	Net Impact on SDG Indicator	Section Reference	Claim, Asset or Label
Sequential row number	*Brief description of the quantifiable impact of the project's activities related to the SDG indicator*	*SDG target number*	*SDG indicator number, where directly related to an indicator, and exact text of indicator*	*Indicate the project's net expected contribution to the indicator*		
1)	Distribute 250,000 high-efficiency, clean burning Greenway Jumbo Cookstoves to benefit over7.5 million individuals.	7.1	7.1.2: Proportion of population with primary reliance on clean fuels and technology	*implemented activities to increase*	3.2 #1 & VCS validation report	Claim
2)	Reduce the total fuelwood usage in the project area to generate approximately 8 million tCO_2e of emission reductions annually	13.0	Tonnes of greenhouse gas emissions avoided or removed	Decrease	3.2 #2 & VCS validation report	SD VISta-labeled VCUs
3)	The project will lead to reduction in Household Air Pollution (HAP) thereby resulting in improved health conditions of women and children.	3.9	3.9.1: Mortality rate attributed to household and ambient air pollution	*implemented activities to decrease*	3.2 #3	Claim
4)	Under the project scenario, women will see a massive reduction in both the amount of fuelwood required for cooking, and the amount of time taken to cook. They would be able to save 2 to 5 hours daily. They would also have time to engage in other employment opportunities.	5.4	5.4.1: Proportion of time spent on unpaid domestic and care work, by sex, age and location	*implemented activities to decrease*	3.2 #4	Claim

5)	The project will generate around 20-30 employment opportunities for assembling of ICS, distribution of ICS and post-sale operation & Maintenance of ICS	8.3	8.3.1: Proportion of informal employment in total employment, by sector and sex	*implemented activities to* Increase	3.2#5	Claim
6)	Reduce the risk of mortality among infants and children under five years of age due to (1) acute lower respiratory illnesses (ALRI), such as pneumonia and bronchitis, the cause of mortality in 12% of children under five, and (2) burns resulting from children falling into open cooking fires.	3.2	SDG 3.2.1 Under-five mortality rate SDG 3.2.2 Neonatal mortality rate	*implemented activities to decrease*	3.2#6	Claim

2 PROJECT DESIGN

2.1 Project Objectives, Context and Long-term Viability

2.1.1 Summary of Project Sustainable Development Objective(s)

The proposed grouped project activity seeks to reduce greenhouse gases emissions by disseminating fuel- efficient cookstoves in North Eastern states of India. The proposed grouped project activity seeks to increase access of households and communities to improved cookstoves by disseminating high thermal efficiency and low greenhouse gas emitting cooking stoves known as Improved Cook Stoves (ICS) to the rural and semi-urban households of North Eastern states of India. Their old low efficiency and high greenhouse gas emitting stoves would be replaced. The implementation of the project activity, will result in the reduction of firewood consumption & consequent emissions from combustion leading to climate change mitigation in a sustainable manner. Overall objectives are reduction of greenhouse gases, conservation of forests and woodlands as well as improved health conditions of ICS users due to improved indoor air quality along with drudgery reduction in everyday cooking.

'SDG13 Ventures Pte Ltd' (herein after called as "SDG") is the project participant ("PP") for this project. SDG is a company registered in the Republic of Singapore. SDG will facilitate distribution of ICS for rural and semi-urban households in North Eastern states as described in previous section. The project activity will enable the dissemination of ICS manufactured by appropriate ICS manufacturers or technology suppliers meeting project eligibility criteria to the end user.

SDG through its representative in North East will coordinate with the users of ICS directly or through local partners or its representative to ensure that all requirements with respect to project activity, such as assisting with validation and registration, record keeping, monitoring and survey of households at a regular interval are met.

The individual households using ICS will sign an agreement with the project proponent acknowledging the inclusion of their stove into project activity.

The baseline scenario is the continued use of non-renewable wood fuel by the target population to meet similar thermal energy needs as provided by project cookstoves in absence of project activity.

The first project instance under the group project is expected to distribute 250,000 improved cook stoves in phased manner of distribution. It has planned to distribute 50,000 ISC/year up to 5 years.

The estimated average annual GHG emission reduction from the project is 6,800,17 tCO_2e and the total GHG emission reduction estimated for the whole crediting period from the project activity is 6,800,172 tCO_2e.

2.1.2 Description of the Project Activity

Stoves disseminated under this grouped project activity will target rural and semi- urban households using traditional, unimproved cookstoves and open fires for cooking. The projects under the group project will distribute improved wood cookstove to households, a portable improved-efficiency stove manufactured in India. The ICS will have an average lifespan of 7 years and thermal efficiency of about 38%.

A typical project instance under project activity will replace conventional firewood stoves with higher efficiency ICS models by leveraging resources provided by the project activity in rural/semi-urban areas. ICSs are more efficient than conventional firewood stoves as they reduce heat loss and improve heat transfer and combustion efficiency. The ICS models are fuel efficient, resulting in a decrease in fuel use in comparison to conventional pre-project stoves while also reducing particulate matter and carbon emissions. Design considerations have also incorporated ergonomics and safety.

The project activity will continually assess biomass stove technology options with the goal of providing the high performing, affordable and locally appropriate technologies to the local environments when possible. As the project expands, several models of biomass stoves produced by ICS manufacturers may be included in the project activity. Inclusion of such stoves would be subject to compliance with requirements of the methodology and the eligibility criteria of the project. The PP is committed to investing in research and development for the improvement of the current stoves being proposed to be disseminated. Thus, during the life of the project activity, research and development may result in dissemination of more efficient ICS models, which shall be absorbed by this project, subject to methodological and eligibility criteria of the project. Upon inclusion into the project activity, all ICS will remain valid throughout the lifetime of the project period until the PP chooses to discontinue crediting of the improved stoves. Each project instances will provide a detailed description on the specific stove model/s implemented/envisaged to be implemented and the target customers for each of them.

Below are the currently eligible ICS:

1. Greenway Jumbo stoves
2. Greenway stoves (e.g. Smart, Prime, Uno)
3. Any other stove with minimum efficiency of 25% shall also be part of inclusion in future instances.

The ICS cooking system is made of a fuel chamber for combusting the renewable biomass. The pot-rest is above the fuel chamber. The stove has one air inlet and weighs approximately 3782 grams.

Fig. Green Jumbo ICS

A record keeping system and unique identification of the ICS will be done by user's information collected through the Beneficiary Agreement and compiled in distribution records. This will include user name, identification number and address/location of the user's house, stove unique serial code and distribution date. The record keeping system will ensure that each ICS can be traced to project to avoid double counting.

2.1.3 Implementation Schedule

Date	Milestone(s) in the Project's Development and Implementation
20-July-2022	VCS project Validation
20-Agu-2022	SD VISTA project Validation
01-Oct-2022	Agreement to procure ICS (Expected Distribution Strat Date)
01-March-2022	VCS/SD VISTA project verification for period 2021-2022
Annual/biennial	Ongoing verification

2.1.4 Project Proponent

Organization Name	SDG13 Ventures Pte Ltd
Role in the Project	Project Partcipant
Contact Person	Neha Juneja
Title	Ms
Address	100 Peck Seah Street #10-18 PS100 Singapore 079333
Telephone	+65 6962 0655
Email	sdg13ventures@gmail.com , nj@sdg13ventures.com

2.1.5 Other Entities Involved in the Project

N/A

2.1.6 Project Type

Sectoral Scope: 03
Project Type: Type II – Energy Efficiency Improvement Project

Grouped Project: Yes

2.1.7 Project Location

The ICSs in this PA are located at various locations across North Eastern States as Indicated in section 1.1. The geographical coordinates of North Eastern states of India are:

Coordinates:

State	Latitude	Longitude
Meghalaya	25° 30' N	91° 00' E
Arunachal Pradesh	28° 00' N	95° 00' E
Assam	28° 00' N	95° 00' E

Manipur	24° 44' N	93° 58' E
Mizoram	23° 30' N	20° 52' E
Nagaland	26° 00' N	94° 20' E
Tripura	23° 45' N	91° 30' E

The map showing the state coverage by the project is given below:

