Confederation of Indian Industry

Caring for the Environment
IWMA
Regd No. 256 / 2002

Implementing Green Manufacturing through GreenCo Rating System

Industrial Waste Management Association – 16th AGM

GreenCo℠

How Green is your company?

15 September, 2018: Chennai

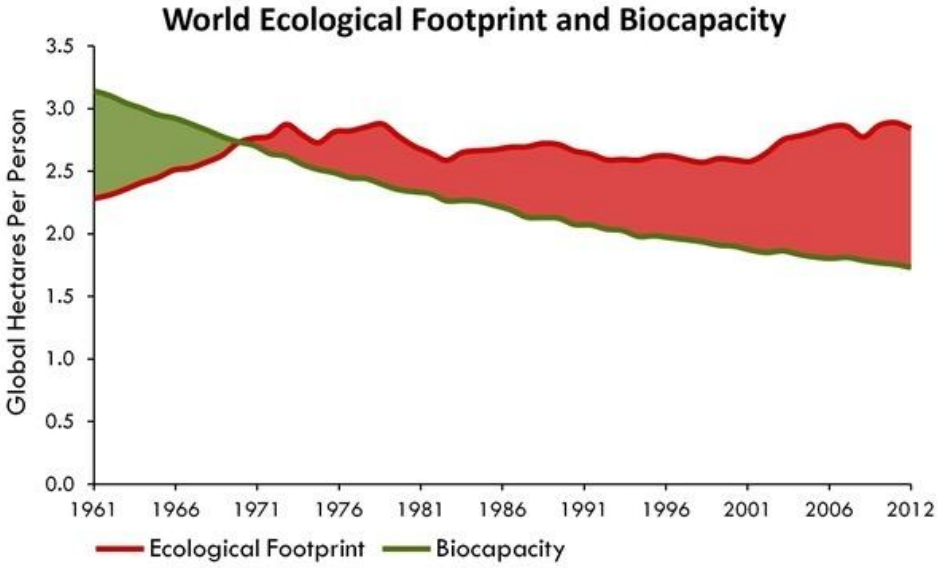
CII – Sohrabji Godrej Green Business Centre, Hyderabad

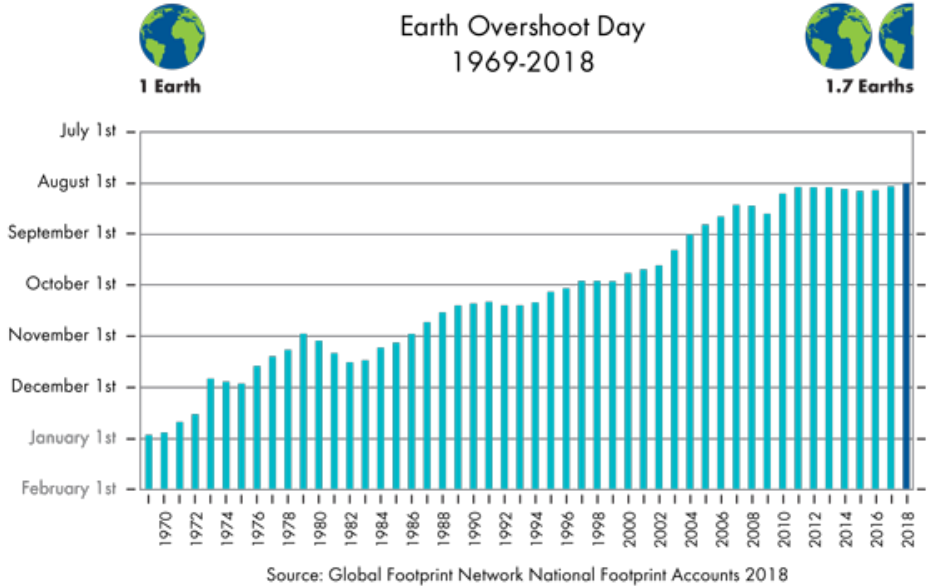
Unique activity of CII supported by the Government of Andhra Pradesh, USAID and Pirojsha Godrej Foundation

"Centre of Excellence" Energy, Environment, Green Buildings, Renewable energy, Water & Climate change activities in India

BACKGROUND

GLOBAL ECOLOGICAL FOOTPRINT & EARTH OVERSHOOT DAY





Source: Global Footprint Network National Footprint Accounts 2018

UN - SUSTAINABLE DEVELOPMENT GOALS

INDIA'S BIG STEP TOWARDS MANUFACTURING

- **For India to achieve a Developed Country status**
  - **Need to maintain high GDP growth rates**
  - **Key - Growth of manufacturing sector**
- **Make in India – Aim**
  - **Increase share of manufacturing in the country's GDP from 16% to 25% by 2022 (stated in the National Manufacturing Policy)**
  - **India to be a global manufacturing hub**
  - **Create 100 million jobs by 2022**

