



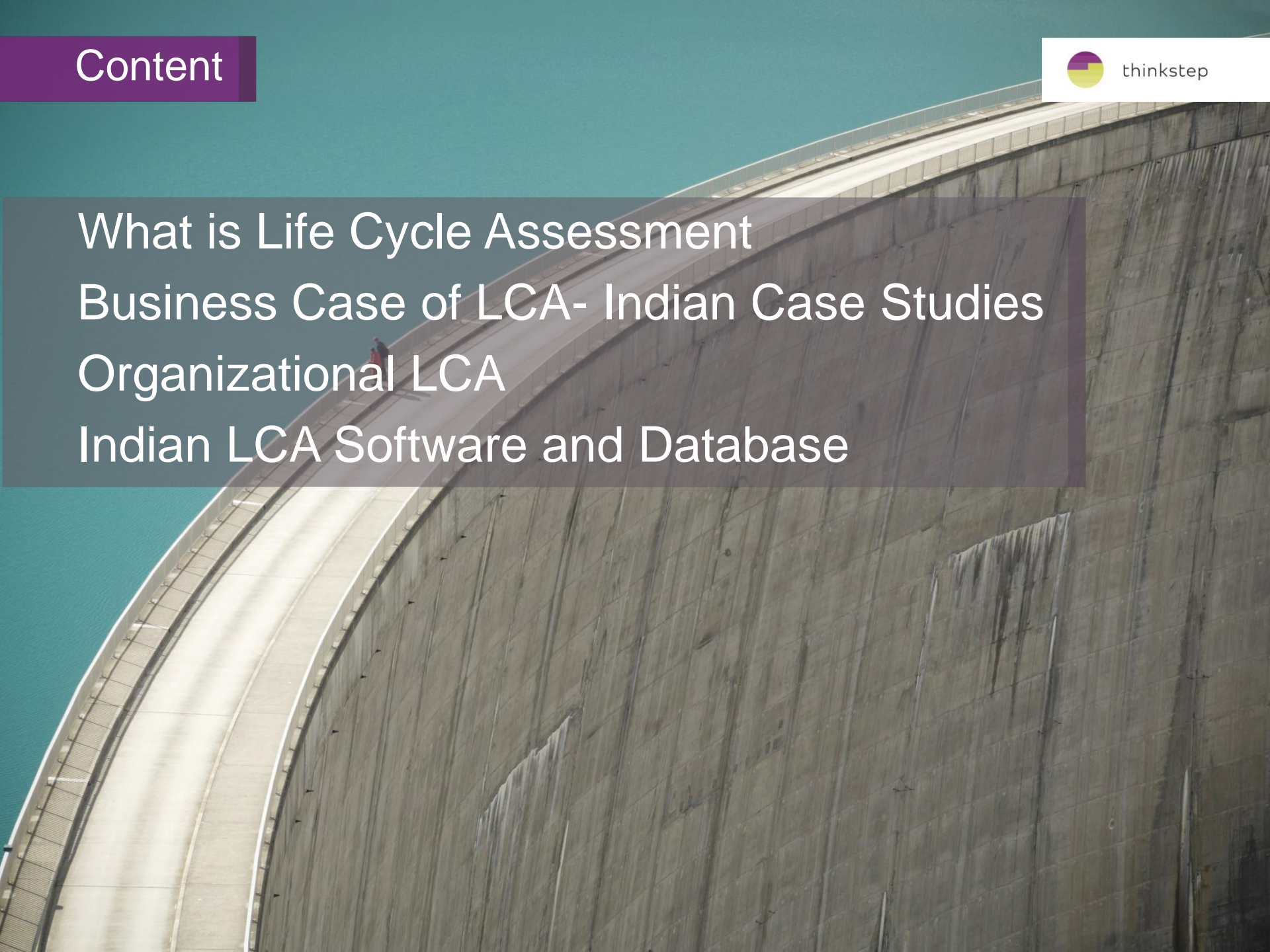
thinkstep



Business Case of Life Cycle Assessment

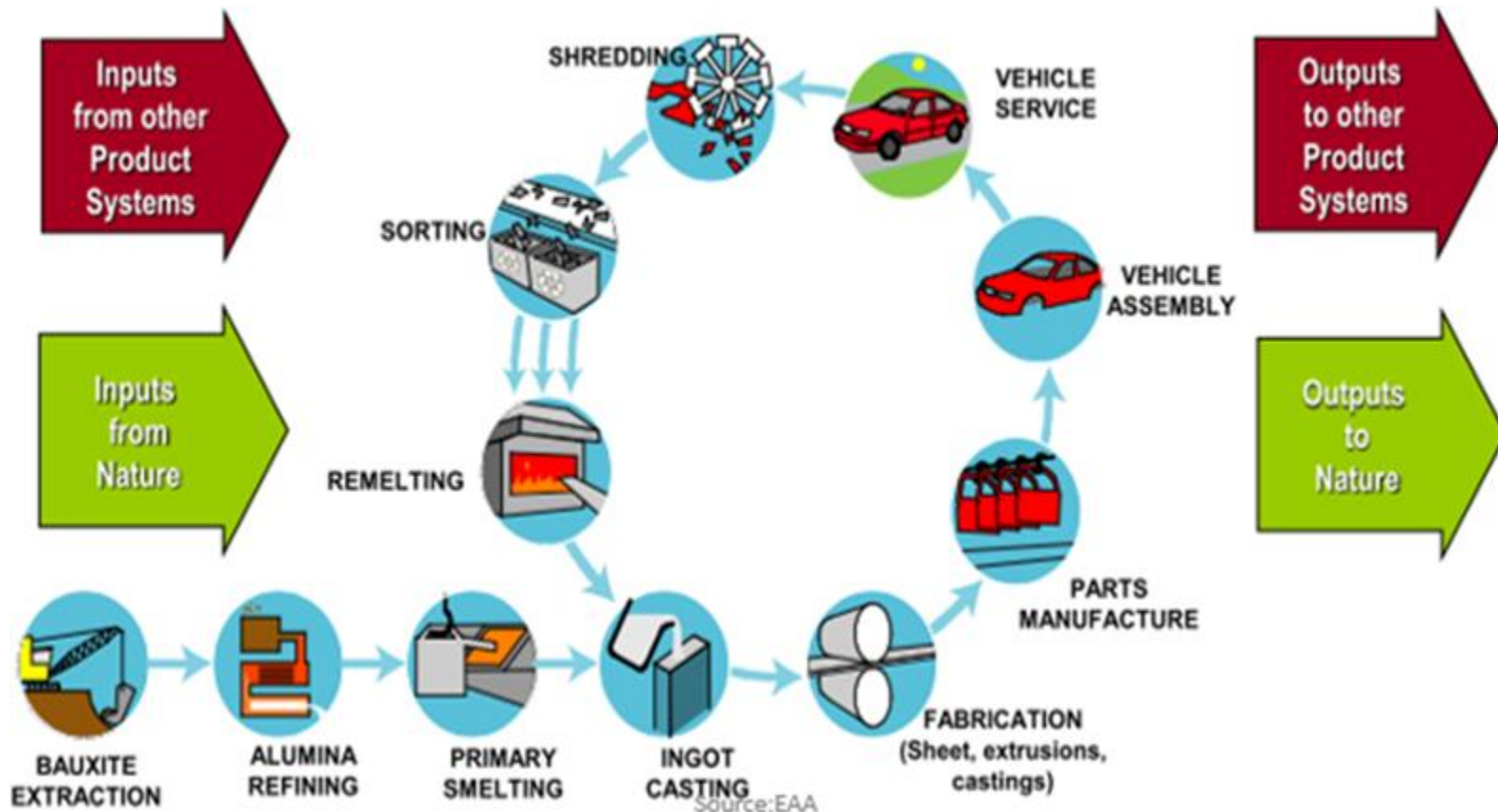
GreenCo Hyderabad 2016

Ritesh Agrawal on behalf of Mr. Harald Florin
thinkstep Sustainability Solutions Pvt. Ltd.

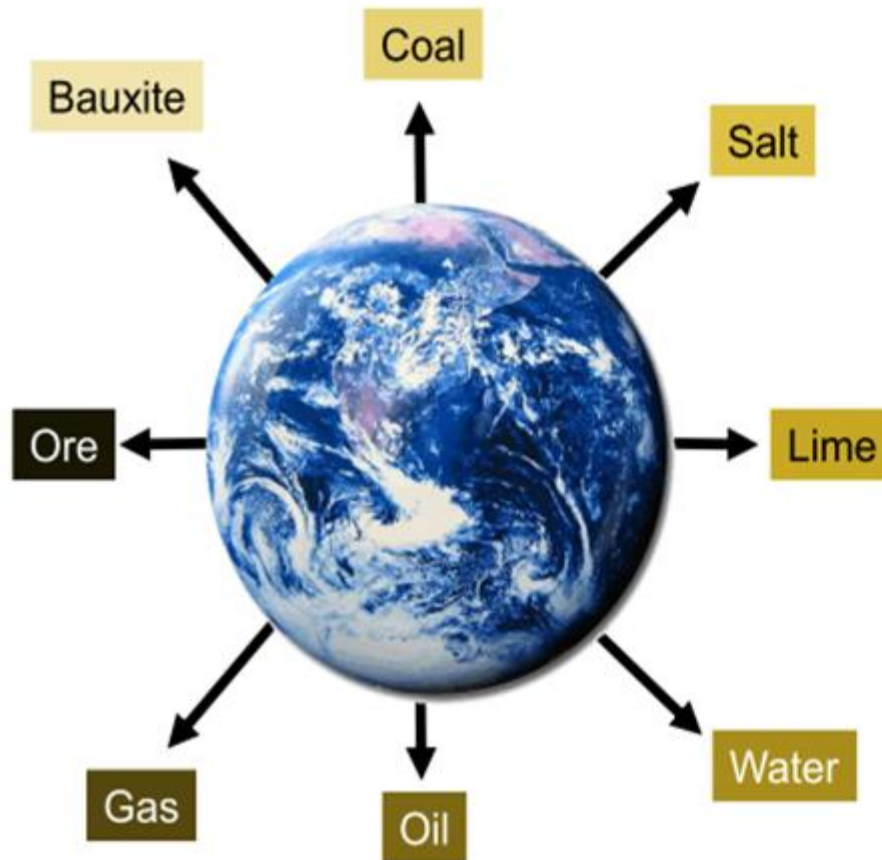


What is Life Cycle Assessment
Business Case of LCA- Indian Case Studies
Organizational LCA
Indian LCA Software and Database

