

Municipal Solid Waste Utilization and Their Entrepreneurship Basis of Obtaining Funds

Dr. Ruchi Sharma¹, Dr. Shekhar Kapoor², Vinod Kumar³

Assistant Professor, Dept. of Zoology, Vivek P.G. College, Kalwar, Jaipur, India¹

Assistant Professor, School of Entrepreneurship Skills, Bhartiya Skill Development University, Jaipur, India²

Research Scholar, Dept. of Botany, MJRP University, Jaipur, India³

ABSTRACT : Municipal solid waste (MSW), commonly known as trash or garbage in the United States and rubbish in Britain, is a waste type consisting of everyday items that are discarded by the public. "Garbage" can also refer specifically to food waste, as in a garbage disposal; the two are sometimes collected separately. In the European Union, the semantic definition is 'mixed municipal waste,' given waste code 20 03 01 in the European Waste Catalog. Although the waste may originate from a number of sources that has nothing to do with a municipality, the traditional role of municipalities in collecting and managing these kinds of waste have produced the particular etymology 'municipal.' The global waste trade is the international trade of waste between countries for further treatment, disposal, or recycling. Toxic or hazardous wastes are often imported by developing countries from developed countries. The World Bank Report *What a Waste: A Global Review of Solid Waste Management*, describes the amount of solid waste produced in a given country. Specifically, countries which produce more solid waste are more economically developed and more industrialized.[1] The report explains that "[g]enerally, the higher the economic development and rate of urbanization, the greater the amount of solid waste produced." [1] Therefore, countries in the Global North, which are more economically developed and urbanized, produce more solid waste than Global South countries.[1]

I. INTRODUCTION

Current international trade flows of waste follow a pattern of waste being produced in the Global North and being exported to and disposed of in the Global South. Multiple factors affect which countries produce waste and at what magnitude, including geographic location, degree of industrialization, and level of integration into the global economy. Numerous scholars and researchers have linked the sharp increase in waste trading and the negative impacts of waste trading to the prevalence of neoliberal economic policy.[2][3][4][5] With the major economic transition towards neoliberal economic policy in the 1980s, the shift towards "free-market" policy has facilitated the sharp increase in the global waste trade.

There is no such thing as an infinitely durable product. The world's current consumption, in the form of various goods, must end up in the waste stream and the onus is upon us, either to innovate in the field of Solid Waste Management (SWM) or to keep continuing the existing polluting methods of solid waste disposal. However, this field has lot of challenges and it takes persistence and providence to overcome them, as the root of the problem mostly lies in the mindset of the people. To solve this global challenge, smart minds need to come up with innovative solutions. But as one of the panel members put it, this field is not sexy enough for the smart minds. The panel members are Tom Szaky, founder of Terra Cycle and Bilikis Adebisi, founder Wecyclers Corporation. Together they brought a cumulative experience of more than 15 years in the field of solid waste management. They brought great insight and critical analysis of the opportunities, challenges and risks that confront the area of SWM. Growing entrepreneurs have a great deal to take away from the discussion. Unfortunately, there was not enough time to discuss some other aspects of solid waste management.



Municipal Solid Waste

Organic & Decomposable	Ordinary Recyclable	Electronic	Hazardous	Others
<ul style="list-style-type: none"> Food Waste 	<ul style="list-style-type: none"> Paper & Cardboard Plastics (Rigid PET & rigid HDPE) Metals Glass 	<ul style="list-style-type: none"> Computers & accessories Home appliances 	<ul style="list-style-type: none"> Cells & batteries Paints & chemicals Sanitary napkins Insecticides & pesticides 	<ul style="list-style-type: none"> Construction Waste Non-recyclables

Making economic sense

Minimizing risk in MSW management entrepreneurship models

Innovative utilization of existing **infrastructure** to reduce costs

Improving **awareness** for increased acceptance of the solutions being provided

Incentives of the right manner for increased participation.

Use of **information technology & marketing** to innovate and facilitate smooth transition

Collection

The functional element of collection includes not only the gathering of solid waste and recyclable materials, but also the transport of these materials, after collection, to the location where the collection vehicle is emptied. This location may be a materials processing facility, a transfer station or a landfill disposal site.

