

Life cycle Thinking & EPD

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ClimateMiles[®]

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Current Scenario - Green Products

- Building rating system – GRIHA / IGBC/LEED
- Current system follows selective criteria to choose products & relies on self declaration by companies
- EPD is a voluntary system with no third party validation

ISO 14000 series relevant to Products & Environmental management

- ISO 14020 :General principles
- ISO 14021 : Environmental labels & Self declared Environmental Claim
- ISO 14024 : Eco labelling (Principle, Procedure & Programs)
- ISO 14025 : Environmental Product Declaration
- ISO 14040 : Life cycle assessment
- ISO 14042 : Life cycle Impact assessment
- ISO 14043 : Life cycle Interpretation
- ISO 14044 : Life cycle assessment Requirements & Guidelines

NEED for Eco – Label

- “Environmental claim validation” based on one criteria only
- From **environmental claim (mono variable)** to the Eco labelling (many environmental aspects) the attention must be paid to the **product life cycle**
- A selection of environmental criteria does not mean the conduction of a complete LCA according to ISO 14025 and ISO 14040

Life cycle thinking and approach

- It is an endeavour **to infuse conscious choosing** of raw material while conceptualizing product or built form.
- It is to consider a **holistic picture of an entire product or activity system**

Mining

How is the ecosystem impacted when limestone is mined?



Manufacturing

how is the ecosystem impacted
when cement is made?



Building

how is the ecosystem impacted
when a building is built?



Waste disposal

What happens to ecosystem
when a building is broken and disposed?



