

CI GreenCo Summit 2025

Circular Economy: Innovating for Resource Efficiency

Circular innovations :
Turning waste into value and
water into opportunity

Godrej Enterprises Group



Godrej Enterprises Group

Since 1897, Godrej Enterprises Group (which includes Godrej & Boyce and its affiliates) has contributed significantly to India's economic growth and self-reliance by providing complex engineering, design-led innovation, and sustainable manufacturing solutions. From the world's first patented springless lock, and safes to pioneering Indian made typewriters and refrigerators, the conglomerate has also paved the way for the growth of key sectors like aerospace, energy, and security.

Godrej & Boyce has grown to...

10 Industries—part of
our global footprint | \$2.3 Bn Annual revenue—through
a presence in 80 countries | 15,000+ Employees—part of
a worldwide family



Godrej Enterprises Group

Our Businesses: Driving nation building and consumer centric innovation

Godrej Aerospace



Godrej Storage Solutions



Godrej Process Equipment



Godrej Motors Solution



Godrej Precision Engineering



Godrej Vending



Godrej Tooling



Godrej Interio



Godrej Construction



Godrej Appliances



Godrej Energy Solutions



Godrej Security Solutions



Godrej Material Handling



Godrej Locks & Architectural Fittings and Systems



Business to Business



Business to Customer



Business to Government

Organisation

Our Business Units

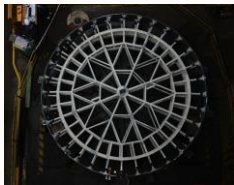
Aerospace



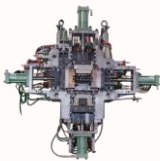
Process Equipment



Precision Engineering



Tooling



Construction



Energy Solutions



Material Handling



Storage Solutions



Motor Solutions



Vending



Appliances



Interio



Locks & Architectural Fittings and Systems



Security Solutions



Who we are



PURPOSE | Why We Exist

Pioneer Progress for Generations



VISION | What We Want to Achieve

Admired for sustainability practices, innovative solutions, and superior business performance



MISSION | What We Do

Unlock experiences that engage customers and build loyalty

REFLECTED IN OUR

Good & Green

philosophy

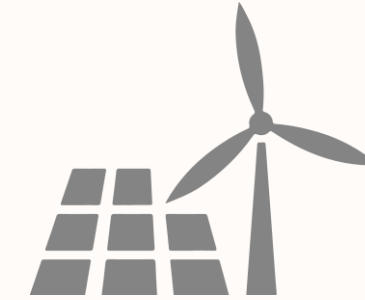
VALUES | integrity | trust | respect | customer centricity | entrepreneurship and environment stewardship