Waste handling and separation, storage and processing at the source

Waste handling and separation involves activities associated with waste management until the waste is placed in storage containers for collection. Handling also encompasses the movement of loaded containers to the point of collection. Separating different types of waste components is an important step in the handling and storage of solid waste at the source of collection.

Segregation and processing and transformation of solid wastes

The types of means and facilities that are now used for the recovery of waste materials that have been separated at the source include curbside ('kerbside' in the UK) collection, drop-off and buy-back centers. The separation and processing of wastes that have been separated at the source and the separation of commingled wastes usually occur at a materials recovery facility, transfer stations, combustion facilities and treatment plants.

Transfer and transport

This element involves two main steps. First, the waste is transferred from a smaller collection vehicle to larger transport equipment. The waste is then transported, usually over long distances, to a processing or disposal site.

Disposal

Mixed municipal waste, Hiriya, Tel Aviv

Today, the disposal of wastes by land filling or land spreading is the ultimate fate of all solid wastes, whether they are residential wastes collected and transported directly to a landfill site, residual materials from materials recovery facilities (MRFs), residue from the combustion of solid waste, compost, or other substances from various solid waste

processing facilities. A modern sanitary landfill is not a dump; it is an engineered facility used for disposing of solid wastes on land without creating nuisances or hazards to public health or safety, such as the problems of insects and the contamination of ground water.

Reusing

In the recent years environmental organizations, such as Freecycle or Freecycle Network, have been gaining popularity for their online reuse networks. These networks provide a worldwide online registry of unwanted items that would otherwise be thrown away, for individuals and nonprofits to reuse or recycle. Therefore, this free Internet-based service reduces landfill pollution and promotes the gift economy.

Landfills

Landfills are created by land dumping. Land dumping methods vary, most commonly it involves the mass dumping of waste into a designated area, usually a hole or sidehill. After the waste is dumped, it is then compacted by large machines. When the dumping cell is full, it is then "sealed" with a plastic sheet and covered in several feet of dirt. This is the primary method of dumping in the United States because of the low cost and abundance of unused land in North America. Landfills are regulated in the US by the Environmental Protection Agency, which enforces standards provided in the Resource Conservation Recovery Act, such as requiring liners and groundwater monitoring.[11] This is because landfills pose the threat of pollution and can contaminate ground water. The signs of pollution are effectively masked by disposal companies and it is often hard to see any evidence. Usually landfills are surrounded by large walls or fences hiding the mounds of debris. Large amounts of chemical odor eliminating agent are sprayed in the air surrounding landfills to hide the evidence of the rotting waste inside the plant.[12]

II. DISCUSSION

Information technology and marketing strategies can help improve communications as well as facilitate smooth transfer of information between all the stages of supply chain.

Marketing can make you want to go on vacation and decide where you'll go on vacation. Tactful and subtle marketing is what drives many of our thoughts and actions. Without marketing, most causes, or products, would have never garnered the massive support they currently enjoy. The importance of marketing cannot be denied and should be embraced to spread awareness on the issue of solid waste management. Marketing should be mostly focused on creating the **thought**. Marketers can plant the thought of importance of solid waste management and how people can be a part of it. While there are many outlets for marketing, like print, digital, television, radio and more, experience is required and knowledge in all of them to create the best impact.

While marketing incurs cost, Tom Szaky of Terra Cycle, has found a novel and brilliant way to generate revenues from marketing, which he termed as "Negative Cost Marketing". In this method, the publishing houses pay for providing content on sustainability, impact of pollution, environmental conservation and degradation, and so on. In another method, companies use recycled products produced or certified by Terra Cycle, that help enhance the company's brand image. Marketing should be utilized and the benefits of it should be clearly articulated and communicated.

Information Technology though, is not so ubiquitous. It should be leveraged to create maximum value of the waste at all stages of the supply chain. Bilikis Adebisi of WeCyclers, have employed information technology to pass on the latest and updated value of the waste being collected to the recyclers through mobiles and this has ensured transparency in operations, along with reduced need for human intervention. Information technology can also be used to spread awareness, by providing relevant material on mobile devices.

III. SCOPE AND SIGNIFICANCE

Wecyclers Corporation:

The operating area of Wecyclers is Nigeria, which is an underdeveloped country, and the company caters to the poorest communities. Wecyclers encourages, people from these communities to segregate and store waste of value, like paper, plastic, etc. The waste collected can be exchanged for something of value. The corporation is funded by MIT Ideas Global Challenge, Coca Cola and other organizations.