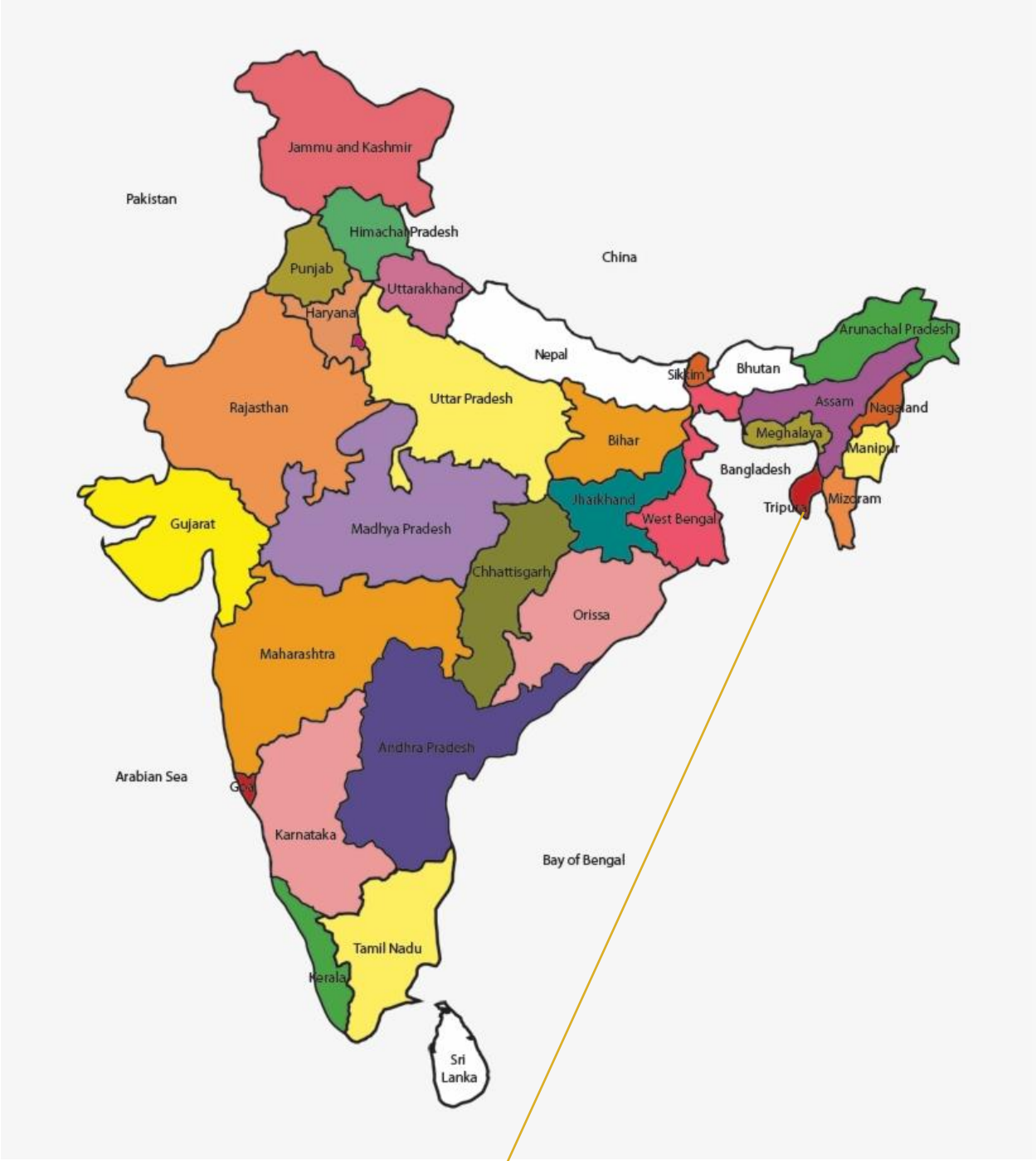
Jammu and Kashmir
Pakistan
Himachal Pradesh
China
Punjab
Uttarakhand
Haryana
Arunachal Pradesh
Nepal
Sikkim
Bhutan
Rajasthan
Uttar Pradesh
Assam
Nagaland
Meghalaya
Bihar
Manipur
Bangladesh
Jharkhand
Tripura
Mizoram
Gujarat
Madhya Pradesh
West Bengal
Chhattisgarh
Orissa
Maharashtra
Andhra Pradesh
Arabian Sea
Goa
Karnataka
Bay of Bengal
Tamil Nadu
Kerala
Sri Lanka

Fig: North Eastern States (Provinces), where the group project is planned to be implemented.

2.1.8 Baseline Scenario

Various research shows that, firewood was the main fuel used to suffice domestic needs. The publicly available research[2] undertaken by TERI shows the following facts about the North Eastern states of India:

The Himalayan states of India, viz. Arunachal Pradesh, Assam, Himachal Pradesh, Jammu & Kashmir, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim, Tripura, Uttarakhand and West Bengal are biodiversity hotspots, with a high percentage of their geographical area under forest cover. Many of them have a history of forest conservation and have seen many community-driven movements (Ishizaka, 2013).

The effects of firewood consumption in Indian Himalayan states for cooking and heating purposes have been studied widely. Affluent households with higher levels of firewood consumption are expected to collect or indirectly procure (via market) higher amounts of firewood from forests. Both demand for and supply of firewood is also expected to vary seasonally and thus determine their pattern of fuel stacking.

[2] https://www.teriin.org/article/firewood-consumption-and-forest-degradation-himalayan-states-review-research-gaps

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Usage of inefficient firewood leads to indoor air pollution and land use patterns have been showing a decrease in forest land cover and increase in degraded land. Increasing pressure from human and livestock population and indiscriminate and illegal exploitation of forest resources are among factors that have led to further intensification of the problem. A trend of forests turning into open scrubs has been observed. Degradation of forest lands has exacerbated the already existing problem of desertification. There is a need to maintain adequate forest cover in the state to mitigate climate change effects.

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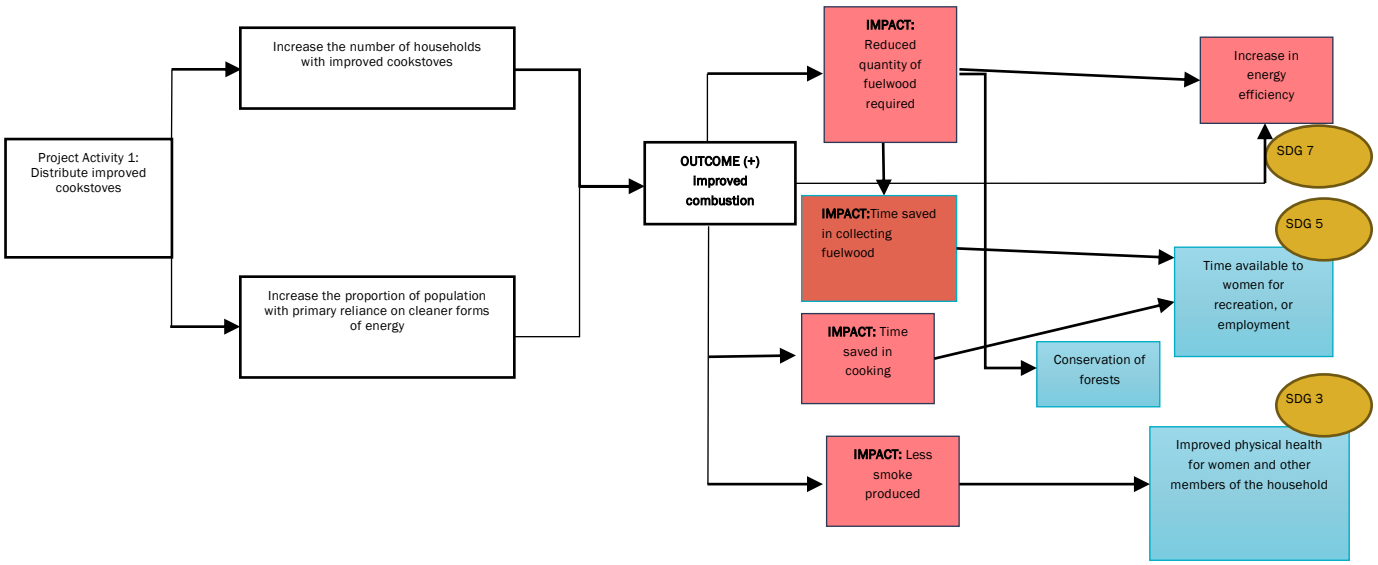
environmental and social burdens caused by inefficient biomass cooking by introducing energy efficient wood stoves to low- income households.