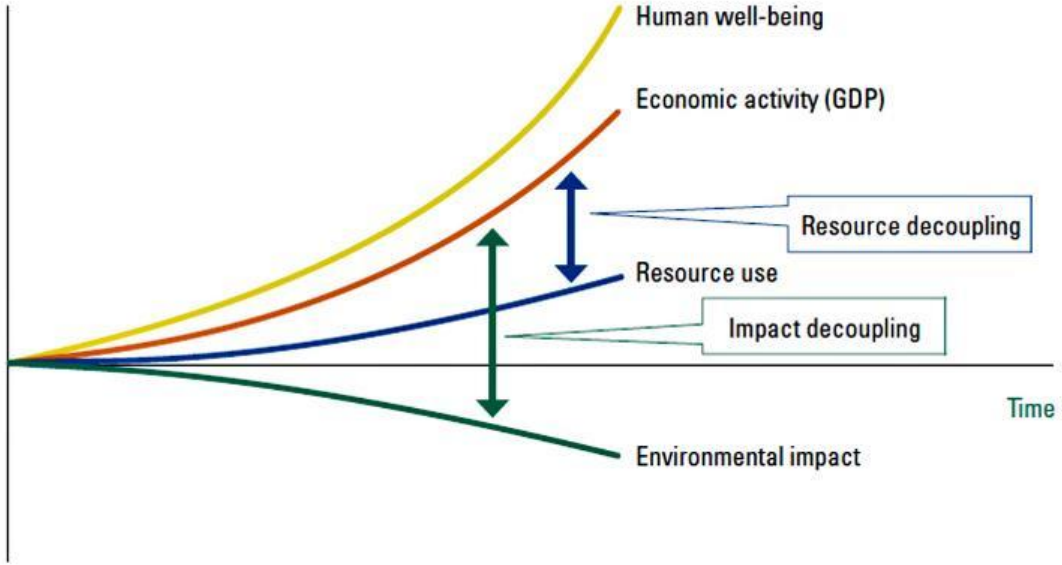
SOLUTION TO THE FLIPSIDE OF HIGHER GROWTH RATE

- **Flipside of higher growth rates**
  - **Increased use of natural resources**
    - **Energy, Water, Material etc.**
  - **Increased emissions and discharges**
- **Solution**
  - **Focus on ecologically sustainable business growth**
    - **Green Manufacturing**

