HARARE, ZIMBABWE

POPULATION
1.6 mil.
Inhabitants (2024)

Organic Waste Treatment at Source: Home Vermicomposting

In 2019, the City of Harare revealed its intentions to formalize *Stoneridge*, an informal settlement located approximately 15 kilometers southeast of Harare's city center, accommodating no fewer than 39,000 households. As efforts are underway to legitimize this settlement, progress is evident in certain areas of *Stoneridge* where property developers have initiated modern housing and road infrastructure projects. Nonetheless, a substantial portion of the population still resides informally, without access to fresh water or waste collection services.

As an initiative to reduce the spread of waterborne diseases, Médecins Sans Frontiers (MSF) initiated a pilot project in 2019, collaborating with residents from 32 households in Stonebridge. The primary aim was to mitigate organic waste and groundwater contamination.

To address the challenge of organic waste reduction, the solution was elegantly straightforward: vermicomposting. This method harnesses the capabilities of earthworms to expedite the conversion of biomass into compost. In contrast to traditional composting, vermicomposting accelerates the conversion process by a factor of two to five, significantly accelerating the transformation of waste into valuable biofertilizers. Vermicomposting, however, necessitates a lower temperature range (25–40° C) in comparison to conventional composting, as well as a neutral pH and high humidity (70–90%) to sustain a thriving worm population. While this renders the process somewhat more intricate than standard composting and less suitable for large-scale applications, it is well-suited for smaller-scale projects.

MSF teams installed composters and provided the requisite earthworms to facilitate the conversion of organic waste into biofertilizers. As organic waste is minimized, organic fertilizer is generated, which can be employed in household food gardens or sold to generate additional income. With the earthworms reproducing naturally within the composter, there is also an opportunity to supply earthworms to individuals who are new to composting.

Residents who have benefitted from the pilot project are selling the organic fertilizer for USD 10 per kilogram to any willing buyer, even though there is no established market yet.

Harare City Council is planning to establish a community-based vermicomposting program in partnership with Zim Earthworms. Residents will have the opportunity to buy a starter kit and receive training in vermicomposting methods, with a standard kit priced at $370. It is expected that the effective execution of this initiative will lead to a 55% reduction in the expenses associated with municipal waste transportation since less solid waste will need to be transported to the Pomona landfill.

Source: Medecins Sans Frontiers

IMPACTS TO ACHIEVE SDG 11.6.1

- The effective execution of this initiative will lead to a 55% reduction in the expenses associated with municipal waste transportation since less solid waste will need to be transported to the Pomona landfill (estimation).
- The MSF initiatives contributed positively to SDG 11.6.1 by addressing waste reduction, groundwater contamination, community-based waste management, income generation and promotion of sustainable practices in an informal settlement context.

INSTITUTIONAL SUSTAINABILITY

MSF team collaborating with residents from 32 households in Stonebridge Harare is realized through collaborations, active involvement of local government, partnerships with specialized entities, community engagement, structured training programs, economic opportunities, and strategic planning for long-term waste management solutions. These elements contribute to the resilience and ongoing success of the vermicomposting initiative in Stoneridge Harare.

PLANNING & MONITORING

As this is an initiative aiming to reduce the spread of waterborne diseases, it focuses on informal settlements. The initiative reduces the spread, by mitigating organic waste and groundwater contamination in Stoneridge, an informal settlement, led by MSF.

Planning and monitoring are experienced through strategic efforts to implement vermicomposting, collaborating with external partners, providing community education, exploring economic opportunities, and optimizing municipal waste management practices. Continuous monitoring ensures adaptability and the achievement of long-term sustainability goals.

APPROPRIATE TECHNOLOGY

The Vermicomposting initiative in Stoneridge exhibits characteristics of appropriate technology by being low-cost, locally adaptable, community-focused, economically empowering, environmentally friendly, and scalable.

These attributes make vermicomposting initiatives suitable and sustainable solutions for addressing waste management challenges in the context of informal settlement.

A single composter consists of five compartments, each measuring 60 centimeters in height, with both interior and exterior plastering. Inside, there is some plumbing integrated. Organic waste is initially deposited in the first compartment and allowed to decompose for 21 days. It is then transferred to the second compartment for an additional 21-day decomposition period. This process continues, compartment by compartment, until the organic waste has fully decomposed, which occurs in the last compartment, 105 days from the start of the vermicomposting process.

FINANCIAL SUSTAINABILITY

The initiative's financial sustainability is supported by revenue generation through the sale of organic fertilizer, the potential sale of starter kits, cost reduction in municipal waste transportation, and the creation of economic opportunities for residents. These factors coupled with collaborative partnerships and the potential for scalability contribute to the overall financial viability of the initiative.

STAKEHOLDER INVOLVEMENT / INCLUSION OF INFORMAL WASTE SECTOR

The stakeholder's involvement in this initiative is characterized by collaboration, active participation, shared responsibilities, and potential economic interactions. The engagement of various stakeholders contributes to the success, sustainability, and broader impact of the vermicomposting initiative.

Explicit involvement of the informal waste sector may not be detailed in the information available, however, the economic activities and market dynamics associated with vermicomposting initiatives could indirectly impact the individuals from the informal waste sector. Details on informal sector involvement would provide a more comprehensive understanding of the initiative engagement with this sector.

SOURCES

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