

FINALISTA
2022 PREMIO VERDES
ECONOMÍA PRODUCCIÓN SOSTENIBLE

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ENERGÍA ENERGÍA LIMPIA



BIOCHAR AND ENERGY FOR CO2 SEQUESTRATION IN SOILS

La Mucuy, Mérida - Venezuela



Woodgas International & Fundación Senderos





Mission

Appropriate technologies and renewable energy sources implementation toward vulnerable communities with specific protection needs and ecosystems threatened by climate change.

Vision

Leading the Venezuela sustainable development challenge providing mitigation and adaptation solutions to climate change within zero tolerance for discrimination and 2050 net zero carbon emissions framework.

Our values

Our interventions are based on respect for the local culture, transparency and accountability to the beneficiary communities and also to our donors. Through the standards-based design of the CHS Alliance sphere project



SUMMARY

Open burning of firewood and agricultural refuse causes deforestation, loss of soil nutrients and serious air pollution. Such burning occurs throughout rural Latin America, as many communities in the Andean state of Mérida-Venezuela, which represents an overload of domestic work for women and girls, increasing cooking time spending and the amount of households air polluted that affect the climate and people's health.

To overcome this environmental problem at the local level, we are going to release clean and renewable energy from the pyrolysis of agricultural and forestry refuses; Thus addressing the both climate benefits of avoiding GHG emissions and CO₂ removal that is already in excess in the atmosphere.

Fundación Senderos is currently implementing two development projects within La Mucuy-Mérida. The first through the Global Environment Facility Venezuela Small Grant Programme which belongs the Operational Phase 7 (OP7Y1) aiming the production of Biochar *-with RoCC kilns (Anderson ©Copyright 2020)-* as an amendment in agricultural plots of beneficiary families for their strengthening livelihoods. The second one with Woodgas International seeks benefits the same community to scaling up and reach 40 households to process 75 tons of residual biomass per year and release 144MWh of energy for cooking *-with TLUD gasifier stoves-* and obtain as a by-product about 15.5 tons of Biochar plus 45 tons of CO₂ removal from the atmosphere annually.

Partnering with Fundación Programa Andes Tropicales (PAT) we aiming to strengthen community capacities in the management of environmental awareness criteria and the practice of regenerative agriculture for the restoration of degraded soils using Biochar and the adoption of new resilient practices such as a strategy to contain the forced migration of adults and youth from these at-risk populations.

With Premios Verdes we want to reach 2,000 families in order to obtain annually, only in carbon credits, about 4,000 tons for EMISSIONS REDUCTION and another 1,000 for CO₂ REMOVAL. These numbers really allow us to achieve the goals set for both the Sustainable Production and Clean Energy subcategories in which our project is a Finalist.

PLAN GOALS



1-. Strengthen the community capacities for the use of residual biomass and the obtaining of Biochar with BC&E devices.



2-. Install BC&E devices in vulnerable households and obtain clean energy for cooking while producing and accounting for BIOCHAR.



3-. Strengthen community agricultural livelihoods through soil amendments with BIOCHAR on selected plots.

SWOT ANALYSIS

Comparative position of the BC&E project for CO2 sequestration in soils.



Strengths

- Partnering with Woodgas International (USA) and Fundación Programa Andes Tropicales.
- 1st prize at Innovation Eco accelerator and two finalists mentions at Premios Verdes 9th edition for Clean Energy and Sustainable Production.
- Venezuela Small Grant Programme partners - Operational Phase OP7Y1.

Weaknesses

Biomass refuses processing as fuel requires adapting the conditions of space (infrastructure) until the market is generated so that a local chain of distribution compatible with the stoves emerges.

Opportunities

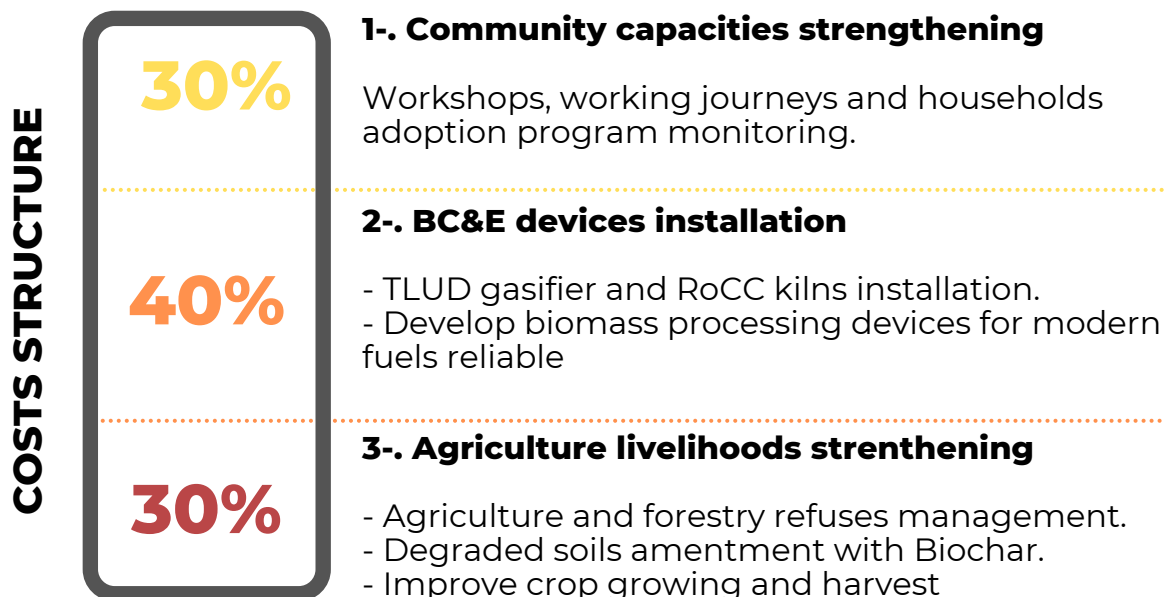
Agreements of using the RoCC kilns (patent) in Venezuela and TLUD gasifier stoves for Monitoring and Verification of carbon credits through the CERCSTM CharTrac progressive web app.