Evaluation of the inputs, outputs and potential environmental impacts of a product throughout its life cycle



What is included in an LCA of Product?



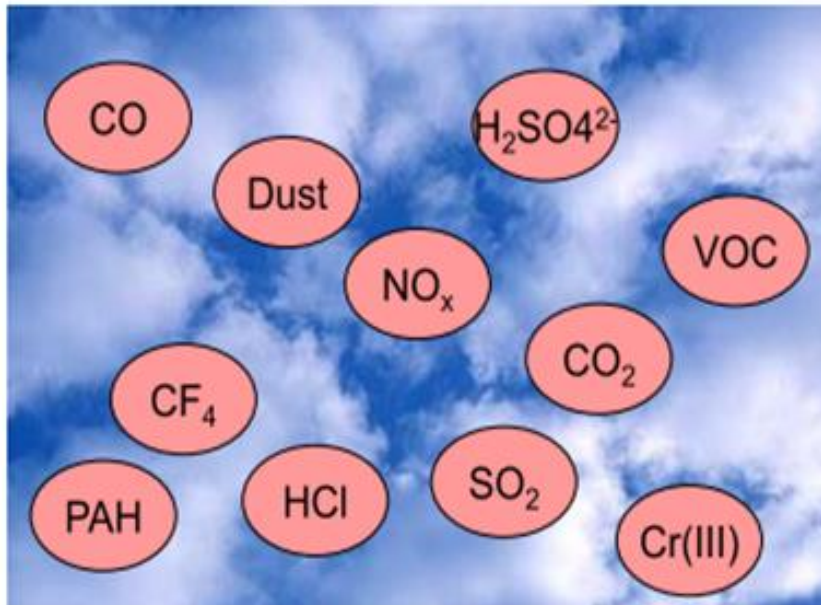
1. An inventory of all resources taken out of the earth's crust

or

taken from other product systems

to produce, use and recycle the specified product

What is included in an LCA of Product?



