
UNIT 4 ETHICAL PRACTICES IN PRODUCTS I

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4.0 OBJECTIVES

After studying this unit, you will be able to:

- Explain, what you mean by ethical practices in product.
- Understand the importance of labelling in ethical practices in products.
- Understand how sustainable materials can be used for building products.
- Explain the significance of product safety and quality control
- Understand how energy efficiency plays a crucial role in environmental impact, social responsibility, and ethical sourcing.
- Explain industry norms and disclosures norms.

4.1 INTRODUCTION

In this world, we have many manufacturing companies in every industry. All these companies produce products or manufacture them as per the process laid down which is ok, but the most important issue is “Is it being done ethically?” What do we mean by ethically? It means whether for the product

being manufactured, rightful means like right labour policies , right raw material, enough R&D are being used, i.e. are all statutory compliances in place. Is the packaging used through green-house production process, does it have fair pricing, are they using conflict free raw material, are they using right ethical marketing to promote the products, are they continuously trying to improve the product, do they have social responsibility process in place, how is the product longevity for the consumer, do they have fair mechanism of managing customer complaints, are they transparent about the product raw material, sourcing and quality, etc.?

These are all ethical product practices. It is the mindset of a company or country which builds these core policies before going for production of the product. For example, Chinese products have good quality and bad quality both. They supply bad quality or dump products in weaker or underdeveloped countries, for developed countries, they build superior products. Companies and countries should never have dual standards as it dilutes the image in the long run.

4.2 PRODUCT DESIGN AND INNOVATION

Product design is an innovative & research led process. It is a well thought plan or process to build a world class product. Innovation adds feathers to the process. Customers like product with innovation. Some of the examples of the product innovation is Electric vehicles with high running range and fast charging of vehicle or self-charging while running, driver less vehicle, foldable mobile phone, through 3 D printing building houses and buildings, 5G connectivity, electric aircraft to reduce aviation emissions level. All these are new innovations. Innovation is a progressive process in product design and new technology. Today in the whole world, there is always an emphasis to build better design products and innovation addition makes it even refined or better version of the product.

Old companies are trying to ensure that their market share is intact and new companies are trying to attract customers with innovation led product with great designs. The question comes how companies can play an ethical role while designing and bringing innovation in the product.

Ethical practices are a mindset of a promoter of the company. Promoter with right mindset set the tone of the organizations in a progressive world of competition. Promoter builds a strong team and invests in it to get quality resources to build the products. Also, the compliances and regulatory guidelines of the specific industry are addressed with 100% transparency. Ethical practices help the company in attracting customers as they address all the features, usage, and life of the product in details. This is needed for the transparency point of view. It helps in building trust and commitment towards customers in solving their problems. Packaging of the product again must be environmentally friendly to reduce carbon emissions levels of the environment. For example, electronic products with ISI mark are always respected by the customers. It clearly indicates that how strongly the

company is committed to build its product and brand. Companies can seek third-party certifications, such as Fair Trade, USDA Organic, or B Corp certification, to verify their ethical and sustainable practices.

Ethical companies often invest in educating consumers about the ethical and sustainable aspects of their products, helping consumers make informed choices. Ethical practices also work best when at the design stage, raw material used is of quality standards and environmentally friendly. The labour used to design the product and technology must be paid as per the rules laid down by the Govt. of India. Products should be designed and manufactured to meet high-quality and safety standards. This includes rigorous testing and adherence to industry regulations.

4.3 PRODUCT LABELLING

Product labeling and ethical practices are essential for ensuring the safety, sustainability, and ethical considerations associated with construction and building materials. Some key aspects are mentioned below.

- **LEED Certification:** - LEED is a body called Leadership in Energy and Environmental design. Its certification signifies that the products should be designed and manufactured to meet high-quality and safety standards. This includes rigorous testing and adherence to industry regulations.
- **Energy Star Rating:** - The rating signifies that the electronic product is built to reduce energy consumption and thus helps in reducing greenhouse emissions.
- **Recycled Product:-** The detail about the recycled process signifies that post its complete life cycle, it will not damage the environment. Label must have that this product is made 30% of recycled products.
- **Sustainable Sourcing in Labels:** - It means that the certified products are used as raw material in building the product and designing is done accordingly.
- **Volatile Organic Compounds (VOC) Emissions Norms:** Products which are not very user friendly or used with paints or adhesives, its label must show the details of % of such material is used and how companies have ensured that it will not impact environment or customers negatively.
- **Certification of Fair Trade:** It shows that the labour engaged in handling the raw material such as wood or any other such material is treated fairly as per the regulations.
- **Transparency:** Product label must have transparency related to labour regulations followed while working with labour and environmental related guidelines disclosures.

