DOW UNIVERSITY OF HEALTH SCIENCES

GREEN YOUTH MOVEMENT

(GYM)

PROPOSAL

ON

"Organic Waste Management and Composting at Dow International Medical College"

Table of Contents

CHAPTER #01

INTRODUCTION

1.1 Background of Study

Composting is nature's way of recycling biodegrades organic waste i.e. food waste, manure, leaves, paper etc., and turn it into a valuable organic fertilizer. It is a process large volume of rapidly are reduced to small volumes of materials which continue to decompose slowly; the ratio of carbon to other Elements is brought into balance, thus avoiding temporary immobilization of nutrients. One of the many benefits of adding compost to the soil is that the nutrients are slowly released to the soil and are available for use by plants.

1.2 Problem Statement

In Pakistan, the inadequate management of organic waste poses a significant environmental and health challenge. Limited Awareness and Education: Insufficient knowledge and awareness about the benefits of organic waste management and composting hinder progress in implementing effective practices. This lack of awareness among the community hampers the adoption of sustainable waste management practices.

1.3 Objectives

1.3.1 General objectives:

The objective of the project is to develop and implement an efficient organic waste management system at DIMC (Dow International Medical College) to transform organic waste into high-quality compost. The project aims to achieve the following;

1.3.2 Specific objectives

1. **Waste Reduction:** Minimize the amount of organic waste generated by implementing effective waste segregation practices and promoting awareness among staff and visitors about the importance of waste reduction.
2. **Compost Production:** Establish a robust composting system that efficiently processes organic waste, converting it into nutrient-rich compost suitable for soil enrichment and organic farming.
3. **Environmental Sustainability:** Promote environmentally sustainable practices by diverting organic waste from landfills, reducing greenhouse gas emissions, and preserving natural resources through composting instead of relying on chemical fertilizers.
4. **Student learning:** Project driven by the students at DIMC will produce lifelong managers and protectors of green environment around them.
5. **Soil Enrichment:** Produce high-quality compost that can be used within the DIMC premises to enhance soil fertility, support plant growth, and contribute to the establishment of a greener and healthier environment.
6. **Educational Outreach:** Conduct educational programs and workshops to educate staff, patients, and the local community about the benefits of composting, waste reduction, and sustainable waste management practices, thereby fostering a culture of environmental responsibility.
7. **Cost Efficiency:** Implement a cost-effective organic waste management system that not only reduces waste disposal costs but also provides a valuable resource (compost) that can be used within DIMC's landscaping and gardening initiatives.
8. **Monitoring and Evaluation**: Regularly monitor and evaluate the effectiveness of the composting system, measuring key metrics such as waste diversion rates, compost quality, and overall environmental impact, to identify areas for improvement and ensure the project's long-term success.

1.4 Significance of the Study

By achieving these objectives, the project aims to establish DIMC as a model for organic waste management, promoting sustainability, environmental stewardship, and resource efficiency within the organization and the surrounding community.

1.5 Scope and Limitations

The scope of implementing organic waste management and composting at Dow International Medical College (DIMC) is significant in promoting environmental sustainability and waste reduction. With the increasing emphasis on eco-friendly practices, adopting an organic waste management system can yield several benefits.

Limitations include:

1. **Odor and Pest Management:** Composting organic waste can generate odors and attract pests if not managed properly. Appropriate measures must be implemented to mitigate these issues effectively.

2. **Resource Requirements:** Successful organic waste management requires dedicated resources, including trained personnel, equipment, and infrastructure. DIMC needs to allocate sufficient resources to implement and maintain the composting program.

Overall, by addressing these limitations and leveraging the scope of organic waste management and composting, DIMC can contribute to a greener environment and instill sustainable practices within its community.

CHAPTER #02

LITERATURE REVIEW

In this chapter the composting process, composting ingredients and composting methods will be discussed base on the existing articles and preferences that found.

2.1 Composting Ingredients

Compost ingredients are enlightened below:

2.1.1. Green compost material:

Green compost materials are much higher in nitrogen. Nitrogen is an important element in amino acids and proteins, and is a vital protein source for the compost microbes [5].