Godrej Good & Green

Beyond business: Building a more Inclusive and Greener India



Good & Green Products



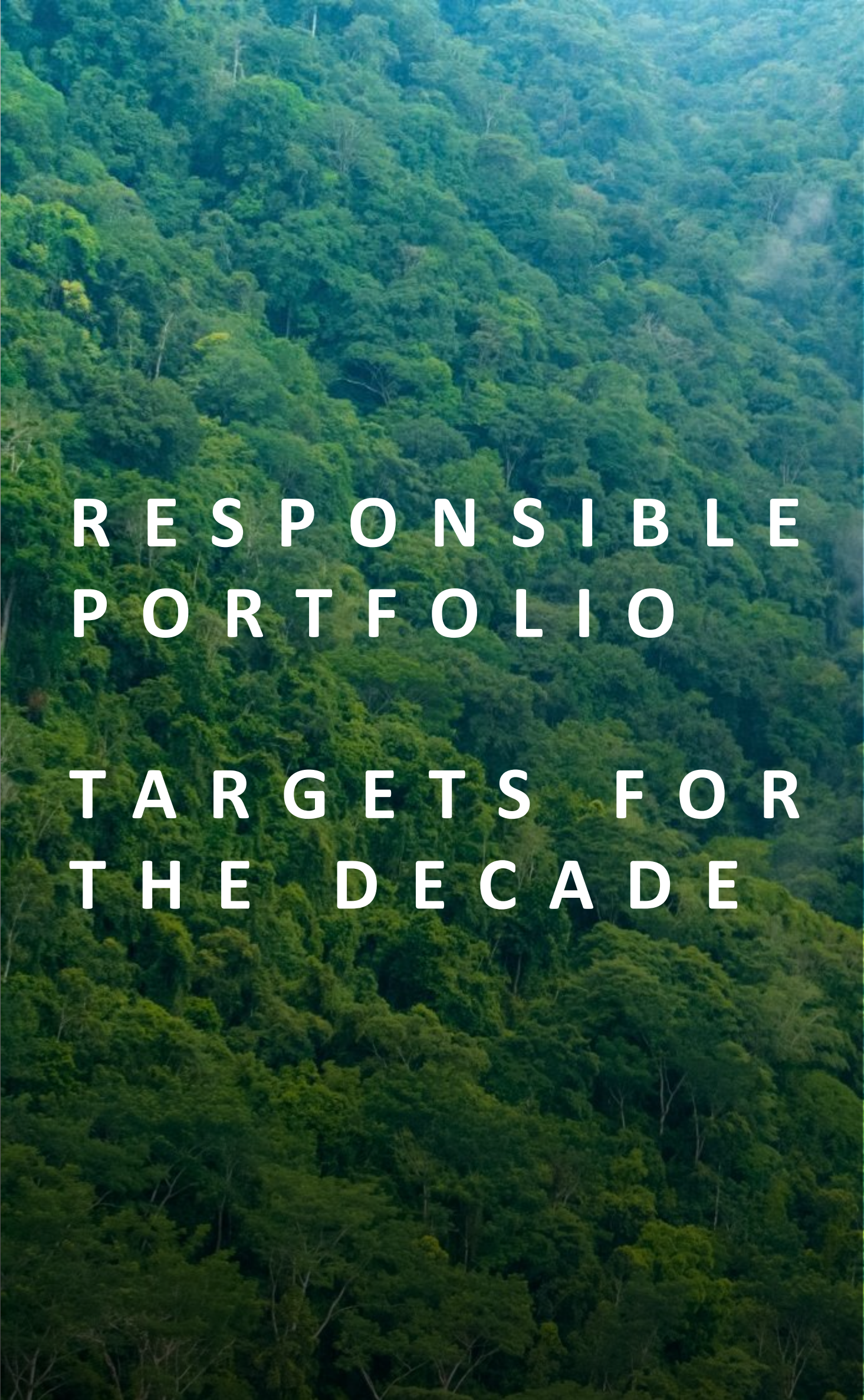
Greener India



Ensuring Employability



Community Development



RESPONSIBLE
PORTFOLIO

TARGETS FOR
THE DECADE

Public



Creating a
Greener India

60%

increase in energy
productivity

60%

Decrease in carbon
intensity

40%

Renewable energy use

Zero

waste to landfill

25%

Reduction in sp. Waste
generation

25%

Reduction in sp. water use

2X +ve

water balance



Good & Green
products

50%

revenue generated
from Good &
Green products

80%

Domestic buying
from Green
suppliers

Net Zero Buildings



Enable Skills

1 lac+

youth

2X

Employment
Rate

10X

SROI



Community
employment

**Creation of
community
assets**

**Social
Development**

**Economic
development**

**Environment
sustainability**

Godrej

Green Products



Godrej Appliances

Energy Efficient AC and Refrigerators (BEE 4 / 5 Star & % Star Rated) Environment friendly refrigerant



Godrej Interio

Green Certified Furniture (GREENGUARD, BIFMA LEVEL, GRIHA, GREENPRO, INDOOR ADVANTAGE)



Green Products

Godrej Construction

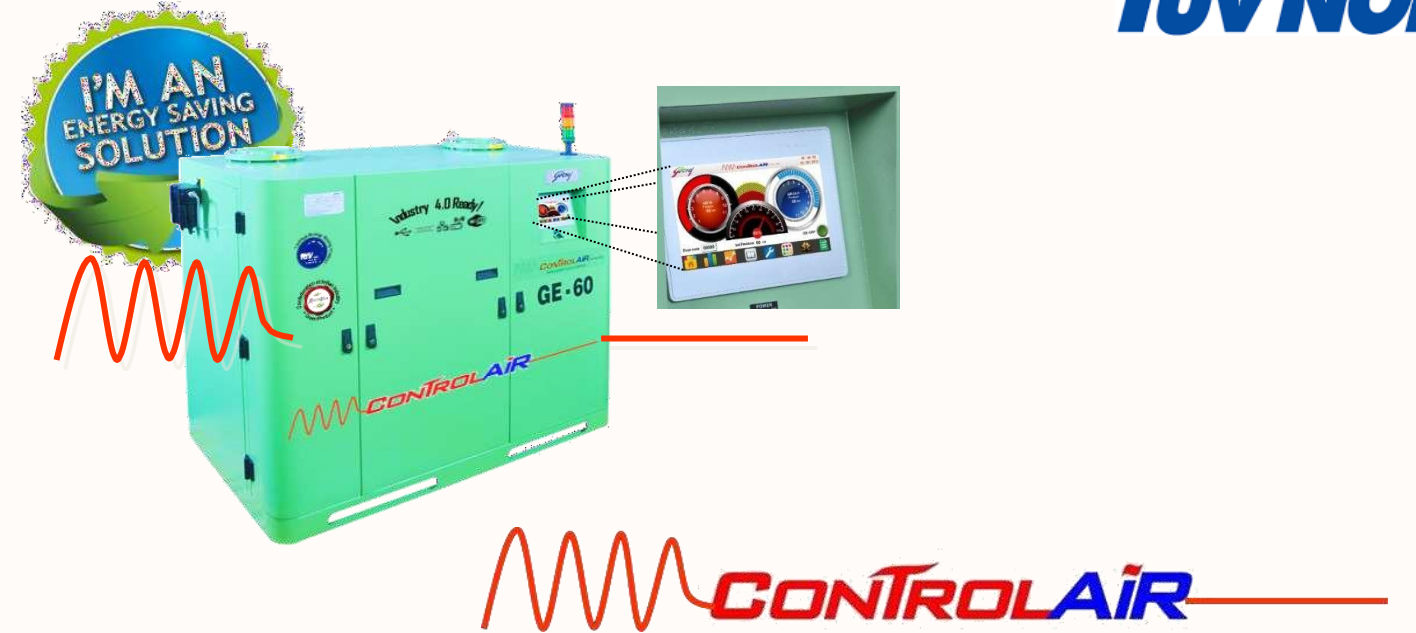


AAC Blocks and Recycled Concrete Block

Godrej Security Solutions



Godrej Electricals & Electronics



Godrej Lawkim Motors



Hermetic compressor motors

Godrej Vending



Ecostar Vending Machine

Godrej Material Handling



Targets



Creating a Greener India

60%

increase in energy productivity

60%

Decrease in carbon intensity

40%

Renewable energy use

Zero

waste to landfill

25%

Reduction in sp. Waste generation

25%

Reduction in sp. water use

2X +ve

water balance

80%

Domestic buying from GreenCo / SBTi compliant suppliers

100%

Net Zero Buildings (All non-manufacturing)

