



Sustainable Development with Waste management: A Roadmap for an Industrial Economic Development

Dr Pravesh Bhandari

Assistant Professor

Aishwarya college of education

Abstract

Sustainable Development Goals (SDGs). In June 2022, environmental leaders from around the world met to take stock of where we've been and where we are heading, with the goal of analyze momentum for the UN Decade of Action for achieving the SDGs.

Sustainable development is an approach to growth and human development that target to meet the needs of the present without compromising the ability of future next generations to meet their own needs. The goal is to have a society where living conditions and resources meet human needs without undermining planetary integrity.

Financial Reporting of Waste Disposal Expenses

The accurate reporting of waste disposal expenses is a important aspect of accounting in monetary that requires careful consideration. All those expenses must be presented in financial statements reflects their true impact on a company's financial strength. The balance sheet, income statement, and cash flow statement are the primary documents where these figures are reported and analyzed.

On the balance sheet, long-term assets related to waste disposal, such as specialized equipment, are reported at their carrying value, which is the cost of the asset minus accumulated depreciation. This reflects the resources committed to waste management and the value they will provide over time. Current liabilities may include any short-term obligations related to waste disposal, such as payable accounts to waste management service providers.

The income statement captures the immediate financial effects of waste disposal costs. Here, direct costs are included in the cost of goods sold, affecting gross profit, while indirect costs are included in operating expenses, influencing operating income. The way these costs are reported can provide insights into a company's operational efficiency and cost control measures. For instance, a sudden increase in waste disposal expenses may indicate a need for process improvements or renegotiation of vendor contracts.

The statement of cash flows reflects the actual cash outflows associated with waste disposal activities. This statement is particularly informative as it shows the liquidity impact of waste management costs and helps stakeholders understand how these costs are being financed, whether through operational cash flow, financing, or investing activities.

Cost: - Direct costs related to waste disposal are those expenses that can be directly attributed to the production process. These include costs incurred for the collection, treatment, and disposal of waste generated directly from manufacturing or production activities.

For instance, if a company operates a manufacturing plant, the expenses for disposing of manufacturing scrap and chemical wastes are considered direct costs. These costs are typically recorded as cost of goods sold (COGS) in the financial statements. Accurately tracking these costs is crucial for assessing the true cost of production and for maintaining compliance with environmental regulations, which often require detailed reporting of waste disposal practices.

Indirect Costs

Indirect costs of waste disposal, on the other hand, are not directly linked to the production or manufacturing processes but are necessary for overall operations. These costs include the management and administration of waste disposal activities, training of staff on sustainable waste management practices, and maintenance of equipment used in the disposal process.

For example, the depreciation of a recycling facility or expenditures related to environmental compliance audits fall under this category.

These costs are usually allocated across departments and are recorded as overhead expenses in the financial statements. Understanding and allocating these costs accurately is vital for budgeting and for evaluating the efficiency of waste management strategies within the organization.

The life-cycle of a product, often referred to as the product lifecycle, encompasses several key stages that begin with the design phase and proceed through manufacture, distribution, and primary use.

After these initial stages, the product moves through the waste hierarchy's stages of reduce, reuse, and recycle.

Each phase in this lifecycle presents unique opportunities for policy intervention, allowing stakeholders to rethink the necessity of the product, redesign it to minimize its waste potential, and extend its useful life.

Manufacturing offers another crucial point for reducing waste and conserving resources. Innovations in production processes can lead to more efficient use of materials and energy, while also minimizing the generation of by-products and emissions.

Adopting cleaner production techniques and improving manufacturing efficiency can significantly reduce the environmental footprint of a product.

Waste Hierarchy

"3 Rs"

- Reduce,
- Reuse
- Recycle



Which classifies waste management strategies according to their desirability in terms of waste minimization. The waste hierarchy is the bedrock of most waste minimization strategies.

Waste management or **waste disposal** includes the processes and actions required to manage waste from its inception to its final disposal. This includes the Collection + Transport + Treatment + Disposal of waste, together with monitoring and regulation of the waste management process and waste-related laws, technologies, and economic mechanisms.

The aim of waste management is to reduce the dangerous effects of such waste on the environment and human health. A big part of waste management deals with municipal solid waste, which is created by industrial, commercial, and household activity.