- **Efficiency Certifications:** Products for example windows, insulation, and HVAC systems must carry labels that indicate their energy efficiency ratings, helping consumers make informed choices to reduce energy consumption .
- **Standards of Safety:** Label must have usage guidelines and safety guidelines in detail so that customer does not damage himself and product while operating them. For example, fire resistance, seismic resistance, load bearing capacity specially for building must be written somewhere in the building, etc.
- **Label of Local Sourcing:** Every country has some norms as a social responsibility. The company is asked by the Government to source raw material locally. Label of the product must have clear cut details about such sourcing.
- **Durability of the Product:** The label must have details about the durability of the product and precautions to extend the durability of the product with approximate life span of the product.
- **End of Life Disposal Information:** The label must have details about how the product is to be disposed off when the life cycle of the product is over. The detailed guidelines help the customer to dispose of correctly to reduce impact on environment.
- **Third Party Verifications:** The ISI standards on the product shows assurance. Label must have such details wherever it is possible.

Companies incorporating these changes are always having positive step forward in protecting the environment and ethically managing the business in favour of the customer ultimately.

4.4 PRODUCT SAFETY AND QUALITY CONTROL

Product safety and Quality control are extremely important in ensuring ethical practices in making product. It protects the consumer interest, establishes trust with all the stakeholders and ensures maintaining the integrity and reputation of the company. Let us discuss some of the ethical principles and practices followed by the companies.

- **Transparency in the Process:** Company must be open about transparency related to the safety and quality of the products manufactured. It must provide genuine information related to the product to the consumers, regulators and all the stakeholders on product ingredients, process of manufacturing and safety test results and further improvement plans, if any.
- **Industry Compliance with Regulations:** Regulatory bodies' compliance documents must be completely adhered to by the company; it must be continuously updated in new regulations and

discard any old regulations. It may also suggest new regulations being followed by the world to the regulatory body so that regulatory bodies also get fully updated all the time.

- **Product Testing Certification Clarity:** Companies must ensure testing of the product manufactured in live conditions to see complications, if any, and correct them. Companies may involve third party certification agencies or body to give extra layers of testing in the product. It leads to robust quality standards which companies can follow for their consumers.
- **Consumer Education as Safety Guidelines:** Companies also ensure that the consumer is fully updated on usage of the products including all attached warnings, signals, etc. so that consumer does not make mistake while handling or using the products. These are safety guidelines which is generally part of the product manual.
- **Responsibility in Sourcing Raw Materials:** Companies must focus well on sourcing products with responsibility including many components for the product ethically. It must ensure that the vendors follow the guidelines related to the environment protection, social responsibility, and labour standards, etc. Labour should be managed ethically with minimum wages and other statutory compliances related to the labour.
- **Continuous Improvement in System and Process:** Culture of improvement continuously on product safety and quality control must be adhered. There should be process to regularly update on product safety and quality control.
- **Employees Whistle blower Policy and Protection:** Implement process to encourage employees and other stakeholders to report safety or quality concerns without fear. Protect whistle blowers and take their concerns seriously. Their names should ideally be never come in public within the organization.
- **Recall and Response:** It has been seen that many automobile companies took the responsibility of defect in the product and recalled it to rectify that part. Companies must openly explain the issue with transparency and provide solution to solve the problem either through a repair or replacement of the product. It builds lot of trust with the customers.
- **Do Marketing and Advertising Ethically:** Avoid misleading information through marketing campaigns. Explain the product well as per the process and do not make tall claims, instead give all information with transparency.
- **Ethical Supply Chain Management:** The company must ensure that the vendor or suppliers and subcontractors adhere to ethical practices

in their company operations, particularly when it comes to safety and quality.