- (1) All Targets aligned to Global Initiatives signed into (EP100, SBTi, Net Zero etc...)
- (2) All GEG Mfg. Locations to be 'GreenCo' certified and Key Suppliers either GreenCo or SBTi signatories
- (3) Internal Carbon Price at \$5/tCO₂

WASTE MINIMISATION & RECYCLING

Approach: Zero Waste to Landfill

Key Initiatives

- Eliminating Toxic or Hazardous material use
- Minimising Hazardous waste generation
- Maximising material recovery, reuse
- Promoting waste upcycling and recycling
- Adopting Extended Producers Responsibility
- Product Stewardship
- Adopting Circularity Principles





Godrej & Boyce’s Zero Waste to Landfill Certification

Godrej & Boyce has achieved a significant milestone in the Good & Green - Greener India initiative by successfully obtained “Zero Waste to Landfill - Platinum level” with 98.31% diversion rate for non-hazardous waste for its Vikhroli location through third party certification (from TUV) under the TRUE (Total Resource Use and Efficiency) Zero Waste guidelines.

G&B’s Appliances and Interio BUs have also obtained this certification at their plant locations as:

Appliances Mohali- 99.92%, Appliances Shirwal- 99.96%, Interio Shirwal Plant 1- 99.97% and Interio Shirwal Plant 2- 99.89%



APPLIANCES Mohali
99.92% diversion



APPLIANCES Shirwal
99.96% diversion



G&B Vikhroli
98.31% diversion



INTERIO Shirwal Plant 2
99.89% diversion



INTERIO Shirwal Plant 1
99.97% diversion

What is Circularity?

Circularity as a term is a bit more specific than sustainability. While sustainability acts as an umbrella for every practice that strives to sustain the future, circularity is more about the practices which lead to sustainability. Like reusing raw materials, refurbishing used products, or recycling old materials and so on.

the 10Rs:

Refuse | Rethink | Reduce | Reuse | Repair | Refurbish | Remanufacture | Repurpose | Recycle | Recover

