

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.

Step1: Raw materials (Resources) extraction and processing.

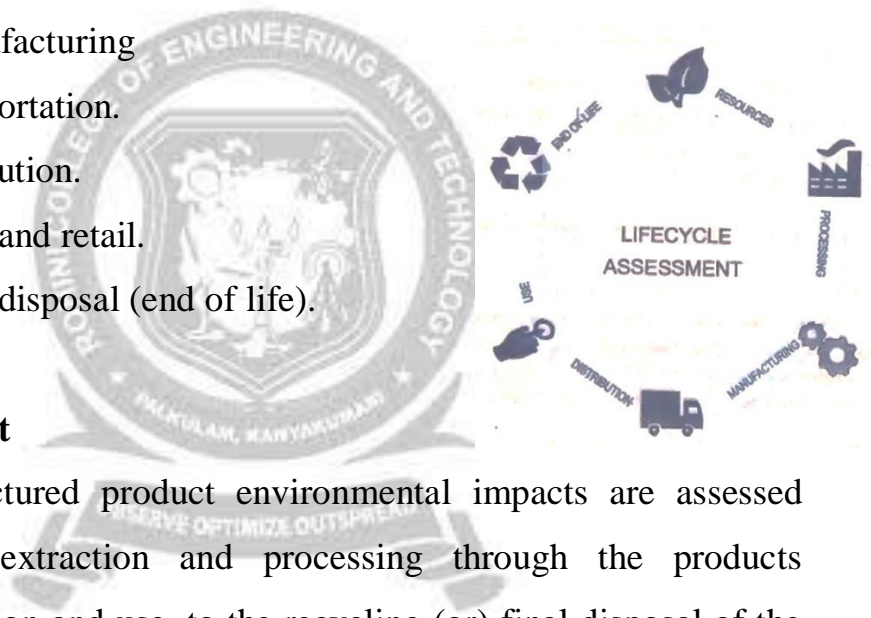
Step 2: Manufacturing

Step3: Transportation.

Step4: Distribution.

Step5: Usage and retail.

Step6: 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 identified shots pots in the environmental impact.
6. LCA is purely base done inter nationally 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 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 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 the problems are 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 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 alternatives it's an 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.

Sustainable goals

There are a total of 17 goals

1. End poverty everywhere, in all its forms.
2. End hunger, achieve food security and improved nutrition.

3. Ensuring good health and promote the well-being of all age groups.
 4. Ensuring inclusive and equitable quality education.
 5. Achieving gender quality and empowering all women and children.
 6. Ensuring the availability and sustainable management of water and sanitation for all.
 7. Ensuring access to affordable, reliable, clean and modern energy for all.
 8. Promoting sustainable economic growth.
 9. Building resilient infrastructure and promoting sustainable industrialisation.
 - 10.Reducing inequality within and among countries.
 - 11.Ensuring sustainable consumption and production patterns.
 - 12.Taking urgent action to combat climate change and its impacts.
 - 13.Conserving and sustainable using the oceans, seas and marine resources for sustainable development.
 - 14.Protecting, restoring and promoting the sustainable use of terrestrial ecosystems.
 - 15.Promoting peaceful societies for sustainable development.
- Strengthening the means of implementation and revitalizing the global partnership for sustainable development.