- **Environment Sustainability:** It is important to consider the environmental impact of the products and aim to reduce waste and carbon footprint. The implementation of the environment sustainable practices by the company in the production processes is absolutely necessary.
- **Employee Accountability:** Employees and their teams must be accountable for their roles in product safety and quality control. It is necessary to establish clear lines of responsibility and accountability along with consequences for unethical behaviour.
- **Stakeholder Engagement:** The feedback from customers, employees and community members on product safety and quality standards must be obtained. It helps in getting accurate safety and quality feedback. Companies should make right decisions to make it better with the feedback.
- **Right Ethical Research and Development:** All the research and development by company on safety and quality standards must be done ethically. The shortcuts must be avoided on safety and quality standards.
- **Implement third-Party Audits:** Companies always be open to implement third party audits in relation of safety and quality control process. It must be ensured that the company does not influence such audits. The company should be encouraged to act on the feedback and observation as right decisions may help company to make product ethically improved.
- **Social Responsibility in Business:** The company should contribute to the social responsibility around the area where it is manufacturing, for example hiring employees from nearby villages, implement medical services benefits in that vicinity, encourage villagers to send their children to education.

4.5 SUSTAINABLE MATERIALS

Building products from sustainable materials to protect the environment and build social responsibility is also a challenge to the companies. Companies which have decided to follow these practices now have to work hard in systematic order to use raw material sourcing effectively. They need to reduce the carbon emissions triggered through transportation and therefore should focus on sourcing raw material from nearby locations. Using recycled products will directly impact the environment positively. Thus, company should focus on such materials rather than sourcing from the virgin resources. The certified raw materials should be used through third party which will

authenticate the process further in terms of carbon emissions goals. In the manufacturing process, the material used to build the product must be utilized efficiently and wastages should be minimized.

Efforts should be made to lower energy consumption thus establishing control on carbon emissions. Transparency is a key word on the product label when raw material / recycled product have been used. It makes company more responsive towards goals of using sustainable materials. Companies must make disclosures of sustainable material details on the product labels. Companies also can do regular maintenance of their manufacturing unit to use the raw material 100% and reduce wastages thus benefiting the company on waste management initiatives. Research and innovation investment in finding further better material for a superior quality product and reduction of further carbon emissions must be carried out regularly to achieve higher level of compliances. Companies when take feedback from the customers and consumers and other stakeholders, it gives more insight which allows company to make informed decisions in achieving higher level of carbon credit by reduction of carbon emissions.

Check Your Progress A

1. What is meant by innovation in product design?
2. What is the significance of energy star rating in product labelling?
3. What is LEED certification?
4. What do you mean by sustainable material?
5. Which of the following statements are **True** or **False**?
 - (i) Ethical practices are a mindset of a promoter of the company.
 - (ii) Energy Star Rating signifies that the product is built to reduce energy consumption.
 - (iii) There is no need to mention standard of safety on the product.
 - (iv) LEED is a body called (The leadership in environmental development).
 - (v) Continuous improvement in system and process is important for quality control.

4.6 ENERGY EFFICIENCIES

Energy efficiency is a very key area where carbon emissions measures can play a very important role. Companies following the ethical principles of developing products through energy efficient measures may help in controlling energy costs substantially. It also includes considerations related to energy efficiency, environmental impact, social responsibility, and ethical

sourcing. Here are some key aspects of energy efficiency in building products with an ethical focus:

- A) **A long-term energy efficient programme:** This is implemented by using land, technology, system, and processes plus efficient team. Long term energy efficiencies are achieved ethically to protect the environment to the maximum extent.
- B) **Engagement with local communities:** It should include local stakeholders, discuss the pros and cons and take them along in the whole process so that company can get local support all the time.
- C) **Education with awareness:** Educate all the stakeholders like architects, builders, consumers, and occupants, about the special importance of ethical and energy-efficient construction practices. Implement and encourage responsible consumption and behaviour through interactions, training, workshop, circulars, etc.
- D) **Vendor ethical practices:** Check the ethical practices of vendors implementing the energy efficient system. Check their process, do they have ethical practices and actual ground level implementation of commitment.
- E) **Transparency in energy efficient systems:** The local community must be informed on negative impacts, and advantages of building ethically the energy efficient systems. Even in the company, the employees and the respective teams must have communication of clear-cut advantages of the system and drawbacks to control emission levels if any.
- F) **Try to minimize the construction waste:** It is possible to build competitive advantages through meticulous planning and recycling/reusing materials whenever possible. Companies must ethically dispose of waste materials and hazardous substances in a responsible manner as per the processes laid down by the Govt. with full transparency. Companies should never use shortcuts in disposal of hazardous waste generated out of the production process. Pollution control board of India has earmarked industries based on the pollution it generates.
- G) **Work with sustainable and eco-friendly materials for construction:** It is necessary to avoid materials that harm the environment or exploit workers in their production. In this context, it is helpful to look for certifications like Forest Stewardship Council (FSC) for wood products or Cradle to Cradle for a holistic approach to sustainability or norms set by pollution control board of India.
- H) **Implement renewable energy sources:** Efforts should be made to instal solar panels, wind turbines, or geothermal systems into buildings to generate clean energy and reduce reliance on fossil fuels. It saves on cost and build environment through efficient and modern energy efficient systems.

