LCA as an Innovation Tool

GreenCo Summit, 2019

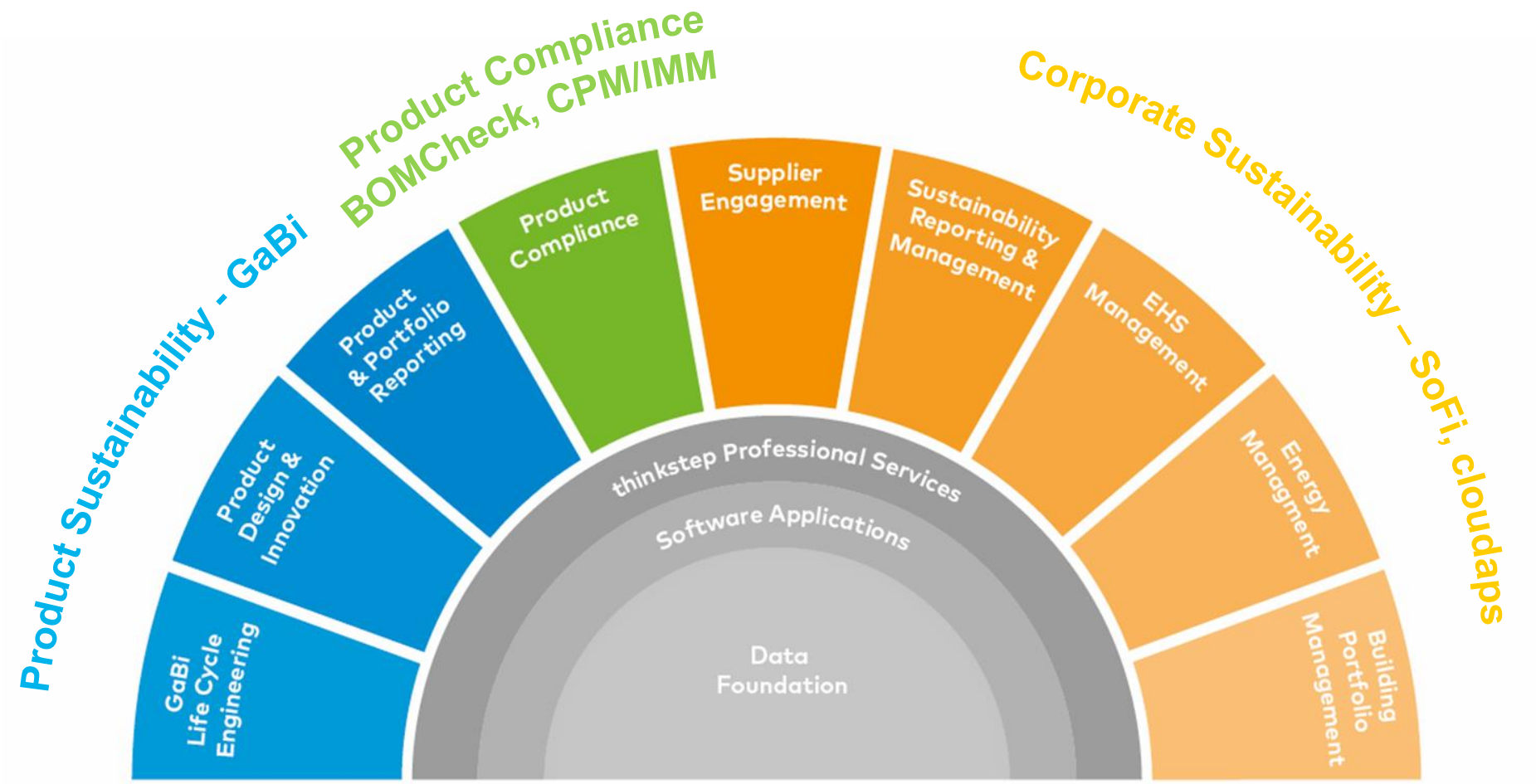
July 5, New Delhi, India

Dr. Rajesh Kumar Singh

Managing Director,
thinkstep India and SEA

July 5, 2019

About thinkstep



India- Selective Customers

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Product Sustainability Drivers

