



**Confederation of Indian Industry**



# In pursuit of Excellence in Green

# Opportunities in Green / Environment sustainability



# #1 Green as a part of Business Strategy



# Godrej & Boyce : Green as part of Business Strategy

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- A leading Indian Corporate –2020 Vision

- **Creating Greener India**

- Energy Efficient Business, zero waste, carbon neutrality, positive water balance & 30% renewable energy source

- **Innovating for Good & Green Products**

- Third of portfolio revenues comprising good and/or green products and services



**Savings achieved by one of their Businesses :  
Rs. 3.5 Crore/Annum**



# Environment Sustainability at ITC Limited

- ‘Carbon Positive’ – 14 years
  - Sequestering/ storing twice the amount of CO2 ITC emits
  - 2,51,000 hectares Greened
- ‘Water Positive’ – 17 years
  - Creating two times more Rainwater Harvesting than ITC’s net consumption
- ‘Solid Waste Recycling Positive’- 12 years in a row
  - Reusing/Recycling more solid waste than generated
  - WOW initiative



**#2**  
**Share, Learn &  
Grow together**





# Indian Cement Industry

- Indian Cement industries have lowest electricity cost in the World
- Electricity cost / ton of Cement (75% of world average)



**Similar opportunity exists for Industry from various sectors**

- How did they do ?

**Sharing of information within, nationally & globally**

# #3 Total Employee Involvement





# Green Scorecard for competitiveness



Description	Name	Target	Actual
1. Melting Energy KWH/TON		270000	270000
2. Consumption of Borings %		8%	7.5%
3. Holding Energy KWH/TON		250000	250000
4. Alloy Consumption %		1.80%	1.80%
5. Metal Piggings %		1.80%	1.80%
6. Production Delay %		1.0%	1.0%
7. No. of Molds Poured/SRET		100	100



Link to Employees KPI & remuneration at Shop floor level

Green Scorecards for major resource intensive equipment

# #4 Ensuring Resource Efficiency & Security



# Water Neutrality



❖ Reduce in-house water consumption



❖ Reduce water footprint

❖ Beyond the fence initiatives





Tata Steel



Godrej & Boyce

## ***Sustainable Water Management – Augmentation of Groundwater Beyond the Fence***



Larsen & Toubro



ITC Limited

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# World Class Companies

*Should not be  
perceived as competing  
with society  
for  
**WATER***





# Energy Efficiency & Green Power

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- ❖ Lowest Specific Energy Consumption
- ❖ Energy Benchmarks



- ❖ Investments in Renewable Energy
- ❖ 3<sup>rd</sup> Party Purchase of RE



# Cloud Based monitoring system

Online system to monitor:  
kWh, production, Voltage, Current, Power factor,



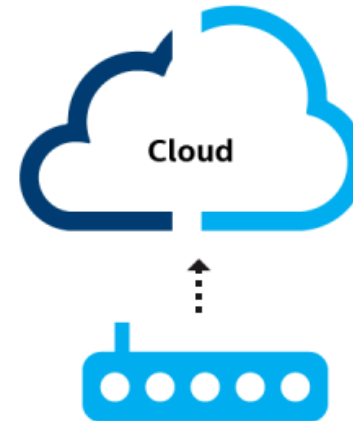
HVAC Data



Lighting Data



Plug Load Data



Lower Energy  
Consumption

Greater Operational  
Performance

Anticipated Payback : 2 years  
Actual Payback : < 2 months

# Equipment Performance Monitoring & Benchmarking

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- Major Processes/ Equipment Performance – within facility and across facilities
  - Yearly Best & Monthly Best
  - Most Efficient vs Least Efficient
  - Operating efficiency Vs Design Efficiency
  - Operating efficiency Vs Market efficiency



# Equipment Performance Monitoring & Benchmarking



Air Compressors  
Volumetric Efficiency  
kW/CFM  
Percentage Leakages



Chillers  
COP  
kW/TR



Boiler  
Excess air percentage,  
Heat loss,  
Air infiltration  
Pre-heater performance,  
Boiler Efficiency