NEED OF THE HOUR

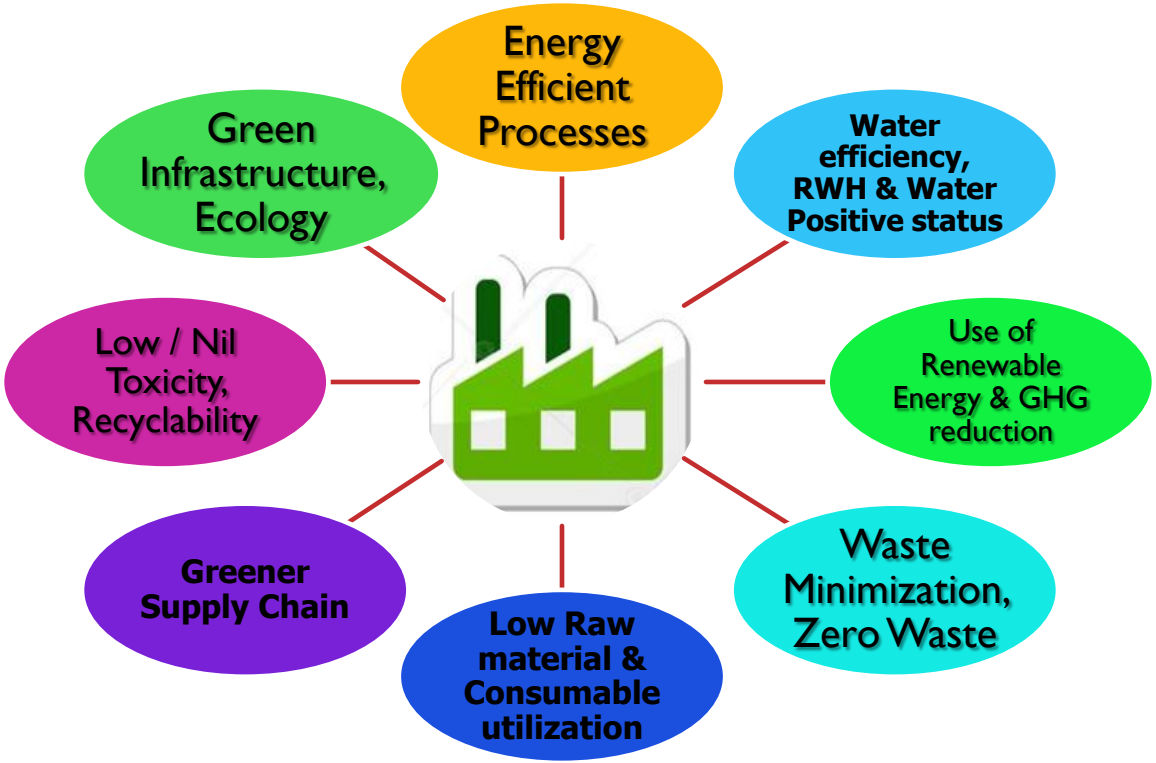
Improve Efficiency

Resource Intensity

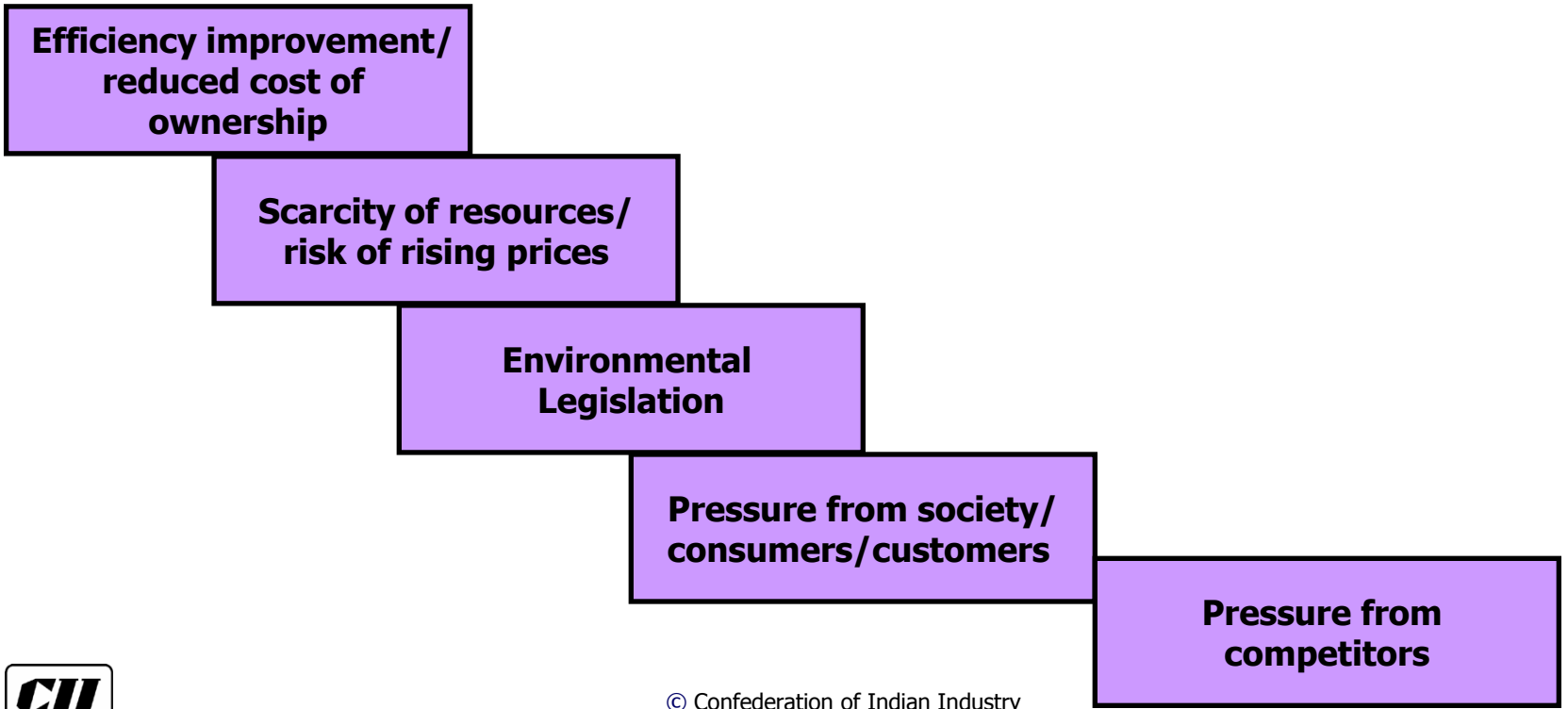


from: Decoupling Natural Resource Use and Environmental Impacts from Economic Growth
2011 UNEP International Resource Panel Report

GREEN MANUFACTURING



DRIVERS OF GREEN MANUFACTURING



Development of GreenCo Rating System

120 industry experts participated in the development

Launch of GreenCo Rating in 2011 by Mr. Suresh Prabhu

CII - GreenCo Rating System

- Green Rating to assess Environmental performance of companies
  - Facilitate to achieve world class in 'Green'
- First of-its-kind in the world
- Excellent response from Industry – more than 450 + companies are working
  - 198 Companies are certified
- GoI acknowledged in India's – 'Intended Nationally Determined Contribution' document to UNFCCC

Dr Abdul Kalam addressing GreenCo Summit 2013

Intent of GreenCo Rating

- **Unit level**
  - More Competitive
  - Green Image
- **National level**
  - India should be globally competitive
  - Exporter of Green Products and Services

