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Utilization of Domestic Waste in VOGCE by Pit Method

A.S.Chavan[1], A.N.Velhal[2], M.J.Vishwakarma[3], R.S.Mishra[4], Mrs. Archana N. Mahajan
Civil Engineering Department, Vishwatmak Om Gurudev College of Engineering,
University of Mumbai, Maharashtra, India
aolc93@gmail.com

Abstract: This paper signifies on environmental impacts and health hazards as a result from inadequate management of organic domestic waste. It gives details of water and soil contamination, air pollution and spread of diseases through expanding breeding grounds for pathogens, vectors and rodents.

Keywords: Rekindled, Decentralized, Compost, Hyacinth

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I. INTRODUCTION

Developing concerns identifying with area corruption, risk to eco-frameworks from over and unseemly utilization of inorganic manures, barometrical contamination, soil wellbeing, soil biodiversity and sanitation have revived the worldwide enthusiasm for natural reusing rehearses like fertilizing the soil. The capability of fertilizing the soil to transform on-ranch waste materials into a homestead asset makes it an appealing suggestion. Fertilizing the soil offers a few advantages, for example, upgraded soil richness and soil wellbeing in this way expanded farming profitability, enhanced soil biodiversity, lessened biological dangers and a superior situation. Despite the fact that the practice is surely understood, agriculturists in numerous parts of the world particularly in creating nations end up off guard by not making the best utilization of natural reusing accessible to them, because of different imperatives which among others incorporate nonappearance of effective quick innovation, long time range, extreme work, area and venture necessities, and monetary viewpoints.

- To prevent the health hazards.
- To prevent the disease i.e. rats, flies and other pests feed on wastes and carry disease.
- To prevent the air pollution i.e. Increase in odour [1].

The organic waste flow in this report is restricted to only concern organic household wastes such as food and garden wastes, not including human waste. Furthermore, the environmental impacts and health hazards described only refer to implications from inadequate disposal and other stages in the products life cycle are not considered[2].

Regarding sustainable technologies, emphasis has been put on decentralized aerobic composting techniques, but also small-scale biogas production systems are considered. Decentralized composting techniques will in this report include small-scale backyard techniques and medium-sized community techniques, and decentralised biogas systems will be referred to small-scale alternatives for single households and communities [1].

II. METHODOLOGY

As per considering the availability of waste and the type of waste, the method adopted in the campus is pit method

Sources of waste in VOGCE

- Food Waste :- From Mess
- Lawn Waste :- Grass
- Gardening Waste :- Leaves,Brushes
- Office Waste: - Papers etc.

For the most part, fertilizing the soil is completed in an edge of a field and in a round or rectangular pit. Rice straw, creature fertilizer (normally pig), sea-going weeds or green compost harvests are utilized and regularly sediment pumped from waterway beds is blended with the product deposits. The pits are filled layer by layer, every layer being

15 cm thick. As a rule, the primary layer is of a green compost harvest or water hyacinth, the second layer is a straw blend and the third layer is of creature manure.

These layers are substituted until the pit is full, when a top layer of mud is included; a water layer of around 4 cm profundity is kept up at first glance to make anaerobic conditions which decrease misfortunes of nitrogen. Surmised amounts of the diverse buildups in tons per pit are: stream sediment 7.5, rice straw 0.15, creature waste 1.0, sea-going plants or green compost 0.75 and superphosphate 0.02. Three turnings are given on the whole, the first month in the wake of filling the pit and, as of now, the superphosphate is included and completely blended in. Water is included as fundamental. The second turning is done after one more month and the third two weeks after the fact. The material is permitted to deteriorate for three months and produces around eight tons of fertilizer for every pit shed might be built over it to shield the manure from substantial precipitation. The pit ought to be around 3 m profound, 1.5-2 m wide and of any reasonable length. Trenches or pits around one meter profound are burrowed; the expansiveness and length of the trenches can be made relying upon the accessibility of area and the kind of material to be treated the soil. The choice of site for the pits is made as in the Indore strategy. The trenches ought to ideally have inclining dividers and a story of 90-cm slant to counteract water logging [4].