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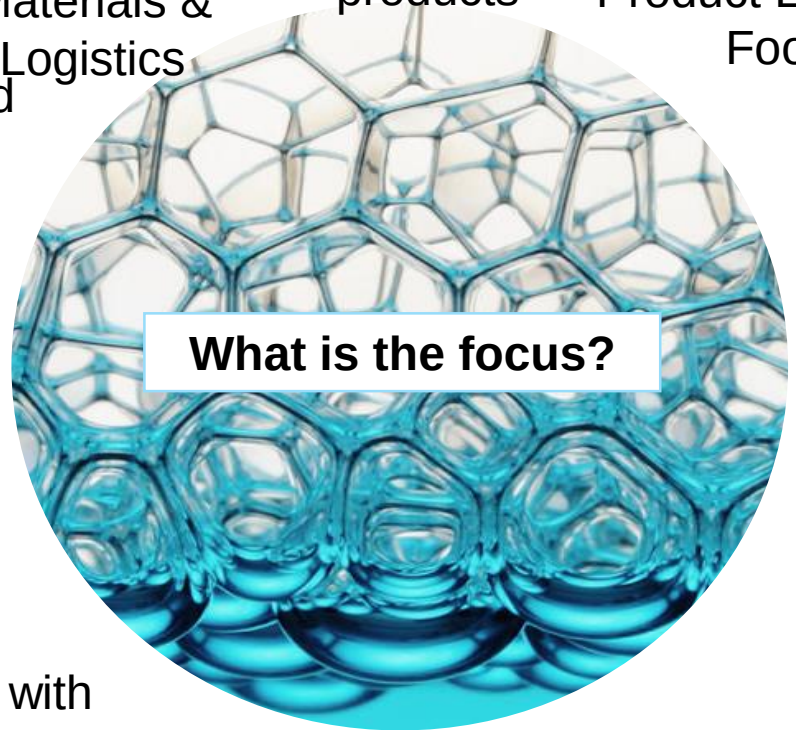
Hot-spots in Life cycle of products

Sustainable Materials & Logistics

Product Environment Footprint

Formulation and Ingredients

Circular economy, EPR, ELV



Packaging design and materials

Benchmarking with peers

Sustainable Product Portfolio

CII-Greenco, Greenpro, ISO 14001, CDP, DJSI, BRR, GRI

Compliance with legislation

Responsible Care and customer demand

EPD and Communication

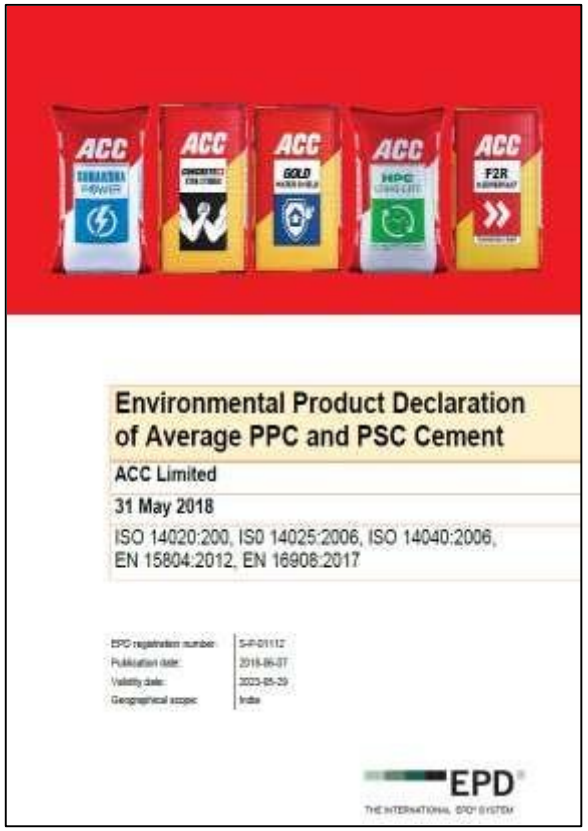
Case Study – M&M Limited – Auto Division

LCA Approach for GreenCo

- Product bill of materials (BOM)
- Primary data collection- In-house manufacturing processes and utilities.
- Use phase data based test data
- ELV- Standard recycling norms based on material composition of the vehicle.
- Maintenance phase- Guidelines provided in user manual.
- LCA model was created using the GaBi DfX and GaBi professional Software for life cycle engineering, developed by Thinkstep AG.

Case Study: ACC Limited (Cement)

LCA for EPD of Cement and Concrete Products




CERTIFICATE

EPD®
THE INTERNATIONAL EPD® SYSTEM

THIS DOCUMENT IS TO CONFIRM THAT

ACC LIMITED

HAS DEVELOPED, REGISTERED AND PUBLISHED AN EPD FOR

AVERAGE PPC AND PSC CEMENT

WITH REGISTRATION NUMBER S-P-01112 IN THE INTERNATIONAL EPD® SYSTEM (WWW.ENVIRONDEC.COM).

THE EPD HAS BEEN EXAMINED AND APPROVED BY AN INDEPENDENT VERIFIER, DR. HÜDAI KARA, IN ACCORDANCE WITH PCR 2012:01, SUB-PCR CEMENT AND BUILDING LIME AND THE GENERAL PROGRAMME INSTRUCTIONS FOR THE INTERNATIONAL EPD® SYSTEM.

THIS CERTIFICATE IS VALID FROM REGISTRATION (2018-06-07) UNTIL 2023-05-29, OR UNTIL THE EPD IS DEREGISTERED AND NO LONGER PUBLISHED AT WWW.ENVIRONDEC.COM.