This is the separation of wet waste and dry waste. The purpose is to recycle dry waste easily and to use wet waste as compost. When segregating waste, the amount of waste that gets land filled reduces considerably, resulting in lower levels of air and water pollution.

Segregated waste is also often cheaper to dispose of because it does not require as much manual sorting as mixed waste. There are a number of important reasons why waste segregation is important such as legal obligations, cost savings, and protection of human health and the environment.

Financial models

In most developed countries, domestic waste disposal is funded from a national or local tax which may be related to income, or property values. Commercial and industrial waste disposal is typically charged for as a commercial service, often as an integrated charge which includes disposal costs.

This practice may encourage disposal contractors to opt for the cheapest disposal option such as landfill rather than the environmentally best solution such as re-use and recycling.

Financing solid waste management projects can be overwhelming for the city government, especially if the government sees it as an important service they should render to the citizen. Donors and grants are a funding mechanism that is dependent on the interest of the donor organization.

As much as it is a good way to develop a city's waste management infrastructure, attracting and utilizing grants is solely reliant on what the donor considers important. Therefore, it may be a challenge for a city government to dictate how the funds should be distributed among the various aspect of waste management.

Routine cash outlays for solid waste management activities are usually the Same as the operating costs of those activities.

Operating costs are regularly Recurring costs of resources that are used over a short period of time (i.e., less than 1 year) and routinely reacquired in order to support ongoing operations

Operating costs generally include the following:

- Personnel wages, salaries, benefits
- Building and vehicle maintenance
- Power and fuel
- Rent and leases
- Contract services
- Interest (including mortgage interest)

Overhead costs are the management and support costs of running a solid waste program. Management and support labor costs (including benefits) should be accounted for, together with a proportionate share of the office costs (e.g., rent, office equipment, and utilities) incurred for management and support. Specifically, overhead for a solid waste program can include:

- Management
- Executive oversight
- Advisory committees and coordinating bodies

Uncovering

Hidden Costs

Overhead Costs

- Billing services
- Clerical support
- Data management
- Human resources
- Legal
- Maintenance
- Payroll and accounting
- Personnel
- Purchasing
- Records management
- Training expenses

Process costing

- Joint product
- By product

Tax Benefits and Incentives for Waste Management in India

Income Tax Exemption: Section 80JJA of the Income Tax Act, 1961

Allows companies engaged in waste processing, recycling, and resource recovery plants to claim a tax deduction. A 100% deduction of profits and gains derived from such businesses is available for five years, starting from the initial year of operation.

Goods and Services Tax (GST) Concessions: India offers lower GST rates for waste management services, such as waste collection, treatment, and disposal, compared to standard GST rates. This reduced rate aims to make waste management services more cost-effective and encourage their adoption.

Custom Duty Exemption: The Government of India provides exemptions or concessions on custom duty for importing waste management equipment and technologies. This is done to promote the adoption of advanced and efficient waste management technologies in the country.

State-level incentives: Individual states in India may offer additional tax benefits and incentives for waste management projects, such as land at concessional rates, capital investment subsidies, electricity duty exemptions, and single-window clearance systems. These benefits vary by state and are designed to attract investment in the waste management sector.

Financial Assistance: Various government schemes and initiatives provide financial assistance for waste management projects. The Ministry of Environment, Forest and Climate Change (MoEFCC) and the Ministry of Housing and Urban Affairs (MoHUA) are among the central government bodies that support waste management initiatives.

Waste Management Benefits :

Benefit	Description	Example Calculation
Income Tax Exemption	100% deduction of profits for 5 years	Profit: INR 1,000,000; Deduction: INR 1,000,000
GST Concessions	Lower GST rates for waste management services	Standard Rate: 18%; Reduced Rate: 12%
Custom Duty Exemption	Exemptions on custom duty for waste management equipment	Import Duty: 10%; Exemption: 100%
State-level Incentives	Varies by state, e.g., land, subsidies, exemptions	Land at 50% concessional rate
Financial Assistance	Support from government schemes and initiatives	MoEFCC grant for waste management project

Companies like Eco Recycling Ltd and Urban Enviro Waste Management Ltd. have recorded significant profits, reflecting robust business strategies and market demand for sustainable solutions.

Best Waste Management and Recycling Companies: Key Metrics and Business Focus

- Antony Waste Handling Cell Ltd.
- Eco Recycling Ltd.
- Urban Enviro Waste Management Ltd.
- Gravita India Ltd.
- EMS Ltd.
- Baheti Recycling Industries Ltd.
- Felix Industries Ltd.
- Nupur Recyclers Ltd.