2.1.2. Vegetable peeling:

This category consists of any pieces of fruits and vegetables, potato peelings, apple cores, banana peels, any pieces of uncooked vegetables. [5].

2.1.3. Coffee ground

Coffee grounds are high in nitrogen and really help to heat up your compost. You can compost any kind of coffee grounds [5].

2.1.4. Plants and plant cutting

Most plants and plant cuttings can be composted including annual weeds without mature seeds, any remains of spent or harvested plants and flower [5].

2.1.5. Brown compost material

Brown materials such as leaves, straw, hay and sawdust are high in carbon and are a source of energy for the compost microbes [3].

2.1.6. Eggshells

Eggshells contain calcium and area useful addition to compost pile. The shells do take a long time to break down [5].

2.1.7 Tea bags

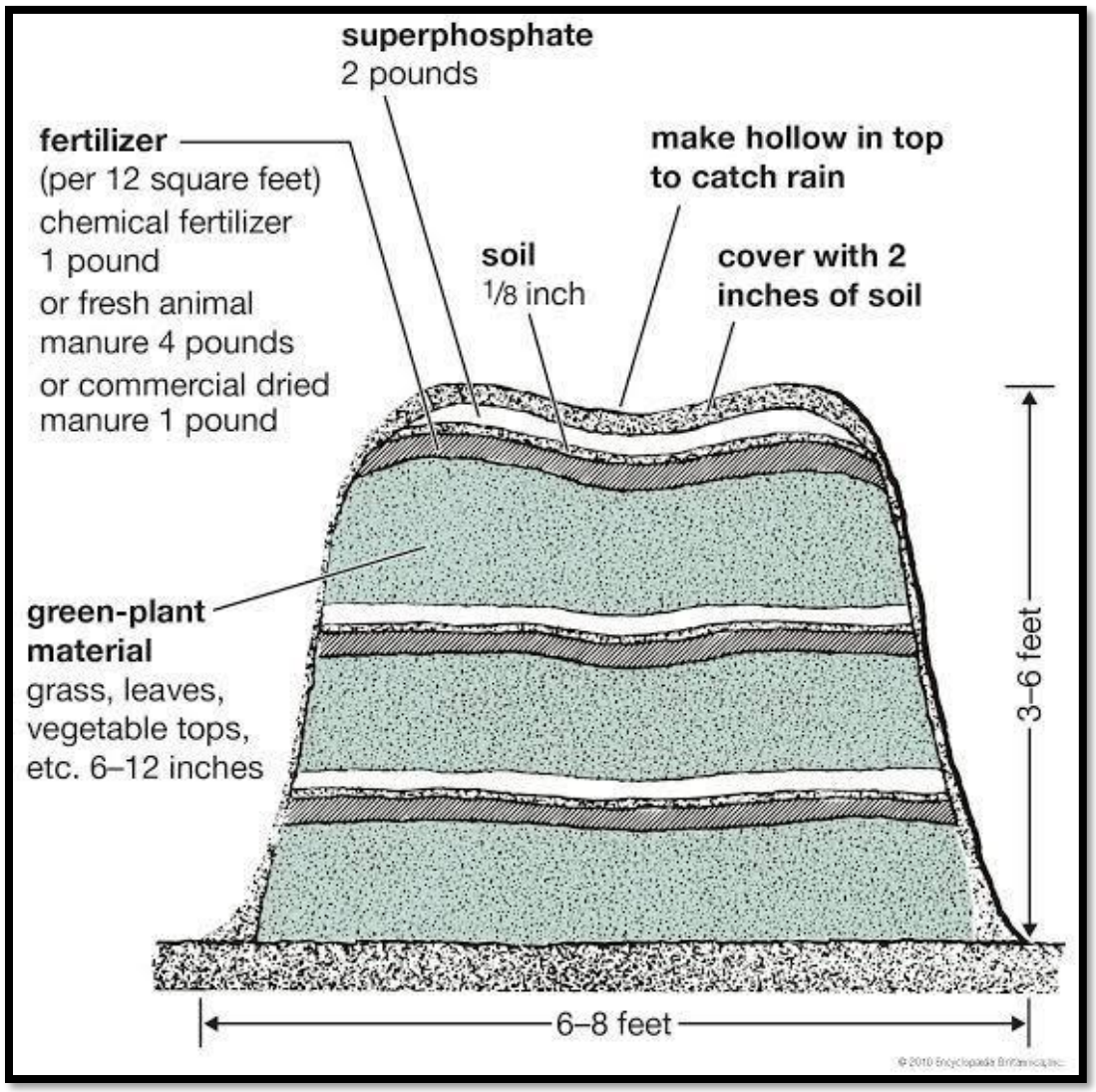
Both black tea and herbal teas can be composted, whether loose leaves or in bags [5].

