

# Sanitary Landfills and Their Various Utilities as Composting for Entrepreneurship for Better Economical Trend

Somiya Lodwal<sup>1</sup>, Sonika Kashyap<sup>2</sup>, Dr. Shekhar Kapoor<sup>3</sup>

Research Scholar, Dept. of Science, University of Technical, Jaipur & Chief Executive in Vitasta

Enviro Services Private Limited, Jaipur, India<sup>1</sup>

Scholar, Dept. of Zoology, University of Rajasthan, Jaipur, India<sup>2</sup>

Assistant Professor, School of Entrepreneurship Skills, Bhartiya Skill Development University, Jaipur, India<sup>3</sup>

**ABSTRACT:** Sanitary landfills are sites where waste is isolated from the environment until it is safe. It is considered when it has completely degraded biologically, chemically and physically. In high-income countries, the level of isolation achieved may be high. The method was introduced in England in 1912 (where it is called controlled tipping). Waste is deposited in thin layers (up to 1 metre, or 3 feet) and promptly compacted by heavy machinery (e.g., bulldozers); several layers are placed and compacted on top of each other to form a refuse cell (up to 3 metres, or 10 feet, thick). At the end of each day the compacted refuse cell is covered with a layer of compacted soil to prevent odours and windblown debris. All modern landfill sites are carefully selected and prepared (e.g., sealed with impermeable synthetic bottom liners) to prevent pollution of groundwater or other environmental problems. When the landfill is completed, it is capped with a layer of clay or a synthetic liner in order to prevent water from entering. A final topsoil cover is placed, compacted, and graded, and various forms of vegetation may be planted in order to reclaim otherwise useless land—e.g., to fill declivities to levels convenient for building parks, golf courses, or other suitable public projects.

## I. INTRODUCTION

On a daily basis, tons of waste is generated in the country. The disposed waste is a conglomerated form of organic as well as non-organic waste. Segregating recyclable waste from the lot is an intimidating task for a layman. However, now emerging waste management companies are removing and recycling the disposed of garbage effortlessly. Utilizing scores of waste and transforming it into a usable product is a good deed as well as a business. Similar to the growing waste, the revenue in the waste management industry is also surging. Owing to which, insistent entrepreneurs are opting-in the industry and help create a positive outcome in society.

In essence, the waste management industry has a large number of opportunities for growth. Thus, aspiring entrepreneurs should plan a waste management business in the offing. Like other businesses, the waste management business also has its own cruxes. Comprehending these underpinnings is imperative for the entrepreneur so as to build a fortified structure.

## II. ENTREPRENEURING LANDFILL PROCESS FOR GREATER ECONOMY

### 1. Select A Field In The Waste Management Industry

Before initiating a business, you should pick out a niche wherein you want to specialize. The waste management business is basically vast and comprises small as well as large businesses. Thus, picking the niche can be tricky for you. To ease the problem, you should reflect on various elements such as budget, individual potential and scope of the business. Each and every niche in the industry requires different means and modes for the waste-recycling process. The different types of waste management businesses are as follows:

- Toxic waste disposal business
- Medical waste disposal business (inclusive of recycling needles, soiled clothing, chemicals, medical gadgets and so on.)
- Electronic waste disposal business (inclusive of using CDs, computer parts and mobile phones)
- Nuclear waste management business
- Construction waste management business
- Green waste management business
- Industrial waste management business
- Chemical waste management business

Apart from these waste management business, there are various other categories as well. When you research deeper into the industry, you will come across waste management businesses.

## 2. The Monetary Investment Required In Establishing The Business

For initiating the waste management business, there are tons of things to plan out, execute and actualize. Some of the imperatives are location, employees, transportation vehicles, equipment, business insurance and business promotion.

## 3. Conduct Market Research

Before stepping into the market, you should have a vague idea of how the market is going, how potential competitors are and what the pricing is. Compile this information and then, contrast it with your costs, in turn, you will get an approximate idea of revenue that you would be earning. If the competition in a particular niche is too tough, then consider diverting the course and establish the business in another field. Closely observe different kinds of business and correspondingly, focus on a specific business.

Following this, you should ascertain if the market is big enough for your sustenance. For that, examine local junk disposal business and converse with entrepreneurs who are running the business in different cities. The local entrepreneurs refrain to share information of the business owing to the fear of getting more competitors. In addition, ascertain the places from where you would be garnering the waste that is, landfill, scrap dealers and junk hauliers.

## 4. Create A Business Outline

Forming a business plan is an imperative strand of every endeavour. In the outline, express the intent of starting the business, what your market will be, why your business is distinct and what the business functionalities are. After this, decide the pricing model, business strategy, costs of establishing the business and lastly, how to raise funds for the business.