India is a country with a rapidly growing population and industrial sector. With the increase in consumption and production, the need for sustainable waste management has become more crucial than ever. Recycling is not only a sustainable solution but also a lucrative business opportunity.

E-Waste Recycling

As technology advances, electronic waste has become a major concern. Starting an e-waste recycling business can be highly profitable. India generates around 3.23 million metric tonnes of e-waste every year, making it a potential goldmine for recyclers. By properly recycling electronic devices such as

Mobile phones, laptops, and televisions, we can extract valuable metals like gold, silver, and copper, which can be sold at good prices.

Plastic Recycling

Plastic pollution has reached alarming levels in India. Setting up a plastic recycling plant is not only socially responsible but also financially beneficial. India produces approximately 3.5 million tonnes of plastic waste annually, out of which only 60% is recycled. By investing in plastic recycling machinery, we can turn this waste into valuable products such as plastic granules or even fabric.

Waste is everywhere these days, and it's only going to get worse if we don't do something about it. But what if I told that this problem could be an opportunity for us?

Did you know that the United States alone produced over 292 million tons of municipal solid waste in 2018? That's an incredible amount of waste that needs to be properly dealt with.

But speaking of opportunities: where there is waste, there is also a chance for profit.

Recycling Business Ideas to Earn More Profit

1. Paper recycling business

No matter how digital the world gets, paper usage is only getting higher and higher. we can devise a solution to tackle them by producing recycled paper products such as notebooks, tissue papers, and packaging materials.

2. Plastic recycling business

Plastic is currently a huge concern for the world, and it isn't getting any less with time. This is why recycling plastic waste fills a huge environmental gap that the world is suffering from these days.

In this business, we can collect plastic waste from various sources, such as households, businesses, and factories. Later, recycle it into different products, such as plastic lumber, park benches, and even clothing.

Only 9% of total plastic is recycled.

3. Glass recycling business

It is quite fascinating to know that glass is 100% recyclable, and for as many times as we want to – without any loss in its quality. It is for this reason that glass is a great packaging option. Apart from this, we can also produce glassware and decorative items with it.

4. Scrap metal recycling business

Household items, utensils, cans, old tools, office supplies, and jewelry are only a few places where metals are used. So the amount of waste created with scrap metal is huge.

Thus, metal recycling is another profitable business idea that has the potential to earn money while serving the world for the better.

5. E-waste recycling business

It is needless to say that e-waste or electronic waste, is swelling up exponentially as we all live in the digital age. Phones, PCs, laptops, cables, TVs, etc. are all included in e-waste .

So managing e-waste is a huge concern that we can solve with our new business. And such a big gap also means that there is money to be earned if we take the right steps.

6. Battery recycling business

Improper disposal of batteries can release harmful chemicals, posing environmental risks. So, your battery recycling business can help ensure that batteries are recycled in a safe and eco-friendly way.

7. Textile recycling business

The textile industry is one of the largest contributors to pollution. In fact, credit for 20% of global clean water pollution can be given to dyeing and finishing products used in textile production.

So, recycling textiles reduces the need for producing more from scratch and contributes to the fight against water pollution.

8. Furniture recycling business

With the global area of forests decreasing, cutting trees in itself is disgraceful. Let alone talk about wasting furniture wood that could have been recycled for further use.

Thus, there is a huge demand for furniture recycling businesses that can help divert waste from landfills and create new furniture pieces from old ones.

9. Composting business

Composting is a natural process that turns organic waste into nutrient-rich soil. So, if we decide to go with starting a composting business, we will help not only by reducing food waste but also by producing better quality soil for gardening and farming.

10. Food waste recycling business

A food waste recycling business collects and processes food waste to create fertilizer or renewable energy. It is a sustainable way to reduce food waste in landfills and contribute to a circular economy.

The profitability of a food waste recycling business may fluctuate based on factors like location, operational expenses, and market competition. However, as awareness of the importance of reducing food waste continues to grow, there is a growing demand for food waste recycling services.

11. Farm waste recycling business

Farmers generate tons of waste each year, which includes agricultural plastic, green waste, and animal manure. Recycling this waste can create a valuable source of income and reduce its environmental impact. By processing and selling these waste products, you can contribute to the circular economy.