- I) **Start with efficient and ethical design:** Design of the building and product should be ethical and efforts should be made to implement energy-efficient principles such as passive solar design, effective insulation, and proper ventilation to reduce energy consumption for heating, cooling, and lighting.

Companies which are sensitive to energy efficient systems are boon for any country. Government bodies keep implementing norms and educate businesses that is how they can build an effective energy efficient system in manufacturing products ethically. It is a journey, and every country must continuously work on achieving ESG (Environmental safety guidelines) norms set by the country for themselves.

4.7 ENVIRONMENTAL IMPACT

The impact on the environment is on soil, air, water, and noise. The maximum impact we see is in air, water, and soil. Fertilizers' factories are expected to guide the farmers for the use of the fertilizers in a very scientific manner .

Fossil fuels are made up of decomposed plants and animals. These fuels are found in Earth's crust and contain carbon and hydrogen, which can be burned for energy. Coal, oil, and natural gas are examples of the fossil fuels. This fuel usage to create energy is impacting the environment negatively . It increases the temperature of the environment and leads to high levels of carbon emissions. Then comes water pollution due to wastage of water from the production process. If untreated water is thrown in the river and ponds, it disturbs the ecological balance. It contaminates the water available for human beings and leads to diverse types of diseases spreading further in the community.

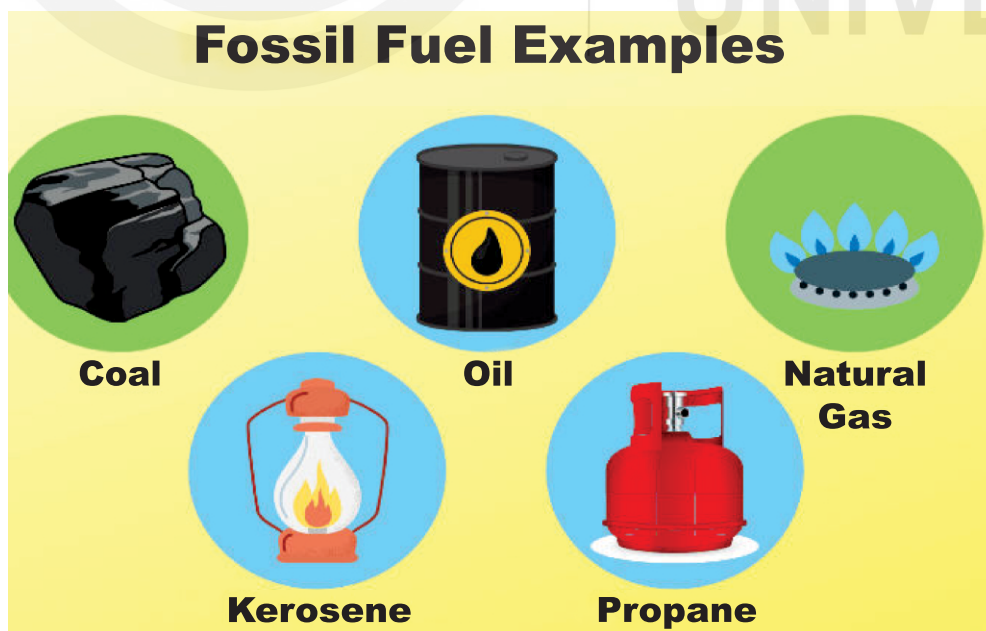


Fig. 4.1: Different types of fossil fuel used to generate energy.

Sources: <https://sciencenotes.org/fossil-fuel-examples-and-uses/>

Environmental safety guidelines (ESG) norms have many challenges. Companies are using laid down metrics but there is no real time data available in the market. Regulatory bodies should be given more powers to review and control their system by way of availability of real time carbon emission data. Regulatory bodies must act as a custodian to control pollution along with companies rather than making the system only on paper. . It is important to ensure awareness, right systems, and processes implementation. It must act continuously to help companies implementing their own systems of controls, motivate companies to go for real time data sharing using new advancement in the technology.