CIRCULARITY IN PRODUCTS & PROCESSES

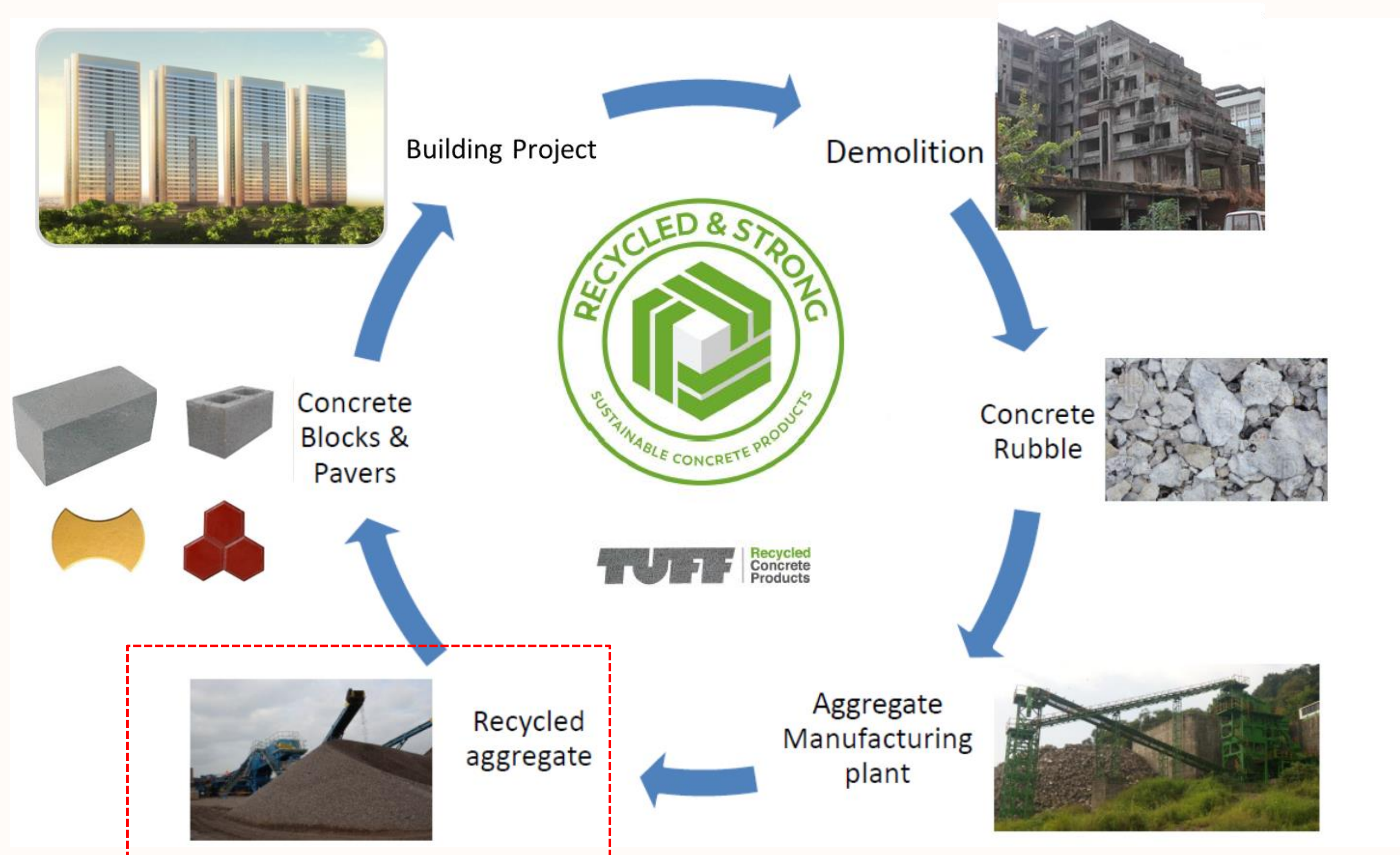
GODREJ CONSTRUCTION



Circular Economy – Recycling Concrete Debris

Public

Godrej



RECYCLED CONCRETE MATERIALS PLANT, MUMBAI

Public



RCM PLANT RECEIVED GREEN PRO CERTIFICATE IN FEB 2018

1ST RCM PLANT IN INDIA POWERED BY 100% GREEN POWER



Established in Year 2017

Full Capacity - 300 TPD

Upscaling Of Construction Debris

Public



GODREJ CONSTRUCTION HAS
ALREADY RECYCLED
25,000+ MT
OF CONCRETE DEBRIS TILL DATE

Upscaling Of
Construction
Debris



LCA : Comparison with Standard Concrete Block

50% less Primary Energy demand

51% less Abiotic Depletion

33% less Global Warming Potential

OUR FIRST RECYCLED CONCRETE BOX CULVERT SEGMENT FOR THE MUNICIPAL CORPORATION OF GREATER MUMBAI.



MAKING INDIA SELF-RELIANT SINCE 1897.

Godrej | GODREJ & BOYCE

PRECAST BOX CULVERTS FOR STORM WATER DRAINAGE FOR MUMBAI COASTAL ROAD PROJECT – PKG 1 & PKG 4

Employer:



PMC:



General Consultant:



RECYCLED CONCRETE MATERIAL - QUALITY

GC IS THE FIRST ORGANIZATION TO RECEIVE ISI CERTIFICATION FOR CONCRETE PRODUCTS

ISI Certification for RCM (Blocks)



Recycling Concrete Debris

To **promote adoption of Circular Economy principles** in the Construction industry, we have developed **for the first time a very sustainable concrete mix design comprising of ~ 100% of Recycled Concrete Aggregates (RCA)**, sourced from concrete waste debris, recycled at the Godrej Recycled Concrete Plant, at Vikhroli, Mumbai



