



FOOD WASTE MANAGEMENT: PROPER AND CONVENIENT DISPOSAL

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TABLE OF CONTENTS

01 INTRO/
BACKGROUND

02 PRODUCT
DESCRIPTION

03 TIMELINE

04 BUDGET

05 ABOUT US

06 OVERVIEW

OUR MISSION STATEMENT

Eco-quality

We believe in justice, and our product will inspire, motivate, and adapt communities to envision a waste-free future. Whenever there is inequality, eco-equality is worth fighting for, hence we aim to deliver a solution that tackles inequity.



WHERE DOES OUR GARBAGE GO?

- Any time food is involved, there is food waste.
 - Holidays
 - Restaurants
 - College Universities
- New York City, in particular, has 7,200 men and women who go out in about 2,000 collection trucks and collect tons of residential waste and recyclable material to landfills.



Retrieved from Washington Post

DID YOU KNOW?

- Do you ever wonder how much your food waste accumulates to?
- Food waste is biodegradable waste that is discarded by consumers. Each year, 108 billion pounds of food is wasted in the United States.
- That equates to 130 billion meals and more than \$408 billion in food thrown away each year.
 - Negatively impacts the economy, climate, and environment.

WHY IS THIS A PROBLEM?



The hidden damage of landfills. Environmental Center.

- ❖ Exporting wasted food to landfills builds up greenhouse gas emissions
- ❖ Waste clumped together accumulates potent gases like methane
- ❖ When paired with the dozens of years of food waste practice, damage to the economy and ecosystem grows

THE CURRENT SOLUTIONS

- ❑ Composting & recycling
- ❑ Composting is a form of recycling, where organic material can be turned into a valuable product
 - ❑ an organic fertilizer for farmers
- ❑ Adjusting food proportions

Why Should I Compost?

Food scraps make up almost **22%** of the waste stream in MA
*based on 2019 MassDEP data

By composting, you can turn those food scraps...

Composting...

- adds nutrients, moisture, and carbon to soil
- helps plants grow
- is fun and easy!

In a few months, you reduced GHG emissions and helped your plants thrive!

Into black gold!

Composting is nature's recycling system at work

MassDEP
Department of Environmental Protection

Recycle Smart

The infographic illustrates the composting process. It starts with a green bag of food scraps, which are then shown being held in a hand. An arrow points to a pile of dark, rich soil, labeled 'Into black gold!'. Another arrow points to a garden bed with small plants growing, with a clock icon indicating the time taken. A final arrow points to a pile of soil with worms, labeled 'Composting is nature's recycling system at work'. The background is a dark blue gradient.

ABOUT THE PRODUCT

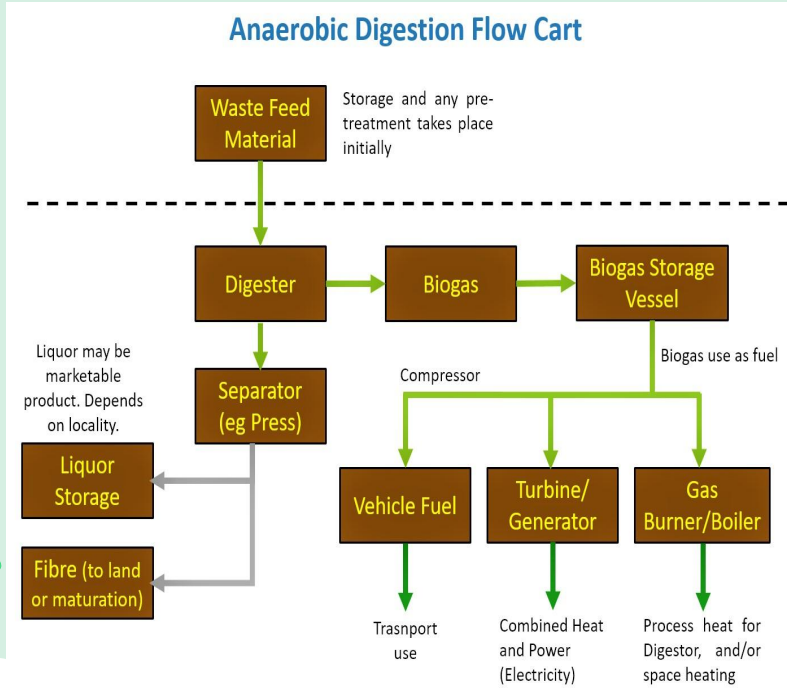
- The biodigester cuts methane emissions
- Produces renewable energy
- Efficient and eco-friendly manner.
- Decomposes food cooked or uncooked
 - Including plate scrapings, leftover takeaway food, meat, fish, small bones, bread, dairy products, vegetable peelings, and fruit.



Anaerobic Digest. BioCycle.

ANAEROBIC DIGESTION

Anaerobic Digestion Flow Cart



- Organic wastes are used as feedstock (fuel).
- Then anaerobic digestion breaks down organic wastes using chemicals and enzymes.
- This yields two results: biogas and digestate.
 - Biogas is composed of methane, carbon dioxide, and hydrogen sulfide.
 - Residual digestive waste known as "digestate" is generated, then compartmentalized into liquid and solid components and is split and treated separately for various uses.
 - compost, nutrient-rich fertilizer and an ingredient in bio-based goods (such bioplastics)

Green Cone Solar Digester

How the Green Cone works:

The Green Cone Solar Digester is a completely natural system that reduces food waste to its natural components of water and CO₂. It is *not* a garden composter!