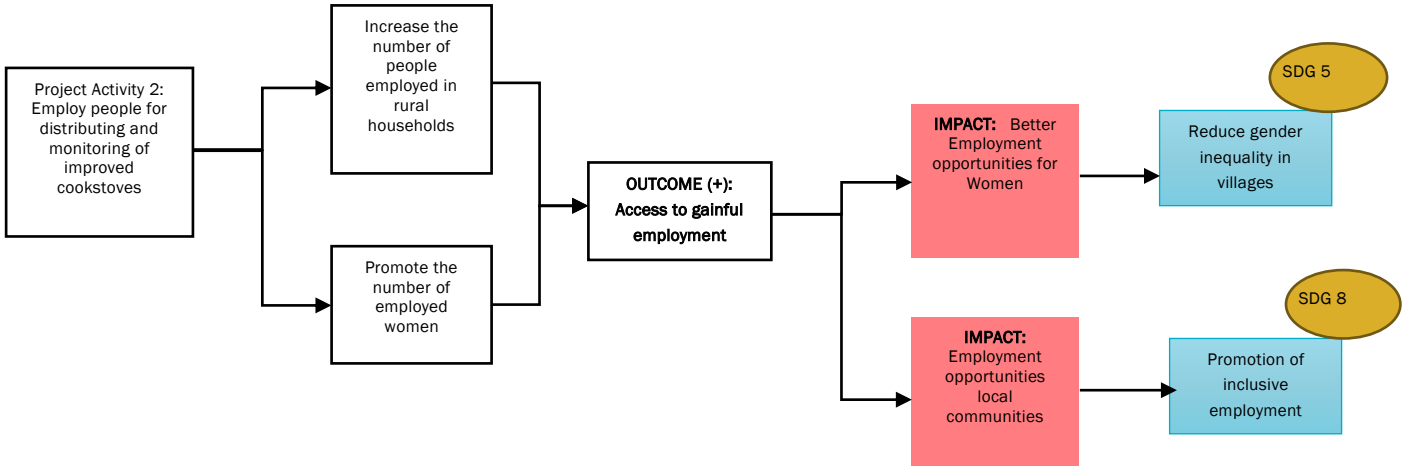
2.1.9 Causal Chain(s)

The installation of improved cookstoves in all households generates a net positive impact with respect to all stakeholders, especially women, who are the primary users of cookstoves.

Project activity 1:



Project activity 2:



2.1.10 Threats to the Project

Threat: Cultural worldview limits reception of improved cookstoves as a larger fire from the baseline stove is seen as superior. It is generally difficult for people to change habits

Solution: The project proponent will continue to employ local resource persons to explain the benefits of the cookstoves in local languages and from their cultural perspectives.

Threat: Many households cannot afford the new improved cookstoves because of financial constraints

Solution: The project proponent will provide credit facility wherever possible, and make partnerships with local NGOs and similar institutes for delivering cookstoves at a subsidized cost. A nominal charge for the sale of ICS will be taken from the users of ICS in order to subsidize the stoves.

Threat: North Eastern states are located in the Himalayan region, where there are threats of landslides during rainy season and approach roads to remote locations may not be accessible.

Solution: It will be ensured the that distribution and maintenance work completed before the start of rainy season.

2.1.11 Benefit Permanence

The project activity aims to change the cooking habits of households by introducing improved cookstoves, which will enable users to reduce their fuel requirements, reduce the cooking time, improve their health conditions and increase the employment opportunities available to them. It is estimated that post the project activity, rural households will continue to use improved cookstoves in future, due to the benefits associated with them, and thereby accrue significant environmental as well as socio-economic benefits.

Household Air Pollution (HAP) due to inefficient burning of wood for cooking is responsible for premature deaths each year in rural areas. The research tilted, "Indoor air pollution in rural north-east India: Elemental compositions, changes in hematological indices, oxidative stress and health risks' substantiates the correlation between the indoor air pollution and inefficient cooking methods.

Further another research[3], "Indoor Air Pollution by Particulate Matter from Wood Fuel: An *Unresolved Problem" concludes the following fact.*

"Indoor air pollution derived from solid fuels has been considered the eleventh overall risk factor for mortality and the seventh risk factor for burden of disease, estimated to be responsible for 2.6% of the global burden of disease. Compared to households that use cleaner fuels (i.e., electricity, kerosene, natural gas) mortality rates of children under five from households that use more polluting fuel (biomass) are substantially higher. Consequently, it has been estimated higher risk of death in rural areas".

[3] https://www.omicsonline.org/open-access/indoor-air-pollution-by-particulate-matter-from-wood-fuel-an-unresolved-problem.php?aid=82389

The Project focuses on a program of social awareness and supports all beneficiaries with a system of maintenance that will help extend the lifespan of the ICS deployed. Through regular visits to households and different villages, project beneficiaries will be informed about the many ways to extend the life of the ICS technology, including which parts will need timely maintenance, how to clean stoves to ensure proper airflow, and what cooking techniques can be used to protect and preserve stove components. Greenway's efforts to provide replacement and free maintenance wherever needed will help increase demand of Greenway Jumbo stoves among households across the project area. As a result, the project is helping ensure that stoves installed over 5 years ago will continue to function efficiently ensuring benefit permanence.

2.2 Stakeholder Engagement

2.2.1 Stakeholder Identification

The stakeholders have been identified as individuals/organizations who will be directly or indirectly impacted due to the project activity. The project activity involves distribution of improved cookstoves to individual households in rural/semi-urban areas of North Eastern states of India.
Stakeholders have thus been broadly identified as:

- Individuals, groups or communities who are affected or likely to be affected by project activities;
- Individuals, groups, or communities that show an interest in the project.
- NGOs and environmental consulting organizations in the project area.
- Individuals getting employment due to project activity
- Village panchayats/ communities
- Local Businesses

Indirect stakeholders within the second category might not experience direct positive impact due to the project activity, but they have been consulted on an informal basis to identify risks and opportunities associated with the project. They include local NGOs, various government authorities and local businesses. The project therefore identified different levels of local government machinery with which contact and consultation would need to be maintained. This included village levels local governance bodies (*panchayat*) and other block level and district levels bodies. It was also considered important to establish contact with different branches of forest department that helped manage many forest-dwelling communities. Additionally, the project also identified some local rural youth, and local rural entrepreneurs as stakeholders for their interest in the livelihood generation activities within the project. Local Non-Governmental Organizations (NGOs) and were also determined as important stakeholders in terms of generating awareness regarding the ICS, as well their contribution in curbing climate change and global warming.

The invitations for local stakeholder consultation were sent out on email and the newspaper advertisements in regional newspaper 'Meghalaya Times' which has a wide readership in the identified distribution area. Advertisement was published on 06th April 2022 in the cite regional newspaper and local stakeholder meeting was held on 04th May 2022. The further details are provided under section 2.2.3 on the local stakeholder meeting conducted.

2.2.2 Stakeholder Description

The relevant stakeholders have therefore been identified as

1. The potential users of improved cookstoves (ICS)
2. The individual getting employment due to project activity
3. ICS manufacturer
4. Village panchayat/Communities where ICS will be distributed
5. Local NGOs and businesses
6. Climate Change/Environment Professionals

The user of improved cookstoves (ICS)

Beneficiaries have been identified as rural household dependent on traditional cookstoves to meet their daily energy requirements and willing to adopt a new ICS. These include communities dwelling within forests and near forests. Beneficiary households include individuals living in or sharing the same family compound, and using the same kitchen. We give priority to installing stoves for women who show immense interest in the positive attributes associated with the stoves. Culturally, these communities are organized in a traditional manner with more literates among the younger generations and with most elderly as engaged in farming or animal husbandry activities. Due to lack of educational and employment opportunities, social transformation is not easy. Unsubsidized ICS are generally inaccessible to the local rural population. As a result, locals welcome all interventions that bring improved economic productivity that might help alleviate poverty in various ways. Beneficiaries' interest is in saving their time and resources, improving their health and promoting economic stability.

The individuals getting employment due to project activity

The project will require local resource persons for distribution and monitoring activities, related to data collection, and future upkeep of the ICS. These will be primarily carried out by local youth and women. Local women will be encouraged to join the field staff for these activities and be part of greenway's supply chain model. Culturally, most of these women are engaged in household labor throughout the week, with little access to local jobs. They are also under strict control of gendered norms within respective communities. Their employment therefore will help empower them in a gradual fashion, and contribute towards enhancing their skills and capacities.

ICS Manufacturer:

The PP will procure the ICS from manufacturer of the same, as per user requirement the ICS to be designed or modified. The ICS manufacturer are one of the relevant stakeholders and will be consulted for any changes or providing details for safe and effective usage of ICS to be distributed.

Village panchayat/Communities where ICS will be distributed

These consist of village panchayat members, and its head. They have been identified and informed through direct visit to local villages. They have a common goal of improving welfare of all villagers, and the village as a whole, and therefore will be directly impacted with the project activity.

Village communities also include self-help groups and other women's groups with influence in the village. Self-help groups are also critical in terms of providing small loans so as to subsidize the cost of the ICS, and ensuring adoption and usage of the ICS among women.

Local NGOs and businesses

Organizations who have contacts with local villages and have been working for the empowerment of local communities were identified. These organizations are indirect beneficiaries and their assistance regarding adoption and continued use of new ICS is really important. They can influence consumption of new cookstoves and have a positive impact on the livelihood and overall wellbeing of rural households.