SEBASTIAN WELLING, SECRETARIAT OF THE INTERNATIONAL EPD® SYSTEM
STOCKHOLM, SWEDEN 2018-06-08

Dr. Rajesh Singh (Managing Director, thinkstep India and SEA) presenting EPD and EPD Certificate to Mr. Rajiv Kumar (Head Marketing, ACC Limited)

Cement Products: Suraksha Power, Concrete+ Xtra Strong, Gold Water Shield, HPC Long Life, F2R Superfast, Total

RMX Concrete Products: Adhar, Bucketcrete, Colourcrete, Column 4, Coolcrete, Ecocrete, Feathercrete, Fibercrete, Flowcrete, Imprintcrete, Jetsetcrete, Neev, Supercoat, Supercrete, Suraksha, UTWT, Sustainocrete

EPD Administrator in India

Multiple Success Stories

thinkstep

EPD®

THE INTERNATIONAL EPD® SYSTEM

JSW

ADITYA BIRLA HINDALCO

Ambuja Cement

Ramco Industries Limited

SAINT-GOBAIN

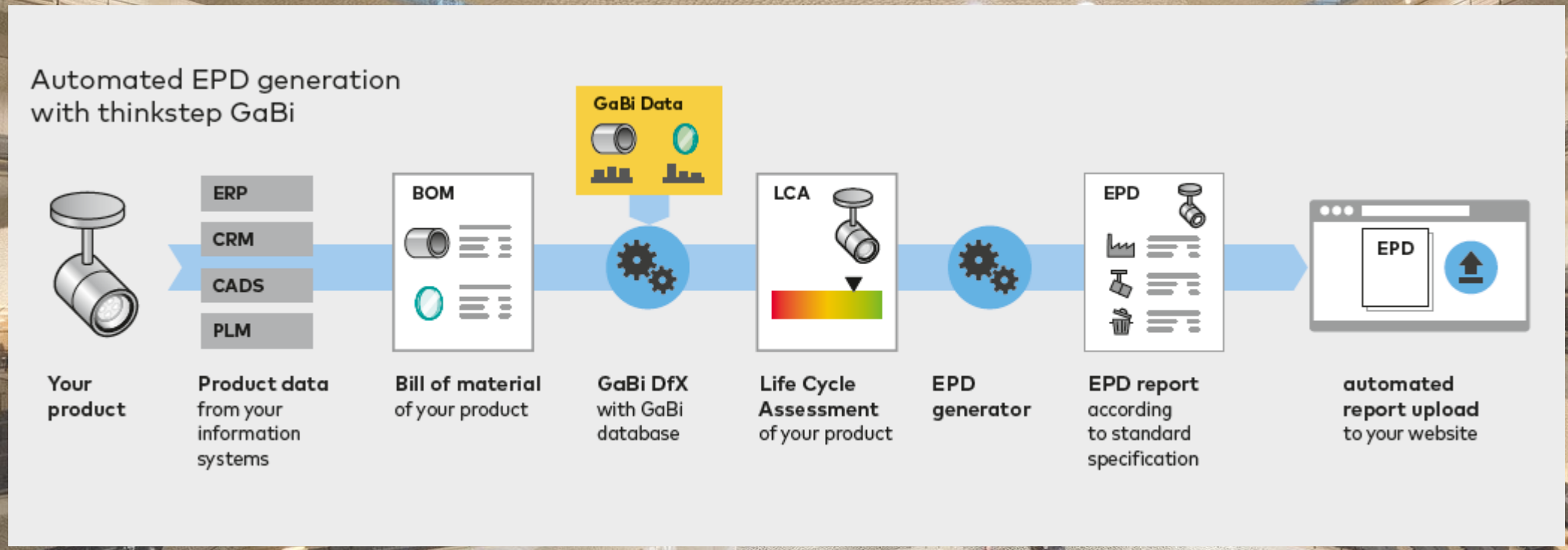
ACC

AIS Asahi India Glass Ltd.

Gyproc SAINT-GOBAIN

Case Study: Zumtobel

EPD Automation



“From the start, automation was the only possible solution”

Klaus Meyer-Pohl, Regulations Management und EPD Administration – Group Technology, Zumtobel Group

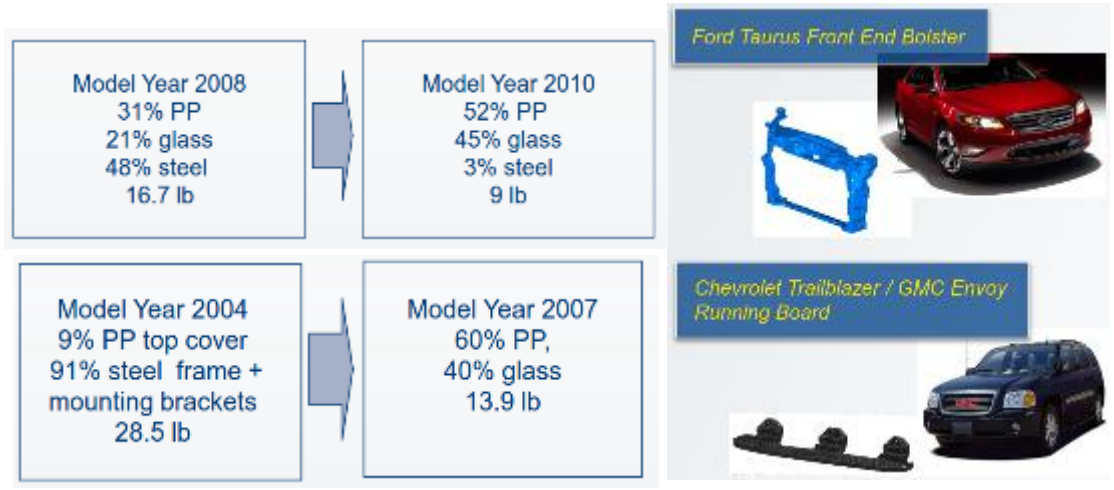
2.500+ p.a.