2.2 Composting Method

Generally, there is various method of composting, although some important composting methods are enumerated below:

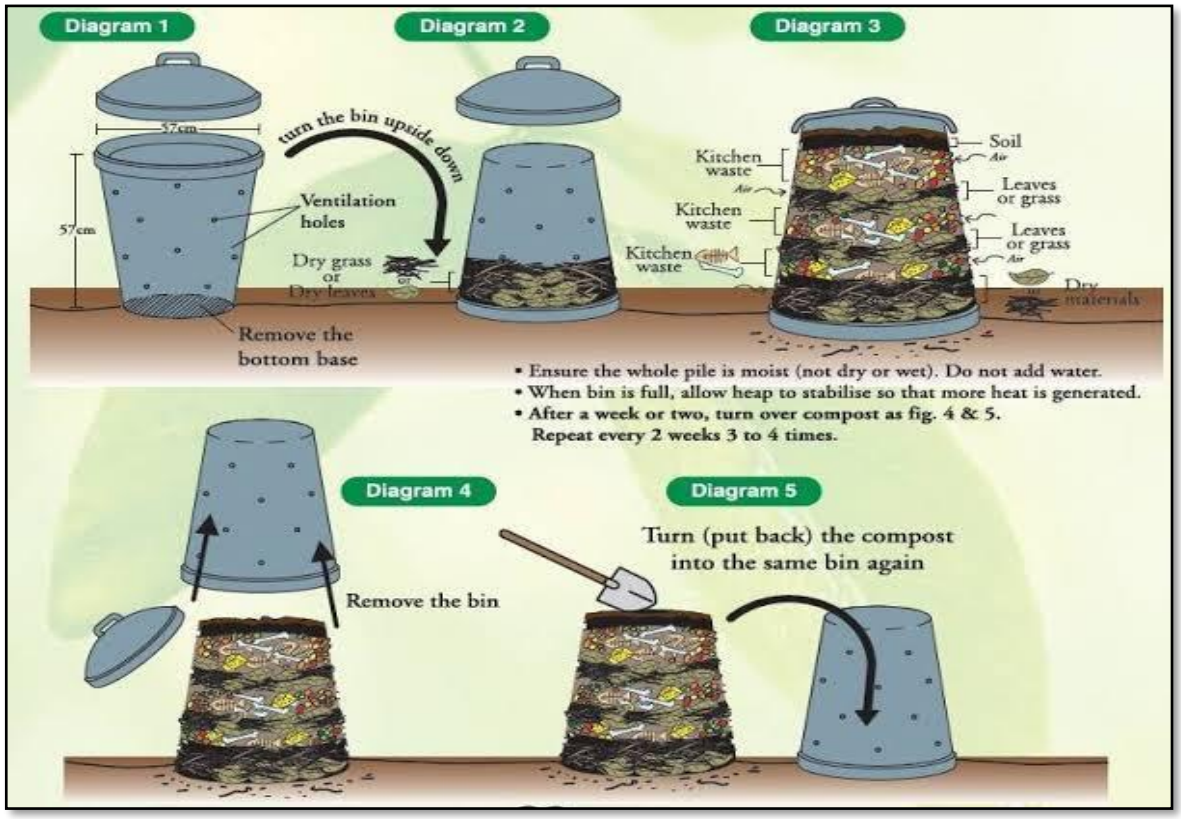
2.2.1. Windrow composting

Windrow composting is conducted by placing raw materials in long narrow piles or windrows, which are turned regularly [1].



2.2.2. Vessel composting

Vessel composting refers to any type of composting conducted in an enclosed area such as a container, building, or vessel [1].