Climate Change /Environment Companies/Professionals

Professionals representing the competence in the area and well versed with the local/host country's baseline, need of technology inter alia. They can directly influence community mindset and are engaged in different kinds of tasks which will help improve lives of local population.

2.2.3 Stakeholder Consultation

The Local Stakeholder meeting was conducted in online mode considering the rising COVID-19 cases and also this project is greenfield project. The invitations were sent out on email and the newspaper advertisements in regional newspaper 'Meghalaya Times' which has a wide readership in the identified distribution area. Advertisement was published on 06th April 2022 in the cite regional newspaper and local stakeholder meeting was held on 04th May 2022. This ensured that the project adhered to the criteria of giving reasonable time notice to stakeholders invited. Stakeholders were chosen in such a manner that they represent the various fields e.g., the experts of climate change, cookstoves, consultants, NGOs including the potential users. The minutes of the meeting were recorded by the project participant. The meeting invitation through newspaper is presented below:

MEGHALAYA TIMES

GSWSS III completion by year's end

Contractors accused of using second-hand pipes

Tongkhar warns against shortcuts in JJM

Govt ready to check army vehicles for drugs

Police probing bomb threat

Man takes the law into his own hands

Govt releases Rs 60 cr for SSA teachers' dues

Govt yet to appoint new DGP

Kinks in school bus project being worked out

HC wants action report on prevention of 'loot of minerals'

Students miss exams because of landslides

2.2.4 Continued Consultation and Adaptive Management

Through these preliminary investigations (using surveys, interviews, and focused group discussions) we realized that affordable technological interventions un cookstove designs and a seamless delivery system can help households to reduce firewood consumption, and save substantial time for women who travel great lengths to collect wood. Systematically planned distribution also ensures new income generation opportunities and aids in improving local economies. Women, for instance, get involved in decision making processes as well as become

part of the formal workforce. This means, the focus of continued consultation and management would be to include women in local promotion, distribution and monitoring activities.

Local women employed as field staff, and resource persons will hold meetings in their respective zones to discuss, and register feedback regarding the improved cookstoves. The project proponent will try to initiate a holistic transformation in the socio-economic conditions of the local areas. While switching cookstoves might seem a trivial issue, our social surveys have helped us understand the acute ways in which cookstoves are interconnected with various socio-economic issues. During the lifetime of the project, the project proponents will adhere to the sustainable development goals for India, as a roadmap to community engagement and community welfare. Community development programs will be incorporated within the project activities.

The opinions of local leaders and all direct stakeholders will be taken into consideration on a timely manner, and wherever necessary. The Greenway Jumbo cookstove itself has been designed in continuous consultations with women, and other direct users of cookstoves, and this trend of taking user feedback will be continued. In case of any grievances, if required a meeting will be held as early as possible, depending upon the situationto discuss any solutions. For all such meetings advance invitation to users will be provided on their registered phone numbers, along with a public notice in the local village panchayat office.

2.2.5 Anti-Discrimination

The project participants do not discriminate based on gender and will ensure that an equal number of women and members of other underrepresented groups have the opportunity to apply. The same is also governed by government policies and any such discrimination will considered a punishable offence in the host country. India is also party to the “Convention on the Elimination of All Forms of Discrimination against Women” and the project has aligned its labour policies with the same.

2.2.6 Worker Training

Design and implementation of project activities will include measures to minimize risks to worker safety. In all cases, workers will be informed of risks and trained in best work practices to reduce them. Capacity building and worker training will be essential elements in the project operation. Training and capacity building efforts will be designed in collaboration with the communities to ensure that they address current community concerns and prioritize community needs. Training will be provided to the employees involved in assembling, distribution and maintenance operation of ICS. These trainings will be accessible to all levels of project employees, with emphasis on employees recruited from stakeholder villages.

2.2.7 Equal Work Opportunities

Job announcements for the local villages will be distributed one month before the hiring of our permanent field staff and a series of interviews will be conducted in the villages where these crews are to be located. The project proponent will advertise applicable employment opportunities by contacting village heads and posting announcements on local panchayat notice boards. It will be ensured that members of local communities be given preference for all project-related positions. As training for the staff is budgeted, lack of prior technical knowledge will not be a hindrance.

The project will also encourage women in the local communities to take up employment as per their skills, and will provide training to all staff regardless of gender. The company as per its human resource policy ensures fair opportunity and equal pay to both men and women.

Furthermore, the project activity will provide more opportunities to women through self-help groups, thus helping in overall women empowerment.

2.2.8 Workers' Rights

Each of our workers has a contract that states his/her rights and obligations. India also has a number of labour laws that prohibit discrimination and child labour, that aim to guarantee fair and humane working conditions, that provide social security, minimum wage, right to organize, form trade unions and enforce collective bargaining. India also has numerous rigid regulations on employers on retrenchment and layoffs, requirement of government approval for change in labour in companies even if these are because of economic conditions.

2.2.9 Occupational Safety Assessment

The project activity will not entail any extraordinary risks. Risks could stem from road accidents, or minor social disputes during delivery and demonstration activities. Risks will be minimized by informing the workers about them, and by properly training workers with best practices and providing adequate tools/equipment. The worker training, orientation and training refreshment courses will consist of verbally informing them of these risks and about how to minimize them. Additionally, SOPs have been composed for occupational safety and health, proper use of personal protective equipment. The SOPs will be provided to all workers in local languages. First aid and medical kits will be provided to carry into the field when conducting field operations and larger ones will be placed in each of the permanent field offices.

2.2.10 Feedback and Grievance Redress Procedure

The project participant will establish grievance mechanism in place, and the same has been explained to the stakeholders during consultation process. The users of ICS can register any complain through local representative involved in distribution and responsible for operation and maintenance of ICS. In case no resolution they can also write to project in-charge for their feedback or complain by email or over telephone.

2.2.11 Feedback and Grievance Redress Procedure Accessibility

The details on procedure for grievance/feedback will be made public on website of the project participant and local representative as applicable, which will be accessible to all project stakeholders. It will also be socialized and publicized to communities throughout the project zone on local panchayat notice boards.

2.2.12 Stakeholder Access to Project Documentation

The project details were explained and stakeholders were requested to give their feedback on any concern related to project. The project documentation will be uploaded on VERRA website and the same has been informed to stakeholders. The details on project have also been shared with them during stakeholder consultation. Notices will be also placed on the panchayat notice boards within all villages about the availability of any summary or important project documentation and announcements will be included within local newspapers wherever possible.

2.2.13 Information to Stakeholders on Assessment Process

The detailed process for registration under GHG programme has been explained to the stakeholders during local stakeholder consultation. They will also be given more information during assessment by VVB during validation and verification. Furthermore, the users will be consulted to provide the data for monitoring parameter, during surveys designed to collect data for monitoring the cookstove use, and its benefits.

2.3 Project Management

2.3.1 Avoidance of Corruption

The project participant and its distribution partners have policies in place to inform management and employees about the avoidance of corruption, code of conduct, and business ethics. These policies are applied by all project staff, including company management to ensure that the organization is run in accordance with all legal requirements and is held to the highest standards of operation.

2.3.2 Statutory and Customary Rights

The project activity involves distribution of improved cookstoves to individual households and it will not involve any land acquisition.

2.3.3 Recognition of Property Rights

The project activity involves distribution of improved cookstoves to individual households and it does not require acquisition of property, hence no impact on any property rights.

2.3.4 Free, Prior and Informed Consent

The project activity involves distribution of improved cookstoves to individual households and it does not require acquisition of property, hence no impact on any property rights.

2.3.5 Restitution and/or Compensation for Affected Resources

The project activity involves distribution of improved cookstoves to individual households and it does not require acquisition of property, hence no impact on any property rights.

2.3.6 Property Rights Removal/Relocation of Property Rights Holders

The project activity involves distribution of improved cookstoves to individual households and it does not require acquisition of property, hence no impact on any property rights.

2.3.7 Identification of Illegal Activities

The project activity involves distribution of improved cookstoves to individual households. The distribution of the ICS will be monitored and recorded by the Project Participant and no illegal activities have been identified in project implementation and operation.

2.3.8 Ongoing Conflicts or Disputes

There is no ongoing conflict related to the planned project activity.

2.3.9 National and Local Laws and Regulations

There are no laws and regulations governing the use of improved cookstoves in India for households. The project is a voluntary effort by the project proponent. The same has been discussed in detail in the VCS PD of this group project.

There is no specific concern made on improved cookstoves project from the above laws and regulations.

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2.3.10 Project Ownership

The project ownership is with 'SDG13 Ventures Pte Ltd'. During the registration of ICS, the participating household will sign a declaration to transfer the ownership rights of the carbon assets generated from this project to the project proponent.