Terra Cycle:

Terra Cycle, mostly operates in developed countries, where infrastructure is developed and where already people have awareness and motivation. Terra Cycle works with various stakeholders in the supply chain to create and provide

logistics for the smooth flow of recyclables, along with incentivising recycling activity. Operations are mostly subsidized by the corporations and brand partners, thereby providing a constant stream of revenues, which will also benefit them in building their image. Terra Cycle collects around a million waste articles every three to four hours from 23 countries. Items are collected by approximately 50 million people.

Terra Cycle, either refurbishes or up-cycles around 5% of the waste it collects and the rest is smelted to produce polymer solutions, which are used to produce coffee cups. Terra Cycle has a team of researchers and scientists to help them achieve this incredible feat.

IV. CONCLUSION

Entrepreneurship in Organic Components of Solid Waste Management: An Indian Perspective:

India has a deep and entrenched habit of recycling and the recycling supply chain has a strong foothold in the country's economy, in the form of kabadiwalla's and rag-pickers. Due to the virtue of this system, India has one of the highest recycling rates in the world. This poses a strong and unique challenge for entrepreneurs in the areas of solid waste management as most of the recyclables and waste of economic value are processed by the informal sector. That leaves the entrepreneurs only the organic and degradable component of the waste. Thankfully, there have been some innovative solutions for the disposal of organic and degradable waste.

Composting and anaerobic digestion technologies have been applied for the disposal of degradable components. Some of the companies that applied composting techniques are Daily Dump from Bengaluru and Pelican Biotech from Kerala. Green Tech Life from Bengaluru and Biotech from Kerala had employed anaerobic digestion technology to fasten the degradation process. However, the main challenges faced by these entrepreneurs is the indifference and lack of concern of the general public. The people buying these solutions are the more aware and having an urge to be a part of the solution.

EcoWise Waste Management Pvt Ltd of Noida, is a company, which deals with Collection, Transportation, Segregation, Treatment and Disposal of residential, commercial and Industrial waste.

As sea is the culmination for most rivers, all the products end up in the sea of solid waste management. Capitalizing on its potential requires a robust strategy where the base is built on the right infrastructure, righteous awareness and prudent incentives. Information technology and marketing can be used to create awareness and a bigger impact.

REFERENCES

1. Kumar, Sunil; Dhar, Hiya; Nair, Vijay V.; Bhattacharyya, J. K.; Vaidya, A. N.; Akolkar, A. B. (2016). "Characterization of municipal solid waste in high-altitude sub-tropical regions". *Environmental Technology*. **37** (20): 2627–2637. doi:10.1080/09593330.2016.1158322.PMID 26915419.
2. ^ Centenary history of waste and waste managers in London and south east England- Page 7 Archived2013-08-13 at the Wayback Machine
3. ^ Non-hazardous Waste U.S. Environmental Protection Agency, Municipal Solid Waste
4. ^ Municipal Solid Waste Archived 2010-11-20 at theWayback Machine U.S. Energy Information Administration
5. ^ Mechanical Biological Treatment Archived 2007-09-27 at Archive.today Welsh Assembly (2005) Mechanical Biological Treatment, Environment Countryside and Planning Website, Welsh Assembly
6. ^ "Organics -Green Bin". Christchurch City Council. Retrieved 19 March 2016.
7. ^ Zhou, Hui; Meng, AiHong; Long, YanQiu; Li, QingHai; Zhang, YanGuo (August 2014). "An overview of characteristics of municipal solid waste fuel in China: Physical, chemical composition and heating value". *Renewable and Sustainable Energy Reviews*. **36**: 107–122.doi:10.1016/j.rser.2014.04.024.
8. ^ Nonhazardous waste Archived 2010-11-20 at theWayback Machine U.S. Energy Information Administration
9. ^ "System Overview > Solid Waste - GSA Sustainable Facilites Tool". *sftool.gov*.
10. ^ US EPA, OSWER (22 September 2015). "Advancing Sustainable Materials Management: Facts and Figures". US EPA.
11. ^ Horinko, Marianne, Cathryn Courtin. "Waste Management: A Half Century of Progress." EPA Alumni Association. March 2016.
12. ^ Rogers, Heather (2006). *Gone Tomorrow: The Hidden Life of Garbage*. New York: The New Press.