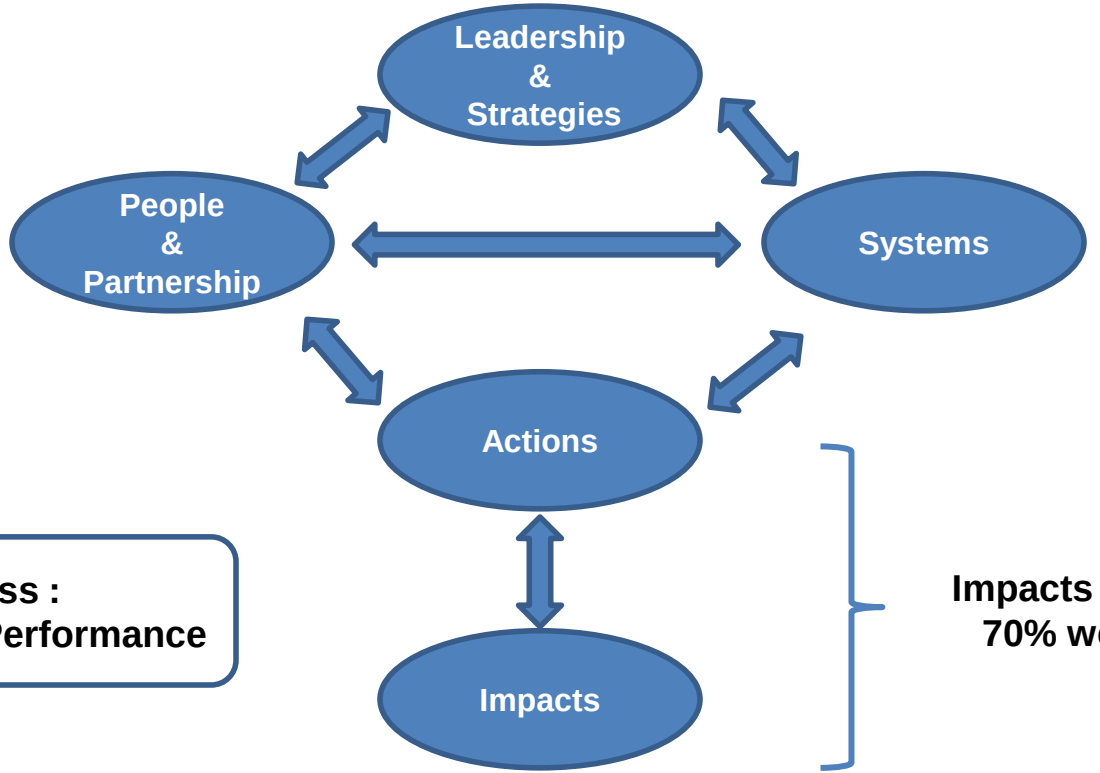
Add value & Improve performance

GreenCo Rating Framework

S.No.	Parameters	Points
1	Energy Efficiency	150
2	Water Conservation	100
3	Renewable Energy	100
4	GHG Emissions	100
5	Waste Management	100
6	Material Conservation, Recycling & Recyclables	100
7	Green Supply Chain	100
8	Product Stewardship & Life Cycle Aspects	125
9	Innovation for Environment	50
10	Green Infrastructure & Ecology	75
	Total	1000

GreenCo Rating System – Approach

Systems :
30% weightage



Uniqueness :
Higher focus for Performance

Impacts / Results :
70% weightage

Levels of GreenCo Rating

Exemplary Environment performance

- Resource Conservation
- Waste management
- GHG Emission Reduction
- Supply chain Management
- Product responsibility
- Product / Process /Packaging Optimization

Meeting standards & requirements

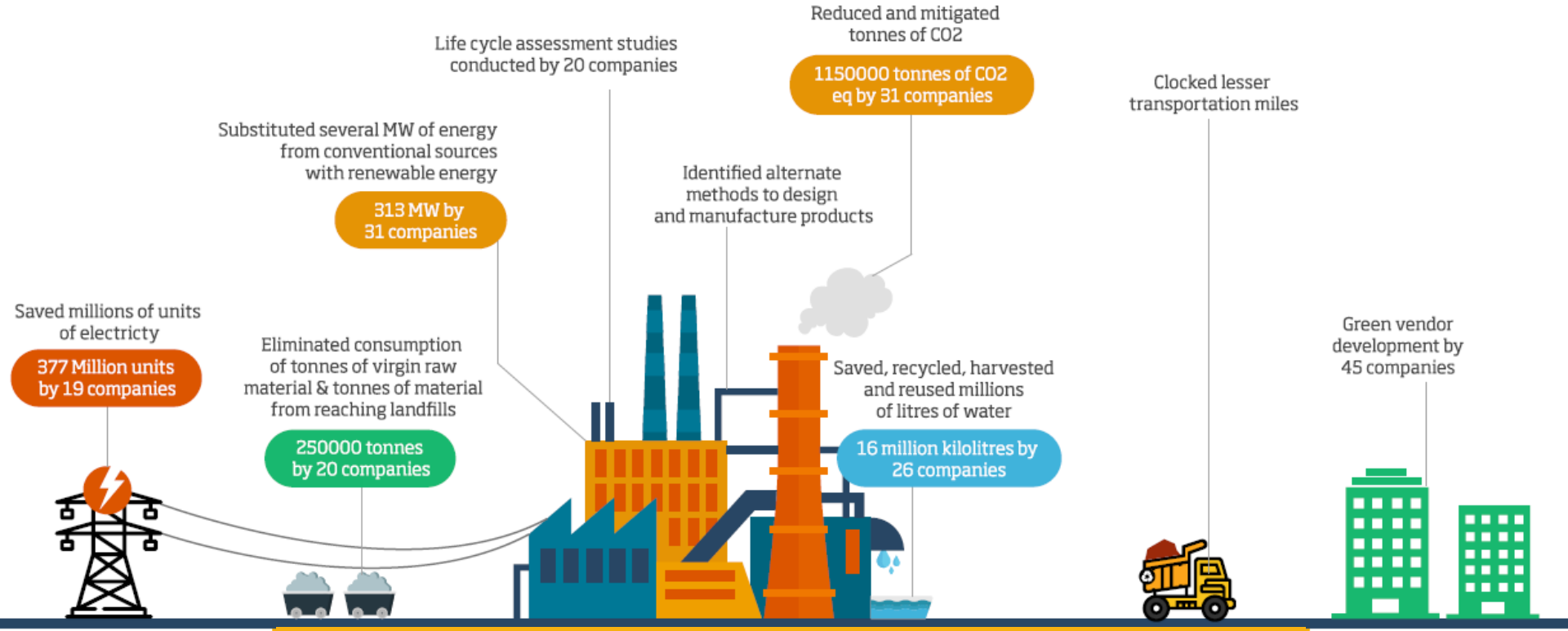
Neither Tough, Nor Easy

198 GreenCo Rated Companies & More than 450 Companies working on GreenCo

GreenCo

CII

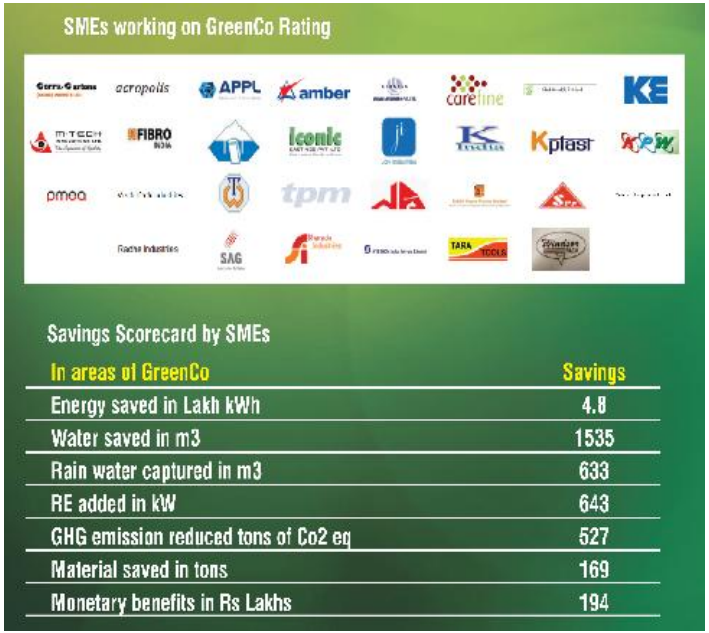
Green Makes Business Sense



First 90 companies reported a recurring cost savings of 1710 Million Rupees

GreenCo for SMEs

- Corporates leading their suppliers / vendors in improving environmental efficiency
- Later extending to individual clusters