2.2.3. Wooden three bin composting

The three-bin compost system is a straightforward composting method; the main purpose of this system is to facilitate the process of turning the compost from one bin to another [6].

2.3 Stages of Organic Waste Composting

Different stages organic waste composting is explained below:

2.3.1. Collecting the waste organic materials

The collection of waste materials will only be done around DIMC. Assigned personnel will collect the waste materials like dry leaves, kitchen organic waste to put it in a bin that we will fabricate which is shown in (figure 01).

Plan for collecting the organic waste materials is to place trash bin which is shown in (figure 02) around the canteen and trees area.

Figure 01 Wood Three bin unit turning

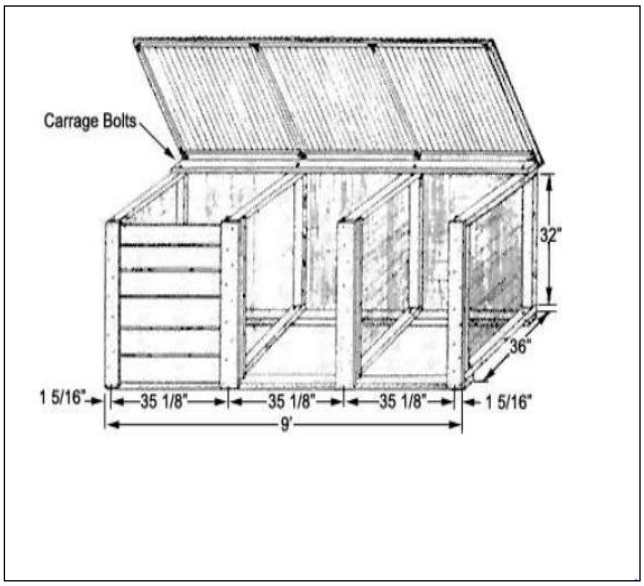


Figure 02Trash bin collector.

2.3.2. Shredding the Organic Waste Materials

Compost shredders are used produce large quantities of compost from garden waste. Compost shredders can shred garden plants, vegetable waste etc. (Figure 05).

Figure 03 Compost Shredder

2.3.3. Mixing the organic waste materials

Mixed all shredded material and placed them in compost mixer. The step will do in mixing the organic waste materials is by first placing the brown ingredients and then we will place the green ingredients.

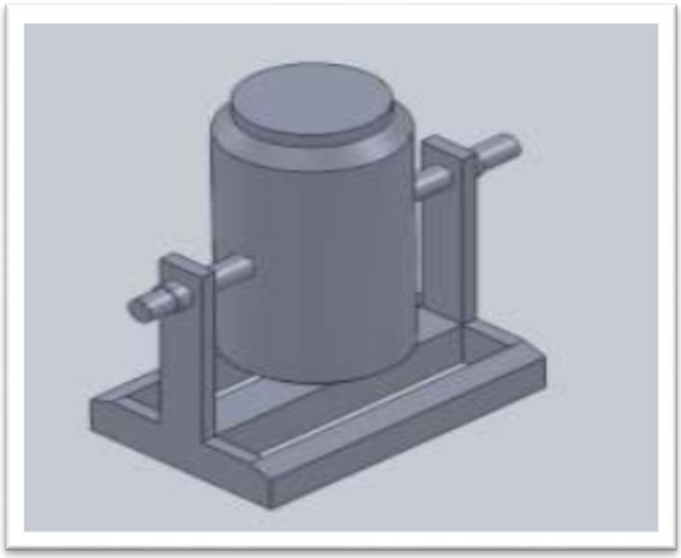


Figure 04 compost mixer

3.3.4. Composting the organic waste material

A rotating compost bin also referred to as compost tumbler and a great way to speed up the composting process by allowing a more frequent stirring and aeration.