INTERNATIONAL COLLABORATION

**GODREJ RECYCLED CONCRETE BLOCKS :
TEST RESULTS FOUND THE CONCRETE BLOCKS EXCEEDING THE QUALITY STANDARDS**

**TREATMENT AND UTILIZATION OF CONSTRUCTION
AND DEMOLITION WASTE (C&D WASTE) IN INDIA**



NORWEGIAN EMBASSY



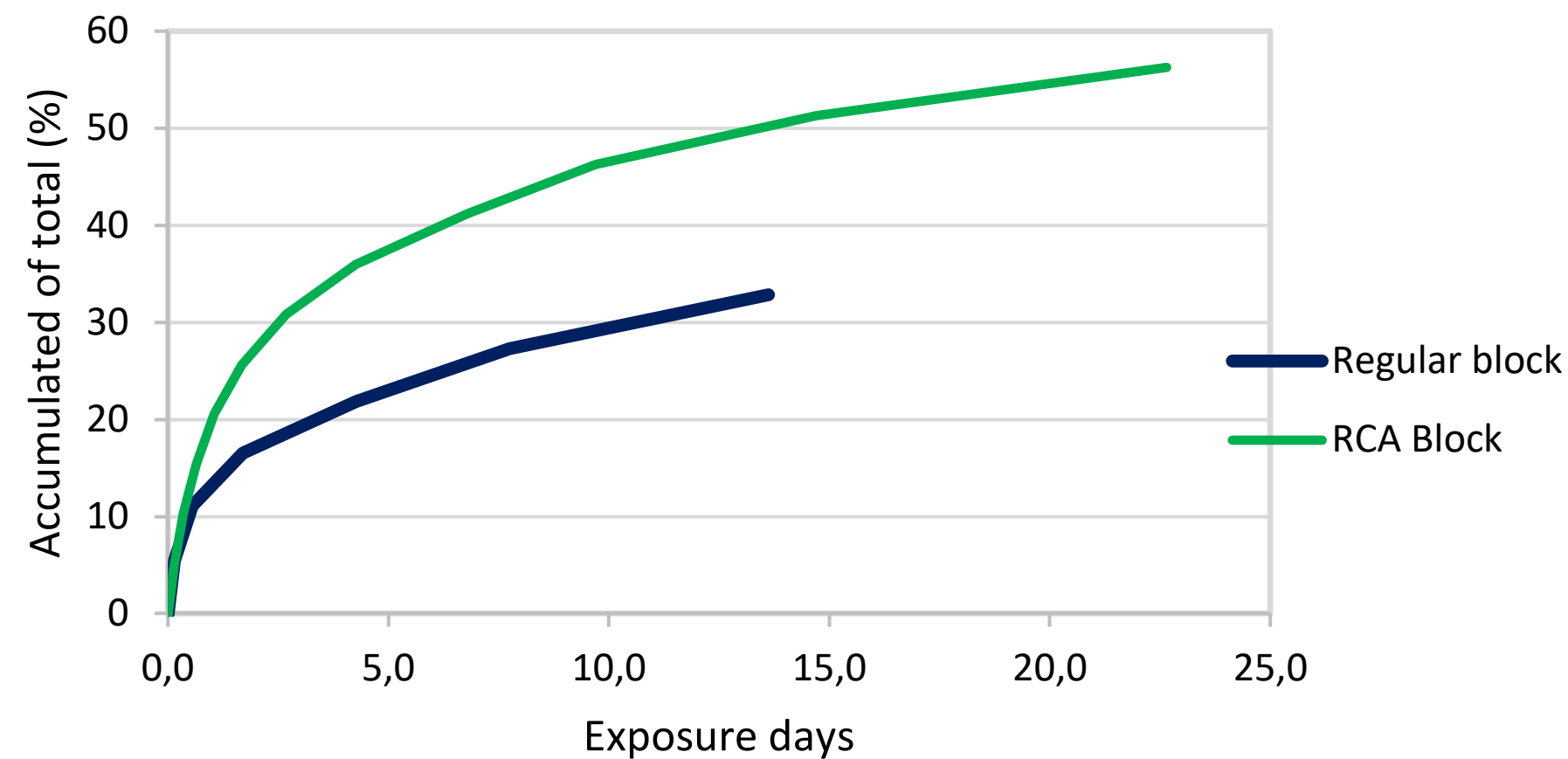
SINTEF

CPWD

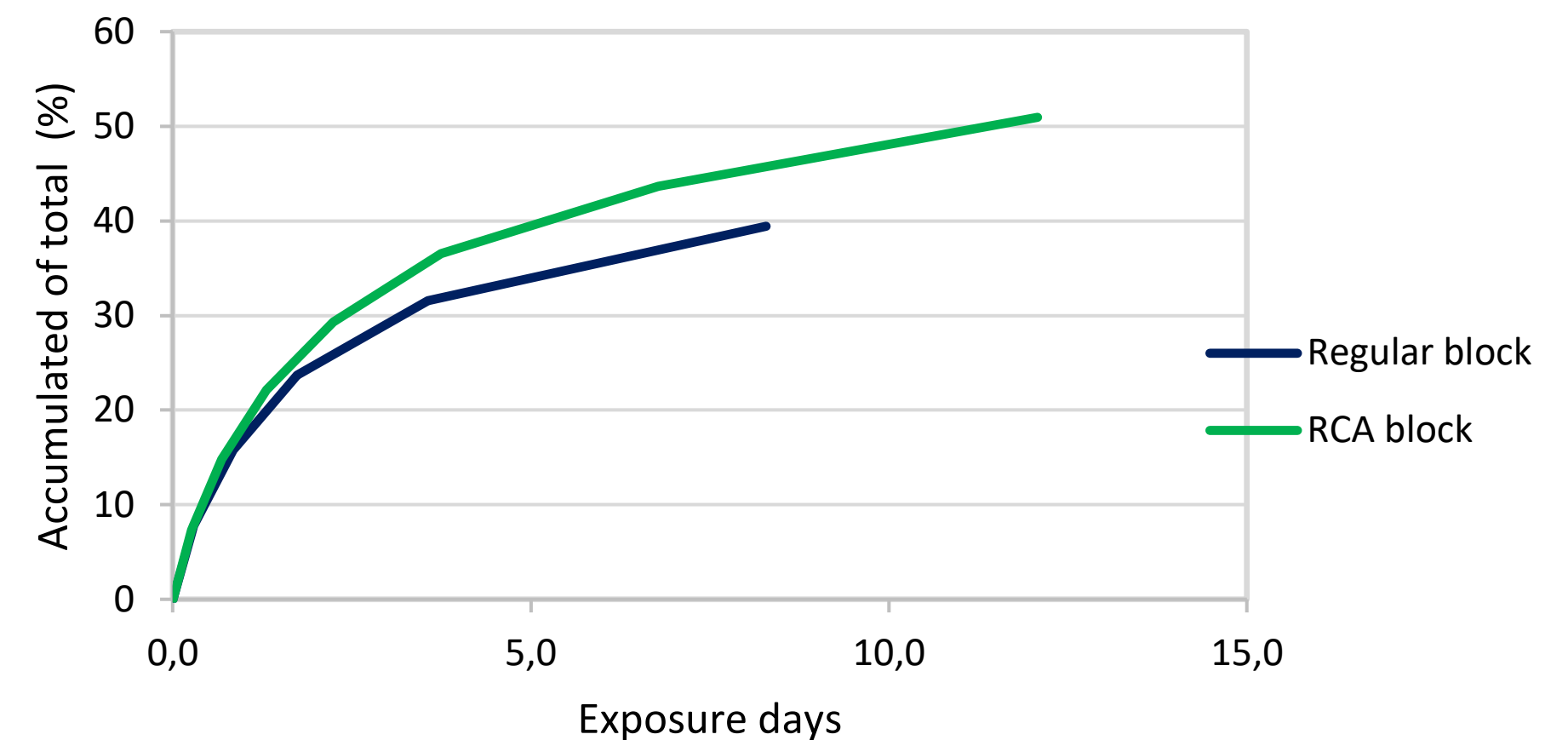


CO2 Binding Potential of Godrej Recycled Blocks

Godrej Pilot CO2 uptake at RH of 53%



Godrej Pilot CO2 uptake at RH of 70%



Increased CO2 binding capacity is demonstrated by in situ measurements at SINTEF
New measurements will be done by exposing the blocks as whole pieces

Godrej & Boyce 's Philosophy of Implementing Plastic EPR

5Rs : Redesign – Reduce – Reuse – Recycle – Recovery

1. Identify and eliminate wasteful plastic use
2. Reuse packaging plastic to the extent possible
3. Switch to bio-degradable packaging to the extent possible
4. Phase out the use of non-recyclable plastic types by substitution
5. Maximise recycle content in packaging plastic