2. An inventory of all emissions to air, water and soil affecting the environment during production, use and recycling of the specified product

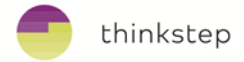
LCA outcome is usually a set of environmental Indicators



In addition to climate change, these indicators help to address the preservation of the natural capital, e.g. bio-diversity, water, air, land, etc.

- Value Chain Environmental Assessment
- Hotspot Identification across various Life Cycle Phases
- GHG, Energy, Water, ODS, Toxicity, Waste Disposal, Resources
- Product innovation and Design for Environment Scenario Analysis for Future Proofing
- Customer Demand for Value Chain Traceability
- Certification Schemes like Green Buildings, GreenCo, BIFMA
- SEBI Business Responsibility Reporting

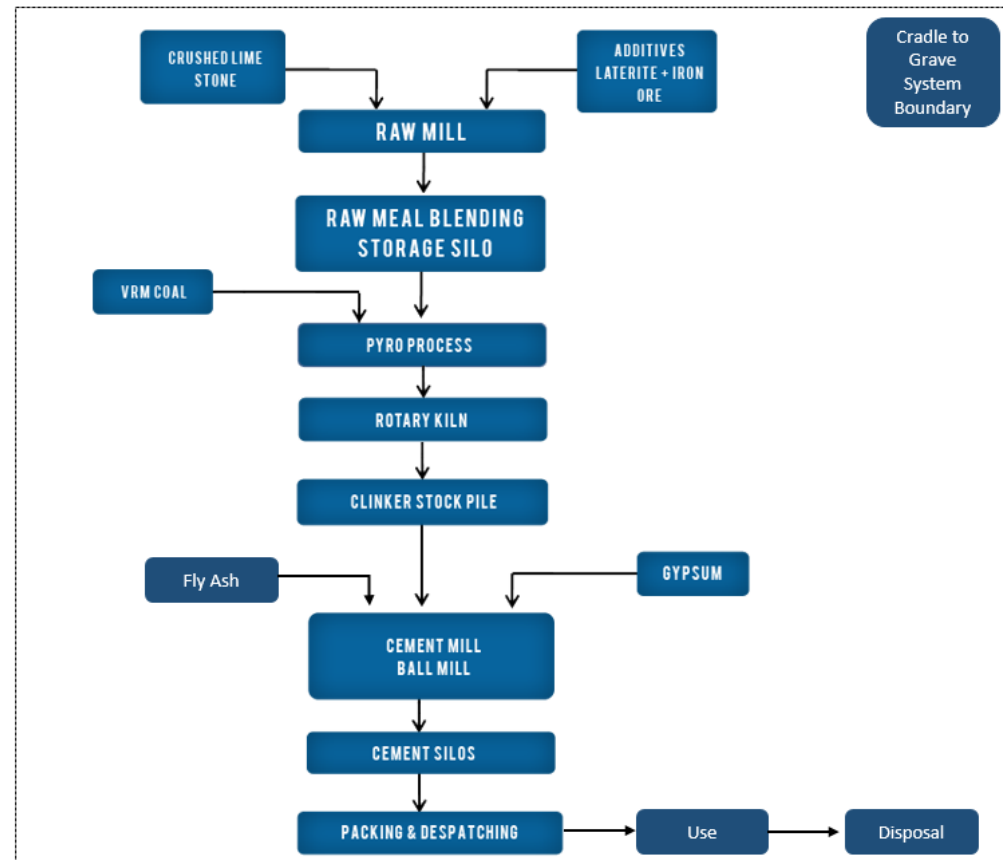
Tata Steel: Marketing Tool and Comparisons



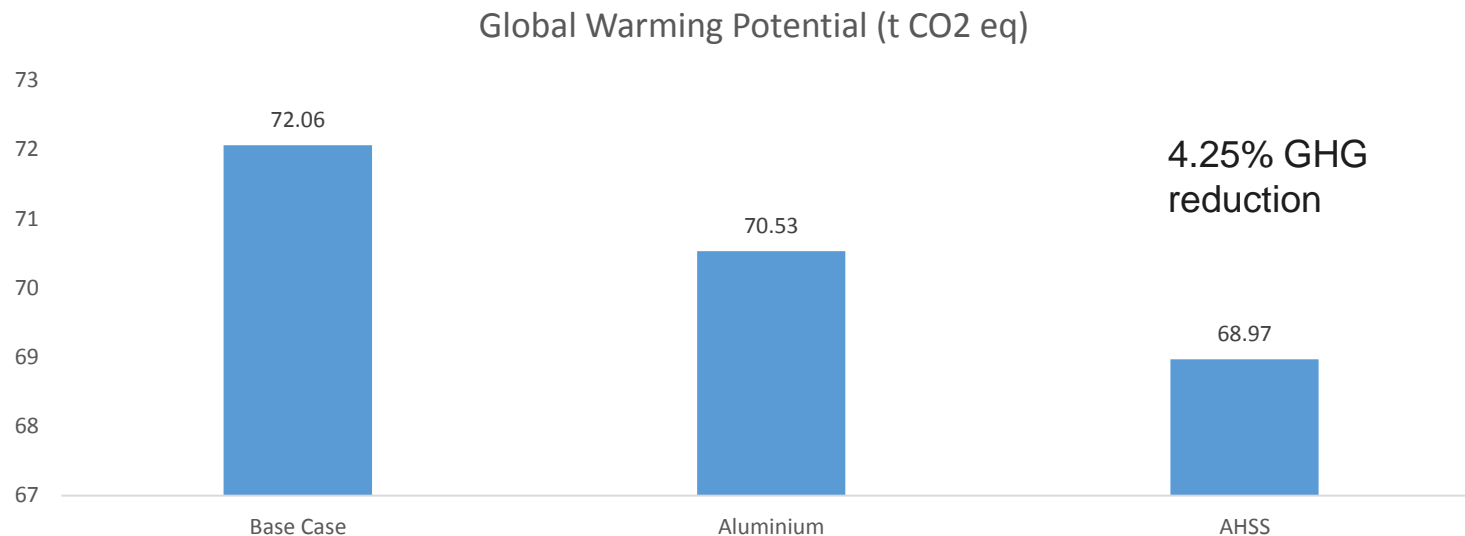
- Understand how steel performs compared to other materials such as aluminum, concrete, timber and carbon fibre by demonstrating its environmental attributes.
- As a marketing tool to support its supply chains. Tata Steel's sustainability team provides technical support and information to the sales and marketing teams
- Support the decision making in product development
- Helps in identifying hot spots in the steel value chain



- LCA of products across various plants
- Assess the environmental profile of Cement
- Identify the hotspots in the value chain of the product
- Develop EPD for customer communication as well as green building certification requirements.
- Product stewardship commitment of the company
- SEBI's mandate on Business Responsibility Reporting.

