

Scaling a Circular Economy Model



Carbon Masters, a Navaka Social Business Fund (NSBF)-backed clean tech company, is driving wet-waste-to-energy & regenerative agriculture solutions.

01 | THE CHALLENGE **The Macro Imperative**

Rapid urbanization is fueling a sharp increase in **municipal solid waste**, placing a significant strain on urban systems, particularly in developing countries, and **amplifying environmental and public health risks**. This underscores the urgent need for **stronger infrastructure, decisive policy interventions** (such as India's Swachh Bharat Mission), and **scalable, effective solutions for municipal waste management**. For India, this translates into:

A Massive Opportunity:

India generates

~62 MN

tonnes of solid waste annually
of which

~60%

constitutes wet waste.

The current ineffective **solid waste management (SWM)** exposes municipalities and businesses to significant **environmental liabilities**.

The Methane Multiplier:

Methane, a greenhouse gas is

80x

more potent than
CO₂ over a

20

year horizon

making municipal solid waste **a high-leverage target** for immediate climate mitigation.

The Strategic Imperative

Scalable, commercially viable models are urgently needed to convert India's SWM liability into a **resource asset**, simultaneously addressing **climate, energy, and agricultural security**.

02 | THE SOLUTION

CARBONLITES: A Vertically Integrated Resource-to-Value Platform



Carbon Masters, a fast-growing climate tech company headquartered in Bangalore, is on a mission to tackle the climate crisis by building clean energy and regenerative agriculture solutions that replace fossil fuels and chemical fertilizers.

Through **Carbonlites**—India’s first branded, bottled compressed biomethane (CBG), **Carbon Masters** has created a high-leverage, vertically integrated circular economy model that has pioneered the conversion of wet waste and the organic fraction of municipal solid waste into two climate-friendly products.



Both products are developed, marketed, and sold under the Carbonlites brand, offering measurable reductions in emissions and contributing to lower climate-related risks. Carbonlites has proven applications in both energy and agriculture, two of the largest greenhouse gas emitting sectors in India at **68.7%** and **19.6%** respectively.

It can replace **LPG/ diesel** in cooking, heating, and transport, and **energy-intensive chemical fertilizers** in agriculture/horticulture. It’s applications extend across the following sectors:

ENERGY

Commercial cooking:

With **~95%** methane, Carbonlites matches **LPG’s calorific value** for professional kitchens, reducing costs and emissions.

Electricity generation:

India has **~98 GW** of diesel generator capacity; Carbonlites provides a **cleaner** and **cost-efficient** alternative for large-scale backup power.

Transport:

Backed by SATAT’s **2030** target, Carbonlites is operational—fueling its fleet and supplying BPCL outlets.

City Gas Distribution (CGD):

With a mandate for CGD operators to source **5%** of their gas from CBG within five years, Carbonlites becomes a reliable and scalable supplier.

AGRICULTURE

Bioenriched organic manure from **bio-methanisation** provides a high-quality alternative to chemical fertilizers.

Improves **soil health, boosts yields**, and enables **sustainable farming** at scale.

03 | CASE EXAMPLE: Carbonlites at Harohalli, Karnataka

Transforming wet waste into biomethane (CBG) and high-quality organic fertilizer.

About Carbon Masters:

In April 2022, Carbon Masters established a joint venture—**Sustainable Impacts** with its long-standing waste-management partner, **Hasirudala Innovations**.

Partnership enabled the development of a **next-generation Carbonlites plant** built on private land in Harohalli.

The **strategic location** and the **operating model together** anchor a **scalable solution** that integrates city-wide waste collection with clean energy production.

NSBF's Role:

Provided **debt finance** to **Carbon Masters** to execute the first phase of the project with Hasirudala Innovations to establish the CBG plant in Harohalli.

Support offered: **Helped operationalize the first phase of a 50-tonnes-per-day (TPD)** wet waste-to-CBG plant in Harohalli.

Provided **targeted support** through **investor introductions, brand-building advisory, participation in sector convening, and capacity-building workshops**.

04 | PROGRESS-TO-DATE: Harohalli Plant

Capacity

Facility processes:

50 TPD

of segregated organic waste, equivalent to

16,500 tonnes

of organic waste annually, to produce Carbonlites CBG and bio-enriched organic fertilizer.