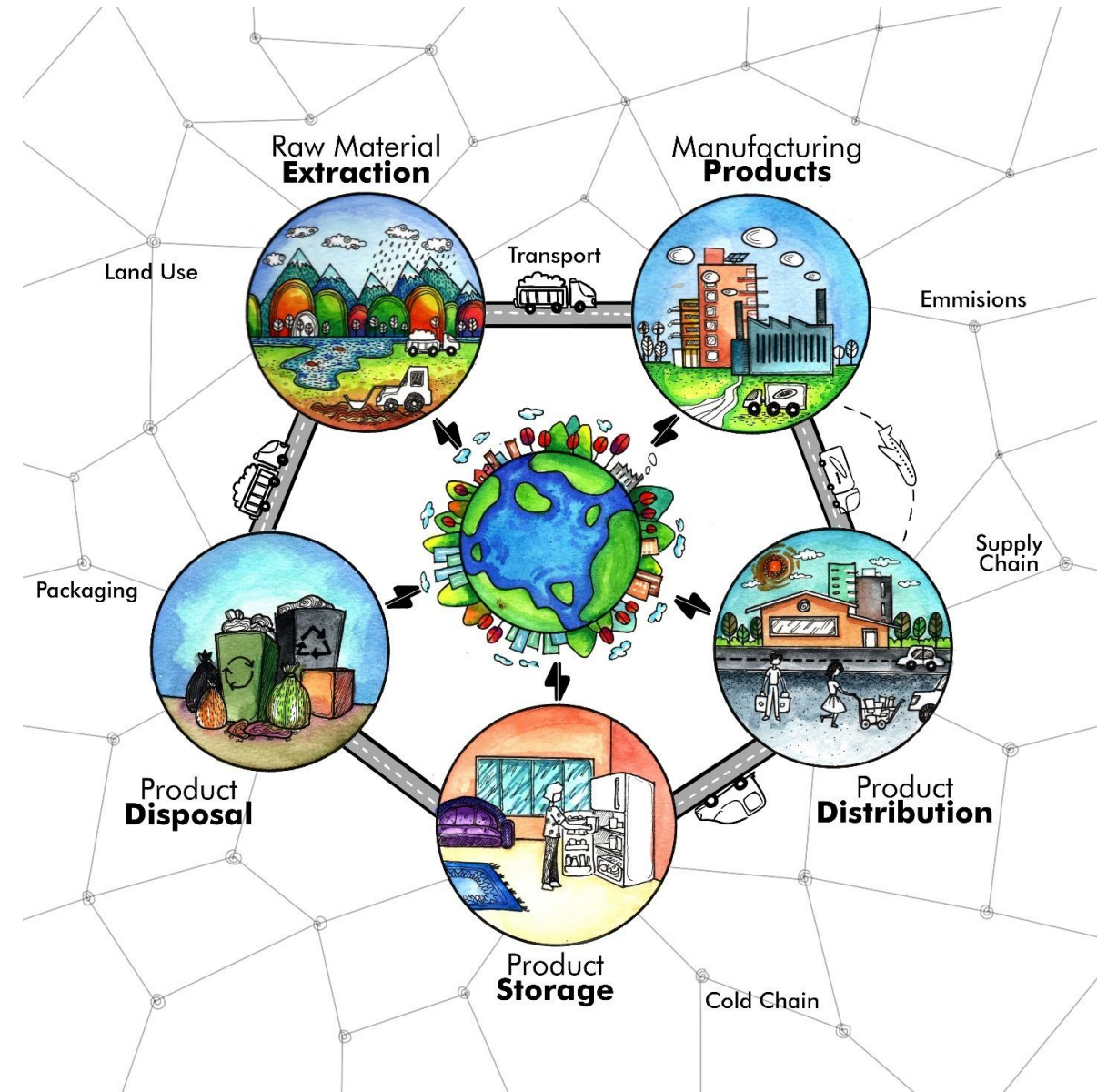
Product LCA

It is a tool used to identify the **net impacts of a product's** life cycle

LCA can be used for -

- Pollution prevention planning
- Green engineering and design
- Compliance with environmental standards
- Differentiate products based on accepted sustainability criteria.

The International Standards Organization (ISO) has codified LCA procedures in ISO 14040.



