GORAKHNATH TRUST SURVEY REPORT IN ORGANIC WASTE

ZERO TO SEVEN K.M. IN BETWEEN 6 GP OF 41 VILLAGES

ORGANIC WASTE

1. Mention the exact location with Latitude and Longitude.

Organic waste decomposition does not occur at a single, exact location with a universal set of coordinates. It is a natural biological process that happens ubiquitously across the globe in any environment where organic materials, moisture, and microorganisms are present, such as:

* Soils: Decomposition primarily occurs in the upper layers where organic matter is abundant and microbial activity is highest.

* Water bodies: The process largely takes place in the bottom layers where organic matter sinks and is broken down by microorganisms.

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The decomposition process is facilitated by various microorganisms like bacteria and fungi, and its rate is influenced by local environmental factors such as temperature, moisture, and oxygen levels.

SITE & ITS FEATURE

2. Exact Location of BARABATI STARTING POINT : **Latitude: 20.7993666 , Longitude: 86.1503083**

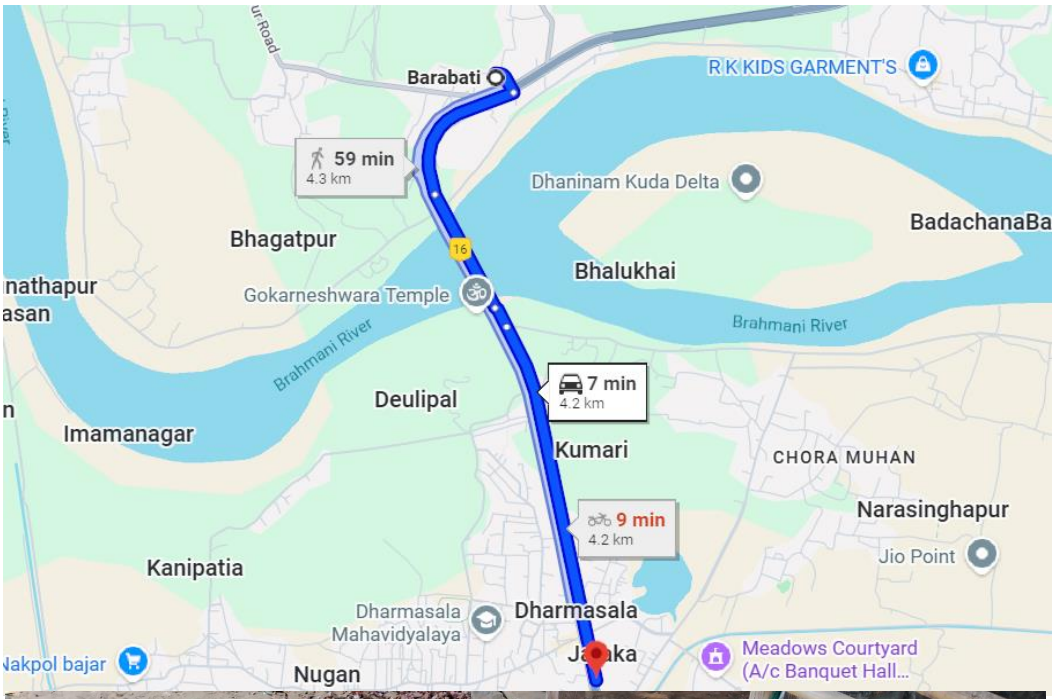
3. **SITE & ITS FEATURES**

Sl No.	GP NAME	VILLAGE NAME	ORGANIC WASTAGE OF QUANTITY
1		BARABATI	240 kg/day
2		BETANDA	630 kg/day
3		CHITRAKULA	250 kg/day
4		PULADI	310 kg/day
5		BARAJPUR	120 kg/day
6		DURGAPUR	110 kg/day
7		ODANGA	130 kg/day
8		JHATIASASAN	140 kg/day
9		MANATIRA	935 kg/day
10		BHAGATPUR	112 kg/day
11		PADMAPUR	600 kg/day
BARABATI			**3577 kg/ day**
12		SINGAPUR	180 kg/day
13		JAGANNATHPUR	150 kg/day
14		BAMADEBPUR	210 kg/day
15		BRAHMABAD	300 kg/day
16		HARIDAPAL	220 kg/day
17		DANEIPUR	340 kg/ day
18		SARABANA	260 kg/day
19		HATASINGPUR	280 kg/day
SINGAPUR			**1940 kg/day**
20		NATHUABARA	240 kg/day
21		ADAMPUR	170 kg/day
22		KURKURA	210 kg/day
23		KAPALI	230 kg/day
24		NAGUAN	190 kg/day
NATHUABARA			**1040 kg/day**
25		KALANA	160 kg/day
26		SULIA	250 kg/day
27		NATHUABARA	160 kg/day
28		SARABANA	190 kg/day
KALANA			**760 kg/day**
29		ODISHU	110 kg/day
30		MANAPUR	160 kg/day
31		BAHABALPUR	240 kg/day
32		ARTIA	200 kg/day
33		MELAKA	140 kg/day
34		KARANJIA	180 kg/day
ODISHU			**1030 kg/day**
35		DEULI	160 kg/day
36		DAKHINSASAN	180 kg/day
37		DUBAGADIA	210 kg/day
38		KANIPATIA	120 kg/day
39		SANKARIDIHA	220 kg/day
40		KUKUDEIPUR	250 kg/day
41		BAUNSATHALIA	140 kg/day