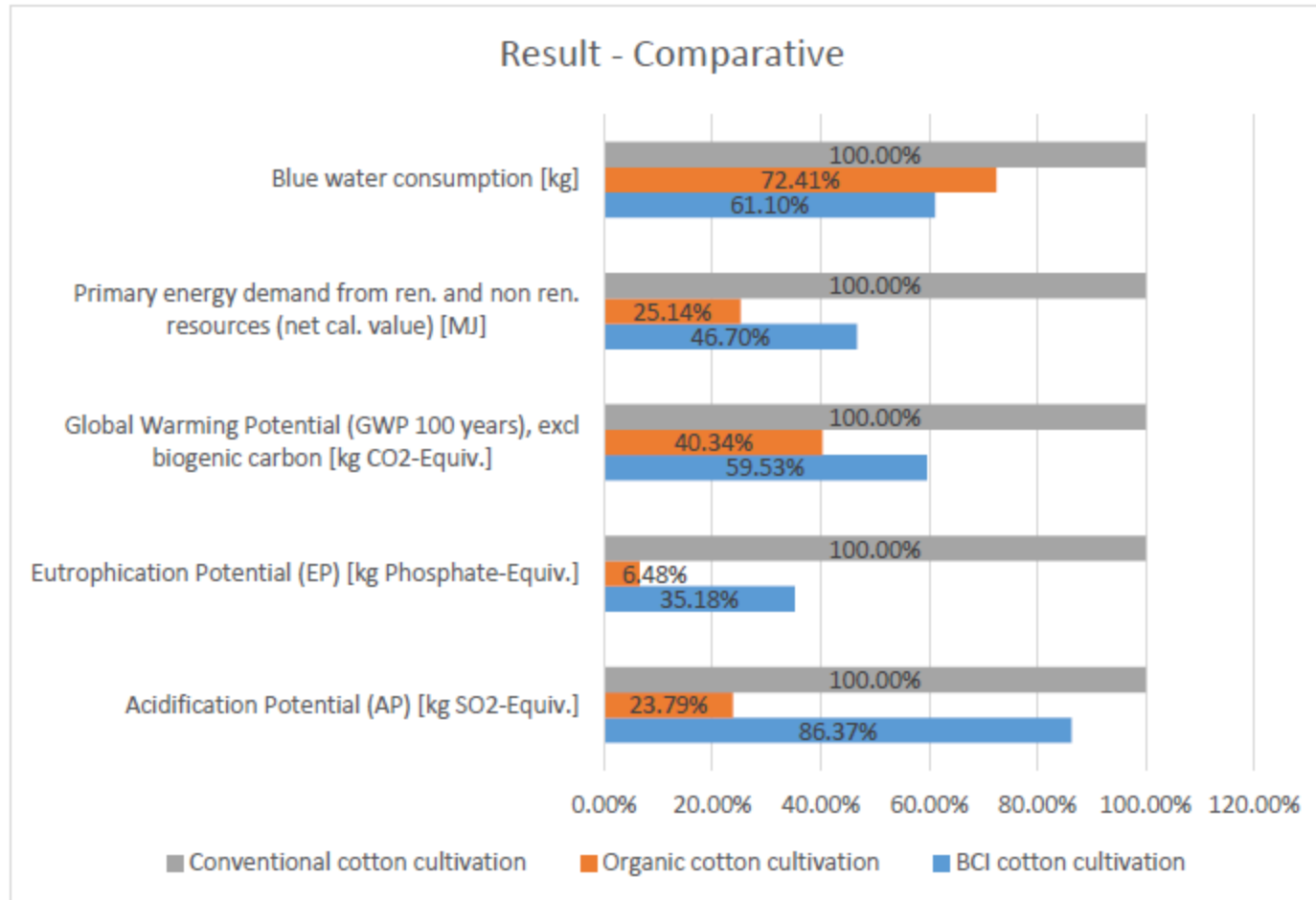


Weight of Truck Body-In-White (BIW), Closures (Doors, Hood, Tailgate) And Truck Bed in Kilograms		
Baseline Conventional Steel	Aluminium	Advanced High-Strength Steel
686 kg	446 kg	515 kg
	-35% lighter	-25% lighter