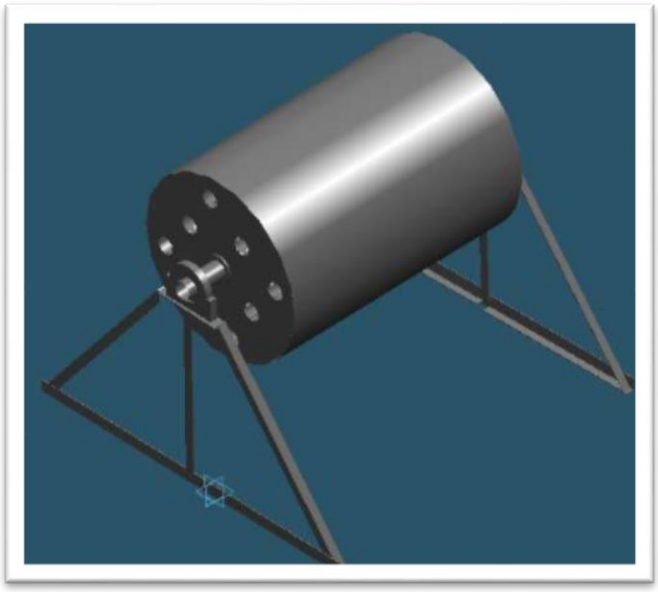


Figure 05 Composting waste materials

CHAPTER #03

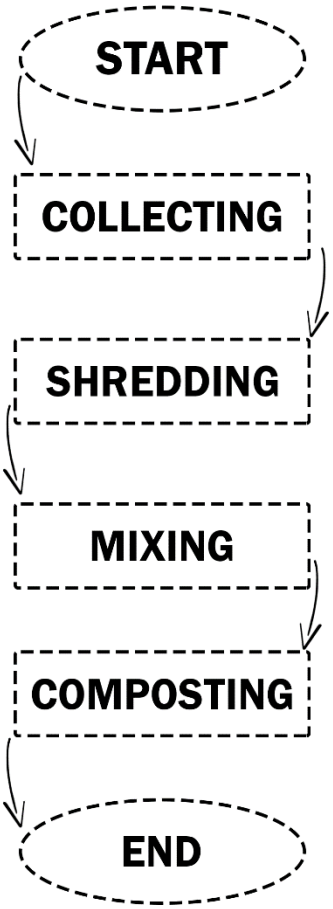
METHODOLOGY

3.1 Composting Process &Flow Chart

This study is consisting of four stages namely:

1. **Collecting** (collecting the waste materials).
2. **Shredding** (Shredding the waste materials such as the dry leaves and kitchen waste) .
3. **Mixing** (Mixing the green and brown ingredients to balance the carbon-nitrogen ratio).
4. **Composting** (Composting the waste materials to use for fertilizers).

(See Figure 06) has illustrated the stages of composting.



Source: (JOHNSON, CHESTER & GLENN, 2020)

3.1.1. According to project methodology DIMC will adopt following two methods.

1. Vessel Composting
2. Wooden three bin unit

3.1.2. Vessel composting

Vessel method required following items.

S#	Item Required	Estimated Quantity
1.	Plastic bin	03
2.	Gloves	02
3.	Rainwater barrel	01
4.	Colored trash bag	10

