



SANJIVANI TERRA INNOVATION

Committed to Green Solutions..!

www.sanjivaniterra.com



Background

Sanjivani Terra Innovations, the sustainability-focused sister concern of Sanjivani Agro Machinery, leverages technical expertise and rural networks to deliver climate-smart, nature-positive technologies to farming communities.

Indian agriculture faces major challenges: climate variability, soil degradation, and crop-residue burning. Sanjivani Terra Innovations addresses these via biochar-based interventions, combining practical solutions with scientific validation.

Biochar, a stable, carbon-rich product derived from agro-residues (cotton stalks, bamboo, etc.), offers dual benefits:

1. Climate Mitigation – Sequesters carbon in soils, reducing greenhouse gas emissions and enabling carbon credit opportunities.
2. Soil Restoration – Improves soil structure, nutrient retention, and water-holding capacity, supporting higher crop productivity with fewer chemical inputs.

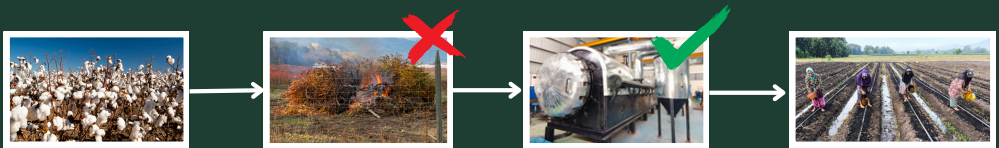
Sanjivani Terra Innovations creates a replicable, inclusive model that:

- Improves rural livelihoods
- Restores degraded soils
- Supports India's sustainability and climate resilience goals



Introduction

Biochar is produced by heating organic material (crop residues, wood chips, or biomass) in a low-oxygen environment through pyrolysis. It improves soil health, boosts yields, and sequesters carbon, addressing agricultural and climate challenges.



What is Biochar..?

- Porous, long-lasting charcoal that enhances soil nutrient and water retention.
- Remains in soils for hundreds of years as a permanent carbon sink.
- Produced from locally available biomass, promoting a circular economy for farm waste.



Benefits to Farmers & Communities

a. Soil Health & Productivity

- Improves soil structure and aeration, aiding root growth
- Enhances nutrient retention (N & P), reducing fertilizer use
- Increases water retention during dry periods

b. Economic Advantages

- Cuts costs for chemical fertilizers and irrigation
- Improves yields and long-term soil fertility

c. Environmental & Climate Benefits

- Converts agricultural waste into a valuable soil amendment
- Reduces crop-residue burning
- Stores carbon permanently (~1 ton CO₂ per ton of biochar applied – IPCC, 2019)
- Promotes sustainable, climate-resilient agriculture



Biochar Pyrolysis Machine – How it Works

- Feedstock Input: Cotton stalks, sugarcane trash, rice husk, and other biomass
- Controlled Heating: Low-oxygen pyrolysis at 350–600°C
- Biochar Formation: Biomass thermochemically decomposes to biochar, bio-oil, and syngas (energy for the process)
- Safe Collection: High-quality biochar is collected, cooled, and ready for field application



Crop Residue



Biochar



Saturated Terra Boom



Healthy Crops

Feedstock for Biochar

Locally available agricultural residues:

- Cotton stalks
- Sugarcane trash
- Paddy husk
- Groundnut shells
- Pruned branches and dry biomass, etc.



This reduces crop-residue burning and generates a value-added product for soil health.

Sanjivani Terra Innovation's Role

- Training & Capacity Building: Hands-on workshops for farmers, SHGs, rural entrepreneurs, stakeholders, and officials.
- Demonstration Units: Operational pyrolysis machines at the training center
- Applied Solutions: Guidance on integrating biochar into soil management practices
- Research & Development: Continuous improvement in pyrolysis technology
- Community Engagement: Low-cost, localized biochar production models



Key Outcomes & Impact

- Waste to Wealth: Transform agricultural residues into sustainable soil amendments
 - Climate Action: Carbon sequestration and GHG reduction
 - Empowered Communities: Knowledge for climate-resilient and profitable farming
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Way Forward





- Expand biochar adoption through training hubs and NGO collaboration.
 - Provide technical support and affordable pyrolysis units to farmers, SHGs, and stakeholders.
 - Develop market linkages for biochar and carbon credits.
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Partnerships & Collaborations

Sanjivani Terra Innovations actively collaborates with research institutions, development partners, and corporates to validate and scale biochar-based solutions.

KEY PROJECTS & COLLABORATIONS:

	Partner	Type of Plant / Collaboration
	Maharashtra Bamboo Development Board (with NEERI)	Continuous Bamboo Biochar Plant for research on Bio Oil and Wood Vinegar
	Maharashtra Bamboo Development Board (with LIT Chemical Engg College, Nagpur)	Batch Type Bamboo Biochar Plant
	National Institute of Technology, Hamirpur	Electric Biochar Plant for Research Purpose
	Indian Institute of Technology, Bhilai	Electric Biochar Plant for Research Purpose
	Rahuri Krishi Vidyapeeth, Rahuri	Batch Type Pyrolysis Plant
	ICRISAT, Patancheru, Hyderabad	Batch Type Pyrolysis Plant for Corn Cob and Agro waste; working on environment-friendly biomass pellets
	ICAR-CIRCOT, Mumbai	Continuous Biochar Plant cum Torrefaction / Torrefaction-Biochar system
	Varrah	Kon Tiki Kiln for Cotton Stalk Biochar
	GIZ (German Development Corporation) New Delhi	Batch Type Biochar Machines supplied to MAVIM
	Navsari Agriculture University gujrat	02 Batch Type Biochar Machines

Strategic Partners: CICR, CIRCOT, NEERI, LIT Chemical Engg College (Nagpur), ICRISAT, and carbon credit advisory initiatives with Curcuminomy.

Alignment with Government and SDG Goals

We collaborate with communities to co-create a future where SDG(Sustainable Development Goal) are realized.



- Supports National Mission on Sustainable Agriculture (NMSA) and Soil Health Management initiatives
 - Contributes to National Action Plan on Climate Change (NAPCC) through carbon sequestration
 - Demonstrates measurable social impact: rural employment, farmer empowerment, and sustainable agriculture
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