Segregated waste sourced from

~30,000

apartments and villa communities from Bengaluru



Throughput

Renewable Natural Gas:

360 tonnes

of Bio-Methane is sold annually to customers (BPCL and restaurants)

Manure Production:

12,000 tonnes

of Liquid Fermented Organic Manure (LFOM) is annually sold to **local farmers**, displacing chemical fertilizer purchases



Climate & Socio-Economic KPIs

Verified Carbon Abatement:

18,975 tonnes

CO₂ avoided in annual gross emissions – as of April 2024 (IPCC Methane Mitigation Framework)

Job creation:

30

direct jobs generated, reinforcing the model's socio-economic value



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*Navaka Social Business Fund's support came at a critical time for us to establish the plant in Harohalli. It enabled us to start the project. Since then, the plant has reached it's **rated capacity**, providing a **carbon-neutral** gas to restaurants in Bangalore as well as to a BPCL bunk for transport. We are also producing a **carbon-enriched liquid fertilizer** for farmers in the vicinity of our plant. We are now expanding the plant to produce 3 TPD of Carbonlites biomethane to a larger number of restaurants, as well as to provide domestic consumers via a pipeline running directly into our plant.*



- Kevin J. Houston,
Executive Chairman & Co-Founder,
Carbon Masters

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*What stands out to us about **Carbon Masters** is the practical strength of their **circularity model**. It's scalable, rooted in real impact, and thoughtfully designed. Their approach aligns closely with the values we uphold at the Navaka Social Business Fund—supporting **mission-driven innovators** who address the climate crisis with solutions that are both sustainable and effective.*



- Suresh Krishna, MD & CEO,
Navaka Social Business Fund



05 | FUTURE CAPACITY EXPANSION & GROWTH OUTLOOK

Planned Infrastructure Build-Out (2029–2030):

Carbon Masters to set up **12 CBG** and organic fertilizer plants (**5 TPD each**) across three operational states.

8 sites identified, including

- **6** plants under the partnership with SAAFE in Kannahalli
- **Expansion of existing facilities** in Harohalli (HDI partnership) and Siddipet, Telangana

Projected Greenhouse Gas Reduction Contribution:

- Each facility is projected to abate **~50,000 tonnes of CO₂ emissions** annually by mitigating methane emissions and displacing fossil fuels
- At **scale**, the **12-plant portfolio** is expected to deliver **~600,000 tonnes of CO₂ emission reduction**

Capital requirements and funding strategy:

Planning a **~\$20 MN Series B raise (debt and equity)** in **2025–26** to commence development of **two 150 TPD CBG** plants in Kannahalli.

Carbonlites Production Targets (2029–2030)

At full scale, the network will process **1,800 TPD** of **wet waste** (food and agricultural waste), generating:

- **60 TPD** of biomethane
- **750 TPD** of liquid and solid organic fertilizers

Employment Generation

The expansion is expected to create **600** direct and indirect jobs by **2030**.

“Addressing **climate change** and **carbon emissions** is more than an environmental challenge; it's a chance to drive social impact. That's why we're excited to support **Carbon Masters** through the **Take-A-Stake Fund**. Their innovative **waste-to-energy** solutions combine **environmental impact** with **community-oriented** waste management and **circular economy** principles, demonstrating how business can create real, lasting change.

Social entrepreneurship together with



- Åsa Skogström Feldt,
Managing Director, IKEA
Social Entrepreneurship B.V.

06 | ABOUT NAVAKA SOCIAL BUSINESS FUND

Founded in 2017, **Navaka Social Business Fund Pvt. Ltd. (NSBF)**—formerly **Yunus Social Business Fund Bengaluru** is empowering India's next wave of high-impact **small and growing enterprises (SGBs)**. As an RBI-regulated NBFC, we bridge the financing gap for the country's "**missing middle**," delivering **patient capital** and **hands-on technical assistance** to help SGBs scale sustainably, build investment readiness, and amplify their social and environmental impact.



We are on a mission to end poverty and the climate crisis by supporting social businesses.



NSBF Investment Approach

NSBF manages the **Take-a-Stake (TAS) WaSH & Waste Fund**, a **Category II SEBI-registered Alternate Investment Fund**. This is a pilot fund. Through blended finance, NSBF mobilizes corporate, philanthropic, and impact capital to unlock enterprise growth in circular and inclusive economies.

Invitation to Invest in Scalable Impact

We invite mission-aligned capital providers, including philanthropic foundations, family offices, and corporate impact investors, to partner with us. Patient investments along with technical assistance help accelerate the replication of proven models like Carbon Masters, driving systemic change that generates robust economic, social, and environmental returns across India.