**Ensure – better maintenance, monitoring and maximum operating efficiency**

# Zero Waste to Landfill

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- ❖ Approach for waste minimization
- ❖ Re-design process

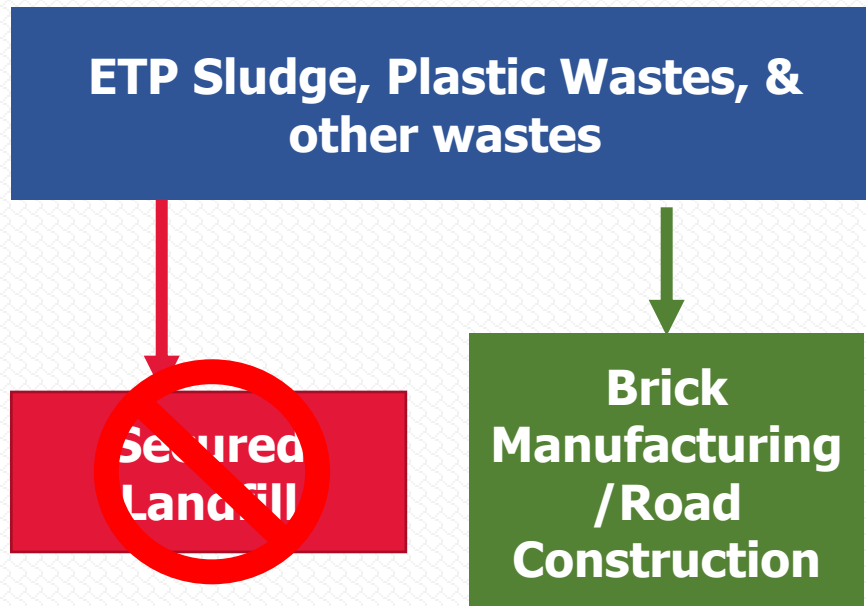


- ❖ Wealth out of waste
- ❖ Use others waste

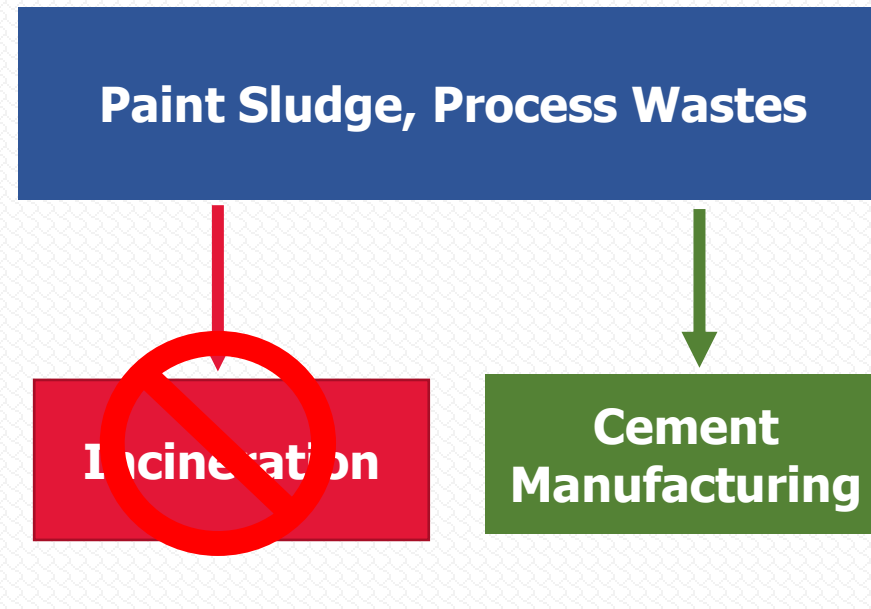
# Waste as a resource

## Conventional Approach

### Zero Waste to Landfill



### Zero Waste to Incineration



# Partnerships for recycling of plastics wastes

- Banyan Nation
  - Formal plastic recycler at Hyderabad - major focus in manufacturing of high quality plastics
- Partnered with Tata Motors, Unilever, Loreal
  - Closed loop recycling of old automobile, plastic packaging wastes
  - 100% recycled plastics based bumpers for passenger vehicle
  - 30% recycled plastics based shampoo bottles

