

Ideation Phase

Brainstorm & Idea Prioritization Template

Date	03 November 2025
Team ID	NM2025TMID01374
Project Name	To Supply Leftover Food to Poor
Maximum Marks	4 Marks

Idea Description: Supplying Leftover Food to Power

Every day, large amounts of food are wasted in homes, hostels, restaurants, and markets. Instead of sending this waste to landfills — where it produces harmful greenhouse gases — the idea is to **collect leftover food and convert it into biogas**, which can be used to **generate electricity, heat, or fuel**.

This approach provides a **sustainable energy source** while reducing environmental pollution and promoting a **circular economy**.

Key Concept:

- **Input:** Leftover or spoiled food waste
- **Process:** Anaerobic digestion (microbial breakdown without oxygen)
- **Output:**
 - **Biogas (methane + CO₂)** → used for power generation
 - **Organic slurry** → used as compost or fertilizer

The produced biogas can power:

- Streetlights, hostels, or kitchens
- Small generators for electricity
- Vehicles after conversion to Compressed Biogas (CBG)

How It Works:

- **Food Waste Collection:** Smart bins placed in public and commercial areas.
- **Transport:** Waste is transported to a **community biogas unit**.
- **Anaerobic Digestion:** Food waste is decomposed in digesters to release methane.
- **Power Generation:** Methane is used to produce electricity or fuel.
- **Byproduct Use:** The digested residue serves as organic fertilizer.

Collection & Logistics:

- Smart bins in restaurants and hostels to collect food waste.
- Food waste pickup via electric vehicles.
- Partnerships with municipalities for waste segregation.
- Incentive system for people who donate food waste.

Technology & Processing:

- Compact anaerobic digesters for local communities.
- IoT sensors to monitor methane output and waste input.
- Portable mini-biogas units for rural households.
- AI-based sorting systems for organic vs inorganic waste.

Energy Conversion & Use:

- Convert biogas into electricity for streetlights or schools.
- Power community kitchens or hostels directly.
- Convert biogas into compressed fuel for waste-collection vehicles.
- Supply to the local grid as renewable power.

Environmental & Social Impact:

- Awareness campaigns: “Feed Energy, Not Landfills.”
- Employ local youth for collection & maintenance.
- Educational programs on sustainable energy and waste.
- Partnership with NGOs for urban waste management.