Case Study: Across Various Industries

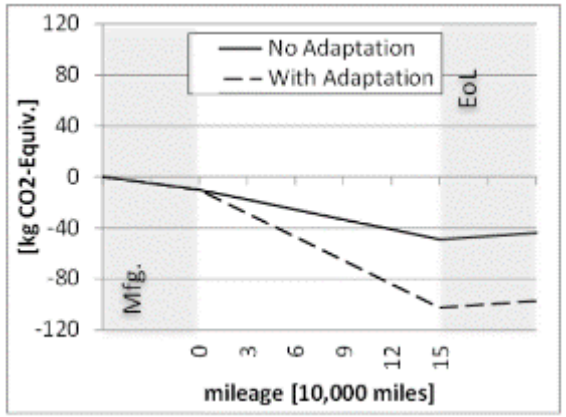
Light Weighting by Material Substitution

FRV (Without Adaptation): 0.16 l/100km/100kg

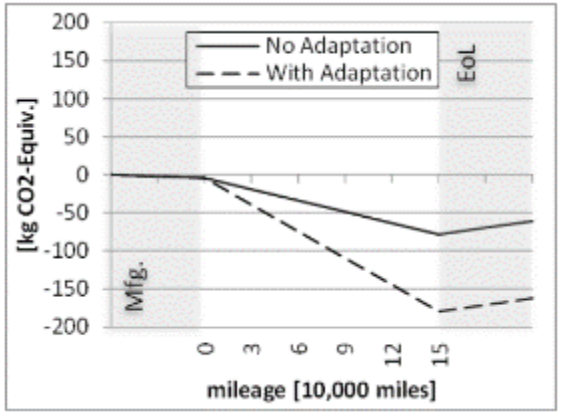
FRV (With Adaptation): 0.38 l/100km/100kg