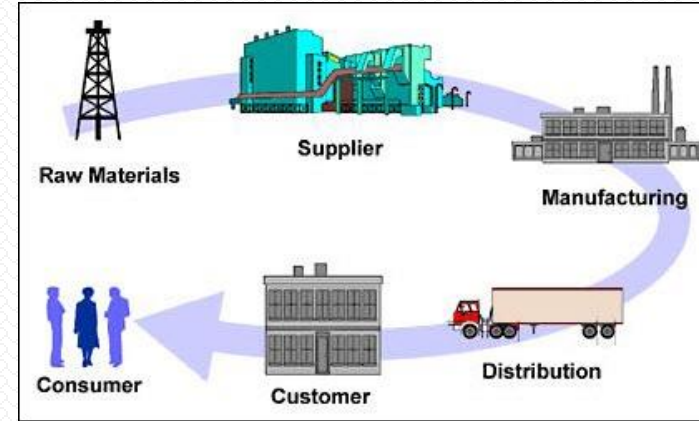




# Nil Toxicity



No toxicity in product  
& processes



No toxicity in supply  
chain

# Change in Resin Formulation

- List of Chemicals of Concern
  - White category – OK to use
  - Grey Category – Ok but to be phased out
  - Black Category – Banned chemicals
- Certain chemicals eliminated / substituted
- Existing chemicals reduced
  - 7% reduction in formaldehyde
- Reduction in cycle time
  - 60 seconds to 40 seconds
- Annual saving
  - Rs. 1.75 Million

Required Chemical qty for 1000 kg of resin(Before)			
Required Chemical	Per Batch Qty in Kg	Cost of Chemicals	Cost on Resin
Formaldehyde	433	19.95	8578.5
Melamine	372	110.02	40927.44
Caprolectam	25	292.85	7321.25
Di Ethyl Glycol	27.5	106.3	2923.25
P.T.S. amide	25	268.99	6724.75
Caustic Soda	0.3	48.99	14.697
Marpholine	3	298	894
P.T.S.Acid	3	140	420
D M Water	160	6.18	988.8
Acmosol	0.15	934.53	140.1795
Sandozine	1.5	288.33	432.495
Alton	1.5	440	660
<b>Total</b>			<b>70025.3615</b>

Required Chemical qty for 1000 kg of resin(After)			
Required Chemical	Per Batch Qty in Kg	Cost of Chemicals	Cost on Resin
Formaldehyde	403	19.95	8638.35
Melamine	372	110.02	40927.44
Caprolectam	16	292.85	4685.6
Di Ethyl Glycol	45	106.3	4783.5
Caustic Soda	0.3	48.99	14.697
MA 12	3	679.35	2038.05
FA	3	678.3	2034.9
KS	3	668.05	2004.15
RO Water	140	0.22	30.8
<b>Total</b>			<b>65157.487</b>

 Chemicals Eliminated

 Substituted Chemicals



**#5**  
**Greening the Supply  
Chain & Green  
Procurement**



# Greener Supply Chain



- ❖ Critical Suppliers
- ❖ Green Logistics



- ❖ Green Vendor Development
- ❖ Reduce cost & profit sharing

# SME Rating for Suppliers

- Suppliers / vendors engagement
  - Handholding SMEs to improve systems, performance
  - Resource optimization – energy, water, waste, material
  - Encouraged SMEs to adopt GreenCo Rating



***Annual savings achieved by first 15 SMEs***

***Rs. 3 Cr+***

# Godrej & Boyce Mfg Company

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**62** GreenCo registered suppliers



**54** GreenCo rated suppliers

## Benefits achieved

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15 Companies saved 1.482 million kWh

15 Companies saved 3535 kL of water

12 Companies added > 3 MW of RE

15 companies reduced 1256 tons of CO2 emission

17 companies saved Rs 356 lakhs

GreenCo as a tool for Godrej to monitor performance of the supply chain



# Logistics Excellence - ACC Ltd.



## ❖ Adoption Modern Technologies

- Global Positioning System (GPS) in vehicles

## ❖ Performance monitoring

- Improved truck loading,
- Reduced turn around time,
- Reduced loading hrs at plant