The above-mentioned procedure is an elaborated step-by-step guide. Follow these steps to kick-start the waste management business.

## SOME HISTORICAL DEEDS DONE

### RASWC, the Past

Development of state and federal regulations regarding the operation of solid waste facilities has significantly impacted solid waste services in the Rathbun Planning Area. In 1988 the privately owned landfill that served the area announced it would be closing due to costs of compliance with those regulations. The Appanoose County Sanitary Landfill was purchased by RASWC in 1989. At this time a user fee was established for disposal of waste and taxation for operation of the landfill ceased. RASWC continued to meet the quickly changing Iowa and EPA legislation requirements, resulting in: the development of a Comprehensive Solid Waste Management Plan, establishment of the Recycling Center in 1993, continued compliance in monitoring and testing of environmental impacts due to operation of the landfill, and dedicated closure funds to provide financial assurance and post-closure care in the event of closure.

By 2004 Iowa DNR announced enforcement of RCRA Subtitle D standards by October 2007, requiring the installation of a plastic liner and leachate collection system in all operating landfills. As RASWC explored costs of updating the Appanoose County Sanitary Landfill to compliance, it was determined continued operation of the landfill was not economically feasible. After a series of public meetings RASWC announced a transfer station would be established and all waste would be delivered to South Central Iowa Solid Waste Agency in Marion County.

In December 2007 the Appanoose County Sanitary Landfill was closed and the Transfer Station began operations. Shortly after, an electrical fire claimed the major portion of the Recycling Center. The Recycling Center was rebuilt at the Transfer Station location and the Regional Collection Center was also established.

## III. CURRENT PARTICIPATION

### RASWC, the Future

Participation in regional organizations concerned with waste disposal, recycling and the environment has been an essential component of RASWC. Memberships in the Iowa Recycling Association and Iowa Society of Solid Waste Operations along with continued participation in various Iowa Legislative Committees have kept RASWC abreast of modern waste disposal and resource recovery methods. In 2009 the Rathbun Planning Area was selected by the Iowa Department of Natural Resources as one of six Environmental Management System (EMS) pilot projects to look beyond solid waste disposal and toward environmental improvement by focusing on six categories: yard waste management, household hazardous waste collection, water quality improvement, greenhouse gas reduction, recycling services and environmental education. Continued improvement in each of the six categories will be required to maintain EMS status. The EMS Pilot Program with its model for continuous improvement is expected to encourage a shift from waste disposal towards resource management.

As of 2010, Indian Hills Community College and RASWC are working together to reclaim land at the Appanoose County Sanitary Landfill. The IHCC Sustainable Agriculture and Entrepreneurship program is establishing a farming operation to be used as a classroom lab. A cow/calf operation and hay production are both expected to develop at the closed landfill site.

### ENTREPRENEURSHIP IN WINDROW COMPOSTING

Windrow Composting: Windrow composting is the production of compost by piling biodegradable waste, in long rows (windrows). This method is suited to producing large volumes of compost. These rows are regularly turned over to improve porosity/voids and oxygen content, mix in or remove moisture, and redistribute cooler and hotter portions of the pile. Windrow composting is a commonly used composting method.

### ENTREPRENEURSHIP IN VERMICOMPOSTING

Vermi-Composting (Worm Composting): Vermi compost (or vermin-compost) is the product of the composting process using various species of worms, usually red wigglers, white worms, and other earthworms, which feed in

mixture of decomposing vegetable or food waste, and release droppings called vermi cast (also called worm castings, worm humus or worm manure) is the end-product of the breakdown of organic matter by an earthworm.

#### PILE COMPOSTING

Aerated Static Pile Composting: Aerated Static Pile (ASP) composting, refers to the system used to biodegrade organic material without physical manipulation (turning) during composting. The blended waste is usually placed on perforated piping, providing air circulation for controlled aeration. It may be in windrows, open or covered, or in closed containers. With regard to complexity and cost, aerated systems are most commonly used by larger, professionally managed composting facilities, although the technique may range from very small, simple systems to very large, capital intensive, industrial installations. Aerated static piles offer process control for rapid biodegradation, and works well for processing saturated wet waste and large volumes. ASP facilities can be under roof or outdoor windrow composting operations, or totally enclosed in-vessel composting, sometimes referred to tunnel composting

#### VESSEL COMPOSTING

In Vessel Composting: In-vessel composting generally is a method that confines the composting materials within a building, container, or vessel. In-vessel composting systems can consist of metal or plastic tanks or concrete bunkers in which air flow and temperature can be controlled, using the principles of a "bioreactor". Generally the air circulation is metered in via buried tubes that allow fresh air to be injected under pressure, with the exhaust being extracted through a bio-filter, with temperature and moisture conditions monitored using probes in the mass to allow maintenance of optimum aerobic decomposition conditions. This technique is generally used for municipal scale organic waste processing, including final treatment of sewage bio-solids. It can also refer to aerated static pile composting with the addition of removable covers that enclose the piles.