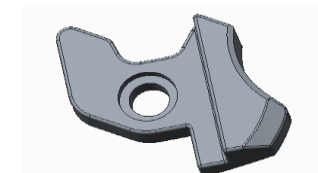
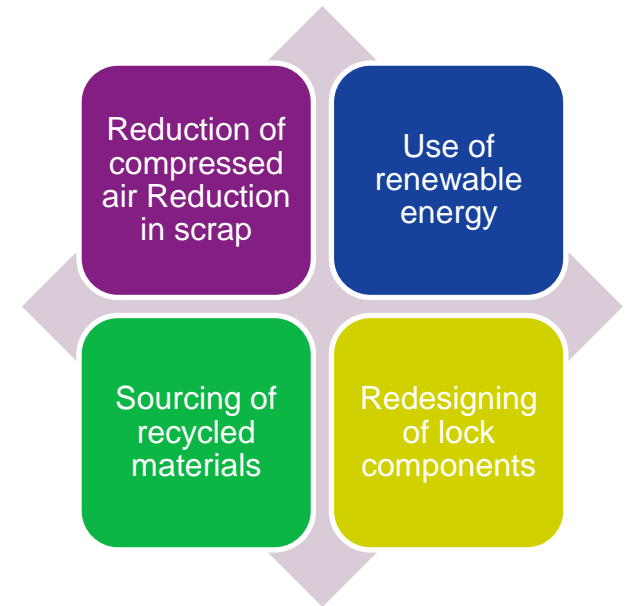
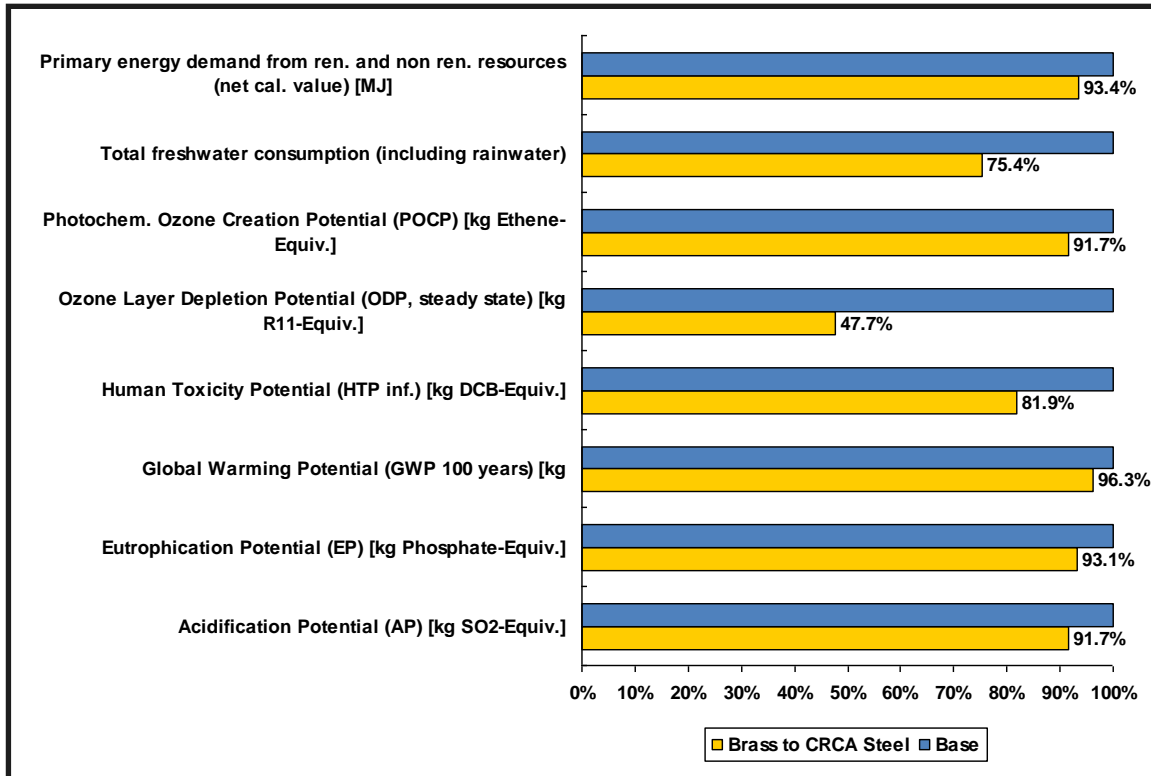
Steel replacement by Advanced High Strength Steel (AHSS)

Arvind Limited: Organic vs BCI vs Conventional



Evaluation of Environmental Benefits from BCI/Organic Cotton against Conventional Cotton Production using Life Cycle Assessment Framework

Godrej Locks: Alternative Materials



Policy on Life-cycle Sustainability

Philosophy

ITC endeavours to embed the principles of sustainability, as far as practicable, into the various stages of product or service life-cycle including procurement of raw material / service, manufacturing of product or delivery of service, transportation of raw materials and finished goods, and disposal by consumers.

Policy

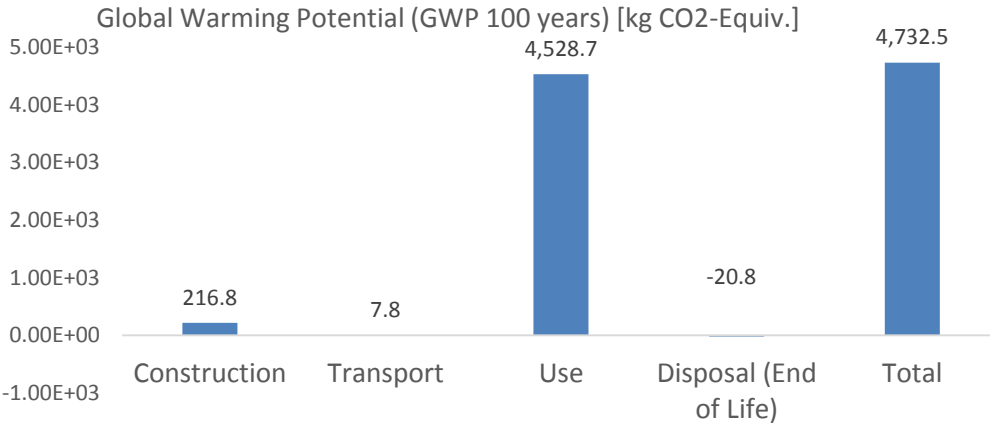
It is ITC's policy:

1. To ensure that its products and services comply with all applicable statutes and regulations ;
2. To work towards safe and optimal resource use over the life-cycle of its products and services, including recycling of resources wherever possible ;
3. To work towards ensuring that all goods and services are procured, manufactured and delivered through a system embedding its policies in terms of labour practices, human rights, ethics, occupational health, safety and environment ;
4. To work towards sourcing significant raw materials, products and services in a manner so as to continuously improve the balance between social, economic and environmental impacts ;
5. To work towards building capacity such that all the value chain partners, namely the third party manufacturers (TPMs), service providers including transporters and suppliers of significant raw materials, are sensitised and empowered to fulfil their roles and responsibilities towards sustainability ;
6. To raise the awareness of consumers on responsible disposal of products and packaging ;
7. To continue to progressively factor in relevant social and environmental considerations during the process of development of products / services; To continue to recognise and respect the rights of people who may be owners of traditional knowledge, and other forms of intellectual property, wherever relevant.