Godrej

TATA MOTORS

ITC Enduring Value — PAPERBOARDS AND SPECIALTY PAPERS DIVISION

Hero

TIRUPUR EXPORTERS ASSOCIATION TEA

Indian Machine Tool Manufacturers' Association

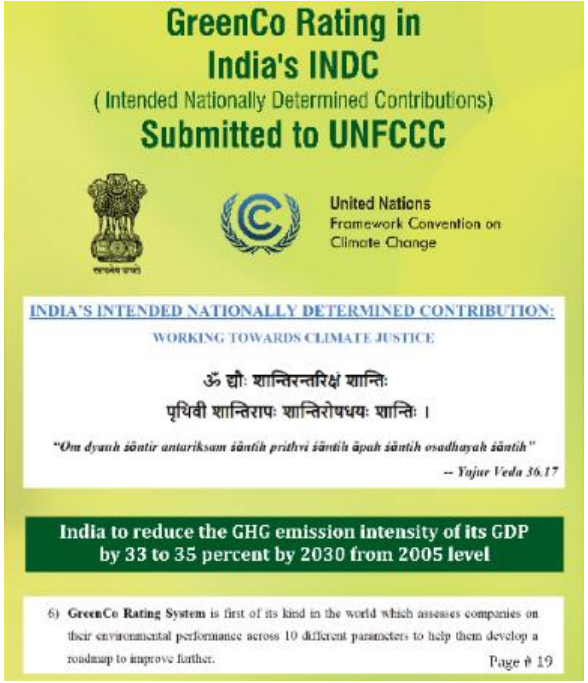
- 70 Registered SMEs
- 51 Rates SMEs

INDIAN RAILWAYS SIGNING AN MOU WITH CII

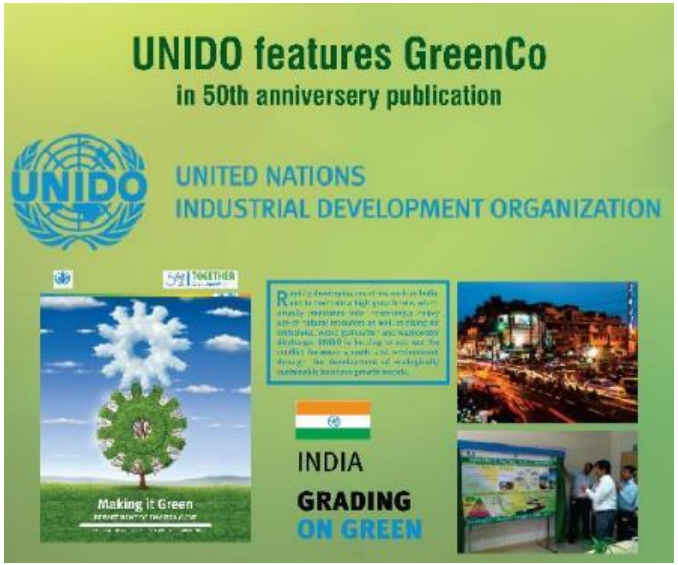
On Green Industry initiatives

33 Railway Units are GreenCo Rated out of 50 Units working

GREENCO RATING



ACKNOWLEDGEMENTS



GREEN MANUFACTURING – MANAGEMENT COMMITMENT

GREEN MANUFACTURING

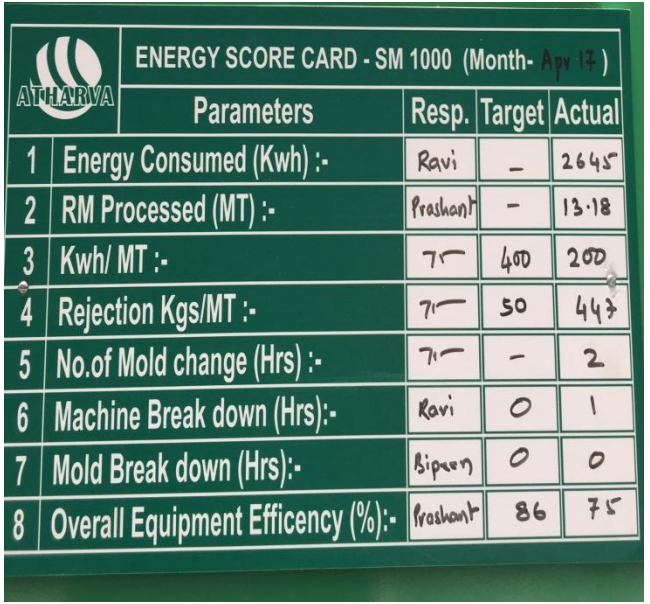
- **Strong commitment from top management for implementation**
  - **Policies**
  - **Process of target setting & review mechanism**
  - **Resource allocation**
- **Involvement of Employees**
  - **Training & Awareness**
  - **Suggestion Schemes**
- **Metering & Monitoring**
  - **Effective monitoring system**

Tata Motors -
GreenCo as a Performance Monitoring Tool

- GreenCo – *"The Environmental Standard"*
- Environmental targets for every unit is based on GreenCo

Interplant comparisons and target setting

Energy Scorecard at Operator Level



Annual incentive based on Energy Score Card

Equipment wise Efficiency Improvement

❖Periodic Measurement of Equipment Performance

- ➢Major Energy Intensive Equipment / Processes
  - ❑80 - 20 Rule
- ➢What are the systems followed ?
- ➢Compare
  - ❑Operating efficiency Vs Design Efficiency
  - ❑Operating efficiency Vs Market efficiency

❑E.g. kW/CFM, kW/TR, Eff of Pumps, Effectiveness of CTs and HEx's etc.

