

Unit V Sustainability Practices

Zero waste is a set of principles, focused on waste prevention, that encourages redesigning resources life cycles, so that all products are reused.

Goal

1. The material should be reused until the optimum level of consumption is reached.
2. It provides guidelines for continually working towards eliminating waste.
3. To avoid sending trash to landfills, incinerators (or) the ocean.

Concept

The conservation of all the resources by means of responsible production, consumption, reuse and recovery of products, packaging and materials without burning and with no discharges to land, water (or) air that threaten the environment (or) human health.



Logo for zero waste

Principles of zero waste

1. Refuse what you don't need:

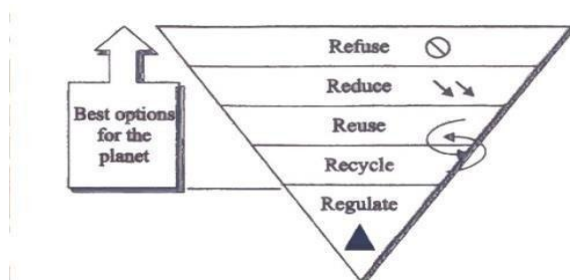
It prevents unwanted items from coming into your home.

2. Reduce what do you use It is equal to less waste at the end.

3. Reuse whatever you can.

4. Recycle what you can't refuse (or) reduce.

5. Regulate of what's left over Composting food scraps, paper pieces and wooden(or) bambootooth brushes returns nutrients and fiber back to the earth.



Steps to achieve zero waste

1. Identify the high waste areas of our life-style.
2. Know where to apply the principle of zero waste, if the waste cannot be removed (or) reduced.
3. Substitute single use plastic with eco-friendly zero waste options.
4. Buy zero waste (or) eco-friendly products.
5. Support eco-friendly businesses.
6. Put all your kitchen waste to good use (compositing).
7. Reuse, upcycle and re-purpose.

ISO 14000 SERIES

ISO is an International Organization for Standardization. It is composed of representatives from various national standard organizations. It provides standards and guidelines for a variety of businesses and purposes and publishes technical reports.

ISO 14000 series

It is a family of standards related to environmental management that exist to help organizations.

- (a) Minimize how their operations negatively affect the environment.
- (b) Comply with applicable laws, regulations and other environmentally oriented requirements.
- (c) Continually improve with above.

Objective of ISO 14000 series

The primary objective of ISO 14000 series of standard is to promote effective environmental management systems in organizations.



Logo of ISO

List of ISO 14000 Series Standards

It includes a catalogue of over 50 Environmental management and performance related standards. But some important ISO 14000 series standards are listed here.

Standard	Title	Applications
ISO14001	Environmental management system.	Requirements with guidance for use.
ISO14004	Environmental management system.	General guidelines on implementation.
ISO14005	Environmental management system.	Guidelines for flexible approach to implementation.
ISO14015	Environmental management	Environmental assessment of sites.
ISO14020 to 14025	Environmental management	Environmental labels and declarations.
ISO14030	Green bonds.	Environmental performance of nominated projects and assets.
ISO14031	Environmental management	Environmental Performance evaluation & Guidelines.
ISO14040 to 14049	Environmental management	Discusses pre-production planning.
ISO14050	Environmental management	Vocabulary, terms and definitions.
ISO14062	Environmental management	Product design and development.
ISO14063	Environmental management	Guidelines and examples.
ISO14064	Environmental management	Reducing Green house gas emissions.
ISO14090	Environmental management	Adaptation of climate change

MATERIAL LIFE CYCLE ASSESSMENT

Definition

Life cycle assessment (LCA) is a process of evaluating the effects of a material on the environment over the entire period of its life, there by increasing resource use efficiency and decreasing liabilities. Generally LCA is used to study the environmental impact of a material. LCA is commonly referred to as a cradle-to-grave analysis.

Stages of life cycle assessment

The followings are the 5 stages of a life cycle assessment.