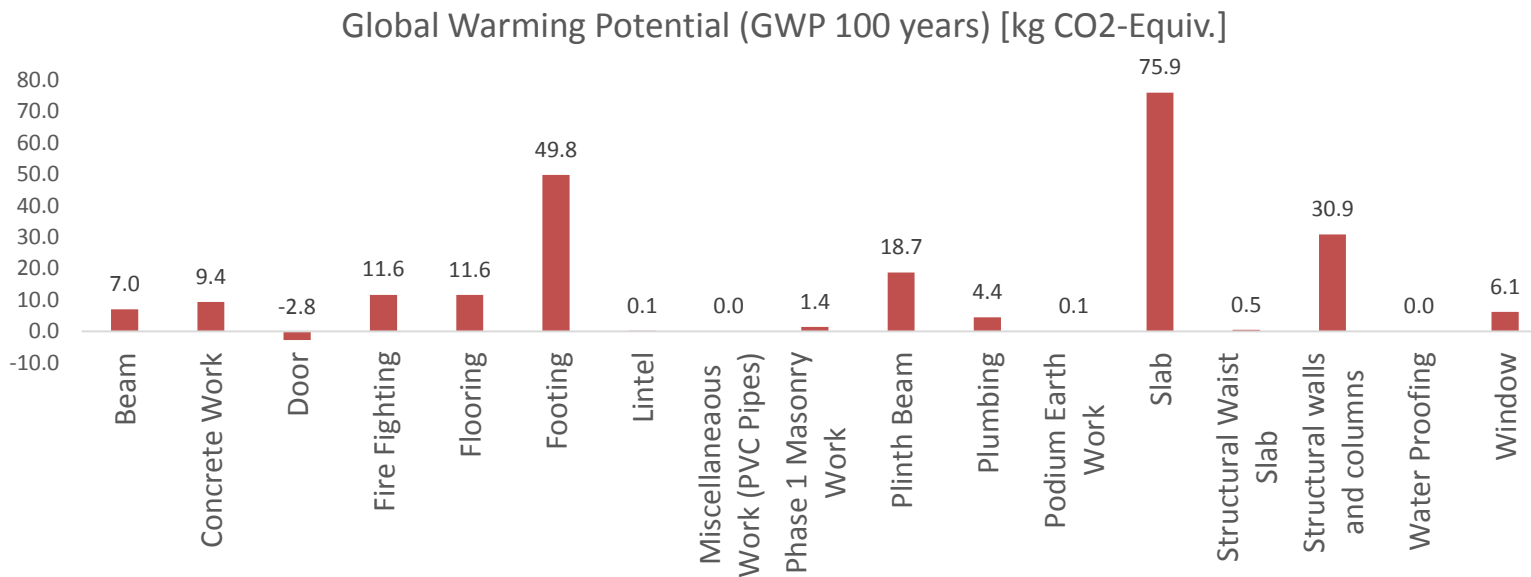
Expectations:

- Development of India-specific databases
- Need for a drive to encourage such activities
 - Industrial consortiums
 - Regulatory or voluntary framework/ guidelines
- Incentives for supply chain partners
 - Findings that directly can be translated into cost-savings

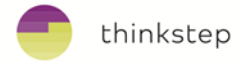
Building LCA: Smart and Green Buildings



- Substitution of lighting electricity in use phase by solar
- Reduction of 10% electricity usage in use phase
- Substitution of OPC cement with PSC cement
- Windows- glass embedded with Solar cells
- Green roofs



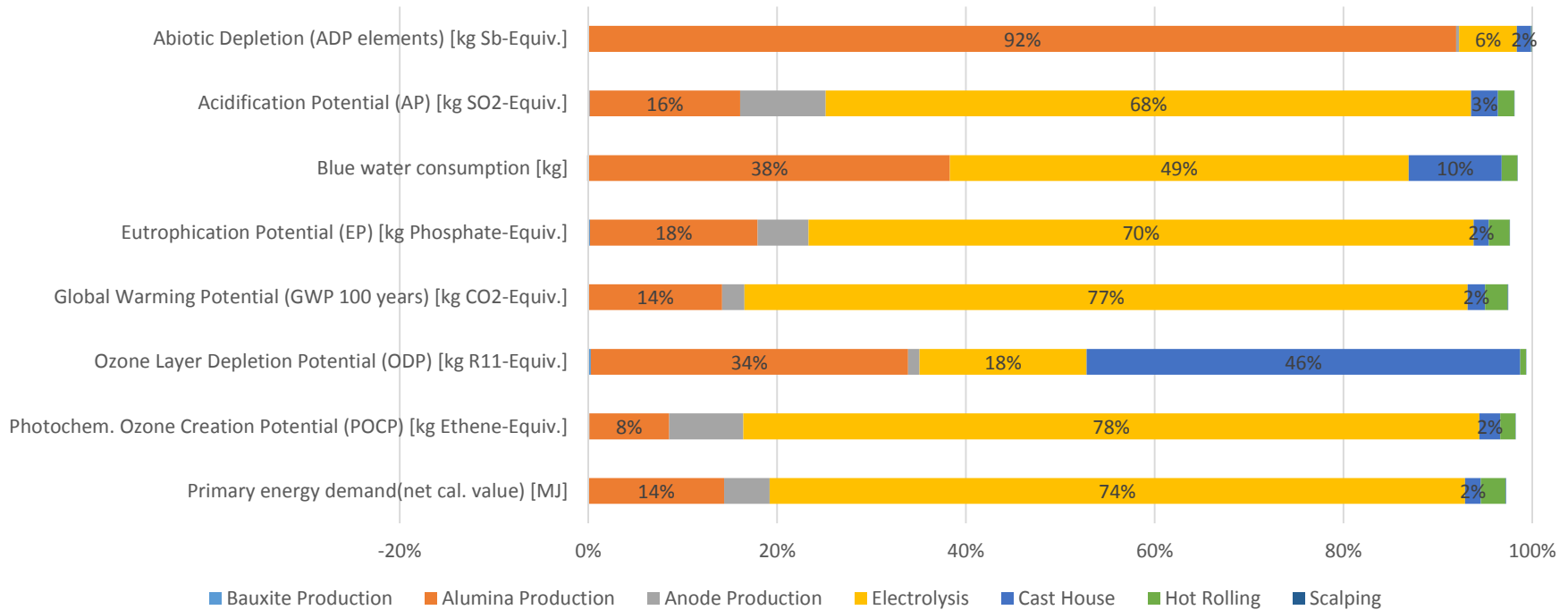
Welspun: Carpet BCF Yarn for Recyclability