Ford Taurus Bolster



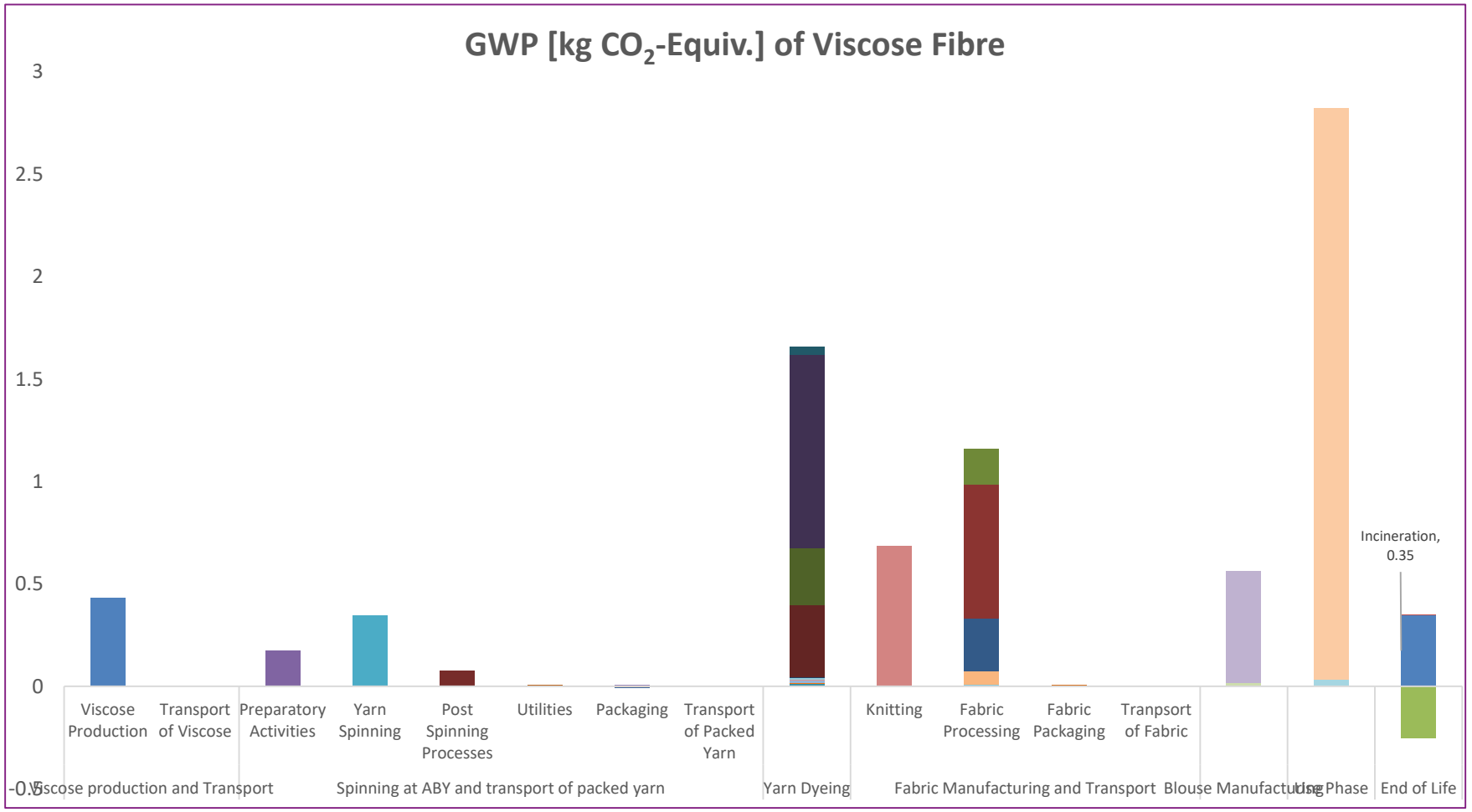
GMC Envoy Running Board

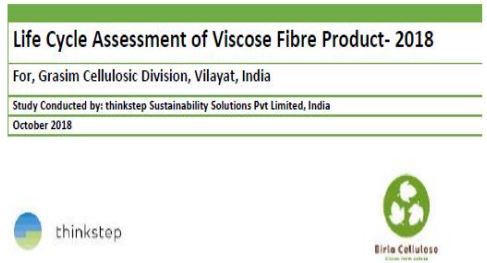


Is Automotive Light Weighting with Plastics A No-Brainer?
Zahller et. al., LCA XII Conference, Tacoma, WA September 25, 2012

Case Study: Birla Cellulose

Higg Material Sustainability Indicator (MSI)





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Case Study: Multiple Projects

Building LCA for LEED.v4

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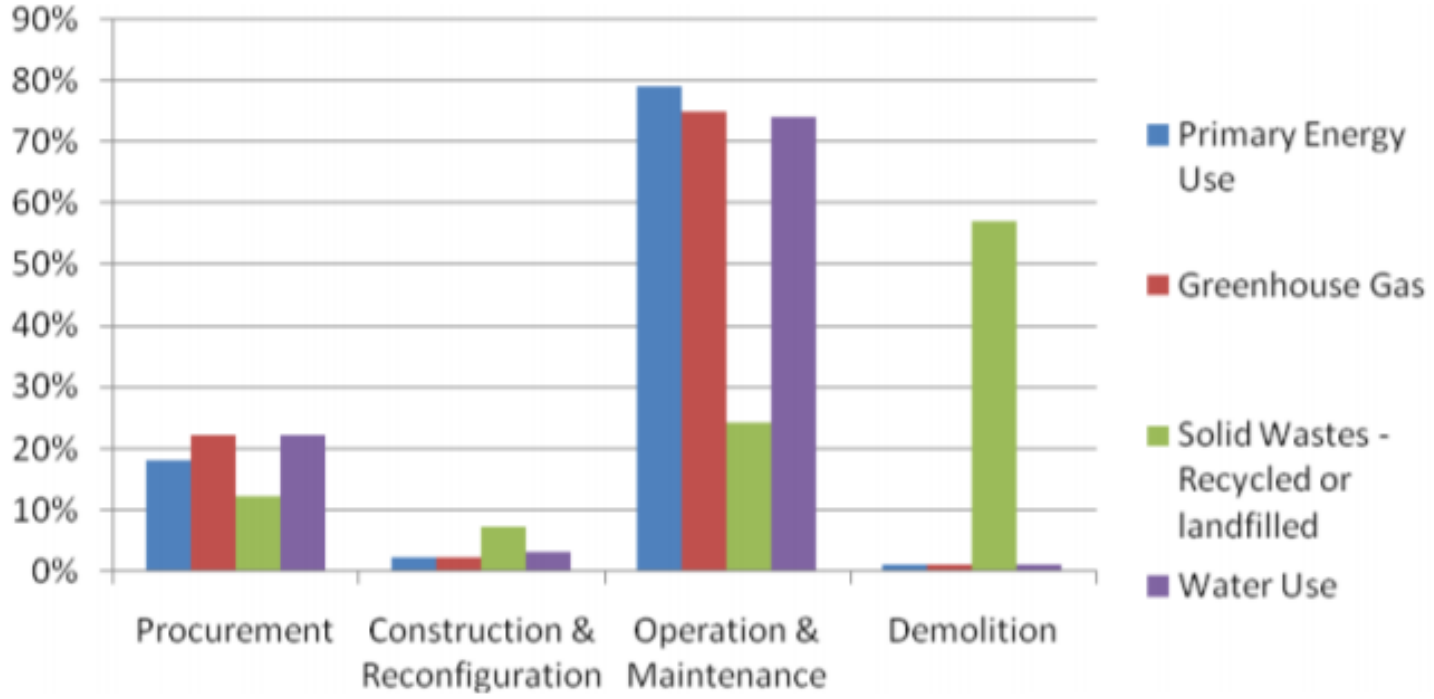
Six listed environmental impact categories with three of them, including global warming potential, demonstrating at minimum a 10 % reduction.