Step 1: Raw materials (Resources) extraction and processing. Step 2:

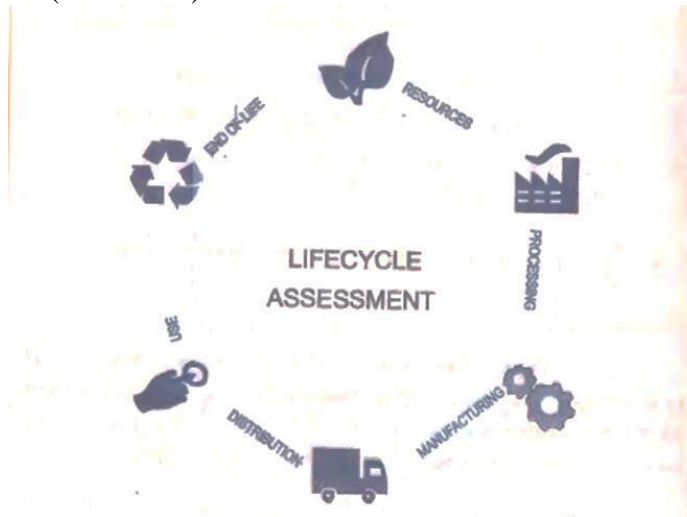
Manufacturing

Step 3: Transportation.

Step 4: Distribution.

Step 5: Usage and retail.

Step 6: Waste disposal (end of life).



Life Cycle Assessment

In the manufactured product environmental impacts are assessed from raw material extraction and processing through the products manufacture, distribution and use, to the recycling (or) final disposal of the materials.

Benefits (or) Advantages of LCA

1. LCA is widely development used to support sustainable.
2. LCA allows decision makers to compare two products and to select the product that has lowest impact on the environment.
3. It is a modelling tool to assess environmental impacts of a product during its entire life span.
4. LCA provides a holistic view on the environmental impacts, to avoid optimizing one environmental indicator without considering the effects on the other indicators.
5. LCA identifies hotspots in the environmental impact.
6. LCA is purely based on internationally accepted standards.

Disadvantages (or) Limitations

1. LCA assesses the real world in a simplified model.
2. The assumptions, scenarios and scope may vary from one study to the other leading to different LCA results.
3. Variations in LCA approaches and results may be confusing especially for non-experts.
4. LCA study requires large amount of data.

ENVIRONMENTAL IMPACT ASSESSMENT (EIA)

EIA is defined as a formal process of predicting the environmental consequences of any development projects. It is used to identify the environmental, social and economic impacts of the project prior to decision making.

Purpose (or) Aim of EIA

The main purpose of EIA is to determine the potential environmental, social and health effects of a proposed developmental projects.

Objective of EIA

1. To identify the main issues and problem of the parties.
2. To identify who is the party.
3. To identify what are the problems of the parties.
4. To identify why are the problems arise.

Benefits of EIA

1. Cost and time of the project is reduced.
2. Performance of the project is improved.
3. Waste treatment and cleaning expenses are minimised.
4. Usages of resources are decreased.
5. Biodiversity is maintained.
6. Human health is improved.
7. It helps in preventing natural calamities like earthquake, cyclone, etc.,

Process of EIA (or) Key elements of EIA

The key elements used in the process of EIA are

1. Scoping
2. Screening
3. Identifying and evaluating alternatives
4. Mitigating measures dealing with uncertainty
5. Issuing environmental statements

1. Scoping

It is used to identify the key issues of the concern in the planning process at an early stage. It is also used to aid site selection and identify any possible alternatives.

2. Screening

It is used to decide whether an EIA is not based on the information collected.

3. Identifying and evaluating alternatives

It involves knowing alternative sites and alternate techniques and their impacts.

4. Mitigating measures dealing with uncertainty:

It reviews the action taken to prevent (or) minimize the adverse effects of a project.

5. Environmental statements

This is the final stage of the EIA process. It reports the findings of the EIA.