Life Cycle Impact Categories	Recycled Polyester BCF yarn	Virgin Polyester BCF yarn	Benchmark
Abiotic Depletion (ADP fossil) [MJ]	100.0%	151.7%	67.3%
Acidification Potential (AP) [kg SO ₂ -Eq.]	100.0%	112.5%	62.5%
Eutrophication Potential (EP) [kg Phosphate-Eq.]	100.0%	110.1%	69.2%
Global Warming Potential (GWP 100 years) [kg CO ₂ -Eq.]	100.0%	110.7%	68.3%
Photochem. Ozone Creation Potential (POCP) [kg Ethene-Eq.]	100.0%	122.4%	61.9%
Primary energy demand [MJ]	100.0%	144.5%	64.6%
Blue water consumption [kg]	100.0%	2397.2%	91.7%

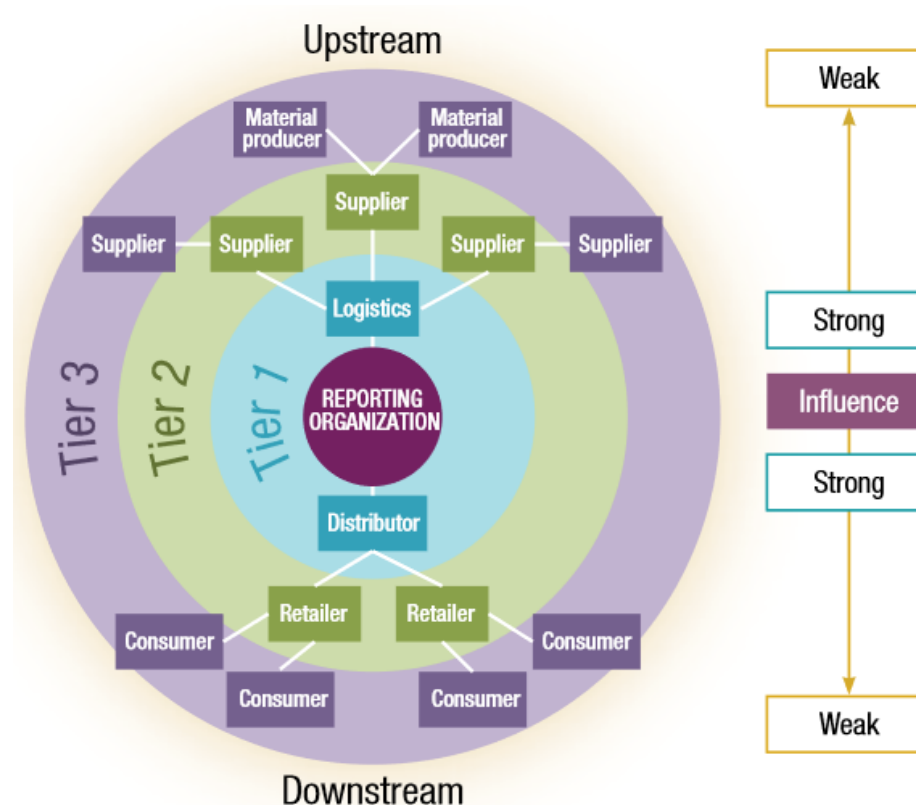


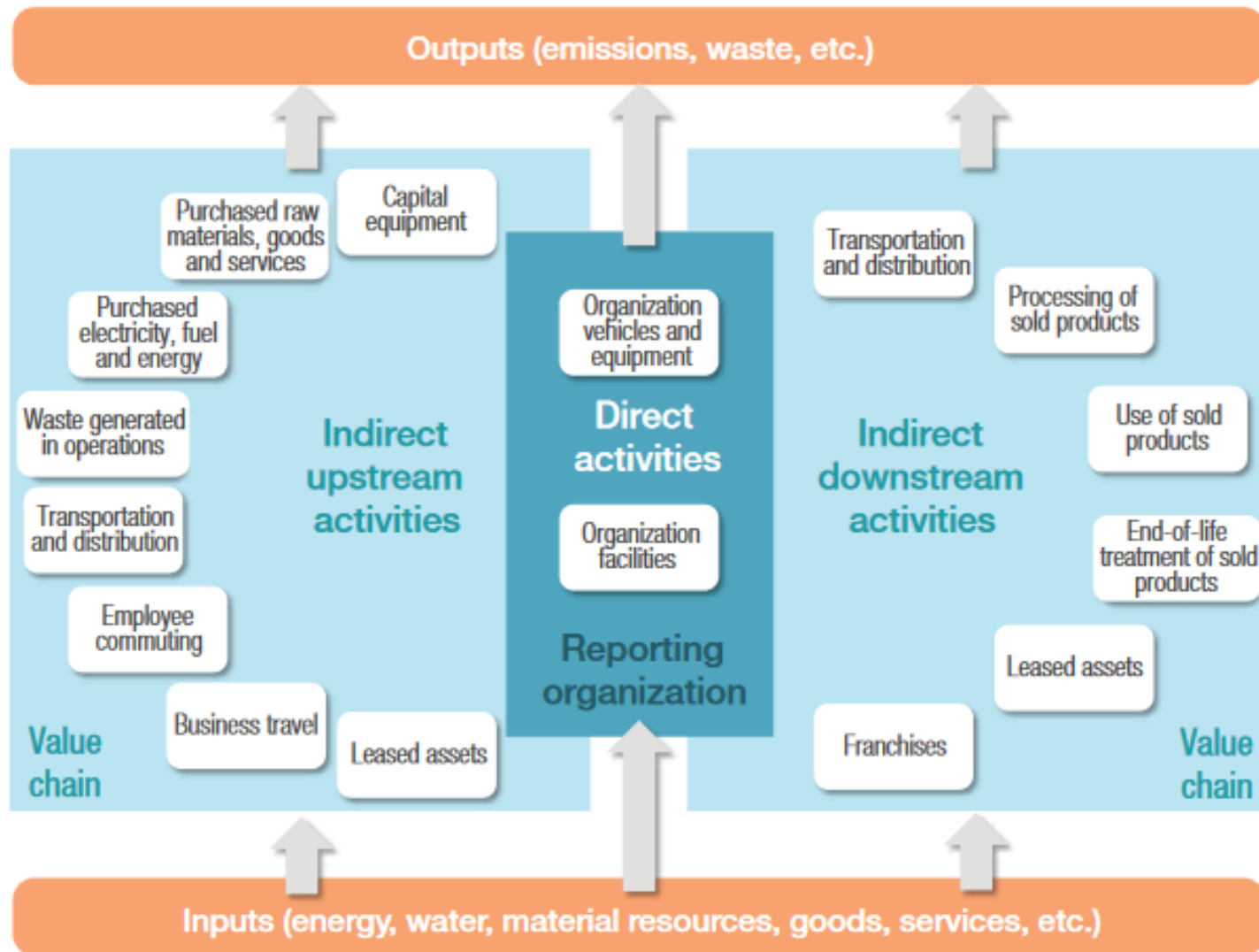
Life Cycle Impact Categories per tonne of Aluminium Cold Rolled Strips