## ❖ Gradual implementation in 17 plants

- Benefits – Rs. 150 Cr/year

# Tata Motors- Supply Chain Management

## ❖ Reduce supply chain footprint

### ➤ Influence suppliers to reduce their intensity

- Collaboration & Training

### ➤ Procure materials

- Green Purchase Policy

## ❖ Tata Motors

### ➤ Closely worked with Suppliers

### ➤ KAIZEN Exercise

- Quality enhancement
- Energy, Material optimization
- Lead time reduction

## ❖ Benefits

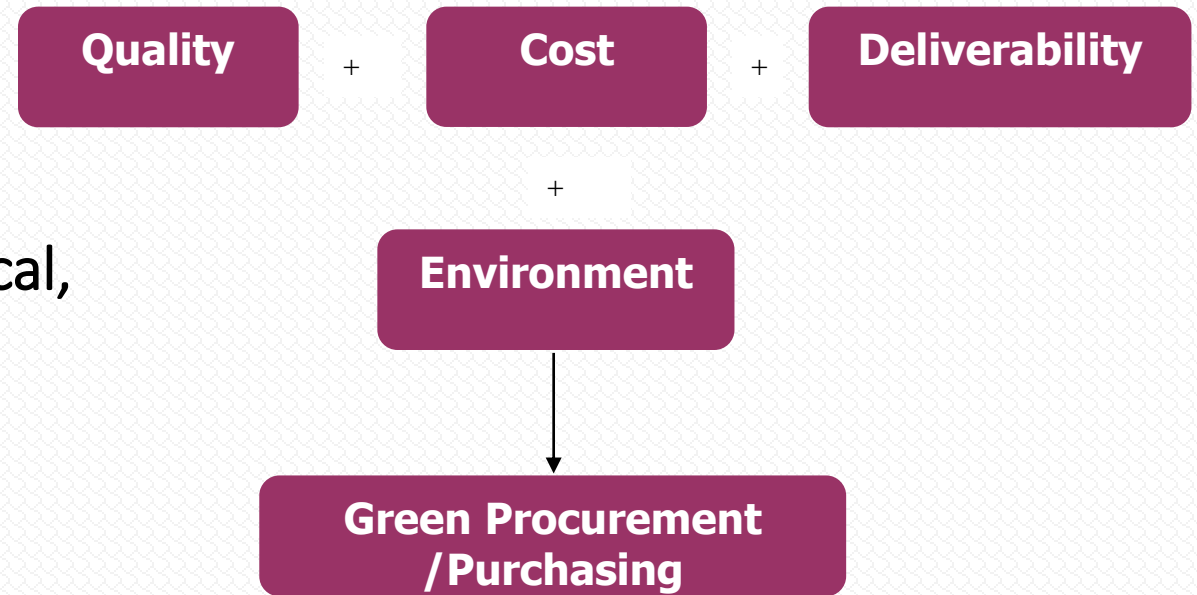
- Rs. 75 Million



# Green Procurement

- Implementation of green procurement guidelines

- Capital goods
- Raw materials
- Maintenance consumables (electrical, mechanical, oil)
- fuel
- Packing materials
- Building materials
- Office products & other consumables



# Energy efficient Chillers

- Magnetic levitation based systems

  - ❑ Friction-free compressor eliminates heat and reduces energy consumption

- Normal efficiency – 0.8 – 1 kWh/TR

- Ultra High Efficiency

  - ❑ 0.35 kW/TR

*Green Procurement Guidelines  
Facilitates purchase of energy  
efficient products*



# #6 Performance Monitoring





# GreenCo Rating System

- ❖ **Rating of Manufacturing facilities on environmental performance**
  - **Resource conservation, Life cycle approach, Product stewardship, Greening of supply chain**
- ❖ **Working with more than 600 plants**
  - **295 are rated & best in class from various sectors**
    - ❑ **E.g., Brakes India, SFL, Lucas TVS, Tata Steel, Godrej, ITC, Mahindra, Indian Railways, HPCL, IOC, SMEs and many other**
- ❖ **Nationally & Globally Acknowledged**
  - **UNIDO included GreenCo as one of the top 50 Best Practices in the World**
  - **Included in Govt of India documents as contribution to India's climate mitigation efforts**