In addition to the 3 points, 1 extra point is awarded through the Innovation credit by displaying reduction in all six impact categories by 10 %



WELSPUN
Dare to Commit

NIVEA

Case Study: Godrej Interio
Design for Environment using LCA

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Commitment for environment conscious design and reducing Toxicity

Components of DfE Policy:

- Increase use of recycled & renewable material
- Evaluation of raw material to improve recyclability and biodegradability
- Evaluation of water and energy pattern
- Reduce use of chemicals of concerns
- Design consideration to reduce environmental impact at end of life

Godrej interio

GODREJ INTERIO DESIGN FOR ENVIRONMENT POLICY

Godrej Interio recognize the fact that the overall environmental impact of a product over its entire life cycle is determined and set early in the design phase of that product. Therefore Godrej Interio for all its new products is committed to using the principles and strategies of Design for Environment (DfE) to evaluate and reduce the negative environmental footprint of its products and processes from a life-cycle perspective.

As per the DfE policy, for all new products Godrej Interio is committed to

- Consider and increase use of renewable and recycled materials.
- Evaluate all raw materials, to improve their recyclability and biodegradability.
- Evaluate water and energy usage pattern for all in-house processes.
- Consider and reduce use of chemicals listed in Godrej Interio Chemicals of Concern List.
- Provide design considerations to reduce the environmental impact at the end of life.

To achieve these goals we shall

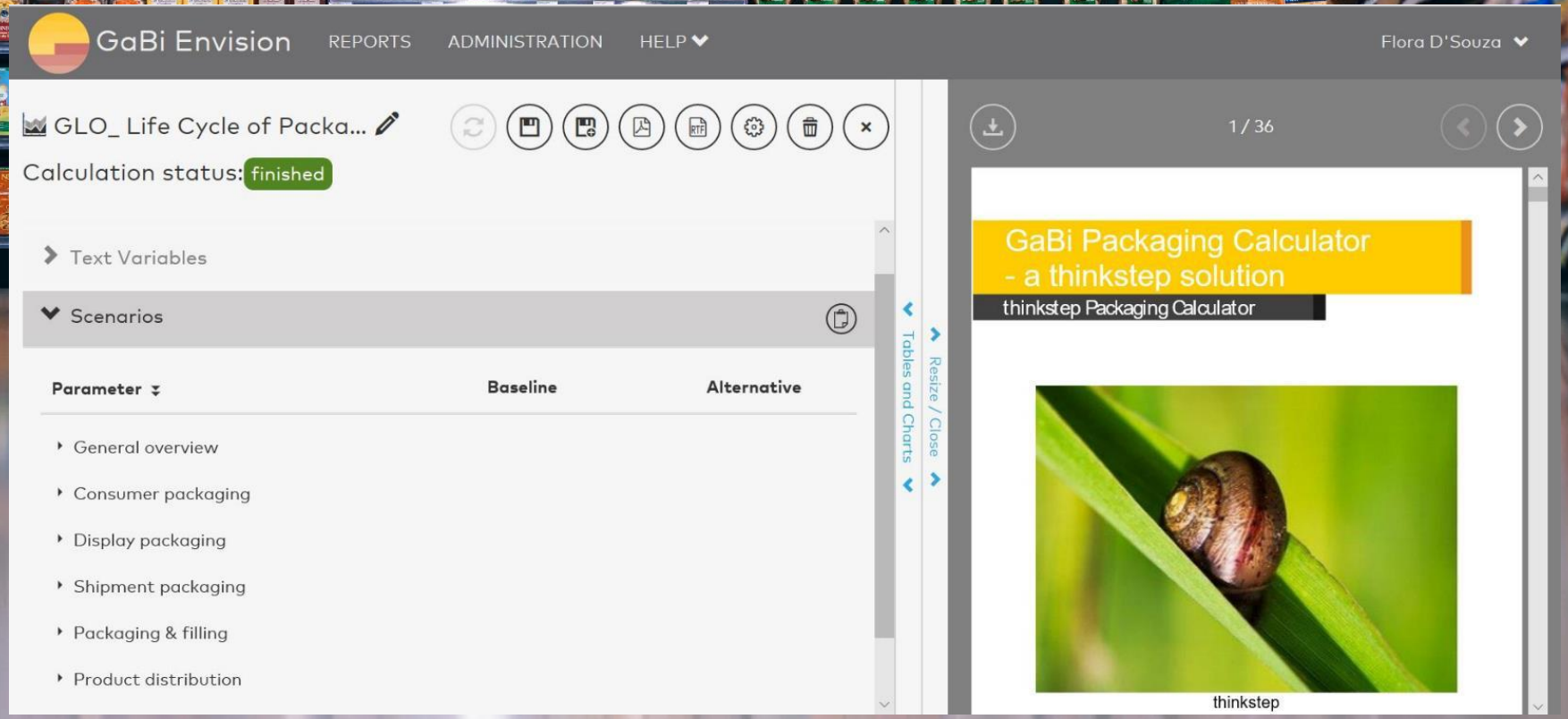
- Conduct DfE evaluations at defined stages in the New Product Development cycle.
- Make and maintain detailed material analysis sheets (Green Assurance Cards) for all new products.
- For selection of raw materials and vendors, consider the environment preference criterions listed in the Godrej Interio Green purchase guidance document.
- Regularly review and report our performance internally as well as to our external stakeholders.