#### COMPOSTERS USED

Mechanized Organic Waste Composter: Mechanized Organic Waste Composter are designed to make composting easy and convenient. Mechanized OWC's are fully automatic and have very compact and aesthetic design. OWCs are equipped with intuitive technology which maintains the right temperature, air flow and moisture. A special bacteria which is heat, salt and acid resistant is used. Once the bacteria are introduced in machine they reproduce at a rapid pace under ideal Mechanized Organic Waste Composter internal conditions

#### LANDFILL GAS

Landfill gas (LFG) is the natural by-product of the decomposition of solid waste in landfills and is composed primarily of carbon dioxide and methane. Instead of allowing LFG to escape into the air, it can be captured, converted, and used as an energy source. Using LFG helps to reduce odors and other hazards associated with LFG emissions, and it helps in protecting the environment and builds a sustainable future. The LFG recovery can be accomplished only when the dump site is capped well and a provision is created to tap the gas.

People's attitudes influence not only the characteristics of waste generation, but also the effective demand for waste collection services. Attitudes may be positively influenced through awareness building campaigns and educational measures on the negative impacts of littering, improper segregation at source, inadequate waste collection with regard to public health and environmental conditions, and the value of effective disposal. While many current initiatives lead to visually cleaner areas, it does not encourage sustainable practices that reduce littering and illegal dumping in the long run. More emphasis is required on awareness creation relating to the implementation of the waste hierarchy.

#### IV. CONCLUSION

As such, waste minimization and waste separation at source needs to be encouraged to enhance reuse and recycling activities. Willingness to pay for waste services will also improve with increased awareness as a result in increased insight into the benefits of waste services, as well as the actual cost thereof. Such campaigns should also inform people of their responsibilities as waste generators and of their rights as citizens to waste management services. Corporation should undertake massive public awareness campaigns on sanitation and establishing its link to public health, hygiene and the environment through various means including- radio, social media, documentaries, plays, workshop, etc. For this purpose a dedicated environmental awareness section is required which can function with the Medical and Health section in the corporation whose prime responsibilities is to continuously undertake awareness campaigns and drive

home the point like 1. Clean-up campaigns in schools 2. Printing of pamphlets on different topics 3. A waste message in the municipal newsletter/ newspaper

#### REFERENCES

1. [Landfill Operation - an overview | ScienceDirect Topics](#). *www.sciencedirect.com*. Retrieved February 22,2020.
2. [https://sustainabledevelopment.un.org/content/documents/dsd/dsd\\_aofw\\_ni/ni\\_pdfs/NationalReports/finland/WASTE.pdf](https://sustainabledevelopment.un.org/content/documents/dsd/dsd_aofw_ni/ni_pdfs/NationalReports/finland/WASTE.pdf)
3. Jump up to:<sup>a b</sup> "How a Landfill Operates". *www.co.cumberland.nc.us*. Retrieved February 22, 2020.
4. "Alternative Daily Cover (ADC)". Retrieved September 14, 2012.
5. Jump up to:<sup>a b</sup> Letcher, T.M.; Vallero, D.A., eds. (2019). *Municipal Landfill*, D. Vallero and G. Blight, pp. 235–249 in *Waste: A Handbook for Management*. Amsterdam, Netherlands and Boston MA, Print Book: Elsevier Academic Press. ISBN 9780128150603. 804 pages.
6. U.S. Environmental Protection Agency (2007) Landfill bioreactor performance: second interim report: outer loop recycling & disposal facility - Louisville, Kentucky, EPA/600/R-07/060
7. Weitz, Keith; Barlaz, Morton; Ranjithan, Ranji; Brill, Downey; Thorneloe, Susan; Ham, Robert (July 1999). "Life Cycle Management of Municipal Solid Waste". *The International Journal of Life Cycle Assessment*. **4** (4): 195–201. doi:10.1007/BF02979496. ISSN 0948-3349.
8. US EPA, "Solid Waste Disposal Facility Criteria; Proposed Rule", Federal Register 53(168):33314–33422, 40 CFR Parts 257 and 258, US EPA, Washington, D.C., August 30 (1988a).