Dr Abdul Kalam addressing  
GreenCo Summit 2013



**GreenCo Rated companies reported a recurring cost savings of Rs.1257 Cr**



## To Sum up

Today **'Going Green'** is not a choice. It is a necessity for competitiveness and Global Excellence



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



Confederation of Indian Industry

## Join the GreenCo group Telegram App

(available for Android and PC)



**Unlimited  
members**

**Scan QR Code to join**



Don't have Telegram yet? Try it now!



GreenCo - Confederation  
of Indian Industry

238 members, 2 online

JOIN GROUP

**An excellent platform to  
learn the latest on  
environmental  
Sustainability for  
members**

- **Green Technologies**
- **Green services**
- **Best practices & Case studies**
- **Rules and regulations**
- **Green Events**
- **Green certified learning programs**

**Send you request in WhatsApp 9177577400 or write to [arun.paulraj@cii.in](mailto:arun.paulraj@cii.in)**

# CII - Certified Professionals

- Climate change & Environmental Sustainability
  - Classes – 25+ hrs , 2- Assignments , 8 MCQs & EXAM
- Carbon footprint
  - Classes – 10+ hrs , Assignments, Exercises, Exam

**Certified Expert in Climate Change & Environmental Sustainability**

CII offers "First of its kind" online certification course on Climate Change & Environmental Sustainability. Led by industry experts, with extensive experience in the field of climate change and environmental sustainability, the course is designed for individuals to explore opportunities available in the field of climate change.

On completion of the course, participants will have a thorough knowledge on:

- Economic sense of exploring climate change opportunities
- Energy auditing
- Water conservation
- GHG inventerisation
- Green buildings
- Life cycle assessment & product stewardship
- Green financing
- Indian & international regulations on environment & climate change

**Ideal for:**

- Sustainability managers
- EHS managers
- Facility & Utility managers
- ISO cell & Lead auditors

**Advantages for Participants:**

- Access to complete course material
- One to one interactions with industry experts
- Interactive online syllabus
- Practical exercises

Mode of Classes : Complete online classes  
Classes starts from : 02 April 2020

Training sessions : 20 + hours  
Final Exam : 27 June 2020

For more details & registrations, please contact: Hiran Prashanth, P.V. Suresh

**2 - 6 June, 2020**  
(1530 hrs – 1700 hrs on weekdays  
1000 hrs – 1200 hrs on weekends)  
\*\*all times are as per IST

**Certified Expert in Carbon Footprint**

**Topics Covered:**

- GHG emission and inventory
- Carbon Footprint standards and reporting frameworks
- Calculation of Carbon Footprint
- Organisational and Product Carbon Footprinting
- Case studies on decarbonisation strategies
- Carbon Disclosure Project, Science Based Targets & Internal Carbon Pricing

**Key Highlights:**

- Complete online program
- Live sessions - an opportunity to interact with instructors during the sessions
- Practical assignments, quizzes
- Certificate on successful completion of the final exam

Climate change is one of the greatest challenges that are faced by countries across the globe. Indian Industry are re-designing their business strategy focusing on decarbonisation to mitigate climate change and GHG emissions. In order to equip Indian Industry and build their capability CII – Godrej (GBC) is organising a unique online program on Certified Expert in Carbon Footprinting.

The program will provide participants a broad overview of carbon footprint mapping, covering the key concepts of GHG Emission and accounting, international standards, reporting frameworks, organisational and product carbon footprints and access to key data, tools and resources.

The course content are based on the VRI/WBSSD GHG Protocol Corporate Standard, referring to the ISO 14064-Part 1 international standard for GHG inventories.

Fee*	
CII / GreenCo / GBC Members	Rs 12,000/-
Non Members	Rs 13,000/-
International Participants	USD 200

\* Inclusive of all taxes

For more details, please contact:  
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Confederation of Indian Industry

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धन्यवाद ।

THANK YOU !