2.3.11 Grouped Projects

The project is a grouped project. Each new project will be confirmed against the eligibility criteria below:

No.	Eligibility criterion - Category	Eligibility criterion - Required condition	Supporting evidence for inclusion
1	Defined geographical boundary	The new project instance boundary shall be confined to national boundaries of North East part of India, which includes seven hilly states. Northeast India (officially North Eastern Region, NER)	Records of household location under the customer registration database. For this instance, records of sales (customer registration database) with clear delineation of project boundary i.e. Nort East part of India, which includes seven hilly states. Northeast India (officially North Eastern Region, NER) is provided to the VVB for their reference.
2	Conditional to avoid double counting	To prevent double counting of ICSs distributed under the project, ICS shall be uniquely marked, and new project instance implementers shall provide assurances/declarations that they are not included in any other CDM or Voluntary GHG offset schemes outside of this project	• Unique marking on each ICS (such as a Logo/Serial number or batch number which identifies it as part of the new project instance together with the project database) • Written attestation from the project proponent confirming that the ICSs distributed in the new project instance are not part of any other CDM or Voluntary GHG trading scheme.

No.	Eligibility criterion - Category	Eligibility criterion - Required condition	Supporting evidence for inclusion
3	The specifications of technology/measure including the level and type of service, performance specifications including compliance with testing/certifications	All technologies implemented in the project must demonstrate a minimum thermal efficiency of 25%.	• Independent Third-Party lab testing certificate demonstrating thermal efficiency greater than 25% using testing protocol WBT4.2.1 or a more recent protocol where available. • Product description and specifications For this instance, lab test efficiency certificate for model distributed under this instance has clearly showing the efficiency above 25% will be submitted to VVB.
5	The conditions that ensure that new project instances meet the requirements pertaining to the demonstration of additionality in VCS Standard.	There is no regulatory requirement to use ICS in India, therefore according to 3.8.9 of the VCS Standard (Version 4.1), this section does not need to be completed further.	There is no mandatory legal requirement for installation of cookstoves in households/institutions of North Eastern States of India. The policies relevant to the program are 'the Rural Energy Policy', 'the Renewable (Rural) Energy Subsidy Policy' and 'the Renewable (Rural) Energy Subsidy Delivery Mechanism'. The Renewable (Rural) Energy Subsidy Policy 2016 has made provisions of financial subsidy support for the installation of the household biogas plants only. The above policies only provide the incentives for the installation of household biogas plants and do not provide any obligations or enforced targets, nor do they ban the use of fuel wood for cooking. Therefore, the baseline is use of non-renewable biomass in terms of firewood. No need for further

No.	Eligibility criterion - Category	Eligibility criterion - Required condition	Supporting evidence for inclusion
			substantiation.
6	Conditions to provide an affirmation that funding from Annex I parties, if any, does not result in a diversion of official development assistance	under this project, new project instance operators shall be required to provide an affirmation that funding from annex I parties, if any, does not result in a diversion of official development assistance	Individual new project instance operators shall sign ODA declarations for new project instances implemented by them to attest that no funding from annex 1 parties that leads to diversion of ODA has been used in the project. the statement shall specify whether or not annex 1 funding is used within the project where funding is sought from annex 1 parties the ODA declaration shall be supported by details regarding annex 1 funding that affirms that the funding doesn't divert ODA For this instance, no funding from Annex-1 parties is received and hence, no ODA declaration is required.
7	The Group project-specific requirements stipulated by the project proponent including any conditions related to undertaking local stakeholder consultations and environmental impact analysis	The local stakeholder consultation will be conducted at the initially during the group PD level. Each new project instance/project will be implemented in similar social economic situations. The key stakeholders of the program both at group project activity and new project instance level are the same. No further actions needed at the new project instance	The conditions to meet the requirements on undertaking the local stakeholder consultation have been proven in section further sections of this PD. The conditions to meet the requirements on undertaking the environmental impact assessment have been proven in the group PD.

No.	Eligibility criterion - Category	Eligibility criterion - Required condition	Supporting evidence for inclusion
		level to satisfy the eligibility criteria.	
9	Where applicable, the conditions related to sampling requirements for the group project in accordance with the "Standard for sampling and surveys for CDM project activities and programme of activities"	Monitoring of all new project instances will adhere to all requirements related to sampling for a group project activity in accordance with the sampling guidelines including all annexes and amendments till EB 86 Annex 04.	Specification of the sampling methods applied and compliance with the sampling requirements are established at the group DD. For each new project instance, sampling will be undertaken as part of the group project activity sampling plan, and in the new project instance-PD describes how the group project activity sampling Plan is to be applied. For this instance, sampling plan is described in subsequent sections.
11	Approval of new project instance by project proponent	The project proponent approves each project instance to be included into its registered group project activity.	Statement of project proponent giving approval for the new project instance to be included into its registered group project activity. Since, for this instance project proponent is the implementer, no further approval is required, however for the cases, where implementer other than PP, an approval on the same shall be given by PP in order to include the instance into this grouped project.
12	VCU ownership	End users receiving ICSs under the specific new project instance contractually cede their rights to claim and own emission reductions under the VCS to the project	A default distribution agreement for end users including the provision that emission reductions generated by the stove are owned by the project proponent will be provided for

No.	Eligibility criterion - Category	Eligibility criterion - Required condition	Supporting evidence for inclusion
		proponent of the group project.	each new project instance. Waiver of carbon credits from the end users are submitted to the VVB for this instance.
13	Awareness and agreement of those operating a new project instance on group project subscription	Contractual provisions to ensure that those operating the new project instance are aware and have agreed that their activity is being subscribed to the new project instance.	Evidence for inclusion, in case new project instance operators are different from the project proponent: a declaration from project proponent/implementer, stating that they are aware and have agreed that their activity is being subscribed to the group project will be provided for each new project instance. Since, for this instance, project proponent is the only implementer, no further requirements related to awareness and agreement on their instance to be subscribed under this grouped project, however, for the cases, where implementer other than PP, an agreement on the awareness between PP and new instance implementer shall furnished.

3 BENEFITS FOR PEOPLE AND PROSPERITY

3.1 Condition of Stakeholders at Project Start

Stakeholder category	Description	Condition at the project start
Users of ICS	Recipients and beneficiaries who will install ICS in project zone	1. Lack of knowledge about benefits of ICS 2. Lack of access to clean cooking technologies
Individuals getting employment due to project activity	Local rural youth with no or very few jobs	Lack of formal and informal employment opportunities in their respective villages
Village panchayats/ communities	Village leaders and self-help groups in the villages with a common goal of improving the wellbeing of local households	Lack of information about the many ways to access clean cooking energy, and its impact on socio-economic development of the village
Local NGOs	Nongovernmental organizations with common goal of village development	Little information about ICS technologies and its impact on different social aspects of village life
Local Businesses	Small business that serves different needs of village households	Lack of information about ICS technologies

Research paper titled 'Socio-economic conditions, inequality and deprivation in North East India'[4] revealed the following finding in terms of social economic conditions of locals.

[4] https://mpra.ub.uni-muenchen.de/65407/

Table 1 :Select Socio-economic indicators of North East India

States	Demographic			Health			Education		Economic conditions		
	Sex ratio (2011)[1]	Rural population (%) (2011)[1]	Growth rate of population (%) (2001-11)[1]	Infant Mortality rate (Total) (2013)[2]	Sanitation Facilities (2011)[3]	Sources of Drinking Water in rural (Tap and Tube well) (2008-09)[4]	Literacy rate (2011)[1]	Average Years of Education (2004-05)[5]	Share of Agriculture & Allied Sector in GSDP at current prices: 2011-12 (In % of GSDP)[6]	Share of Industry in GSDP at current prices: 2011-12 (In % of GSDP)[6]	Share of Services Sector in GSDP at current prices: 2011-12 (In % of GSDP)[6]
1	2	3	4	5	6	7	8	9	10	11	12
Arunachal Pradesh	938	77.33	26.03	32	61.97	91.0	65.38	4.2	31.6	34.6	33.8
Assam	958	85.92	17.07	54	64.89	71.7	72.19	4.6	27.9	23.3	48.8
Manipur	992	69.79	12.05	10	89.30	35.1	79.21	6.3	24.7	29.7	45.6
Meghalaya	989	79.92	27.95	47	62.91	60.0	74.43	4.6	17.4	34.1	48.6
Mizoram	976	48.49	23.48	35	91.91	19.4	91.33	6.8	18.8	21.4	59.8
Nagaland	931	71.03	-0.58	18	76.52	33.8	79.55	7.1	23.8	20.3	56.0
Sikkim	890	75.03	12.89	22	87.20	67.4	81.42	4.4	10.8	38.4	50.7
Tripura	960	73.82	14.84	26	86.04	71.1	87.22	4.6	18.1	30.1	51.8
India	**940**	**68.84**	**17.64**	**40**	**46.92**	**84.8**	**74.04**	**4.7**	**17.2**	**26.4**	**56.4**

Source:1. Government of India, 2011; 2. SRS, 2014; 3. Measured in Percentage of Households. Govt. of India (2008-09) Housing Condition and Amenities in India (65th Round, NSSO Report No. 535); 4. Measured in Percentage of Households. Govt. of India (2008 & 1993) Housing Condition and Amenities in India, 65th& 49th Round NSSO Report Nos. 535 & 429 (July 2008 - June 2009 & Jan – June 1993).5. Govt. of India (2009) Gendering Human Development Indices; 6. Central Statistics Office, Ministry of Statistics & Programme Implementation.