This policy is applicable to all products designed at Godrej Interio

Date:02/04/2012
Anil Mathur
COO

Case Study: Marico Limited

Packaging Calculator



With the use of Packaging Calculator, Marico now accesses the Environmental Impacts caused by the materials at every level of Packaging

Case Study: Multiple Companies

Scope 3 Assessment using LCA

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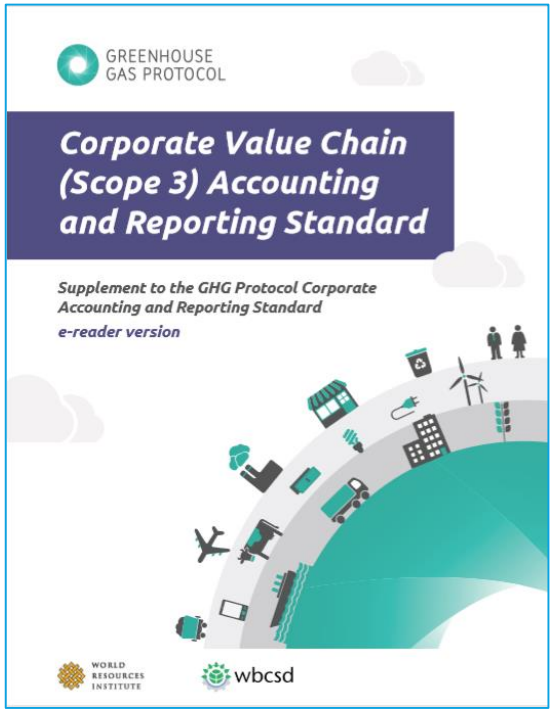
Upstream or downstream	Scope 3 category
Upstream scope 3 emissions	1. Purchased goods and services 2. Capital goods 3. Fuel- and energy-related activities (not included in scope 1 or scope 2) 4. Upstream transportation and distribution 5. Waste generated in operations 6. Business travel 7. Employee commuting 8. Upstream leased assets
Downstream scope 3 emissions	9. Downstream transportation and distribution 10. Processing of sold products 11. Use of sold products 12. End-of-life treatment of sold products 13. Downstream leased assets 14. Franchises 15. Investments



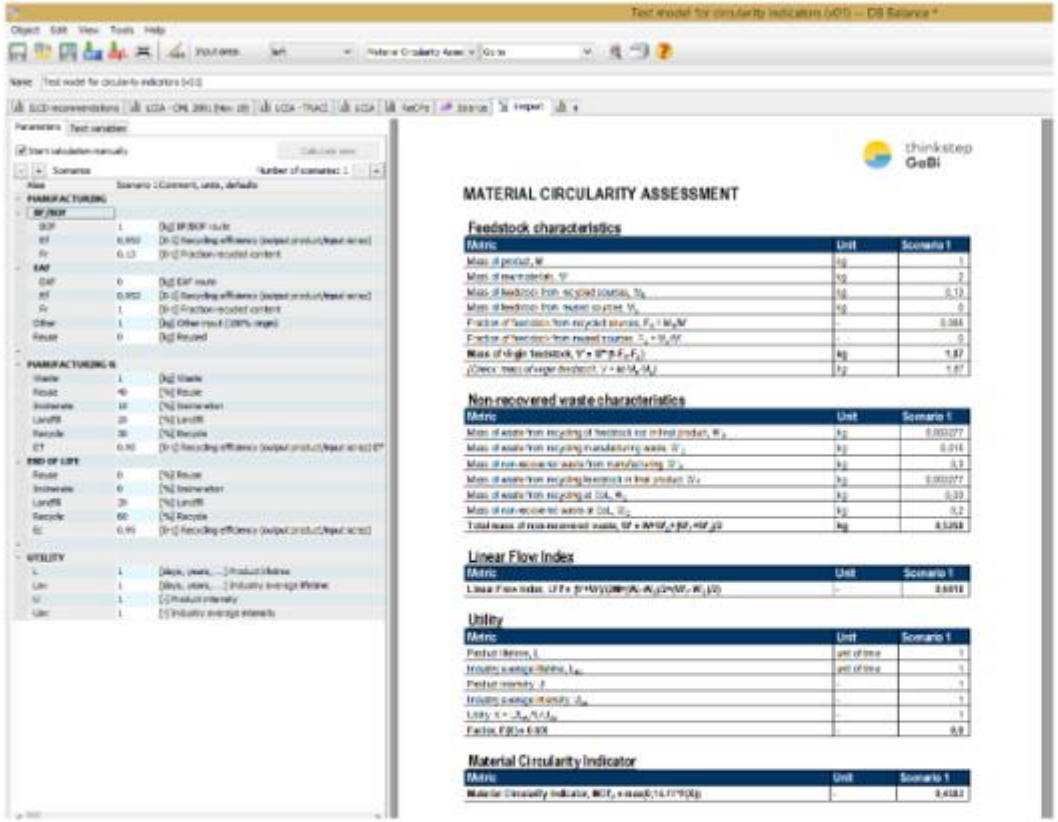
Ambuja Cement

Mahindra SANYO

apollo

LCA for Circular Economy - Material Circularity Indicator

thinkstep



Following the EMF methodology for MCI

The generated report tables show the calculations used to derive the Material Circularity Indicator (MCI) results for each scenario - as specified in the report 'Circularity Indicators: An Approach to Measuring Circularity'