SHREE ASHTAVINAYAK GLASS PRIVATE LIMITED

- Reduction in SEC by 30%
- 225 kW Rooftop solar PV to generate 3,28,500 kwh/year
- Installation of biogas plant to generate 912 kg/year. Sewage slurry is directed to biogas.
- Installation of 20 biogas plant in nearby Village to generate 10950 kg / year
- Reuse of ETP sludge for brick manufacturing
- Greenhouse made of PET bottles to grow vegetables
- Material & Packing material reduction

These cost reduction measures contribute to profits amounting to 68 lakh/ year at SAG

Create decorative/ innovative products from waste

Recycling wooden scrap for making Exports consignment

Use of flucoolant for grinding

KHUTALE ENGINEERING PRIVATE LIMITED, SATARA

- Water Positive Unit through rain water harvesting system
- Reduction in SEC by 33%
- 91% RE substitution through rooftop solar PV
- Inventorisation of Scope 1, Scope 2 & Scope 3 emissions
- Reduction in scrap powder generation by 80%
- Excellent synchronization of various processes
- Efforts to reduce material consumption

WATER CONSUMPTION

WATER CONSERVATION – WITHIN THE FENCE

Reduce

- Map all water consuming sources and set targets
- Use of low flow fixtures, water efficient gardening

Reuse

- Treat the waste water generated
- Reuse of treated water in the process

Recharge

- Capture rain water harvesting to capture 100% of the potential
- Recharge rainwater to borewell or use it for application

Should be seen at par with Energy Efficiency

Industry should not be perceived as

competing

with society for WATER

RENEWABLE ENERGY AND GHG EMISSION

EMERGING INNOVATIVE BUSINESS MODELS IN RE

- **3rd Party Purchase of Renewable Energy**
  - **No investment**
  - **Long term contract**
  - **Tariff – Less than electricity board in some cases**
  - **Green Power with reduced energy cost**

USE OF RENEWABLE ENERGY

Captive Solar PV Plant & Solar Roof Tops

Wind power captive & Procurement

Bio Mass gasification for thermal energy

Solar Thermal energy

Solar Wind Hybrid

Solar light Pipe

ZERO WASTE AND RESOURCE CONSERVATION

WASTE MANAGEMENT & CONTROL AREA

Courtesy : Amber Enterprises Pvt Ltd., Ranjangaon

Journey from “Scrap Yard” to Waste Management & Control Area.

SYSTEMATIC APPROACH TOWARDS ZERO WASTE TO LANDFILL

Fresh Water

- Grinding Machine
- Pre-Processing Machines
- Washing Machine

ETP

- Processed Water

Treated Water

- Garden
- Farm
- Toilet

Process Effluent

- ETP Sludge

Process Effluent Disposal

- Brick Manufacturing

Courtesy : Shree Ashtavinayak Glass Pvt Ltd

GREEN SUPPLY CHAIN

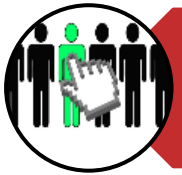
GREENING THE SUPPLY CHAIN

- **Why ?**
  - **Good opportunity**
  - **Improve operational efficiency & reduce costs**
  - **Reduce environment impacts**

GREENING SUPPLY CHAIN

Green Purchase Guidelines, TCO/LCC for capital goods purchase

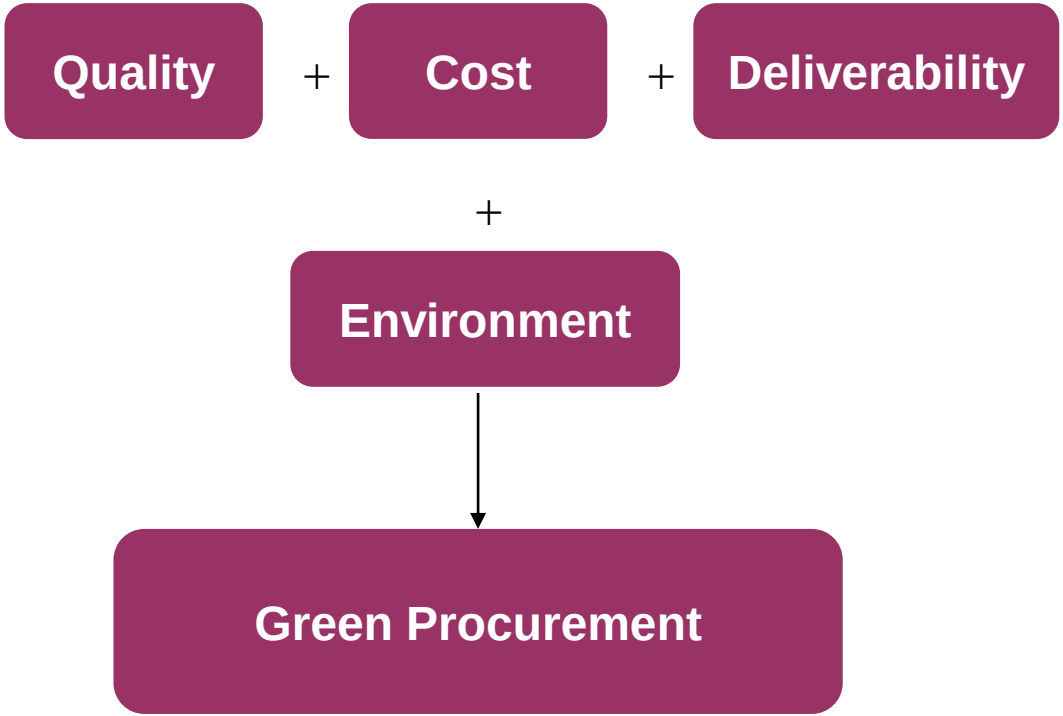
Transport optimization through milk run model, localization of suppliers