4.8 INDUSTRY NORMS AND DISCLOSURES

NORMS

Industries have been classified as per below mentioned zonings. These zonings are revised from time to time. This is a reference point to understand industry wise zoning based on waste it generates.

Industry categorization as per pollution control board

- Industrial Sectors having Pollution Index score of 60 and above
- Industrial Sectors having Pollution Index score of 41 to 59
- Industrial Sectors having Pollution Index score of 21 to 40
- Industrial Sectors having Pollution Index score incl.&upto 20

The categorization will be done on the basis of composite score (0-100 marks) of Pollution Index given in accordance with the following weightage.

Air Pollution Score based on parameters namely PM, CO, NOx, SOx, HMs, Benzene, Ammonia and other toxic parameters relevant to the industry.	40 Marks
Water Pollution Score based on parameters namely pH, TSS, NH ₃ -N, BOD, Phenol and other toxic pollutants relevant to the industry.	40 Marks
Hazardous wastes (land fillable, incinerable, recyclable) as generated by the industry.	20 Marks
Note : • Parameters to be decided on the basis of the nature of the wastes generating from the industrial sector. • Industries having only either water pollution or air pollution, the score will be normalized wrt 100.	

Based on the score of the Pollution Index, following categorization be made :

- Type of industries, if scores 60 and above be categorized as Red
- Type of industries, if scores from 30 to 59 be categorized as Orange
- Type of industries, if scores from 15 to 29 be categorized as Green
- Type of industries, if less than 15 be categorized as White or non-polluting industry.

Fig. 4.2: Industry Categorization as per the Pollution Control Board

Source: Pollution control board

In India, products have been defined under the pollution index score by the Govt. of India.

The areas of operations have also been defined. The companies going for manufacturing may not operate in some restricted areas. Companies also must seek approval from the Central Pollution control board. The pollution control in India is at infancy stages though rules are strengthened, but then companies may not follow it up to 100%. We have witnessed how our rivers have been destroyed due to Industrial waste entering rivers.

Let us understand BRSR framework

From the financial year 2022-2023, the top 1,000 listed companies in India (by market capitalization) will have to build a 'business responsibility and sustainability report' (or "BRSR"), containing detailed ESG disclosures.

The BRSR must be a part of the annual report of FY, which gets notified to the stock exchanges and published at official company websites, and separately provided to the shareholders.

Before the BRSR became mandatory, the top 1,000 listed companies in India (by market capitalization) had to publish a relatively shorter 'business responsibility report' (or "BRR"). There the clarity was missing because of focus by the companies.

Both the BRSR and the BRR were designed around the nine business sustainability principles identified by the Ministry of Corporate Affairs in their voluntary ESG guidelines published in 2011 ("MCA ESG Guidelines") but that is where the similarity ended.

The BRR was not well received, since it based its ESG disclosure requirements almost entirely on the nine sustainability principles from the MCA ESG Guidelines (often, as a Y/N questionnaire) and provided very little meaningful ESG data. The BRSR, on the other hand, built upon the framework of the MCA ESG Guidelines, derives inspiration from international reporting frameworks like the GRI standards, and provides for detailed ESG data, both qualitative and quantitative.

A summary of the ESG metrics and other key disclosures required by the BRSR is as follows:

SUBJECT MATTER KEY DISCLOSURES*

General Key quantitative and/ or qualitative KPIs.

Principal business activities and products/ services.

Markets served, plants and offices (national and international), and types of customers.

Contribution of exports.

R&D and capex investments in technologies that improve ESG impacts.

Trade and industry affiliations.

Other key Disclosures:

Overview of material responsible business conduct issues.

Specific ESG commitments and performance.

External assessment/ evaluation of ESG policies.

Environmental Key quantitative and/ or qualitative KPIs:

Material environmental impacts, risks, and concerns.

Energy consumption and intensity.

Water consumption, intensity, withdrawal, and discharge.

GHG emissions (scope 1 to 3) and projects for emissions reduction.

Plastics and waste management (including through 3Rs practices) and waste water management.

Sustainable input sourcing.

Environmental impact assessments.

Extended producer responsibility.

Life cycle assessments.

Operations in ecologically sensitive areas and biodiversity impacts.