Methodology

The above study (publicly available) is based on secondary sources of data. The data are collected from Central Electricity Authority (M/o Power), Railway Board (M/o Railways), Transport Research Wing (M/o Road Transport & Highways), Central Statistics Office (Ministry of Statistics & Programme Implementation), Office of the Registrar General and Census Commissioner (Ministry of Home Affairs), Ministry of Development of North Eastern Region, Ministry of Women and Child Development. To measure inequality, use Coefficient of Variation (CV), Gini Coefficient (Gini), and Concentration Coefficient (CC). Facility deprivation index (FDI) is used to measure deprivations in three basic facilities, namely supply of safe drinking water, electricity and sanitary facility. On the other hand, Socio-Economic Deprivation is constructed and calculated based on selected twenty socio-economic indicators: Per cent of Houseless Population, Per cent of Housing Shortage, Per cent of Slum Population, Poverty Rate, Rural Poverty, Urban Poverty, Unemployment Rate, Rural Unemployment Rate, Urban Unemployment Rate, Illiteracy Rate, Rural Illiteracy Rate, Urban Illiteracy Rate, Male Illiteracy Rate, Female Illiteracy Rate, Percent of Scheduled Caste Population to Total Population, Percent of Scheduled Tribe Population to total Population, Household Size, Size of Land Holdings in hectare, Population Growth and Population Density.

Overview

The baseline assessment was undertaken in context of VCS project and found that the majority of households use the non-renewable fuels for the baseline scenario, the baseline is discussed in the detailed manner in VCS PD. Further it was found that most community members rely on farming activities for sustenance. Villagers mostly planted rice, and other seasonal crops, for both personal consumption as well as market sale. The villagers also maintained farm animals,

including cows, buffalos, goats and hens. The milk obtained from cows and buffalos was usually sold to the local governmental collection centres. Hens were usually kept for personal consumption during festivals and similar special occasions. Goats were usually kept for future sale to butchers.

The villages were usually situated on the periphery of large forests. Animal-wildlife conflict was a rampant problem in these areas.

Forest Landscape Characterization in Northeast India[5]:

In a project entitled 'Biodiversity Characterisation at Landscape Level in North-East India using Satellite Remote Sensing and Geographical Information System' various forest vegetation types were classified and mapped with high accuracy using satellite remote sensing technology (Anon., 2002). The project is a pioneering effort to create geospatial database on vegetation cover types, fragmentation, disturbance regimes and biological richness. The landscape ecological principles have provided insight to the natural and human indices factors, which may bring dynamics in the forested landscape of the region. Twenty-one forest vegetation cover types and seven associated forest vegetation types were mapped. The account of the land use cover is given in table below.

Table 1.*Land Use/Land Cover in Northeast India. (Source: Anon., 2002a)*

Land cover	States	Area (km2)	Area (%)
Vegetation Type			
Tropical Evergreen Forest	Nagaland, Arunachal Pradesh,Assam, Mizoram, Tripura	5246.202	2.001
Hollong Forest (Dipterocarpus)	Arunachal Pradesh, Assam	980.87	0.374
Tropical Semi-Evergreen Forest	Manipur, Nagaland, Arunachal Pradesh, Assam, Meghalaya, Mizoram	15363.42	5.86
Moist Deciduous Forest	Manipur, Nagaland, Arunachal Pradesh, Assam, Meghalaya, Tripura	19727.24	7.524
Riverain	Arunachal Pradesh	209.36	0.08
Hollock (Terminalia sp.)	Arunachal Pradesh	108.87	0.042
Sal (Shorea robusta) forest	Sikkim, Assam, Meghalaya, Tripura	526.61	0.201
Teak (Tectona grandis) Plantation	Assam	15.71	0.006
Dry Deciduous	Forest Manipur	79.00	0.03
Subtropical Evergreen I	Arunachal Pradesh, Meghalaya	20866.83	7.959
Subtropical Evergreen II	Arunachal Pradesh	3559.08	1.358
Sub-Tropical Broad leaved Forest	Mizoram	509.95	0.195

[5] https://www.geospatialworld.net/article/forest-cover-and-assessment-in-north-east-india-issues-and-policies/

Broad-leaved Hill Forest	Sikkim	1876.18	0.716
Mixed Pine	Meghalaya	1020.07	0.389
Pine Forest	Manipur, Nagaland, Arunachal Pradesh, Assam, Meghalaya	1647.27	0.628
Temperate Broadleaved	Arunachal Pradesh	20785.02	7.928
Mixed Temperate Forest	Nagaland	509.95	0.195
Wet Temperate Forest	Mizoram	448.16	0.171
Temperate Coniferous Forest	Arunachal Pradesh	3190.60	1.217
Fir Forest	Arunachal Pradesh	159.11	0.061
Sub-alpine and Rhododendron	Sikkim, Arunachal Pradesh,	276.35	0.105
	Total	97104.60	37.04
Associated vegetation type Abandoned Jhum	Manipur, Nagaland, Arunachal Pradesh Assam, Meghalaya, Mizoram, Tripura.	20065.36	7.653
Open Bamboo Brakes	Nagaland, Arunachal Pradesh, Meghalaya, Mizoram, Tripura	9501.57	3.624
Degraded Forest	Arunachal Pradesh, Assam, Meghalaya, Mizoram, Tripura	15189.12	5.793
Subalpine and alpine Scrub	Arunachal Pradesh, Sikkim	2654.88	1.013
Alpine Pastures	Arunachal Pradesh, Sikkim	4697.66	1.792
Other Grasslands	Assam, Meghalya	1971.18	0.752
Shrub/Scrub	Assam	581.14	0.222
	Total	151765.51	57.89
Orchards (including tea gardens)	Arunachal Pradesh and Assam	6896.67	2.631
Non-forest/Current shifting cultivation/Fallow/Barren/ Alpine Barren/Agriculture/ Settlement/Others	Arunachal Pradesh, Assam, Mizoram, Tripura,Nagaland, Sikkim, Manipur, MeghalyaArunachal Pradesh, Sikkim, Manipur	83032.75	31.67
Cloud/Snow/Shadow		16164.00	6.165
Water Body	Arunachal Pradesh, Assam, Mizoram,Tripura,Nagaland, Sikkim, Manipur, Meghalya	4320.07	1.648
Total		262179.00	100

Over-exploitation, habitat loss and fragmentation are the three major factors that threaten the biodiversity of this region. Different forest vegetation types mapped were primarily based on their spectral response. Stages of abandoned jhum lands were mapped under one class, however, the fresh shifting cultivation/denuded areas were mapped separately.

The classifications of forest types given by Champion and Seth (1968) are based on ground observations. Their extent and actual state had not been mapped so far. The satellite-based mapping has succeeded in overcoming the information gap. This classification is based on spectral characteristics of vegetation supplemented by extensive field survey. The present mapping has provided the exa ct extent and distribution of various forest vegetation types at 1: 250 000 scale.

This study has also helped in assessing the extent of shifting cultivation and its role both as a factor in the degradation and loss of neighboring forests. The findings revealed that high

fragmented forest have fewer plant species, reduced anthropogenic use evidence and newer community types than medium and low fragment forests. Simpler terrain encourages anthropogenic uses thus leading to forest loss. The study is in the line of expectations that fragmentation reduces diversity. The nature of forest ragmentation in these landscapes is mainly attributed to shifting cultivation, elicit felling and deforestation for creating agricultural lands.

North East India is one of the tourists attraction which attracts the visitors for its natural scenic mountains, national parks, adventurous game etc. Local areas consisted of various hotels, resorts and similar places. Some of the villagers were also employed in the hospitality sector in different positions- ranging from cook, housekeeping staff to manager, and guards. Other villagers were also employed as drivers and guards for operating safari-tours within the forests. They received their income from the forest department, on a per-trip basis.

In terms of education, some villagers were literate and had attended basic schooling. This group mostly consisted of younger men and women, and some older men. Currently, all households sent their children to their local schools. These schools conducted studies until the secondary level (class X). Some of the younger folks had also completed higher education at their district headquarters, but were residing in their villages with local jobs. Women were usually married off after finishing their local schooling.

