

Team MAITRI

<u>Team Member Name</u>	<u>Year</u>	<u>Major</u>
Arpit Bansal	2024	General Management
Ashish Samuel	2024	General Management
Himanshu Paliwal	2024	General Management
Manorma Jha	2024	General Management
Neelesh Kumar Patel	2024	General Management

Advisor(s): Kuruvilla Joseph Pandikattu

Topic Title: Fields Aflame: From Stubble to Sustainability

Audience: Farmers and members of a prominent Farmer Producer Organization (FPO) in the State of Punjab and Haryana in India.

Sustainable Development Goal

SDG 7# Affordable and Clean Energy: Empowering a sustainable future through access to affordable, reliable, and clean energy solutions.

SDG 13# Climate Action: Committing to urgent measures that combat climate change and its impacts on a healthier planet.

Executive Summary

In North India's fields, the tradition of stubble burning impacts air quality and health. Maitri Inc. offers a solution: converting stubble into biochar and biofuel, revolutionizing waste management, and introducing clean energy. This initiative addresses the issues in the states of Punjab and Haryana, where stubble burning is prevalent. Research shows PM2.5 levels during burning months reach 656.91 $\mu\text{g}/\text{m}^3$, 11 times above safe limits, contributing to 40% of Delhi's air pollution and nearly one million premature deaths in India in 2015. Punjab's significant contribution is highlighted, with rice and wheat residues forming 36% and 41% of total stubble burned in 2000.

Maitri Inc.'s model enhances soil health and generates clean energy, supporting Sustainable Development Goals 7 and 13. By partnering with farmers and using pyrolysis technology, we aim to create a replicable model for regions with similar issues. Biofuel generation from agricultural stubble is an innovative approach to addressing two significant challenges: managing agricultural waste and finding renewable energy sources. As countries seek sustainable solutions to energy needs and waste management, converting crop stubble into biofuel presents a promising opportunity. The name "Maitri," which translates to "friendship" in Sanskrit, symbolizes collaboration, unity, and a harmonious relationship between humans and nature. It beautifully encapsulates the spirit of working together towards a common goal of creating sustainable agricultural practices that benefit both the environment and the community.