JALINGA CLIMATE TEA RESEARCH FOUNDATION(JCTRF)

(Non Profit organisation)
Partnership between Jalinga Tea Estate, Assam India
&
Atmosfair, Berlin Germany

JALINGA CLIMATE TEA RESEARCH FOUNDATION(JCTRF), ASSAM

JALINGA WILL BE THE CENTER FOR RESEARCH & DEVELOPMENT FOR AN ALL ROUND ENVIRONMENT / CLIMATE FRIENDLY TEA & YET A FINANCIAL-LY VIABLE FUTURE FOR THE WHOLE TEA INDUSTRY SPECIALLY SMALL TEA GROWERS IN ASSAM. THIS IS THE 1ST SUCH CLIMATE FRIENDLY TEA PRO-DUCTION R&D CENTER IN INDIA.

PROJECT SCOPE

- Do extensive research on Carbon Emission Reduction
- Do research on climate friendly alternatives to current polluting / destructive practices
- Promote sustainable agricultural practices
- Consult and facilitate tea estates in Assam, specially South Assam to be more responsive towards nature and climate change

Why JCTRF is the need of the hour

1. Reliance on coal in the dryers in tea factories
2. Unstable electricity supply from grid forcing regular use of diesel generator
3. Emissions due to farmers using wood to cook
4. Deteriorating soil conditions due to indiscriminate use of chemical fertilizers and pesticides
5. Carbon emissions from dumping of pruned maintenance leaves
6. The conditions of small tea growers is deteriorating as they are falling prey to the predatory pricing of the bought tea factories

Issue - Reliance on coal

Reliance on coal for the dryer in the Tea Factory is one of the biggest problems faced by the tea industry for the following reasons:

- 1 Pollutants released in the atmosphere due to burning a fossil fuel.
- 2 Availability of coal being an issue due to mining being declared illegal in Meghalaya
- 3 Costs of coal are going up due to Availability issues
- 4 Coal soot leaves a residue on tea leaves which is not good for human consumption

Solution
To Reliance on coal

Convert from Coal to 100% BIO-MASS FUEL(PELLETS) in the factory dryers - 1st tea estate in the world to take this research up

For the pilot project we plan to install a 10 HP ma-chine with an output of 80-90 kgs. of pellet per hour . Once the pilot project is successful and consumption of Pellet per hour is determined we will go in for a bigger machine so that we can replace the use of coal in tea production entirely.

Cost of Phase I 5128 Euro

Cost of Phase II 15284 Euro

Issue - Unstable Electricity Supply

The unstable electricity supply (in South Assam) from the grid to the tea factories is a problem as

- 1 The factories need to operate their diesel generators which emits harmful fumes
- 2 The cost of electricity generated from diesel generator is double that of grid electricity

Solution
To Unstable Electricity Supply

Convert electricity supply to 100% Solar Power in a phased manner - 1st tea estate in the world to take this research up.

For the pilot project we plan to install 160kWp producing solar panels with battery backup of 325kWh. This will be ramped up so that we can eventually supply to the grid after meeting our entire requirements.

Cost of Phase I	2,60,000 Euro
Cost of Phase II	5,60,000 Euro

Issue - Emissions from Homes

- We have over 1200 households in our estate
- They all were using traditional wood fireplaces for their cooking which emitted a lot of pollutants into the atmosphere.
- This was leading to the air being heavily polluted

Solution to Emissions from Homes

- EARN GOLD STANDARD CARBON CREDITS - Jalinga is the 1st tea estate in the world to be registered for a carbon credit project with Atmosfair, Germany with a advanced cook stove given to all its 4000 workers. The cook stove burns the wood without emission any harmful fumes. - 1st set of carbon credits we will get in early 2019
- Project Cost 1,30,000 Euro

Issue - Deteriorating soil conditions

- The indiscriminate use of chemical fertilisers has diminished the natural fertility of the soil
- Inorganic pesticides also are being used as an all in one solution without understanding the lifecycle of the pests and the right amount and timing of the application of the same

. Chemical fertilizers and pesticides:

Chemical fertilizers and pesticides are used by farmers to protect crops from insects and bacterias.

when these chemicals are mixed up with water produce harmful for plants and animals.

Also, when it rains, the chemicals mixes up with rainwater and flow down into rivers and canals which pose serious damages for aquatic animals.

Solution to Deteriorating soil conditions

ORGANIC TECHNOLOGY(FULL PACKAGE), roadmap to a sustainable conversion to organic. Lot of in house R&D currently going on at the Estate

At the garden we are continuously trying out new ways of creating compost with green matter available in the estate. We have an in house lab which tests the compost, compost water and soil regularly for Microbial Growth, Microbial diversity and rhizosheric ratio. Nitrogen content is also measured off site.

Cost per year 25,650 Euro

5% increment every year

Solution to Deteriorating soil conditions

- We want to further equip our lab with an imported SEMI AUTOMATIC Nitrogen Analysers. Consisting of Digestion + Distillation + Titrationat
- **Nitrogen** is so vital because it is a major component of chlorophyll, the compound by which **plants** use sunlight energy to produce sugars from water and carbon dioxide (i.e., photosynthesis).

  Cost of Phase I 12,850 Euro

  Cost of Phase II 14,110 Euro

Issue - Carbon Emissions from maintenance leaves

- There are a lot of carbon emissions from the dumped maintenance tea leaves.
- In the off season when the bushes are pruned the cut leaves are just dumped with the garbage this emits a lot of carbon while decomposing.

Solution to Carbon Emissions from maintenance leaves

We are using the maintenance leaves to extract tea juice from the same and then spray drying the same to get tea juice powder which has a high amount of anti-oxidants as well as high amount of vitamin C. The same is used to fortify food products as well as high end organic cosmetics

CARBON NEUTRAL - Jalinga is currently the 1st & only tea estate in the world to be certified CO2 Neutral / Carbon Neutral(Soil & More, Netherland)

Cost of Phase I 12,850 Euro Phase II not yet decided

CO2 neutral
calculated according to GHG Protocol
soilandmore.com

JALINGA CARBON NEUTRAL TEA

Issue - Exploitation of small tea growers

- Small tea growers produce nearly 50% of the tea produced in India
- Their problem is that as they have landholdings of maximum 4 Hectares and so do not have their own factory and so are exploited by the large bought tea factory owners with respect to price of green leaf.
- They are totally reliant on tea which gives them revenue for 9 months in a year

Solution to Exploitation of small tea growers

- We have encouraged the small tea growers to form an association with whom we have a tea leaf buying contract at a fixed price which is higher than what they get in the market
- We are handholding them in organic practices to reduce their cost on inorganic fertilisers and pesticides. We are getting them Fairtrade and Organic certified in the near future
- We are giving them land in our estate to set up a mini factory to produce 1 Lac kgs of green and orthodox tea
- Consult small growers on Multiple crop cultivation for generating income throughout the year. Currently doing trials on Organic / Fairtrade Citronella, Ginger, Turmeric, Black Pepper, Flowers and Black Rice
- We are providing the small growers good quality cuttings and seeds to increase yield and

  income from their existing land holdings.

Cost of Phase I	12,850 Euro
Cost of Phase II	32,050 Euro

Thank you