Most villages consisted of a Primary Healthcare Centre (PHC) nearby for emergences related to minor illness or injury. For serious health related issues, the villagers have to go the government hospital in their district headquarters. Very few doctors were locally available for consultation near the villages.

Stakeholder Baseline Scenario

The assessment of net community benefits in the Project area are derived from a comparison between the 'pre' and 'post' project scenarios. The baseline scenario offers an overview of the situation prior to the installation of improved cookstoves. The installation of improved cookstoves in all households generates a net positive impact with respect to all stakeholders, especially women, who are the primary users of cookstoves. The next section gives a brief summary of the sustainable development goals that are aligned with the project activity.

SDG 3: Mortality rate attributed to household and ambient air pollution

Access to clean, and efficient energy impacts almost all aspects of human wellbeing. Several studies in the past have reported the adverse health impact of using traditional cookstoves. In fact, exposure to air pollutants as a result of indoor cooking is estimated to cause 4.3 million premature deaths annually (WHO, 2014). Women are especially vulnerable to the negative impacts of indoor air pollution because they are the primary users of cookstoves. The pre-existing social hierarchies also make it difficult for them to access hospitals and other health care centers in case of physical distress due to constant exposure to smoke. Their problems are further compounded by the lack of resources to avail any medical help. According to the

baseline survey, these conditions are likely to continue in the absence of any systematic change in the kind of cookstoves that are usually used in the village households.

Under the project scenario, the indoor pollution level will decline, being the less use of fuel and smoke by using the efficient cook stoves. Several studies in the past have shown that installing improved cooking stoves and using them over time, can help reduce the adverse health impacts related to indoor pollution. Research paper[6] 'Indoor Air Pollution by Particulate Matter from Wood Fuel: An Unresolved Problem' substantiates the corelation of indoor air pollution and inefficient fuel wood use.

SDG 5: Proportion of time spent on unpaid domestic and care work, by sex, age and location

The baseline scenario shows the disproportionate impact of using traditional and inefficient cook stoves on women. Women not only suffer the adverse health impacts of inefficient cookstoves, but also spend a major portion of their daily time in collecting fuelwood. The time which they could have utilized in leisure, recreation or livelihood opportunities is not available to them. The fuelwood collection also takes place near forests, which makes them vulnerable to animal attacks. Overall, the continued use of traditional cookstoves reinforces gender inequality. It obstructs women's participation in work force, and gives them very little time to rest, and care for themselves. According to Baseline scenario, women will continue to bear the burden of the dangers associated with inefficient cookstoves.

Under the project scenario, women will see a massive reduction in both the amount of fuelwood required for cooking, and the amount of time taken to cook. They would be able to save 2 to 5 hours daily. They would also have time to engage in other employment opportunities. This would ensure their movement in the work force, and generate financial resources for them. The project will also provide employment in various forms to women. The opportunity to have an independent income will not only benefit them economically, but also provide them a sense of agency in their lives.

SDG 7: Proportion of population with primary reliance on clean fuels and technology

Clean cooking technologies are associated with sustainable use of energy. The baseline scenario shows that the traditional cookstoves require a lot of wood to generate substantial energy for daily consumption. This means that the cookstoves are energy-deficient, and contribute to greater greenhouse gas emissions. Thus, on one hand they put a lot of burden on women to procure enough wood to meet their daily energy requirements, and on the other hand they destroy the local carbon pool. According to the baseline assessment, the energy requirements of the households might continue to remain unreliable, and unaffordable.

[6] https://www.omicsonline.org/open-access/indoor-air-pollution-by-particulate-matter-from-wood-fuel-an-unresolved-problem.php?aid=82389

Under the project scenario, the improved cookstoves will be able to save up to 75% of fuel usage. This would mean that there would be reduction in the amount of wood used for meeting daily energy requirement. There will also be a substantial reduction in the overall greenhouse gas emissions. Energy from these cookstoves will therefore be more reliable, efficient and affordable.

SDG 8: Proportion of informal employment in total employment, by sector and sex

The baseline scenario shows that there is a lack of employment opportunities for both men and women in the project sites. Since women tend to spend a lot of their time, and energy in collection of fuelwoods, and cooking food, they rarely get to engage in income generating activities. Male members within a family have to often undertake a small work position in a city, thus increasing the number of tasks that women have to oversee. Under the baseline scenario, this trend will continue, and will continue to reinforce pre-existing gender discriminations.

Under the project scenario, women will have time to engage in other activities. They will find employment as local resource person for the project. The project will also create jobs for distribution and installation of cookstoves. Other support will be provided to create local self-help groups. There will be an overall increase in the economic productivity at the project site.

3.2 Expected Impacts on Stakeholders

Impact #1	Increase in energy efficiency
Type of Impact	Positive impact, direct, monitored Reduction in fuel required for cooking in households
Affected Stakeholder Group(s)	ICS Users
Resulting Change in Well-being	Distribute 500,000 high-efficiency, clean burning Greenway Jumbo Cookstoves to benefit over 2 million individuals

Impact #2	Improved physical health for women and other members of the household

Type of Impact	Positive impact, direct, estimated Under the project scenario, the indoor pollution level will decline.
Affected Stakeholder Group(s)	ICS Users
Resulting Change in Well-being	The communities will have cleaner air to breathe within their households. Several studies in the past have shown that installing improved cooking stoves and using them over time, can help reduce the adverse health impacts related to indoor pollution.

Impact #3	Time saved in collecting fuelwood
Type of Impact	Positive impact, direct, estimated Reduction in time spent on fuel collection and cooking by women
Affected Stakeholder Group(s)	ICS Users
Resulting Change in Well-being	Under the project scenario, women will see a massive reduction in both the amount of fuelwood required for cooking, and the amount of time taken to cook. They would be able to save 2 to 5 hours daily. They would also have time to engage in other employment opportunities. This would ensure their movement in the work force, and generate financial resources for them. The project will also provide employment in various forms to women. The opportunity to have an independent income for themselves will not only benefit them economically, but also provide them a sense of agency in their lives.

Impact #4	Employment opportunities local communities
Type of Impact	Positive, direct, monitored Increase in employment opportunities to locals
Affected Stakeholder Group(s)	ICS users Villagers

Resulting Change in Well-being	Under the project scenario, women will have time to engage in other activities. They will find employment as local resource person for the project. The project will also create jobs for distribution and installation of cookstoves. Other support will be provided to create local self-help groups. There will be an overall increase in the economic productivity at the project site.

Impact #5	Less smoke produced
Type of Impact	Positive impact, indirect, estimated Reduce the risk of mortality among infants and children under five years of age
Affected Stakeholder Group(s)	ICS Users
Resulting Change in Well-being	Reduce the risk of mortality among infants and children under five years of age due to (1) acute lower respiratory illnesses (ALRI), such as pneumonia and bronchitis, the cause of mortality in 12% of children under five, and (2) burns resulting from children falling into open cooking fires.

3.3 Stakeholder Monitoring Plan

This project uses the installation of improved cookstoves as an opportunity to create a net positive impact in overall wellbeing of the people in the project site. Monitoring mechanisms are employed to ascertain the project's impact on all major stakeholders. The project plans to collect data through interviews, surveys, direct observations, group discussions, and other employment, financial, and health records. Village resource personnel and women monitors will collect primary information through regular visits and interviews with the households. They will be tasked with monitoring the changes after installation of improved cookstoves. Field team managers will conduct group discussions, and other interviews regarding the same. The data from these interactions will be compiled into reports and forwarded to the senior analysists. The monitoring plan will take place in the following steps:

1. Pre-evaluation/ Site-Visit

SDG or it's authorized partners will make a visit to respective sites and evaluate the prevalent socio-economic structure and the overall dependence on fuelwood, as well as traditional cookstoves. The team will conduct a round of consultations with local leaders, and interested villagers to inform them about the project and the benefits associated with shifting to an ICS. Should the team determine that some village members are probable

adopters and if they consent to project requirements regarding participation in the program, distribution is scheduled within a week. The team will also complete a questionnaire and conduct a quick survey regarding cookstove usage.

2. Distribution

Local resource persons (mostly women), will inform the interested villagers about a particular day for stove distribution. All prospective users will be informed about a pre-decided venue and about necessary documents required for future monitoring activities. During this distribution, the resource person will teach the correct way of using the new cookstove to the beneficiaries and respond to any doubts or questions. She will also leave a contact number so that she can be contacted easily for future concerns.

3. Third Visit

The local resource person conducts follow-up visits with families 2 weeks after installation. This is the most critical visit because it is during this time that frustration with the new technology may arise. The team offers solutions and collects feedback from the beneficiaries. The Programs Team aggregates, analyzes, and applies this feedback to adjust our project to best suit the community at large.