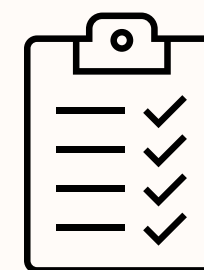
To Treat All Types of Plastics

(LDPE, HDPE, PP, PET, PVC, MLP, PS)



To Support Development and Boost the Plastic Waste Management Ecosystem in India

To Achieve Equitable Geographical Spread across states having G&B's business presence



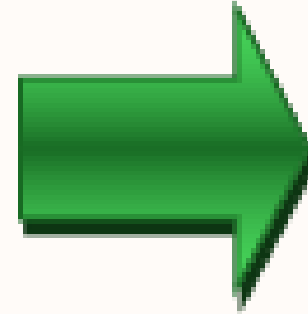
To Go Beyond Compliance and Make Meaningful Difference to the Environment

Replacing EPS with Sustainable Corrugated Packaging : Godrej Appliances

Before



After



Benefits of the transition:

Replacement of over **480 MT** of EPS with honeycomb packaging annually of implementation

Apart from base of the product all the packaging has been replaced by honeycomb packaging for following product categories.

- Refrigerator:
- Washing Machine:
- Qube model.

Geography : Pan India, Gulf Countries for few models

Replacing EPS with Sustainable Corrugated Packaging : Godrej Interio

To eliminate use of thermocol in packaging of products, GI switched to environment friendly solution suitable for protective packaging need by using paper honeycomb boards.

The paper used for packaging material is made of 70% recycled paper and is 100% recyclable making it an environmentally friendly choice. Honeycomb packaging replaced approximately 52 tons of thermocol packaging in FY 18-19.



Before



After



Before



After

Benefits:

The paper used for packaging material is made of 70% recycled paper and is 100% recyclable making it an environmentally friendly choice. Honeycomb packaging replaced approximately 52 tons of thermocol packaging

Reengineering of Plastic HIPS Waste

Issue

- VF Rejection Generation Regularly
- Trim and VF Rejection RM Same.
- Trim Send for Regrinding and usage in Mfg..
- VF Process rejection Disposal Done .
- Recovery Through Disposal is Less @ Rs.32 /Kg.

Photo



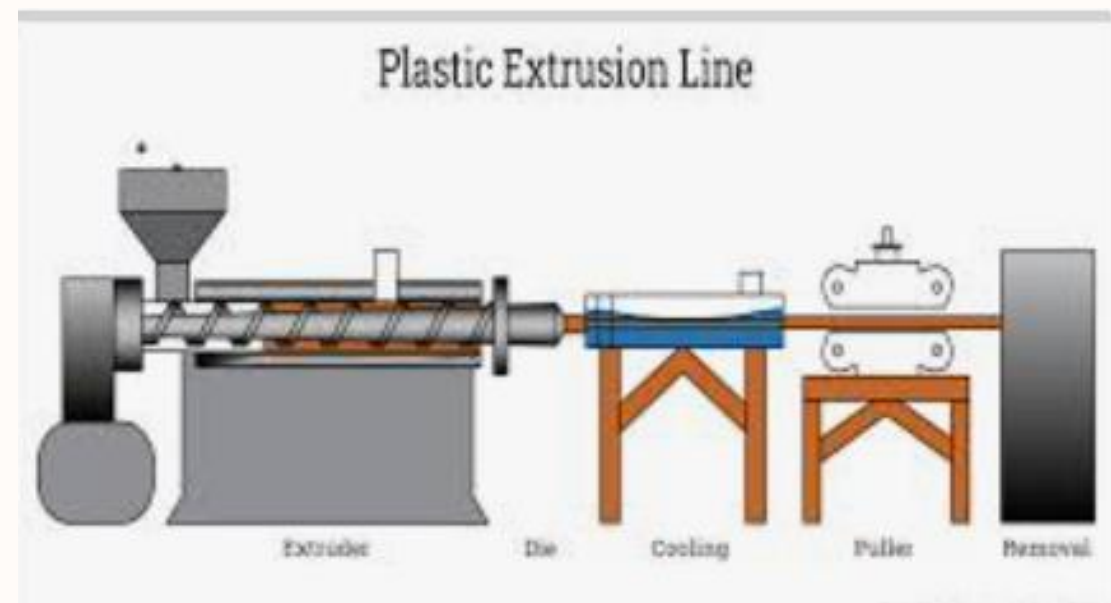
Demerit

- No Control on Recycler depletion process
- Loss of Revenue Opportunity .

Improvement Idea

- Re Engineering of VF Rejection ..
- Process Change Disposal → Reengineering
- Compare Old New Process cost.
- Supplier to Reuse in Mfg. Process
- Discounted Rate usage for 20 % Reuse @ Rs87 / Kg.