JARAKA	**1280 kg/day**
TOTAL	**9627 KG/DAY**

1. Total measurements in STARTING POINT to 6 GP in 41 Villages = 29 km. radius

2. MAPS & PHOTOS



2. Describe the site- what is and its features.

Anaerobic digestion, or biomethanization, is a process whereby organic waste decomposes in the absence of oxygen. Through the action of microorganisms, the waste is converted into biogas, a mixture of methane, CO 2, and other gases. This gas can be used to generate heat and electricity.

Microorganisms (fungus and bacteria) decompose the organic matter and transform it into compost, a material rich in nutrients that is used as an organic

he key site features, or critical parameters, for effective organic waste decomposition (composting) involve managing the environmental conditions to support optimal microbial activity. These features include:

Carbon-to-Nitrogen (C:N) Ratio: The organic material needs a specific balance of "browns" (carbon-rich, like dry leaves, wood chips) and "greens" (nitrogen-rich, like food scraps, manure). The ideal C:N ratio is typically between 25:1 and 30:1

Moisture Content: Microorganisms require sufficient water to thrive, but too much can lead to anaerobic (low-oxygen) conditions and odours. The favourable moisture content is typically between **50% and 60%**

Oxygen Flow (Aeration): Decomposition is primarily an aerobic process. Adequate aeration is crucial for the microorganisms to breathe and work efficiently. This can be achieved by turning the pile, adding bulking agents (like wood chips), or using forced air systems

Temperature: Microbial activity generates heat. Maintaining a specific temperature range, typically 131°F to 160°F (55°C to 71°C) for a period, promotes rapid decomposition and destroys pathogens and weed seeds.

Particle Size: Shredding or chopping organic materials into smaller pieces increases the surface area available for microbial feeding, which accelerates the decomposition process.

Pile Structure and Size: The physical structure and size of the compost pile impact air and water flow. A proper balance of large and small particles ensures optimal density and porosity.

Presence of Microorganisms and Invertebrates: Bacteria and fungi are the primary decomposers, breaking down complex organic matter. A healthy site will naturally support these populations, sometimes aided by the addition of inoculums or earthworms (in vermicomposting)

The raw material storage area for organic waste decomposition requires specific characteristics to ensure an efficient, odour-minimized, and environmentally safe process. Key requirements include:

For effective organic waste decomposition, the primary "elevation" consideration is choosing a well-drained, elevated site to prevent waterlogging, while specific measurements are crucial for maintaining the optimal balance of physical and chemical factors.

Site Elevation

The decomposition area should be:

- Elevated to prevent rainwater from pooling, which can lead to soggy, anaerobic conditions and odors.
- Level and well-drained if composting in open windrows.
    - Located in a shaded area to help maintain consistent moisture and temperature, or a simple shed can be erected.
    - 5. Provide additional context, like resources or relevant details about the site
- Organic waste decomposition sites, such as composting facilities and anaerobic digesters, are crucial for managing biodegradable waste, reducing greenhouse gas emissions, and producing valuable soil amendments or bioenergy
- **Decomposition Methods:** The two primary methods are aerobic composting and anaerobic digestion
    - Aerobic Composting: Occurs in the presence of oxygen, broken down by microorganisms, and produces heat and a humus-like material called compost. The high temperatures can kill pathogens and weed seeds.
    - Anaerobic Digestion (Biomethanization): Occurs in the absence of oxygen in an enclosed space and produces biogas (mostly methane and carbon dioxide, which can be used as fuel) and nutrient-rich slurry.
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