ELLEN MACARTHUR FOUNDATION

CIRCULARITY INDICATORS

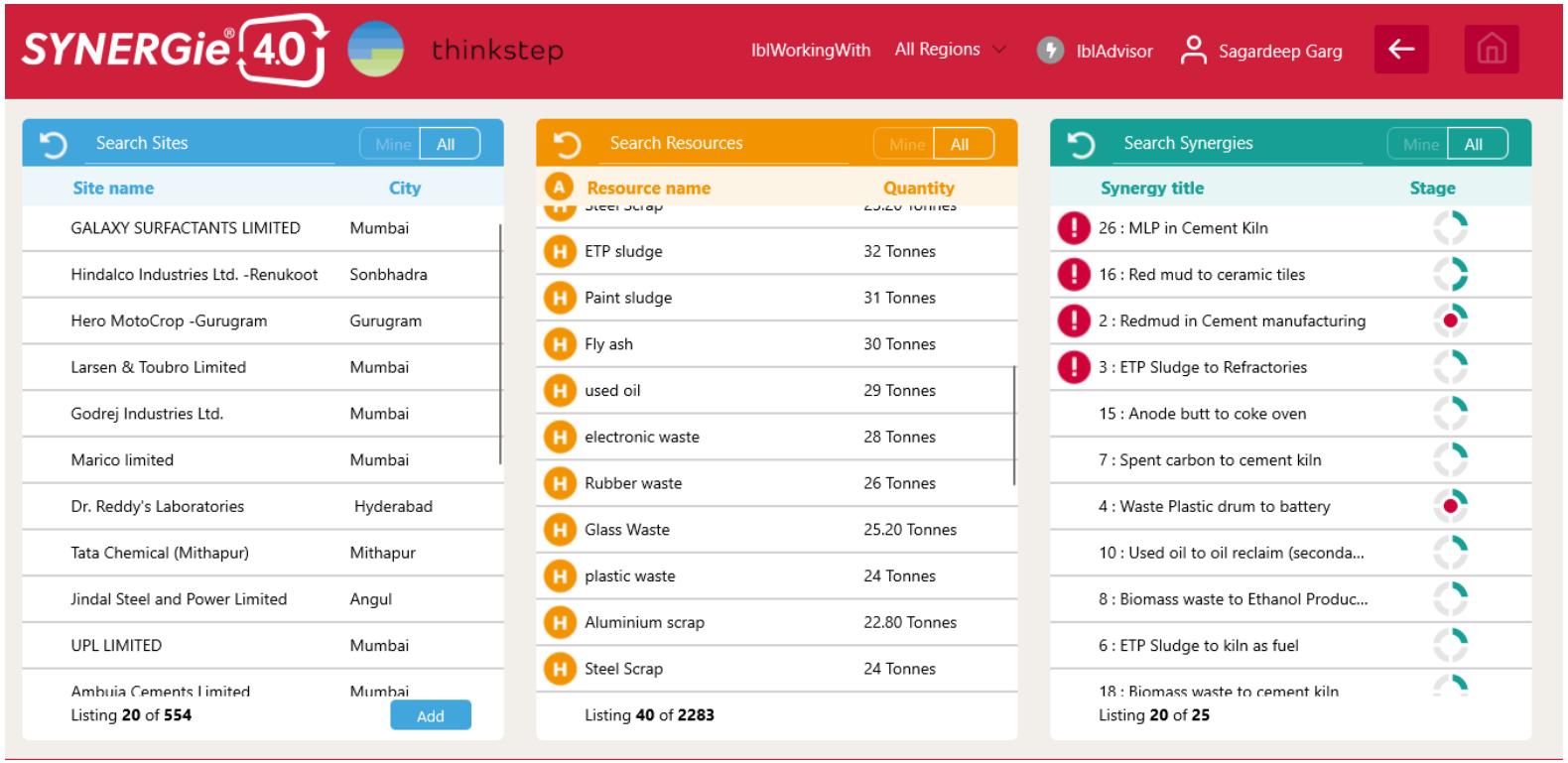
Source: https://www.ellenmacarthurfoundation.org/programmes/insight/circularity-indicators

Industrial Symbiosis- Digital Platform

thinkstep

This unique platform is the **Market Place** and **Innovation Hub** for **Developing Secondary Resources** through **Symbiosis** amongst Donor and Acceptor **Industries** – India's first Digital Platform

- 75000+ successful connections of wastes and resources
- Dynamic cloud technology based artificial intelligence features
- Privacy & Security - Data, transactions and communications on the platform are private and secure



Questions?

Enabling Sustainable Success

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