Hindalco LCA Profile benchmarked with EU and US Average Profile

- O-LCA is compilation and evaluation of the inputs, outputs and potential environmental impacts of the activities associated with the organization adopting a life cycle perspective
- Entire set of goods and services provided by the organization are assessed at the same time.





- First Indian specific LCI data available in the market.
- Over 150 India specific datasets.
- Full system level data for:
 - Energy grid mix
 - Transportation
 - Metal and Mining
 - Plastics
 - Construction
 - Chemicals
 - End of Life
- Base approach on “industry practices” rather than on “academic method”
- Preserve the database quality by maintenance, documentation and reviews
- Grow the content according to emerging standards and user demand

LCA Database- What the Experts say?

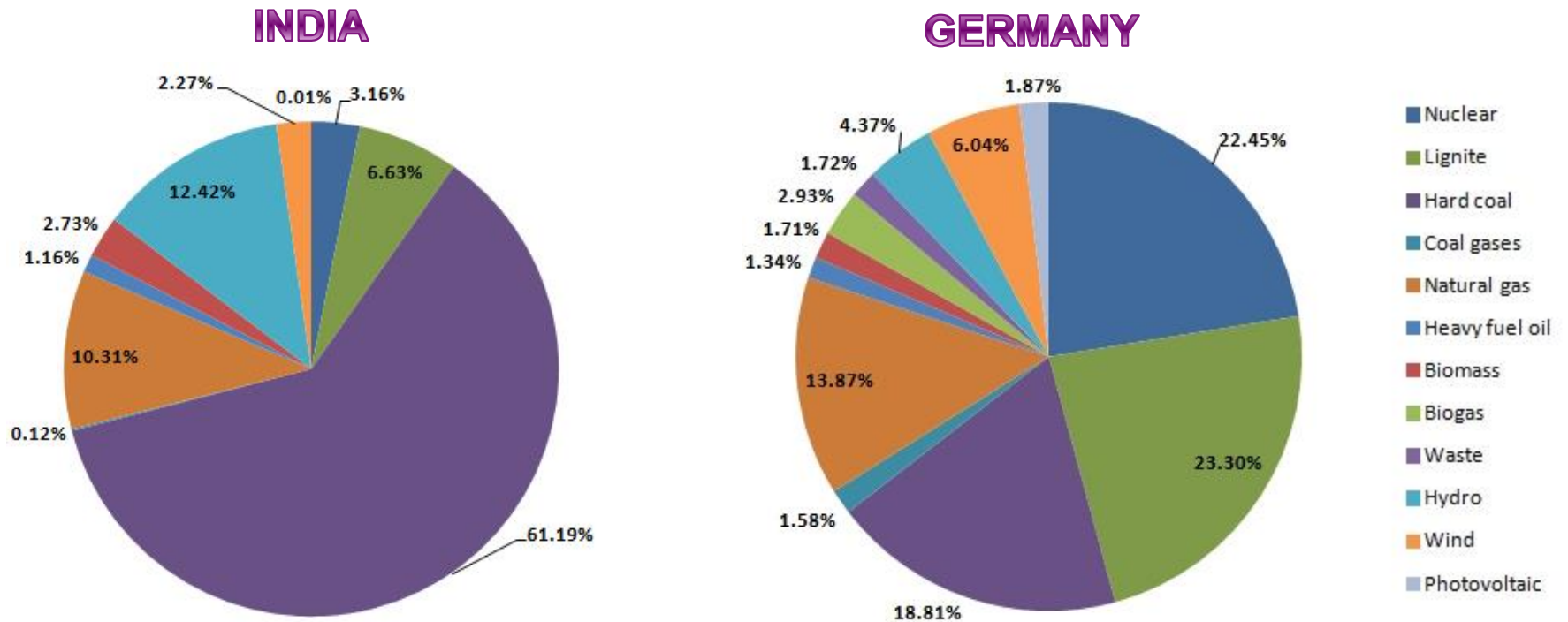
“In the past, we could not benchmark our products’ performance with international products, due to the lack of regional Indian data. The GaBi Database for India delivers reliable data that cements the credibility of our LCA results. We can remove the scepticism about LCA results and take quicker action on the hot spots shown by the LCA.”

Ashwini Deodeshmukh, AGM, Green Initiative Cell at Godrej Interio

Over the years, ITC has carried out several LCA studies of its products which have helped identify opportunities for resource conservation and also introduce environmental considerations into the product / service design stage. The major challenge in carrying out LCA studies is the absence of India specific databases. Such databases will result in more meaningful assessments which in turn, will better inform, decisions at the organizational level and policies at the regulatory level”

Sanjib Bezbaroa, EVP & Head, Corporate EHS, ITC Limited

Indian GaBi LCA Database



Indian Recipe for national acceptance, industry support and international fit



**Thank you For Your Kind
Attention**

thinkstep Sustainability Solutions Pvt Limited, a subsidiary of
thinkstep AG Germany
Andheri Kurla Road, Andheri East,
Mumbai, India 400059
Phone +91 22 42667693
Website: www.thinkstep.com