Compliance with environmental laws.

Besides, there are some more Disclosures:

Business continuity and disaster management plan(s).

Social Key quantitative and/ or qualitative KPIs:

Median remuneration and minimum wages.

Return to work and retention rates.

Union/ association memberships.

Occupational safety and health (OSH) matters, including risk assessments, reporting, and corrective actions.

Safety incidents and corrective actions.

Human rights related risk assessments, diligence, corrective actions, grievance redressal and business process changes.

Trainings – on ESG, OSH, human rights, and skill upgradation.

Safety-linked product recalls.

Insurance, retirement, and other employee benefits.

Employee/ worker complaints and grievances, and protective mechanisms for complainants.

Rehabilitation and resettlement, and community grievances.

Social impact assessments and mitigating actions.

Customer/ consumer issues, including complaints, corrective actions, awareness, and feedback.

Product labelling.

Sourcing from local/ small producers and marginalized/ vulnerable groups.
Beneficiaries of CSR projects.
Data privacy issues.

Framework/ policy on cyber security and data privacy risks

Source:<https://www.legal500.com/developments/thought-leadership/esg-reporting-and-its-framework-in-india/>

Also, it is working on quality metrics standardization and reporting periodicity. This will sensitize the companies more towards ESG control norms and slowly it will become a regular part of their business operations and disclosures processes.

4.9 RECYCLING AND DISPOSAL

Recycling is the process of converting waste materials into new materials and objects. It can also prevent the waste of potentially useful materials and reduce the consumption of fresh raw materials, reducing energy use, air pollution (from incineration) and water pollution (from landfilling). Recycling is a key component of modern waste reduction and is the third component of the "Reduce, Reuse, and Recycle". *Recyclable materials* include many kinds of glass, paper, cardboard, metal, plastic, tyres, textiles, batteries, and electronics. The composting and other reuse of biodegradable waste—such as food and garden waste—is also a form of recycling.

According to the ministry of environment, forest, and climate change, under the government of India, India is the fifth-largest economy in the world. The nation generates approximately 62 million tons of waste with an average annual growth rate of 4%. It is also found that currently, India generates 70 million metrics of municipal solid wastes. Out of it, only 20% is recycled and the rest ends up in landfills and oceans affecting humans, and marine life, along with destroying the environment. This necessitates a solid waste management system in place.

It is estimated that waste management in India is potentially a \$15 billion industry. Out of the entire waste produced in India, 25% are dry waste components that can be recycled. This recyclable waste, dumped into landfills due to a lack of proper collection and infrastructure, can be reused as raw material. If it is properly segregated and processed further, it can be a highly lucrative source of revenue generating.

Fig. 4.3: The municipal waste contributing to the environmental pollution

Source:<https://timesofindia.indiatimes.com/blogs/voices/recycling-waste-can-generate-crores-in-revenue-in-india/>

Recycling has many advantages for the environment and society. Here are some of the key benefits of recycling.

- **It Conserves Country Resources:** Recycling process helps to conserve natural resources by eliminating the need for new raw materials. It reduces the extraction of minerals from extinction. It also helps in controlling the deforestation and control on drilling in sea or land for oil thus preserving natural habitats.
- **Saves on Energy:** Recycling reduces manufacturing process of raw material thus huge saving on energy emissions and carbon credit is achieved. It helps in building more sustainable and energy efficient economy.
- **Reduction of Greenhouse Gas Emissions:** To combat climate changes, recycling works very well as country uses less energy to produce same level of products within different industries and less greenhouse gas emissions are created.
- **Reduction in Wastes:** Recycling helps in controlling the wastes thus less landfills, less burden on sea, which further reduces the risk of soil and ground water pollution.
- **Benefit to Economy and Job Creation:** Recycling helps generating economic growth within recycling industries, waste management and manufacturing of recycled products. It also controls on cost of waste disposal.
- **Conservation of Water:** It saves water due to usage of recycled products in manufacturing of the products, especially in paper and metal manufacturing facilities where the water consumption is quite high.
- **Reduction of Air and Water Pollution:** Due to Usage of recycled production, extraction of natural resources is reduced, which leads to control on carbon emissions in air and water even in soil.
- **Protection of Biodiversity:** Habitat destruction is considerably reduced by conserving natural resources; recycling protects the ecosystem in major way. It helps in preservation of forests, oceans, other minerals.
- **Sustainability Promotions:** Recycling brings alignment to sustainable development goals by focusing on environmentally responsible practices, reducing waste, and promoting a more circular and sustainable economy.
- **Large Conservation of Land:** Landfills are reduced which generally impacts the property value. The free land can be used for some other useful areas.
- **Benefiting Communities:** Recycling programs bring a sense of urgency in the minds of company leadership as it helps them to reduce cost also. It also creates a sense of environmental

responsibility and community development through involvement. It builds a culture of ecofriendly initiatives.