Environment as one of the key criteria in supplier selection

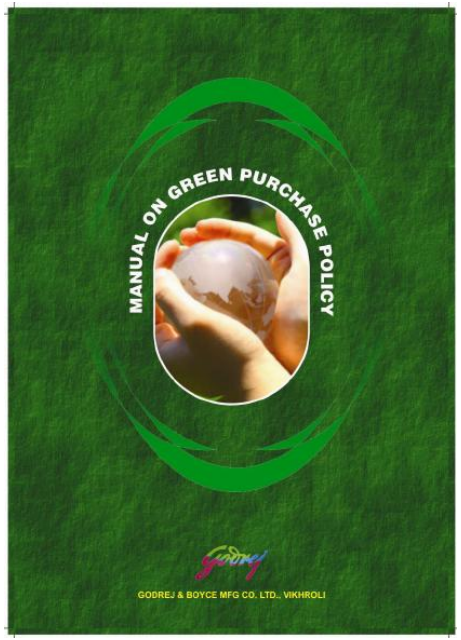
Green Procurement

- Vendor selection
- Sustainable sourcing of raw materials
- LCC for procurement
  - Capital goods, maintenance consumables, packing materials, others



Green Sourcing Policy

Corporate Green Procurement Policy



Divisional Green Sourcing Policy

GODREJ & BOYCE MFG. CO. LTD.
APPLIANCE DIVISION

GREEN SOURCING POLICY

Objectives:

1. To responsibly source products and services by considering environmental protection issues into the sourcing decision making process.
2. To encourage all upstream suppliers to adopt green manufacturing and green supply chain, so as to not only reduce the environmental degradation, but to possibly have a positive impact on the environment.
3. To show commitment towards continual improvement, prevention of pollution and to comply with all the applicable legal requirements.

Scope:

This Policy applies to the following category of products and services that constitute GAD purchases which include: Raw Materials, Parts and Components, Finished Products, Tools, Moulds & Dies, Capital Equipment and Service offerings.

Focus Areas:

1. Aim to source products and services that minimize environmental impact in the following areas:
   a. Energy efficiency, water conservation and waste reduction
   b. Prevent / reduce the use of hazardous substances
   c. Life cycle assessment of products and services
   d. Conserve the resources of the planet
   e. Use renewable energy
   f. Proactive Product Stewardship
2. We are committed to support our suppliers in adopting green practices through awareness creation and training on the compliance requirements.
3. We give preference to suppliers who adopt green practices in addition to QCD performance in the following areas:
   a. Reduce specific energy & water consumption
   b. Minimizing the Green House Gas(GHG) emissions & measure the carbon footprint
   c. Minimizing the generation of waste and safe disposal of the hazardous wastes generated
   d. Recycle & reuse material to reduce absolute consumption
   e. Incorporating the use of renewable resources
   f. Practicing various eco-friendly concepts like green office/ building
   g. Nurturing the biodiversity (care for flora & fauna) in the vicinity of operations
4. We shall seek to implement the hierarchy of preference to avoid, reduce, reuse, recycle, recover, prevent and dispose responsibly throughout the sourcing activity.
5. We promote partnerships with suppliers who are:
   a. ISO 14000 & OHSAS 18000 certified
   b. Compliant with RoHS Directives
6. We commit ourselves to set and review the objectives and targets for the continual improvement in all areas of our operations through everyone's involvement.

This Policy has been communicated and made accessible to everyone in our immediate organization and is available on supplier portal for our supplier partners. We have articulated the Green Philosophy in simple and lucid manner and would urge all of you to work towards this noble cause.

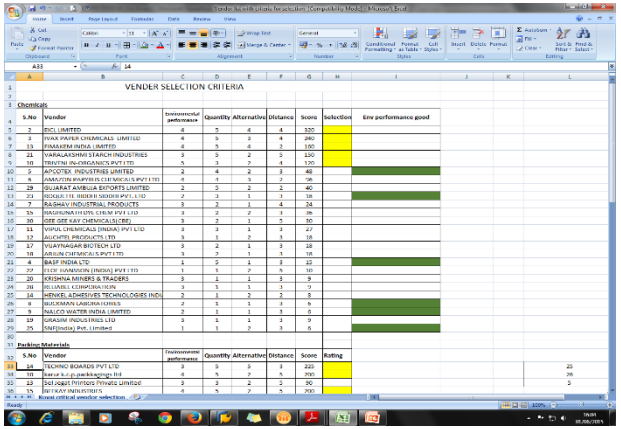
George Menezes
Chief Operating Officer
Appliance Division

