

Waste To Wealth: An Approach to Fabricate Blessings from Waste

Mini* and Manju Dahiya**

*Ph.D Scholar, EECM, COHS, Chaudhary Charan Singh Haryana Agricultural University, Hisar-125004, Haryana, India

**Assoc. Director, (BS/CS), Directorate of Research, Chaudhary Charan Singh Haryana Agricultural University, Hisar

*Corresponding Author : minisharma1113@gmail.com

Introduction

There are just a few things in life that are certain: death, change, and waste. These events cannot be stopped from occurring in our life. But with better management we can prepare ourselves. In the eyes of the average person, anything unwanted or unusable is trash. Practically every part of solid waste has some potential if it is transformed or handled scientifically. By adopting this approach, we can effectively address waste management challenges and contribute to sustainable development. There may be different types of waste such as Domestic waste, Factory waste, Waste from oil factory, E-waste, Construction waste, Agricultural waste, Food processing waste, Bio-medical waste, Nuclear waste, Slaughter house waste etc. We can classify waste as follows:

- Solid waste- vegetable waste, kitchen waste, household waste etc.
- E-waste- discarded electronic devices such as computer, TV, music systems etc.
- Liquid waste- water used for different industries, tanneries, distilleries, thermal power plants
- Plastic waste- plastic bags, bottles, bucket, etc.
- Metal waste- unused metal sheet, metal scraps etc.
- Nuclear waste- unused materials from nuclear power plants Further we can group all these types of waste into wet waste (Biodegradable) and dry waste (non-biodegradable).

India generates 62 million tonnes of waste each year. About 43 million tonnes (70%) are collected, of which about 12 million tonnes are treated, and 31 million tonnes are dumped in landfill sites. With changing consumption patterns and rapid economic growth, it is estimated that urban municipal solid waste generation will increase to 165 million tonnes in 2030. As the *Swachh Bharat Abhiyan* movement swept the nation, India uncovered its path to a cleaner, more sustainable future.

Waste to Wealth

"Waste to Wealth" is an approach that focuses on converting waste materials into valuable resources or products, thereby creating economic opportunities

and reducing environmental impacts. In this strategic waste management, waste is not regarded as a problem but a potential resource with economic and ecological value. The concept is multidisciplinary and still innovative, as it involves processes that include recycling, up cycling, resource recovery, energy generation and creative production of new products from waste materials.

Some methods in which we can fabricate blessings from waste

1. **Recycling:** One of the most well-known methods is recycling, where waste materials such as paper, plastic, glass, and metal are collected, processed, and transformed into new products. Recycling reduces the consumption of raw materials and energy required for manufacturing, while also minimizing landfill waste.
2. **Composting:** Organic waste, such as food scraps and yard trimmings, can be transformed into nutrient-rich compost through a process called composting. Compost can be used as a natural fertilizer in agriculture, horticulture, and landscaping, promoting soil health and reducing the need for chemical fertilizers.
3. **Waste-to-Energy:** Certain types of waste, like biomass and non-recyclable plastics, can be utilized as a source of energy through various processes such as incineration, gasification, or pyrolysis. These technologies convert waste into heat, electricity, or biofuels, reducing reliance on fossil fuels and providing renewable energy sources.
4. **Up cycling:** Instead of disposing of waste materials, up cycling involves transforming them into higher-value products. For example, old tires can be repurposed into durable and stylish furniture, or discarded textiles can be transformed into trendy clothing and accessories. Up cycling promotes creativity, reduces waste, and adds value to discarded materials.
5. **Waste Recovery:** Valuable resources such as metals, electronic components, and rare materials can be recovered from electronic waste (e-waste). Through proper dismantling and recycling

processes, precious metals like gold, silver, and copper can be extracted from electronic devices, reducing the need for mining and conserving natural resources.

6. **Waste Management Innovations:** Innovations in waste management technologies can greatly contribute to creating blessings from waste. For instance, the development of efficient sorting systems, waste-to-fuel conversion technologies, and advanced recycling processes can increase the effectiveness of waste management and create new economic opportunities.
7. **Awareness and Education:** Raising awareness about waste management practices, promoting responsible consumption, and educating individuals about the benefits of waste-to-wealth approaches are crucial. Encouraging communities, businesses, and governments to adopt sustainable waste management practices fosters a culture of resource conservation and supports the transition to a circular economy.

By implementing these approaches, we can shift from a linear "take-make-dispose" model to a circular economy that maximizes resource utilization, minimizes waste generation, and promotes economic growth while safeguarding the environment.

Key initiatives for waste to wealth mission

1. GOBARDhan Scheme

- Part of the "Green Growth" agenda outlined in the 2023-2024 Union Budget.
- The scheme promotes setting up 500 new waste-to-wealth plants across India to manage waste and produce energy.

- Bio-methanation plants will be developed to convert organic waste into Bio-CNG.
- It emphasizes producing renewable energy from municipal solid waste, focusing on bio-CNG and other clean energy alternatives like biogas.

2. Swachh Bharat Mission-Urban 2.0

- This mission has a broader goal of creating **garbage-free cities** by focusing on sustainable waste management systems.
- The **waste to wealth plants** are part of this vision, aligning with the goal of processing waste at large scales, particularly in **million-plus cities**.

3. SATAT Scheme

The SATAT (Sustainable Alternative towards Affordable Transportation) initiative is linked to bio-meth nation plants, promoting compressed biogas (CBG) as an alternative fuel.

Conclusion

The Waste to Wealth approach demonstrates that waste is not merely a problem to be disposed of but a valuable resource that can be transformed into a blessing. Through innovation, proper management, and public-private partnerships, waste can be converted into wealth, driving economic growth, environmental sustainability, and improved societal well-being. This approach has the potential to reshape how we view consumption, production, and waste, paving the way for a more sustainable and prosperous future.

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