4. Fourth Visit

The local team checks in on stove functionality and technology adaptation among beneficiaries. The team tries to assess if the cooking is problem free and reviews basic maintenance techniques. Data is also collected on the condition of the stove, and the advantages of shifting to a better technology. If maintenance is required, a technician is called to perform maintenance free of charge and provide replacement parts at-cost.

5. Fifth Visit

The local team conducts their final planned visit after a year of stove distribution. Stove maintenance is performed if necessary and questions and concerns that have arisen since the fourth visit are addressed by the team members. Wherever necessary, a company technician conducts the required maintenance work on the damaged or malfunctioning cookstoves. Beneficiaries are reminded of the multiple ways to establish contact with the local team for any future assistance.

6. Additional Visit (6, 7, 8....)

The local team returns to conduct a random sampling of Jumbo stoves on an annual basis. The visit structure is parallel to the fifth visit. Surveys on female empowerment, and livelihood transformations are conducted.

The stakeholder monitoring plan for the variables linked to the identified project indicators and the claims are as follows:

Indicator	Proportion of population with primary reliance on clean fuels and technology.
Mitigation measure	NA

Chosen parameter	The number of households benefitted by the ICS distribution	
Way of monitoring	How	Distribution Data Base
By who	Project proponent	
When	Continuous (As and when the new stove distributed)	

Indicator	Mortality rate attributed to household and ambient air pollution	
Mitigation measure	NA	
Chosen parameter	Reduction in air pollution	
Way of monitoring	How	Monitoring Survey
By who	Project proponent	
When	Biennial at least with a 95/10 confidence precession in accordance with the CDM 'Guidance for Sampling & Survey'. Survey will be design in such a way that HHs will respond in terms of approximate reduction in smoke quantity after the project implementation.	

Indicator	Proportion of time spent on unpaid domestic and care work, by sex, age and location	
Mitigation measure	NA	
Chosen parameter	Reduction in time spent on fuel collection and cooking by women	
Way of monitoring	How	Monitoring Survey
By who	Project proponent	
When	Biennial at least with a 95/10 confidence precession in accordance with the CDM 'Guidance for Sampling & Survey'. Survey will be design in such a way that HHs will respond in terms of time saving in fire wood collection after the project implementation.	

3.4 Net Positive Stakeholder Well-being Impacts

Demonstrate that the anticipated net impacts of the project activity(s) are positive for each stakeholder group.

The net positive impact for local communities includes:

- Less consumption of energy/firewood which frees up time/money for other economic activities (money saved for families that regularly purchase their firewood, time saved for other economic activities for women that collect their wood)

- Reduction in time spent on unpaid domestic and care work. The time saved provides for better conditions for ensuring gender equality. This time can be used to generate small income, or for rest and recreation.

Health benefits from reduced Household air pollution. Reduced smoke at home means lowered risk of developing Chronic Obstructive Pulmonary Disease, less instance of acute lower respiratory illness, and better overall respiratory health.

The estimated average annual GHG emission reduction from the project is 680,017 tCO_2e and the total GHG emission reduction estimated for the whole crediting period from the project activity is 6,800,172 tCO_2e.

4 BENEFITS FOR THE PLANET

4.1 Condition of Natural Capital and Ecosystem Services at Project Start

This section is not applicable according to the Sustainable Development Verified Impact Standard, v.1.0 section 3.2 “Impacts on the Planet.”

4.2 Expected Impacts on Natural Capital and Ecosystem Services

The project aims to distribute 250,000 improved cook stoves with high efficiency, therefore it would avoid the cutting of significant forest cover and thus positively impact on the overall forest degradation as indicated in the previous section.

Impact #1	Lesser demand for non-renewable woody biomass
Type of Impact	Positive, actual, direct
Affected Natural Capital and/or Ecosystem Service(s)	Biodiversity, Soil and Water Conservation
Resulting Change in Condition	By reducing the nonrenewable biomass consumption of wood fuel for cooking purposes. Households require less non-renewable woody biomass. The resulting drop in demand slows deforestation, thus increasing the renewable energy share in the total final energy consumption of the project area.

4.3 Natural Capital and Ecosystem Services Monitoring Plan

Following estimations/monitoring will be done prior to project start:

1. Survey the amount of woody biomass used for fuel wood to meet thermal energy needs for meal preparation using an open cooking fire.
2. The fraction of nonrenewable biomass in current practice for cooking.

Regular Monitoring:

Monitoring the number of project devices operating in each year out of total distributed stoves, for the project instances and how many households are still using the three stone for cooking, shall be monitored biennial by the PP.

Following indicators will be monitored as overall outcome of stated previous monitoring methodology:

- Indicator 15.2.1: (1) Forest area annual net change rate

4.4 Net Positive Natural Capital and Ecosystem Services Impacts

By replacing open cooking fires with ICS technology and performing energy efficiency improvements in existing biomass-fired cookstoves, the project reduces energy demand in the form of wood fuel use, thus generating net GHG reductions. Together, the two project activities generate an estimated 6,800,172 tCO_2e GHG emission reductions over the ten-year project crediting period.

APPENDIX: Stakeholder consultation details

Minutes of the local stakeholder consultation meeting on VCS grouped project for the " Holistic development of North East India through clean energy access" of SDG13 Ventures Pte Ltd

Date – May 4, 2022

A local stakeholder consultation meeting was held on 04.05.2022 with an objective of gathering comments and concerns of the stakeholders on the proposed VCS grouped project titled **"Holistic development of North East India through clean energy access"** by SDG13 Pte Ltd and Global Himalayan Expedition. The project will be implemented in North Eastern states of India.

The ongoing Covid and Omicron situation in many areas meant that the physical meeting could not take place. To ensure maximum participation an online meeting link was also shared with the local stakeholders and all the interested parties. A total of 11 people attended the meeting. The list of participants is annexed as **Annexure- 1**.

The following excerpts were recorded during the meeting:

1. The consultation meeting started with a brief explanation of the agenda of the public consultation to the participants and to encourage them to share their opinion on the pertinence of the project and its social- economic and environmental impacts, delivered by Mr. Saurabh Saraf. A brief introduction of SDG-13 and Offset farms was also given to the attendees.

2. Mr. Saraf continued with an informative presentation on traditional fuel type used for cooking in household and its role in Global Warming and its impact on health. Benefits of using Greenway Jumbo stoves were also highlighted.

3. Mr. Jaideep Bansal from GHE then explained about their work with the communities and the impacts that they observe. Team structure and identification of clusters was also discussed. *1)*

4. Mr. Saraf then went over the multilayered impacts of the project wrt the SDGs. SDG-3, 5, 7, 8 and 13 were discussed in detail.

The presentation was followed by a 'Question and Answer Session'. The session marked participation from all concerned stakeholders.

1. **Ms. Udisha Trivedi**

Question: Ms. Udisha asked how will the social impact of the project be quantified and monitored?

Answer: Mr. Saurabh Saraf answered that the quantification of the social impact will be done by the team consisting of both SDG-13 Ventures Pte Ltd and Global Himalayan Expedition. The quantification will be done as per the methodological guidance of Verra VCS standards.

2. **Mr. Sagar Saroha**

Question: Mr. Sagar asked whether the stove has been custom designed to meet the needs of local inhabitants of the North East?

Answer: Mr. Ankit Mathur answered that the stoves are designed so that it thermodynamically enables air draft to move in a way that it ensures that the particulate matter is combusted to the maximum extent possible, in all geographic locations. Jumbo stoves would suffice in North Eastern areas too.

Mr. Saraf then delivered the vote of thanks and reiterated SDG13's objective to work in the area of rural development through introducing efficient technologies at the household level. He emphasized the importance of such projects for the country to achieve sustainable development by reducing fuel required for cooking and also improving health of women.

Annexure 1 – List of Attendees

Name	Affiliation	Background
Ankit Mathur	Director, Greenway Grameen Infra	Over a decade in project development and ICS deployment
Saurabh Saraf	Director, OffsetFarm Pte Ltd	Cleantech and climate finance experience of over a decade, Director of OffsetFarm
Jaideep Bansal	CEO, Global Himalayan Expedition	Experience in developing sustainable solutions and systems for grassroot communities in the North Eastern regions of India

Sanjay Kandari	Independent Consultant	Carbon project development expert
Sagar Saroha	PhD IIT Delhi, Researcher	Expert in fluid mechanics and development of technologies using these principles
Udisha Trivedi	Educator, Social Inclusion	Worked in social inclusion of disadvantaged communities in the mainstream education sector
Cathy Guo	Investor	Active in financial investments to early-stage ventures
Zaheen Jesani	Financial Analyst	Involved in international investment advisory and deal structuring
Mustafizur Rahman		
Madhurjya		
Aditi Singh	Senior Associate, Greenway Grameen Infra	Working in carbon project design and management.