Photo

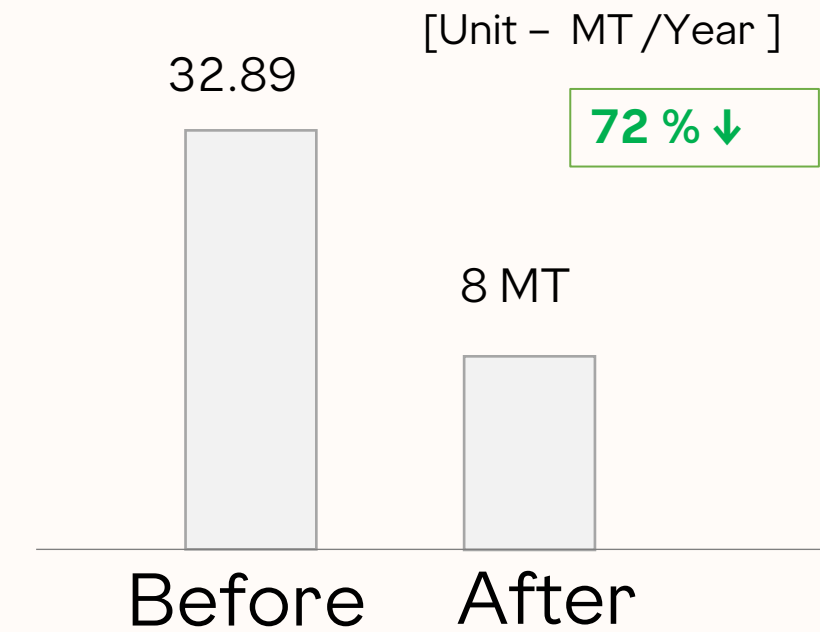


Merit

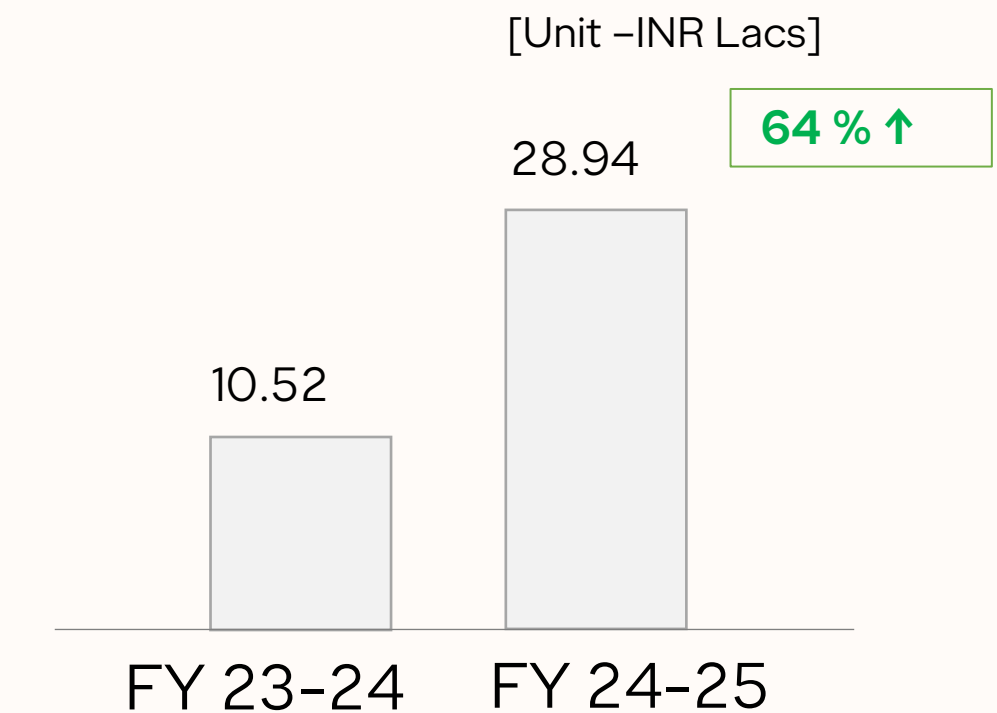
- Proper Control on Supplier Mfg. process
- Revenue Upscale Opportunity .

Impact

Plastic Waste Reduction



Revenue Enhancement



Apply From : 1 May 24

HIPS trim waste grinded and reused as raw material in our injection molding machines for producing refrigerator and air conditioner parts.. This initiative has resulted in a 72% reduction in HIPS trim waste and annual savings of 18 lakhs.

Reengineering of EPS Waste

Before

Issue :

- Biz Need for Mfg. of Aircon , Washer below Import Parts.
- Aircon Compressor Assy .
- Washer Mechanical Assy ,M Assy
- Moderate generation of EPS Waste
- No feasibility of recycle for import

Photo :



After

Improvement Action :

Reengineering of EPS waste at Supplier end by Supp facility.
EPS Barrier Assy Ref Parts making for Mfg. .