Building LCA



Raw materials



construction of the building



Transport of materials to the construction site



operation of the building



periodic refurbishment and replacement of materials

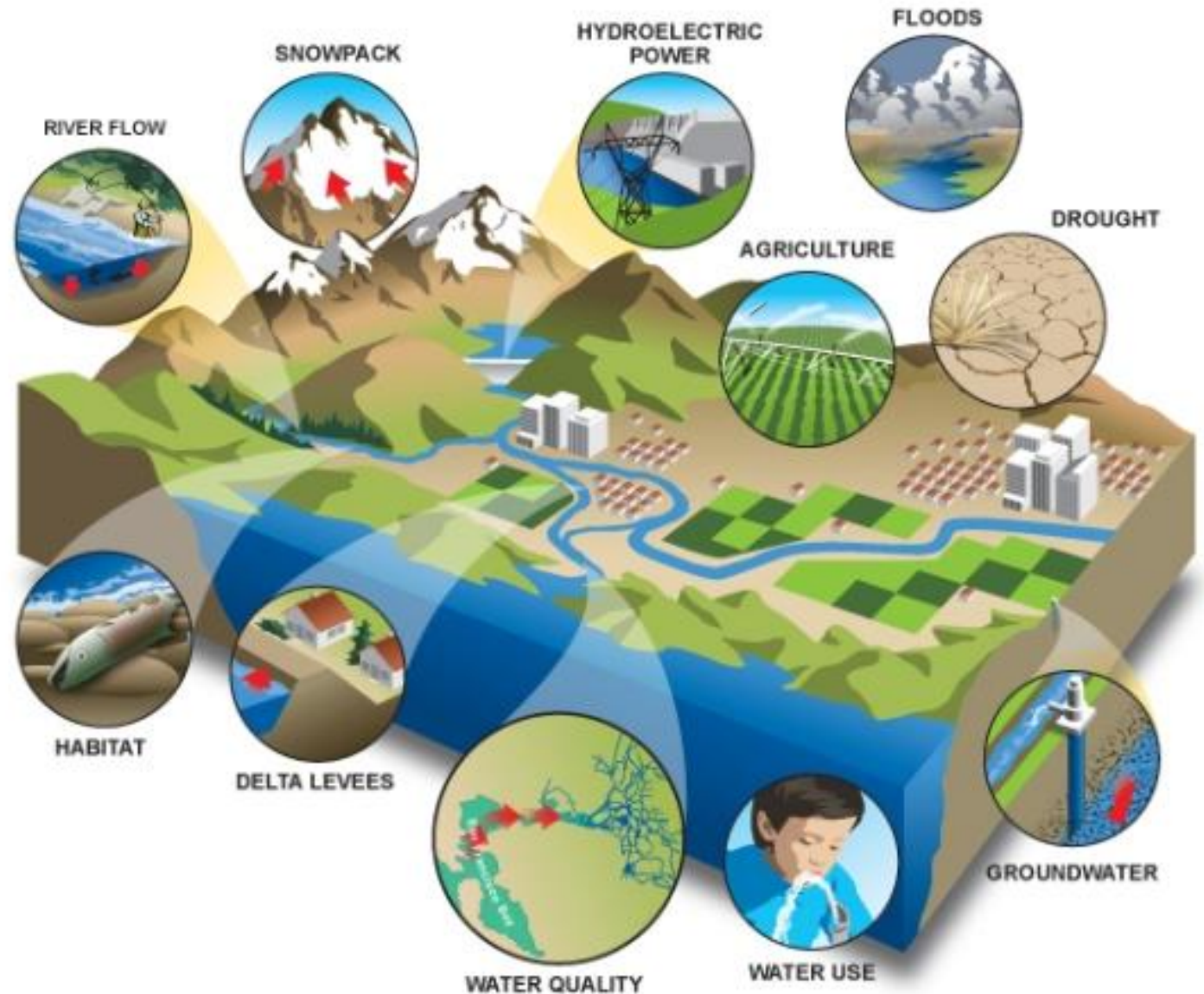


end-of-life disposal of the building materials.



Impact categories

- Climate change
- Acidification
- Eutrophication
- Photochemical smog
- Human toxicity
- Eco toxicity
- Water resource depletion
- Mineral resource depletion
- Fossil fuel depletion
- Land use/biodiversity
- Soil depletion

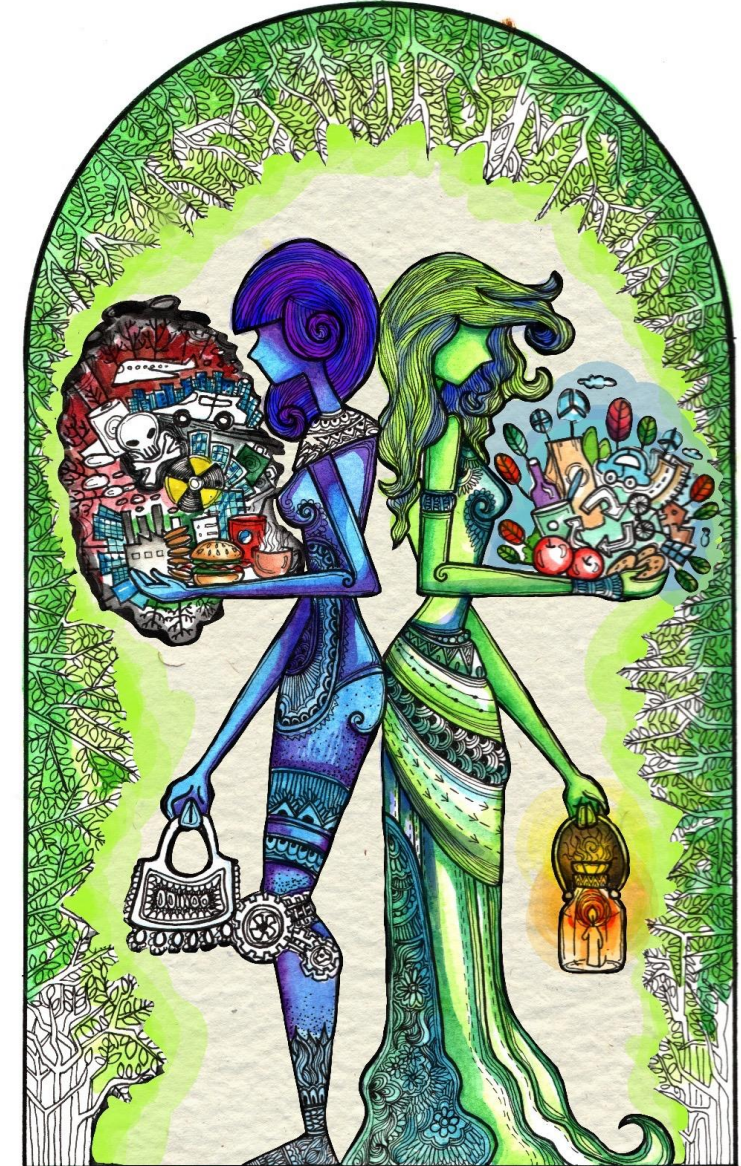


Guiding principle of LCA

Consumers can be guided to choose greener products using concepts of -

- embodied energy
- Carbon Footprint
- Life Cycle analysis.
- Green supply chains
- Materials substitution
- Energy efficiency/renewables
- Education & behaviour
- Pollution prevention

It can be done for Products/ Building/Events.



Why you should be doing LCA?

Cost savings through efficiency

Many of the same activities that reduce life cycle impacts also cut energy and other costs. Assessing and reducing your emissions has a similar impact as an efficiency audit finding the most cost-effective way to operate.

Regulatory compliance

Many climate change and energy policies are including LCA requirements for sectors like renewable energy and biofuels.

Environmental Leadership

LCA can be used to demonstrate product stewardship and corporate responsibility, identify areas to effectively mitigate impacts, and differentiate products through eco-labeling.