Practically in campus – Size of Pit = 2x1x2m

Constructing a compost pit

Fertilizing the soil is a successful and earth well disposed answer for transforming yard waste and kitchen scrap into useful soil correction. The Traditional technique for fertilizing the soil requires the making of a huge manure heap found outside. Be that as it may, on the off chance that this technique is too unattractive or excessively bulky for you, you can investigate different options for make heap. One option is to make a fertilizer pit. This underground strategy for treating the soil is in some cases called as "Trench Composting", is a compacted and clean approach to help your natural waste break down and enhance your dirt [3].

Following are the Steps which are adopted in the campus

- Dig the hole for your composting pit. Your compost hole should be about one foot (30cm) deep. The area of hole will be determined by the amount of organic matter you want to add. Keep in mind that the compost will be finely chopped and piled to height of 4 inch (10cm) in the bottom of hole when estimating the whole's size.
- Chop your composting material finelly.Underground composting proceeds more slowly than above ground setups and maximum surface area is key to speeding process. Kitchen scrap can be ripped apart by hand, with knife, or even pulverized in a food processor. Yard scrap can be broken down using lawn mower. Aim for peaces no bigger than 2or3 inches (5-8 cm)in any dimension
- Add the organic material to compose pit pile your food scrap and yard waste into the hole dug to a depth of 4 inches (10cm).Make sure your Carbon Reach Material (such as paper and dried leaves) are mixed thoroughly with nitrogen rich material (like vegetable scrap and fresh grass), as u will not turn the underground pile.
- Place a board over a whole over to plan a more scrap. We should continually add scrap to the composite pit cover the compost with the thin layer of a soil or carbon reach material. Then Place a wooden board over a whole to prevent anyone from tripping into it. Be careful not to add material to a depth of more than 4inches (10cm), as this will make difficult to adequately cover the composed with soil later.
- Cover your compost with soil. Once you have finished adding your organic scraps to the compost pit you can backfill it with the soil you removed. Add the soil on top of the compost filling the pit

until it is again level with the surrounding soil. Recover with sod or seed with grass if desired.

- Keep the compost pit wet while it is decomposing. Underground compost decomposes slowly because it doesn't have access to as much fresh oxygen as above ground piles. To speed the process, ensure the area stays fairly wet during dry weather , soak the ground above the compost pit with a garden or inadequate moisture will prohibit microbes from breaking down your scraps .if the area is kept sufficiently moist, underground compost should be fully decompose in about a year.
- Sow plants above the compost after it has decomposed. A major benefit of underground composting is that you don't have to perform any extra steps to harvest the compost and amend your soil. The work is done for you as the decompose scraps will works themselves into the soil naturally .the best way to take advantage of this benefit is to plant your plants directly over the area where you composted your scraps. In fact, each season you can cycle the location where you grow plants and compost this will ensure your plant's soil is always freshly amended with organic matter[4]

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IV. CONCLUSION

This documentary we have represented that the dipsoal of domestic waste to be done which is generated in the campus of VOGCE. Further after the completion of this composting the material obatined can be used as manure, resulting in the utilization of domestic waste. The waste generated in campus is being dumped in open, therefore by adopting the composting by pit method in campus we can transform this waste into manure and it can be beneficial as in form of manure to the campus for the agriculture process carried out in campus in small scale.

REFERENCES

[1] Ramchandra T.V, 2009. Management of muncipal solid waste, TERI Press, New Delhi.

[2] Vagale L.R, 1997.Environment of urban area in India Case study: Banglore.

[3] Attarwala F.A, 1993 Solid waste management –A Manual, All India institute of local self-government, Andheri (W), Bombay, India.

[4] Ali S.M, Cotan A, P and Wastelake K. 1999.Down to earth: solid waste disposal for low income countries, WEDC, Loughborough university, UK.