12. Medical waste recycling business

Medical waste, including needles, syringes, and other hazardous materials, can pose significant risks to public health and the environment.

Medical recycling businesses safely collect and process these materials to turn them into new products like plastic lumber or even energy. Therefore, it won't be a bad idea if you choose to pick up medical waste.

- Reducing landfill waste
- Conserving natural resources, and
- Promoting sustainable practices

13. Domestic waste recycling business

Recycling domestic waste for creative purposes is a fun and creative way to turn waste into useful and beautiful items. However, you will also need to hire people with such expertise to do so.

Thus, you will have to collect and sort various household waste items, such as plastic bottles, cans, and cardboard. Then, give it to them for repurposing waste into art pieces or functional products such as lamps or vases.

14. Recycling plant business

Opting for a recycling plant business means you need to collect only fully recyclable products such as plastic, paper, glass, and metal. And then selling them to manufacturers who create new products using such waste.

This business can be highly profitable and fulfilling, helping reduce waste and promote cleaner communities. A trash bin cleaning business enhances cleanliness while supporting better waste management practices.

But keep in mind that starting a recycling plant business requires a significant amount of investment in equipment, facilities, and personnel.

Main Challenges Faced by Recycling Businesses & How to Overcome Them:

Recycling businesses face various challenges that can hinder their growth. However, with proper strategies and approaches, you can overcome them. Here is a list of those challenges:

1. Lack of awareness and education

Many people still aren't aware of the grave environmental issues we are facing and the need for recycling waste. Thus, the lack of awareness and education about recycling is a huge concern.

Suggestion: Educating people in our neighborhood about the benefits of recycling is a great initiative. So, we can work with schools, communities, and other organizations to raise awareness about recycling and its importance. By promoting the benefits of recycling, they can encourage more people to participate in the process.

2. High initial investment costs

Starting a recycling business may get expensive for them, and many entrepreneurs may not have the resources to make a significant initial investment. This can be a huge barrier to entry.

Suggestion: Seek out funding by applying for grants, loans, or other financial incentives that can help them to get started. Also, we can look for affordable waste route planning software to minimize your expenses on the road.

3. Finding the right customers

Even though recycling and reusing waste has a lot of benefits for the environment, it can be hard to find the right customers for the products you create with it.

Suggestion: Target the right customers with proper marketing and advertising of recycled materials. This will help you get your word out there for your target audience to see. Moreover, you can implement waste management marketing strategies to attract potential clients.

4. Transportation and logistics

Transportation and logistics can be quite a headache, especially if we have to collect waste from multiple locations. Without recycling service route planning software, you would have to spend a lot of time and money planning your routes manually.

Suggestion: It is recommended to invest in route planning and optimization software like Upper. Going for a fully automated process will help you reduce your gas bill by up to 40%, providing you and your drivers with the most optimal route to follow.

There are some questions in our mind:

What types of permits and licenses do I need to start a recycling business?

Generally, we will need a business license, zoning permit, environmental permits, and recycling-specific permits. It's best to check with our local government agencies for specific requirements.

How can I get funding for my recycling business?

There are several options for financing your recycling business, including

- Grants
- Loans
- Investments

From private investors, we can also look for crowd funding options or partner with other businesses to share the costs of equipment and infrastructure.

What are the benefits of starting a recycling business?

Recycling businesses have numerous benefits, including reducing environmental pollution and waste and promoting sustainable practices. This not only contributes to environmental sustainability but also offers financial rewards. It reduces waste, conserves natural resources, creates job opportunities, and generates revenue through the sale of recycled materials.

Do I need specialized knowledge or skills to start a recycling business?

We don't necessarily need specialized skills or experience to start a recycling business. With research and planning, you can learn the necessary skills and knowledge to succeed in the industry.

How to comply with environmental regulations for recycling?

Staying compliant with environmental regulations requires a thorough understanding of local, state, and federal laws governing waste management and recycling practices. Invest in proper training for staff, implement robust monitoring and reporting systems, and stay updated on regulatory changes to ensure full compliance and avoid potential penalties.

What are some innovative technologies shaping the future of the recycling industry?

Innovations such as advanced sorting technologies, block chain-based supply chain tracking, and circular economy initiatives are revolutionizing the recycling industry. Therefore, stay updated on trends and technology to seize new opportunities in this changing market.

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