- **Import Reduction Security:** Recycling helps in reducing imports and focus more on internal security enhancement resources.

9 Top Plastic Recycling Startups and Companies in India

- Pluto Interio. Sustainable and Eco-Friendly range of furniture & fixtures. ...
- Aimabig. it means “loving. ...
- Green Worms. ...
- TrayamBhu Tech Solutions Private Limited. ...
- Zero Earth. ...
- Trashnet. ...
- ROSUNI. ...
- WITHOUT by Ashaya.

These companies are using plastic recycling process which is a big initiative in India.

Some Recycling startups in India

Many startups have emerged recently which are focusing on reducing carbon emissions levels.

- Cashify:- An e-commerce platform selling used electronic gadgets,
- Recykal:- It is a digital technology company that provides cloud based solutions for waste management and recycling industry.
- Banyan Nation:-Banyan Nation is unlocking the market for premium recycled plastics in India through technology innovations across the value chain.
- Digantara is building a one-of-a-kind in-orbit device to track debris that dangerously hurtle around in space
- Phool aims to solve the flower-temple-waste problem. It collects tonnes of floral waste from temples, which is handcrafted into charcoal-free incense, organic vermicompost, and biodegradable packaging material through their ‘flowercycling’ technology.
- Lohum Cleantech enables re-use of used lithium-in battery cells
- TrashCon Labs provides complete end-to-end technology that sorts the waste and recycles it, thus providing a comprehensive solution to convert every bit of waste to value.

- Uravu Labs developed renewable water technology with inexhaustible atmospheric moisture and renewable energy to produce drinking water.
- Loopworm is working on an extremely protein-rich diet for poultry farms and fisheries by using food waste. This environment-friendly method extracts the nutrition from food wastes with the help of different identified species of worms. The waste of these larvae, in turn, acts as a natural fertilizer and creates a fertile soil ecosystem that plants can thrive in.
- Ossus uses waste carbon in industrial effluents as the starting material for green hydrogen. The startup has developed an AI-powered, intelligent bioreactor.
- Shayna EcoUnified India is using plastic waste to make colorful floor tiles.

Source: <https://www.recyclingstartups.org/country/India/>

Now let's us understand disposal in detail.

A waste management system or waste disposal is a defined process that organizations process to dispose of wastes, reduce waste, reuse waste, and prevent waste. In this approach, companies implement detailed strategies and processes to efficiently manage wastes from their origin until their final disposal.