3.1.2. Wooden three bin unit

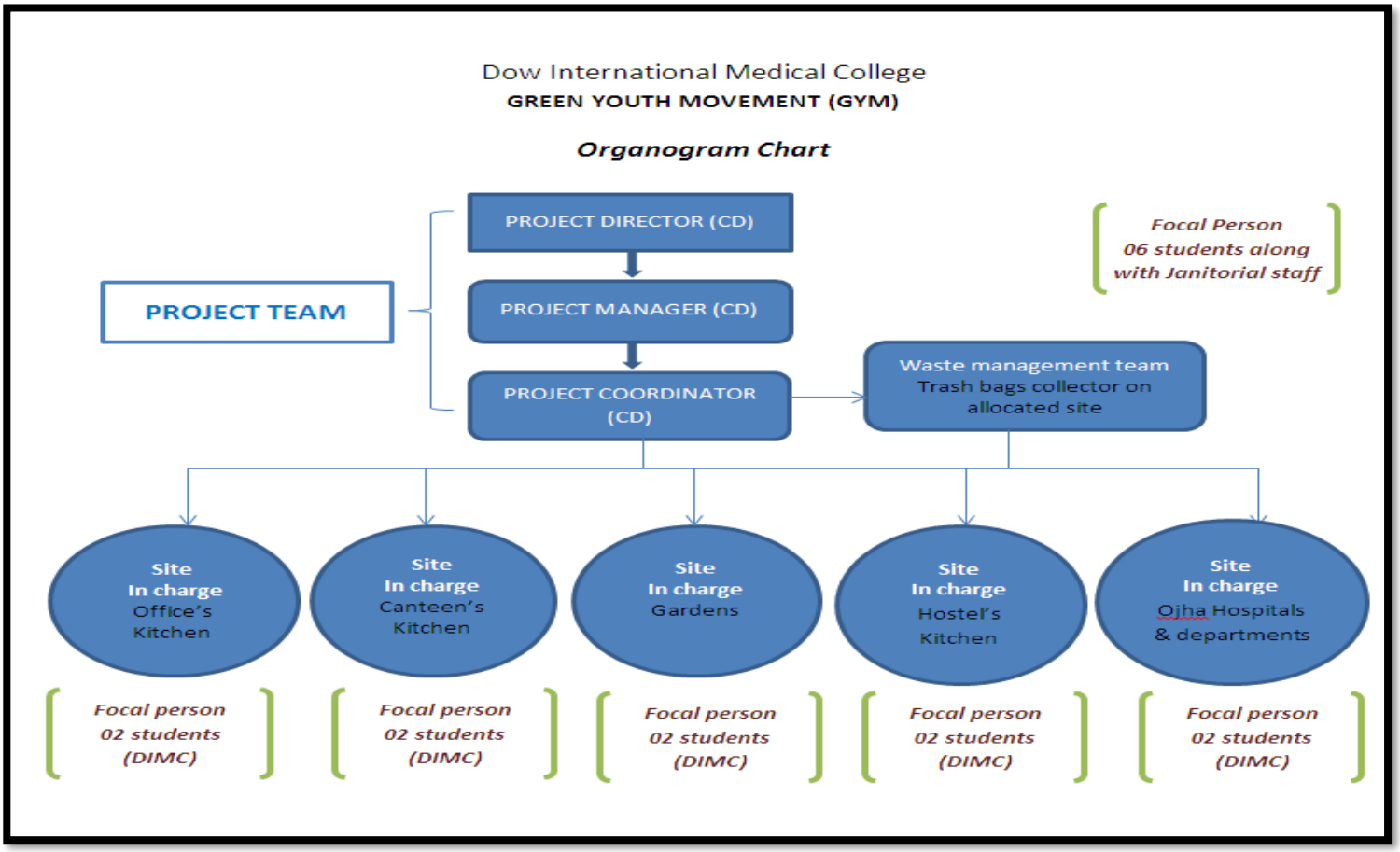
Wooden three bins method required following items

S#	Item Required	Estimated Quantity
1.	Pallets	08
2.	Net or Mesh	08
3.	Bolts	01
4.	Upper Lid for cover	03
5.	Door Hinges	12
6.	Cardboards for base	

3.1.3. Places to get Organic Wastages

- Gardens **03**
- Kitchen **06**

3.2 Organogram Chart



3.2.1. Project Team and Assigned Task

1) **Project Director -Prof. Dr. Zeba Haque (Principal DIMC)**
2) **Project Co-director-Dr.Syed Farjad Sultan (Associate Professor)**
3) **Project Manager-Mehwish Jamali (Admin Officer)** Project monitoring, reporting, solve issued that arise etc.
4) **Transport Team members** (Transportation of wastage to compost storage site).

- 06 students supervisors for transport facility
- Mr. Arif (Garden in-charge)
- (Janitorial staff)

5) **Maintenance Team members**(Storage , segregation & Inspection , Record keeping of organic waste distribution and dumping activities every week)

- 06 students supervisors for maintenance
- Mr. Arif (garden in-charge)
- Mr. Zohaib (IBMS)

6) **Facilitation Team members** (Identification of dumping sites, Dumping waste to designated sites and follow-up activities including shoveling etc.)

- 06 student's supervisors for facilitation.
- Zulifqar Bugti (PD office)
- Mr. Arif (Garden in-charge)

CHAPTER #04
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