Benefits of LCA

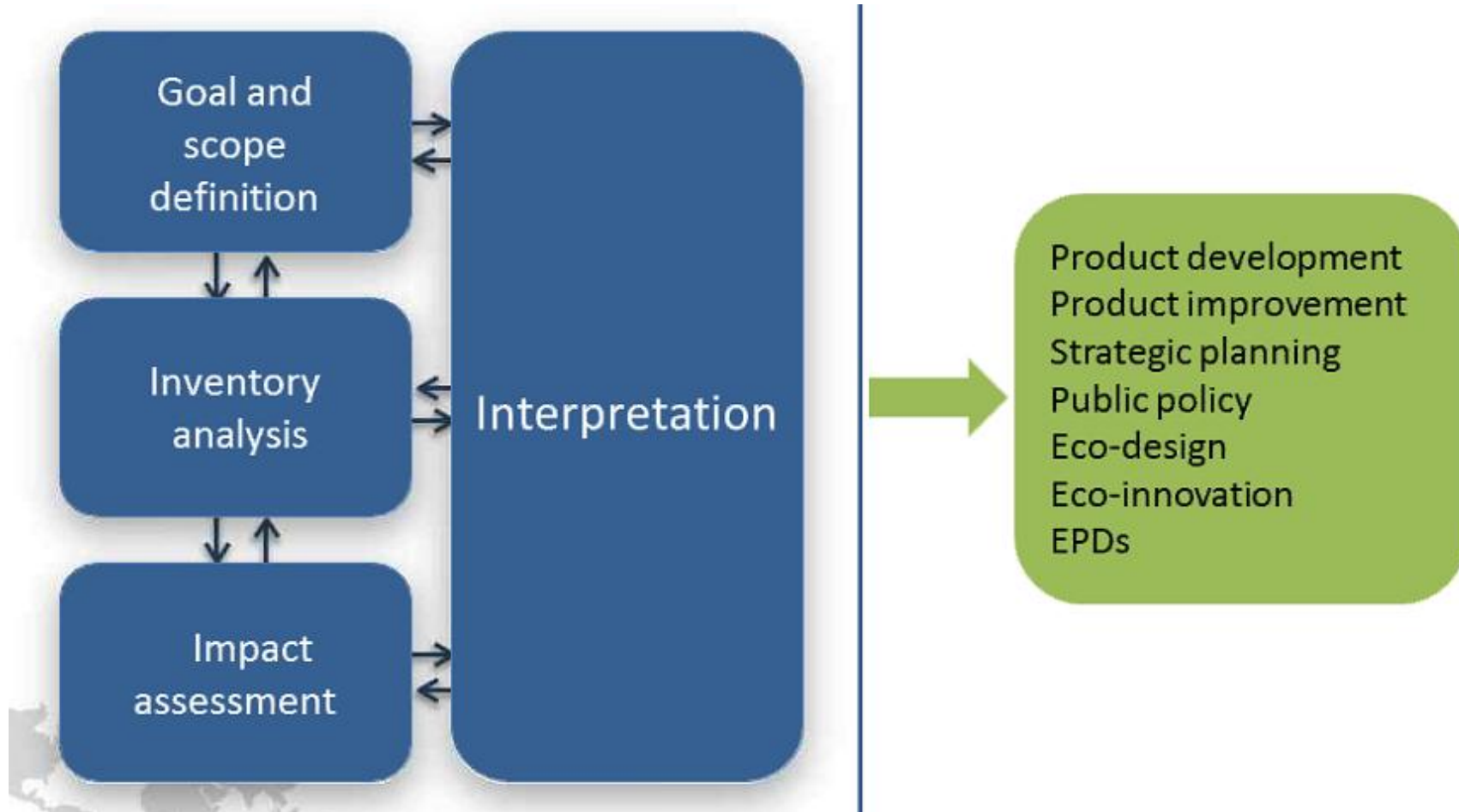
Companies taking leadership roles are able to -

- Creating USP of the product
- Lead the competition
- Define sustainable practices
- Take advantage of an open marketplace
- Retain customers
- Add new customers

They also meet challenges in defining -

- Scope of lca
- Standardizing methods
- Creating results efficiently
- Using models that often lack clarity
- Depth and flexibility

ISO 14025 & 14040



Product Environmental protocol

The PEP has been developed referring to the following:

- A. **Terminology: consistent with ISO 14020 and ISO 14040 series of standards and specifications;**
- B. **Preparation process: consistent with ISO 14.024 and ISO 14.025**
- C. **Eco-labelling system: consistent with ISO 14024 requirements**
- D. **EPD (Environmental Product Declaration): referred to the Product Category Rules UN CPC 375 dated 2013-02-12 – Concrete**

Meaningful standards for Manufacturers –

- **Quantify the environmental impacts**
- **Standardize the information** disclosed in the **Environmental Claim**
- **Track** and reduce the environmental impact of the **operations and products**
- **Enable** environmental impacts to be used as **additional performance metrics** for concrete
- **Align the information** with the requirements of the building **certification schemes**
- **Facilitate** the preparation of a **Sustainability Reporting** according to the Guidelines GRI 3.1

Data Declaration

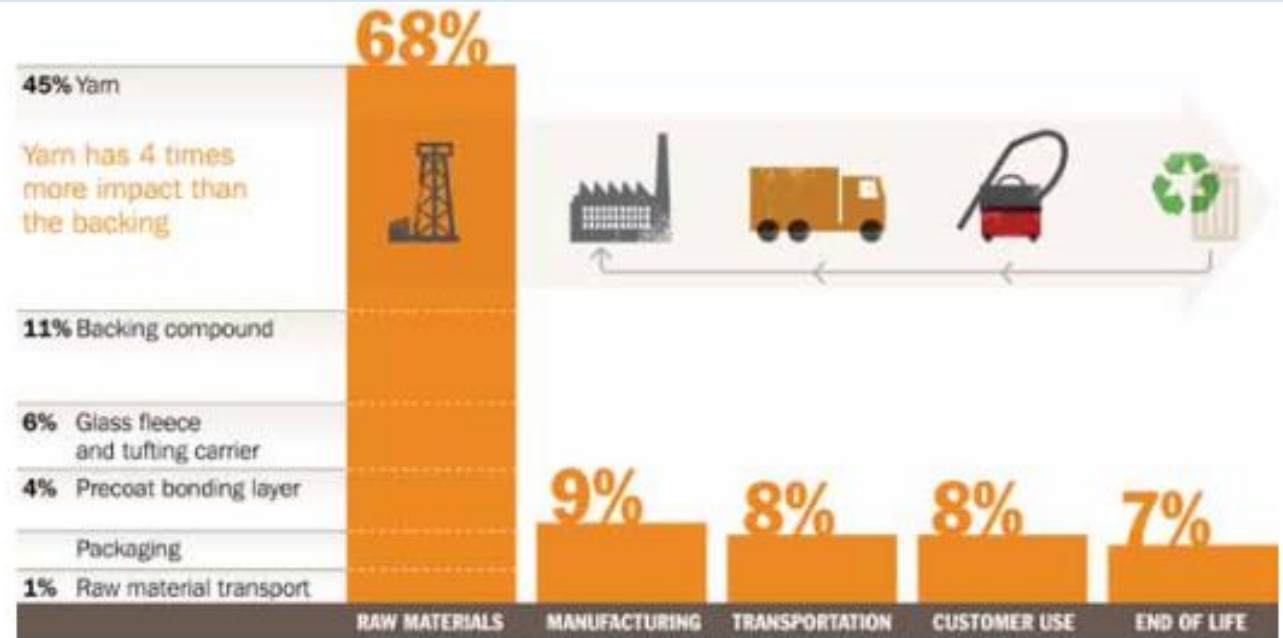
- Company Policy in terms of Energy Efficiency / Water Conservation/ Renewable energy/ waste management
- 1 year of monitored data in terms of - Input material/ Water/ Energy/Waste generated
- Leadership and Strategy
- Employee Involvement & Capacity Building
- Monitoring & Management Systems
- Supply chains
- Education & behaviour
- Pollution prevention

Business case

A leading carpet tile manufacturer in the United States conducted LCA to be able to communicate the benefits of their product to consumers and also be able to identify opportunities for improvement. Many companies claim to be organic, natural, carbon positive, bio-degradable, etc but there were no companies who were able to communicate the environmental impact of a carpet tile throughout its lifecycle.

The above LCA results helped the company determine three ways of improving the environmental impact of a carpet tile:

- Reduce the amount of yarn
- Increase yarn recycled content
- Create a smarter yarn



Source: Green Company Rating System, Version 1 - Reference Guide
June 2015

Limitations to LCA & EPD

- Understanding the larger impact of climate change due to building industry
- Adopting & implementing various Building Rating systems
- India Specific data set for an Life cycle study
- Lack of Data monitoring systems for various process
- Long term planning for Environmental impacts
- Willingness to share data by manufacturers

Thank you!

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