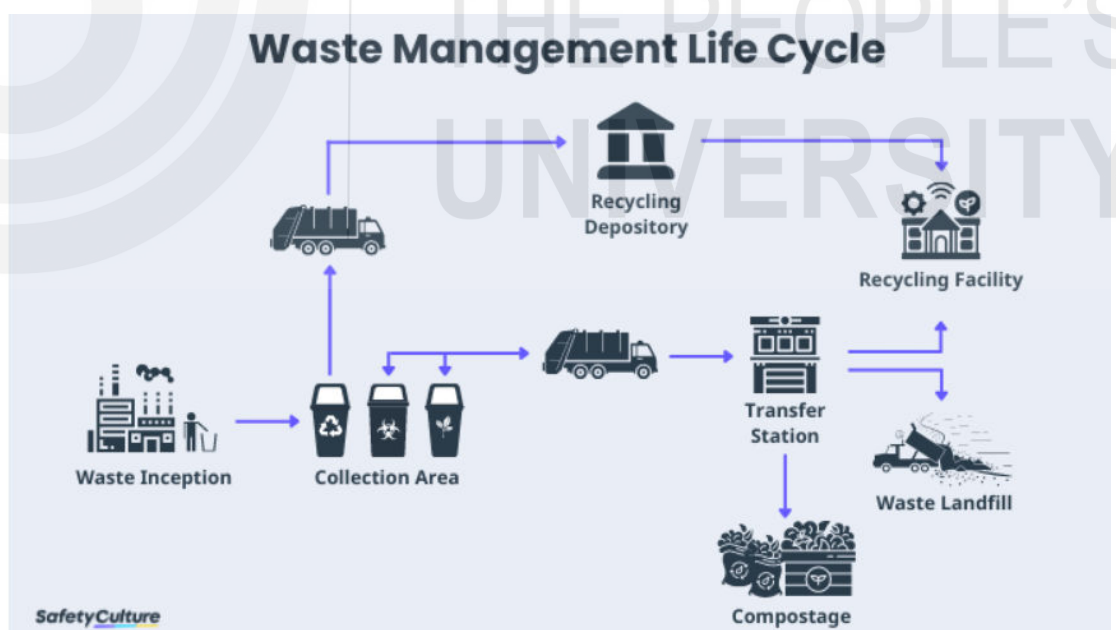


Fig. 4.4: Waste Management Life Cycle.

Companies need to identify the solid or liquid or air waste in advance as per regulators' norms. Companies need to understand how much water can be reused within the system. How much it can be sent to some other industries as part of their raw material and finally how much is to be disposed off as per Govt. of India norms. If water is to be disposed off, then firstly it must be

treated to reduce adulteration to the permissible limits. For air, with the help of technology it should be reduced to the allowed emission levels. Currently companies have a combination of metrics built by them on the basis of the Govt. of India norms. It is necessary to keep a track and control the emission levels. Disposal is set process, and it includes regular audits as well, that is how the companies are disposing off their waste. Are they doing as per norms or not. Auditors need to keep informing the management on whether right practices are being followed. Qualified team is needed to build and monitor these practices regularly.

Check Your Progress B

1. Explain the concept of energy efficiency.
2. Explain the impact of fuel usage to create energy on environment.
3. Explain the term BRSR framework.
4. What do you mean by recycling and disposable?
5. Which of the following statements are **True** or **False**?
 - (i) Companies should use short cuts in disposal of hazardous waste.
 - (ii) Environmental safety guidelines (ESG) norms have many challenges.
 - (iii) The BRSR must not be a part of the annual report of FY.
 - (iv) Plastics and waste management includes 3Rs practices.
 - (v) Landfills increase the property value.

4.10 LET US SUM UP

Due to the climate change, pressure on developing countries is enormous. Actually, the climate change is happening because of developed countries misusing the emissions norms over a period of decades. Obviously, now India also has got pressure. Till now companies were not focusing well on ESG norms though Environment protection act 1986 talks about the same. We could see sense of urgency now with Govt. and pressure on companies to build the system of reducing manufacturing waste and follow laid down process to focus on recycling of products, usage of greenhouse manufacturing, correct disposal of waste. It is a starting point when companies are getting sensitized to the subject and it can be hoped that in the next 10 years, a lot will be achieved which will reduce climate change in some measurable numbers.

4.11 KEY WORDS

Corporate Governance : The system of rules, practices, and processes which control corporate sector. It must have responsible leadership, accountability, and

ethical decision-making at all levels of the organization.

Human Rights	: The basic rights and freedoms to which all humans are entitled. It means workers are treated fairly as per the laid down rules by the Government.
Compliance and Regulations	: Companies following legal requirements, industry standards, and regulations.
Sustainability	: It means minimizing environmental impact and ensuring long-term ecological balance.
Transparency	: The openness and honesty of a company in its operations.
Social Responsibility	: The idea that businesses have an obligation to act for the benefit of the society.
Quality and Safety	: Ensuring that products meet high standards of quality and safety.

4.12 ANSWERS TO CHECK YOUR PROGRESS

A 5. (i) True; (ii) True; (iii) False; (iv) False; (v) True

B 5. (i) False; (ii) True; (iii) False; (iv) True; (v) False

4.13 TERMINAL QUESTIONS

1. Check the internet and define ESG norms 2023?
2. What is Environment protection act 1986? Highlight key focus area.
3. What do you mean by ethical practices in product manufacturing? Highlight top 5 points which are critical to understand and follow.
4. What are the targets India has got to reduce carbon emissions by 2023?
5. Please identify 5 products which are currently being recycled?

REFERENCES

- <https://cpcb.nic.in/env-protection-act/>
- <https://safetyculture.com/topics/waste-management-system/#:~:text=A%20waste%20management%20system%20or,origin%20until%20their%20final%20disposal.>
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