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Assessment of Sustainable Waste Management

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Introduction

Sustainable waste management strives to keep materials in use as long as feasible while reducing the amount of solid waste disposed of in landfills or incinerated. However, waste begins even before products are manufactured in our current linear economy, and a more comprehensive approach to sustainable waste management must focus on the entire lifecycle of a product to help reduce the negative environmental, social, and financial impacts of 21st-century consumption [1].

If we want to refine and improve our existing waste management systems, we must first answer the question of what exactly is sustainable waste management. New waste management strategies are required to successfully deal with existing waste streams while simultaneously lowering the quantity of garbage produced, whether focused on waste reduction at end-of-life or designing waste out of the production cycle at the conceptual stage [2].

About the Study

What is the significance of sustainable waste management?

A circular economy's essential component is sustainable waste management. It's a systemic approach to economic development that opposes the take-make-waste model and tries to detach growth from finite resource usage. Sustainable waste management not only addresses the broader concerns of a linear consumption society, but it also provides more direct remedies to the numerous issues that garbage creates. New waste management strategies are required to successfully deal with existing waste streams while simultaneously lowering the quantity of garbage produced, whether focused on waste reduction at end-of-life or designing waste out of the production cycle at the conceptual stage [3].

When the sustainable waste management hierarchy is not followed, otherwise useable items and materials are transported to landfills or incinerators for energy recovery. Food squandering: According to the EPA, food waste is the second-largest component of municipal solid trash, accounting for 21.59 percent, and has significant social, financial, and environmental consequences. Food waste in the United States amounts to around $161 billion per year, or nearly 40% of the entire food supply.

Plastics: Plastics are the third-largest component of MSW, and they've become the poster child for the risks of a linear economy, with single-use products strangling land and sea. Putting garbage at the bottom of the food chain**.** The waste management hierarchy, which focuses on avoidance, reduction, reuse, recycling, energy recovery, and finally treatment or disposal, is the foundation for sustainable waste management. Its goal is to prioritise behaviours that maximise resource efficiency, with renewable and less wasteful methods at the top of the pyramid. We'll look at how the waste management hierarchy is crucial to long-term waste management in this article.

Reduction and avoidance: The primary aim is to avoid and reduce the amount of waste produced. This can be accomplished by increasing efficiency while lowering consumption. To begin, businesses and consumers should select products that take the least amount of resources to manufacture (including the packaging). Additionally, wherever possible, single-use or disposable commodities should be avoided-these materials are the essence of linear waste, in which resources are harvested, processed, and disseminated only to be discarded.

Recycling and reusing: If consumption of a product cannot be avoided, then an emphasis on acquiring things that can be reused or repaired, as well as education on how to reuse waste products, should be prioritised. Because it can be done without processing new materials, which requires money, energy, and often other resources, reusing is preferred over solutions lower down the hierarchy. One of the core aspects of the zero-waste concept is reuse, which can take the form of having shoes repaired, giving clothes and objects for others to use, and even finding recipes for food leftovers rather than tossing them away.

Recovery of energy: Energy recovery is the following phase, which involves converting waste into useable heat, power, or fuel, such as biogas. This is accomplished using a variety of techniques, including incineration (with energy recovery), gasification, pyrolysis, anaerobic digestion, and landfill gas (LFG) recovery, which has some overlap with waste management's last stage.

Disposal or treatment: Treatment or disposal is the final and least desirable step in the hierarchy. This usually refers to landfills or incinerators that do not recover energy. This may obviously happen to some waste, but it should be avoided as much as possible by using sustainable waste management practises.

There are a few things you can do to start making your trash management more sustainable. There are a few basic measures you can take to start adopting sustainable waste management in your home or business, and here are a few pointers to assist you figure out how and where garbage is generated so you can take action. Single-use products should be discarded. Reusable products should be used instead of single-use things. Get mugs or glasses instead than cardboard coffee cups. It's also worth noting that, even at professional composting facilities, many supposedly green things, such as compostable coffee cups, cannot be composted and must instead be disposed of in landfills. Switching to a greener option could save both the environment and money [4,5].

Conclusion

As previously stated, paper products account for the majority of MSW. Switching as much paperwork as possible to digital forms is a reasonably simple strategy for organisations to improve sustainable waste management. This could include sending and receiving bills electronically rather than in person, storing meeting minutes in a shared document rather than printing them, or converting to online banking.

Conflict of Interest

None

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