Over 90% of the waste will be absorbed as water by the soil

Removable Lid

This is where food scraps are placed to enter the digestion chamber

Double-walled solar cone

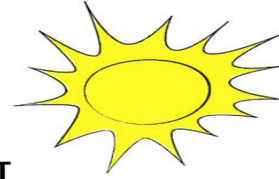
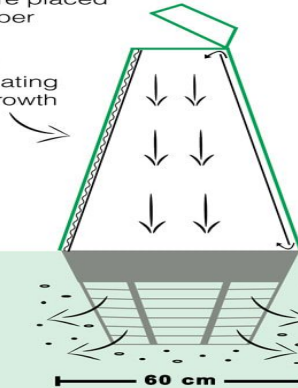
Creates a heat trap of circulating air to encourage bacteria growth and insulates in the winter

Water evaporates and percolates into ground

Soil filters out odors and prevents access by flies

Natural microorganisms and worms

Migrate freely in and out of the basket and break down the waste.



Sunlight

Provides energy source for the cone

Digestion Chamber

Aerobic conditions reduce methane production

Nutrient-rich soil conditioner
seeps into the surrounding ground

Green Cone Solar Food Waste Digester & Composter. Green Cone USA.



INNOVATION

Features

- The sun heat boost interior temperature and speed up microbial activity.
- Air chamber provide insulation and facilitates oxygen airflow
 - maintain aerobic conditions and prevent foul odor.
- Intended to perform in both hot and cold climates

Difference

- Cone has application in smaller area like gardens
 - not practical for everyday use due to storage capacity limitations and its usefulness on a bigger scale must be addressed.
- Anaerobic digester use solvent mixture that speeds up the digestion process, while the cone perform digestion in compost manner.
- Both with different system of digestion that's aerobic and anaerobic.

WHY US?

- Anaerobic digestion recycle waste entirely and produce efficient energy output
 - The green cone is limited by the source of organic material used.
- More output production is created in one location using anaerobic digestion than, say, a large area of compost land.
- Anaerobic digestion model can be modified in size and function depending on the scale of production and needs
 - Private business can make their product flexible and affordable

FEASIBILITY

Example 1



New system to tackle nonconsumable food waste, contribute to clean energy needs of local farm. Notre Dame News.



Example 2



Example 3



Program Fund

- In 2021 The Environmental Protection Agency (EPA) issued Executive Order 1398.
 - Incentive cost \$2,000,000.
 - one to two grants, each worth \$50,000 to \$200,000, for specified regions.



NOW AND THEN

- Anaerobic digestion is a step taken in reducing food waste, through government funding and efforts.
- The biogas business in the United States comprises over 100 companies and is continually developing.
- Government collaboration with the biogas industry may awaken the potential of biogas as a vehicle for employment generation.

BENEFITS TO USING A BIODIGESTER

1. Digests waste in 24 hours
2. No noise
3. Reduces the cost
4. Reverts waste from landfill, rivers, lakes, and fields
5. No mess and pests
6. Reduces methane emissions
7. Waste can be used for renewable fuel
8. Time and effort are saved
9. No self-monitoring required

DISTRIBUTION

- Will be made available in restaurants, hotels, hospitals, jails, and schools in local areas.
- In places that produce a lot of food waste
- Philadelphia's Temple University has three digesters on its campus

POSSIBLE DRAWBACKS

- Biogas is not a commonly used fuel
 - The worldwide distribution of the biodigester, however, will make biogas well known.
- Significant amount of expenditure required for this recycling technology.
 - Costs less than exporting waste to landfills and will lead to a better result.

AFTER PRODUCT SURVEY

- To evaluate the product's effectiveness
- Questions asked will include:
 - How often is the biodigester used?
 - What aspect of the biodigester makes it valuable?
 - How would you compare the biodigester to our competitors'?
 - What other types of people/facilities could find our product useful?
 - How could we improve the biodigester to better meet your needs?



Retrieved from Voxco.com

TIMELINE FOR PRODUCT LAUNCH

Product Development

Outline launch strategy

DEC
2022

Promotion

Advertise on website and social media

MAR
2023

Survey Distribution

Customer feedback

OCT
2023

Official Launch

NOV
2022

Feasibility Study

Assess readiness and distribution

FEB
2023

Soft launch

Product Testing

JUN
2023

Press

DEC
2023

TIMELINE-COMMUNITIES

Placement

March 1,2023 -
March 3,2023



Installation

March 6,2023-
March 10,2023



Management

March 11,2023- April
28,2023



Progress Report

April 29, 2023-May
1,2023



BUDGET

A preliminary calculation indicates that the construction cost of the anaerobic digester will be \$100,000 for each ton of feed material processed each day.

- Size
- Materials
- Spacing
- Construction

OUR TEAM

Tenzin Chokdup

Machine Scientist

Suraiya Anisa

Socio-cultural Psychologist

Simone Smith

Financial Advisor

David Ashby

Biologist

Fatou Sohna

Ecologist

OVERVIEW

- Food wastage negatively impacts the environment and economy
- A biodigester is a great solution to such a difficult problem.

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THANK YOU

Feel free to ask any questions.