Threats

Deforestation: In Venezuela there is no chain suppliers for modern biomass fuels such as pellets or industrialized briquettes; for which firewood could be an alternative for users.

OPERATIVE PLAN

Community benefit program is divided according to the objectives in:

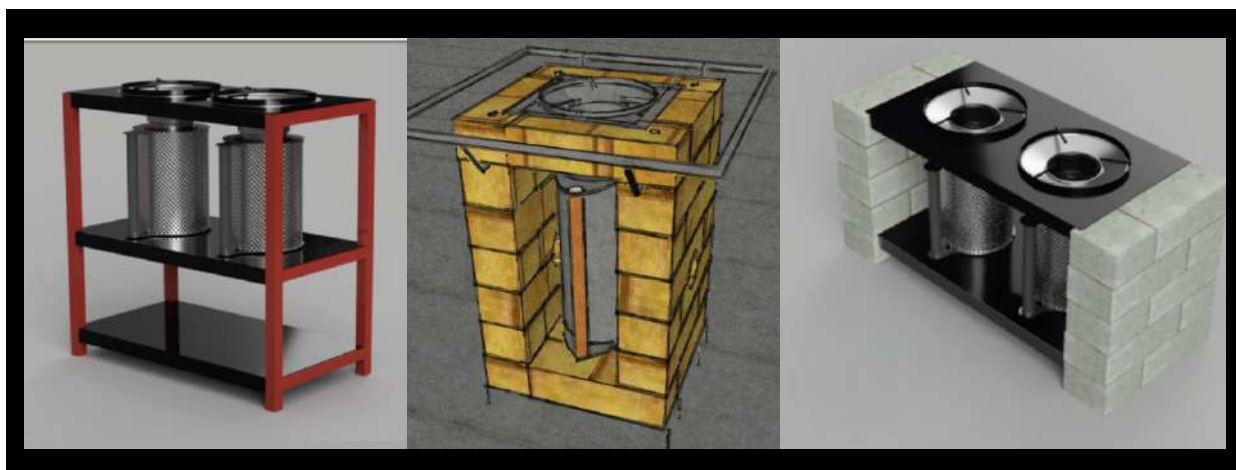


CharTrac methodology for carbon credits Monitoring & Evaluation



Carbon Emissions Reduction & Carbon Sequestration

Blockchain Technology



OPERATIVE PLAN

Program field actions are highly depending of:



Location: La Mucuy

Vulnerable families and ecosystems threatened by climate change on border zones of Sierra Nevada National Park

BC&E hub La Lumbre

Fundacion Senderos headquarter and BC&E project spot belongs Venezuela SGP OP7 within La Mucuy



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Partnering:

RoCC kilns, FABStove, Champion gasifier by Paul Anderson, PhD, Woodgas International, Ekasi Energy, CERCS and Bitmaxim Labs. Seeking scale up with Premios Verdes.

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Bitmaxim
Laboratories


CERCS

VEN BC&E ONE PAGER

+58 412 6759811 Casa La Lumbre. La Mucuy. Mérida - Venezuela [M senderosmomoy@gmail.com](mailto:senderosmomoy@gmail.com)



Woodgas International

BIOCHAR AND ENERGY (BC&E) FOR CO2 SEQUESTRATION IN SOILS

TLUD gasifier stoves and RoCC kilns.

By Fundación Senderos

www.ven.woodgas.com

PROBLEM :

Open burning of firewood and agricultural refuse causes deforestation, soil nutrient loss, serious air pollution and poor human health.

GOAL :

Release clean thermal energy for rural communities through sustainable management of agricultural and forestry waste to produce Biochar as a degraded soils amendment

VALUE PROPOSITION :

Implement BC&E technology and modern biomass fuels

IMPACT METRICS :

50 %

Saving biomass consumption compared to traditional technologies

40 %

less time spending for cooking

Tier 3 - 4

Emissions of CO2 vs PM2.5

OUR IMPACT GROWING

We are developing two BC&E projects in La Mucuy. First with the Venezuela SGP through Operation Phase 7 -which will process 25ton/year of agricultural waste-. Second with Woodgas International to install 40 FABSTOVE. As finalists for the Premios Verdes we will scale this impact to install TLUD gasifier stoves in 2000 households.

SUSTAINABLE DEVELOPMENT GOALS



CUSTOMER SEGMENTS - BENEFICIARIES

Beneficiaries:

- Vulnerable families
- Agriculture producers
- Local startups with clean cooking needs

Donors:

- GEF Venezuela SGP
- Green Climate Fund.
- Climate action, biodiversity and HRP NGOs

MAIN INDICATORS

200 PP

Target population

15.5 ton

biochar per year

144 MWh/yr

Energy for cooking

45 ton/yr

CO2 Removal



Contact :

+58 412 675 9811



<https://ven.woodgas.com>



senderosmomoy@gmail.com



@fundacion.senderos



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