# Decentralized Zero Emission Plastic Pyrolysis
# Samudhyoga Waste Chakra

## The Problem

### Multi Layered Plastics and End of life plastic cannot be recycled

**Currently, only 9% of the plastic waste generated across the globe are recycled. The rest of the plastic waste end up in ocean and landfill. One of the major reason for poor collection is the lack of infrastructure to treat MLPs which make up 60% of the waste Stream**

## The Solution

### Decentralized Pyrolysis of Plastic Waste

**The generated plastic waste can be efficiently recycled by the cutting edge product developed by Samudhyoga waste chakra within the facility with zero emissions. The product converts plastic to fuel oil and char making the cycle completely circular.**

## Our Technology

**Process: Thermochemical Decomposition of organic material at 450 to 550 C in the absence of Oxygen**

**Efficiency: Convert 1 kg of plastic to up to 600 mL oil**

**Catalysts: Zeolite, Montmorillite etc.**

**Feedstock: PE, PP, LDPE, HDPE. PE, Multi layered plastics (MLP)**

**Input capacity: 100 Kg/day to 5000 Kg/day**

## Why Decentralized Zero Emission Pyrolysis?

**Treat MLPs, HDPE, LDPE, PP and Mixed MSW Plastic waste at 60% efficiency**

**Destroy pathogen and control disease spread due to open littering**

**Meet the regulatory requirements set by the government institutions**

**Generate revenue from the sale of oil and char and with at least 30% profitability**

## Our USP

**Decentralized and Mobile**

**Zero Emissions**

**Profitable business model**

**Energy Efficient System**

# Our Impact

## Environmental impact

Pyrolysis Vs Other

**15 – 60%** ↓
Carbon Foot Print

**0%**
Lead and Mercury release

**0%**
Dioxins, Furans and Products of Partial combustion

Pyrolysis oil Vs ULSD from conventional crude oil

**14%** ↓
Greenhouse Gas Emissions

**58%** ↓
water consumption

**96%** ↓
Traditional energy

## Social Impact

**25+**
Jobs created for every 500 kg/day system including waste pickers, engineers, oil vendors

**5+**
Disease spread control

| Activity | Output | Outcome | Impact |
|---|---|---|---|
| Development of decentralized efficient oil recovery technology | Setting up decentralized systems across 1000 wards/municipalities | Reduced dependency on Incinerators and Landfills | Ecosystems recovery (SDG 6.6)<br>Ensure healthy lives and promote well-being for all at all ages (SDG 3)<br>Ensure sustainable consumption and production patterns (SDG 12)<br>Climate Action (SDG 13)<br>Life Below Water (SDG 14) |
| Establishing network with government, contractors, and community for implementation | For each 2.5 tons unit: Prevent **750 tons** of plastic each year reaching the ocean and landfills | Ecological balance cleaner air, betterment of marine ecosystem | |
| Developing and marketing the produced commodity products | Supply **450 tons** of fuel replacing energy and emission intensive traditional crude oil. | **96%** Lower consumption of traditional energy. | |
| Capacity building, advocacy, awareness, product development | Prevent emission of **189,750 kgs** of $CO_2$ emissions. | Reduced GHG contribution due to contribution due to | |

# Accolades

- Innovation Excellence Award Winner @CZeroC'18 – IIT Madras incubation funding support of Rs.10 Lakhs.
- Underwent intensive 7-week customer discovery process with Gopala Krishna-Deshpande-Centre for Innovation
- Winner of "POWERED" Entrepreneurship Program as a joint initiative of Shell Foundation and Zone Startups, and funded by DFID India and DST Government of India in Chennai
- Received 30+ enquiries for the product, incl Unilever, Indian Oil Corporation
- Seed funding of Rs. 1,00,00,000 awarded by Engineering India Limited for a 250 kg/day plant.
- Plant under construction for Chennai Corporation to be commissioned by Aug 2022.

**Contact us:**

**Ph. 9487628920 | wastechakra@gmail.com | www.wastechakra.com**