Release Date: 10/09/2013 V1

Sanjay Gandhi
Sr VP& Head Sourcing
Appliance Division

Criteria for Critical Vendors

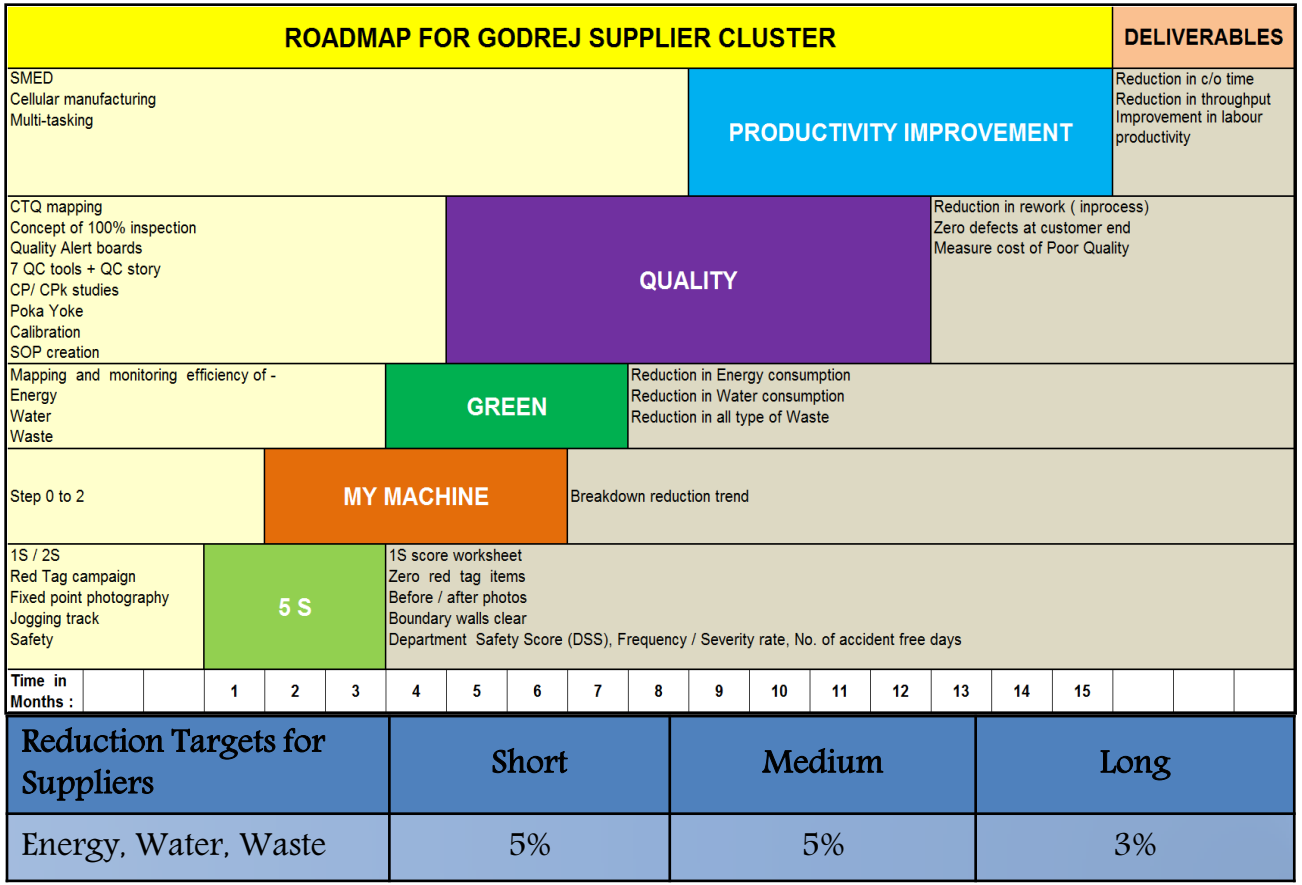
Critical Vendor Selection Criteria					
S.No	Parameter	Performance			
1	Environmental performance	Good	1	Large scope for improvement	5
2	Quantity	Low	1	High	5
3	Alternative	Have alternative	1	No alternative	5
4	Distance	Long distance	1	Nearby	5



The below Vendors with good environmental performance

1	Roquette Riddhi Siddhi pvt ltd
2	BASF India Ltd
3	Buckmann Laboratories
4	Nalco Water India Limited
5	SNF(India) Pvt. Limited
6	Apcotex India Limited

Supplier Engagement

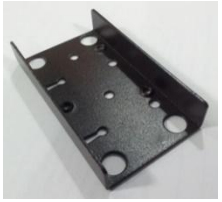


Reduction Targets for Suppliers	Short	Medium	Long
Energy, Water, Waste	5%	5%	3%

Life Cycle Assessment by Godrej Locks

- **LCA Study for Safe deposit Lock**
  - **Electricity & Material major contributor to Environmental impacts**
  - **Traditionally, Brass used – Corrosion resistant**
    - **But, higher environmental impact compared to steel**
  - **LCA study outcome – Decided to convert Brass into Mild Steel**
    - **Worked on a special coating on mild steel to improve the property of corrosion resistant**
  - **Converting from Brass to Steel**
    - **Environment impact reduction by 20%**
    - **Material cost reduction by 10%**

Base Plate Sub assembly



Cover Plate

Bolt

GREENCO RATING – AN EXCELLENT TOOL FOR GREENING INDUSTRY

- One single comprehensive tool to manage and excel in green performance
- Identify priority areas
- Significant enhancement in resource conservation and cost saving
- Comparison of facilities
- Prepares to meet future environmental regulations & mitigate future environmental risks
- Aligns company towards the National Goal
- An enhanced Green Image

TODAY ‘GOING GREEN’ IS NOT A CHOICE. IT IS NECESSITY FOR COMPETITIVENESS AND GLOBAL EXCELLENCE

GreenCo Rating is an excellent framework catalyzing and promoting Green Industry growth in India

Way forward

- **Invite to be part of the GreenCo Movement & Register for the Rating**
- **Excellent Opportunity to become World Class Green Manufacturing unit Status**

For Further details; kindly contact:

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www.Greenco.in

THANK YOU !