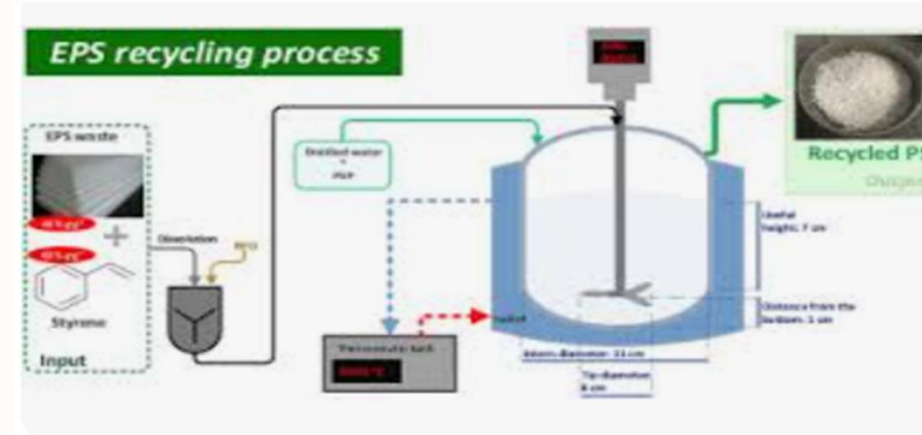


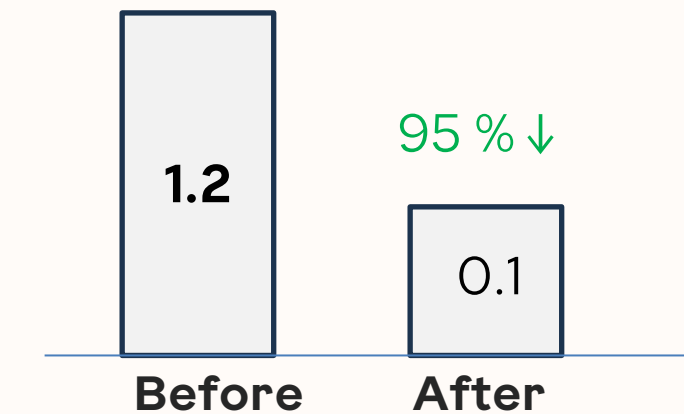
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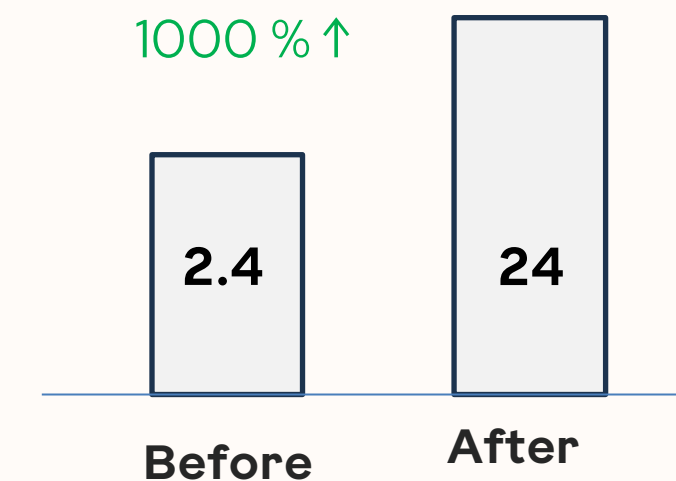
Result

Improvement Impact :

EPS Waste Reduction Unit [MT] (Overall, 1 % ↓)



Revenue Impact Unit [INR K]



Use packaging EPS from imports for manufacturing barriers used in refrigerator production.
This initiative has resulted in a 95% reduction in EPS waste and annual savings of 22 lakhs

Reengineering of Corrugation Waste and Enhancement of circular Economy

Issue :

- Biz Need for Mfg. of Aircon ,Refer Washer below Import Parts.
- Aircon PCB Assy ,Motor Assy Compressor
- Washer Mechanical Assy ,M Assy
- Refer PCB Assy, Functional Part.
- Heavy generation of corrugation waste .
- No feasibility of recycle for import

Photo :



Improvement Action :

Reengineering of Corrugation waste at Supplier end by pulping facility. Corrugation and Sheet and Box making for Mfg. /Service usage.

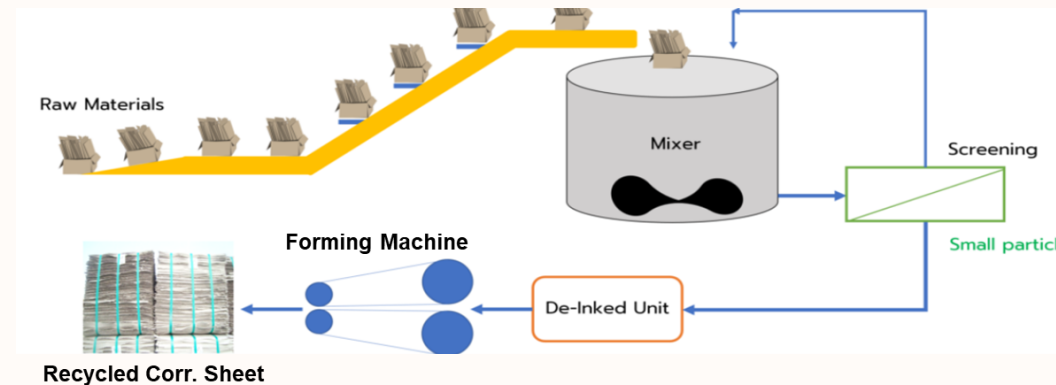


Photo :



Improvement Impact :

Overall Waste Reduction

Unit [gm / Appl]

(Overall, 19 % ↓)

638

Before

511

After

Revenue Impact Unit [INR Lacs]

25 % ↑

56

Before

70

After

Other :
Environmental Impact

Corrugated boxes used for packing imported parts reengineered to convert this packing waste into pulp, which is then used to create packing carton boxes for our service items. This initiative has resulted in a 19% reduction in waste generation.

Story Of Collaborative Innovation

Industrial Businesses



Godrej & Boyce



Aerospace



Process Equipment



Precision Engineering



Tooling

G&B SBUs

Office, Consumer Products & Other Businesses



Appliances



Locking Solutions & Architectural
Fittings and Systems



Electricals & Electronics



Interio



Lawkim Motors



Construction



Material Handling



Storage Solutions



Security Solutions



Vending

Identified Potential Element

- **Use** –Balancing of weight in Forklift operations.
- **Technical Requirement** – The desired weight of counterweight irrelevance of material used.
- **Shape**- Outer Shell must be accurate as per the design



Forklift



Counter Weight

Developed Innovative High Density Mix Design Using Waste Materials



Business District

Sales Performance (FY21)



Recycled Sand -----Produced with Concrete debris (Construction demolition waste)



Iron Scrap /Punching scrap----- Manufacturing waste of Storage solution business



Iron Ore-----Waste for processing of steels

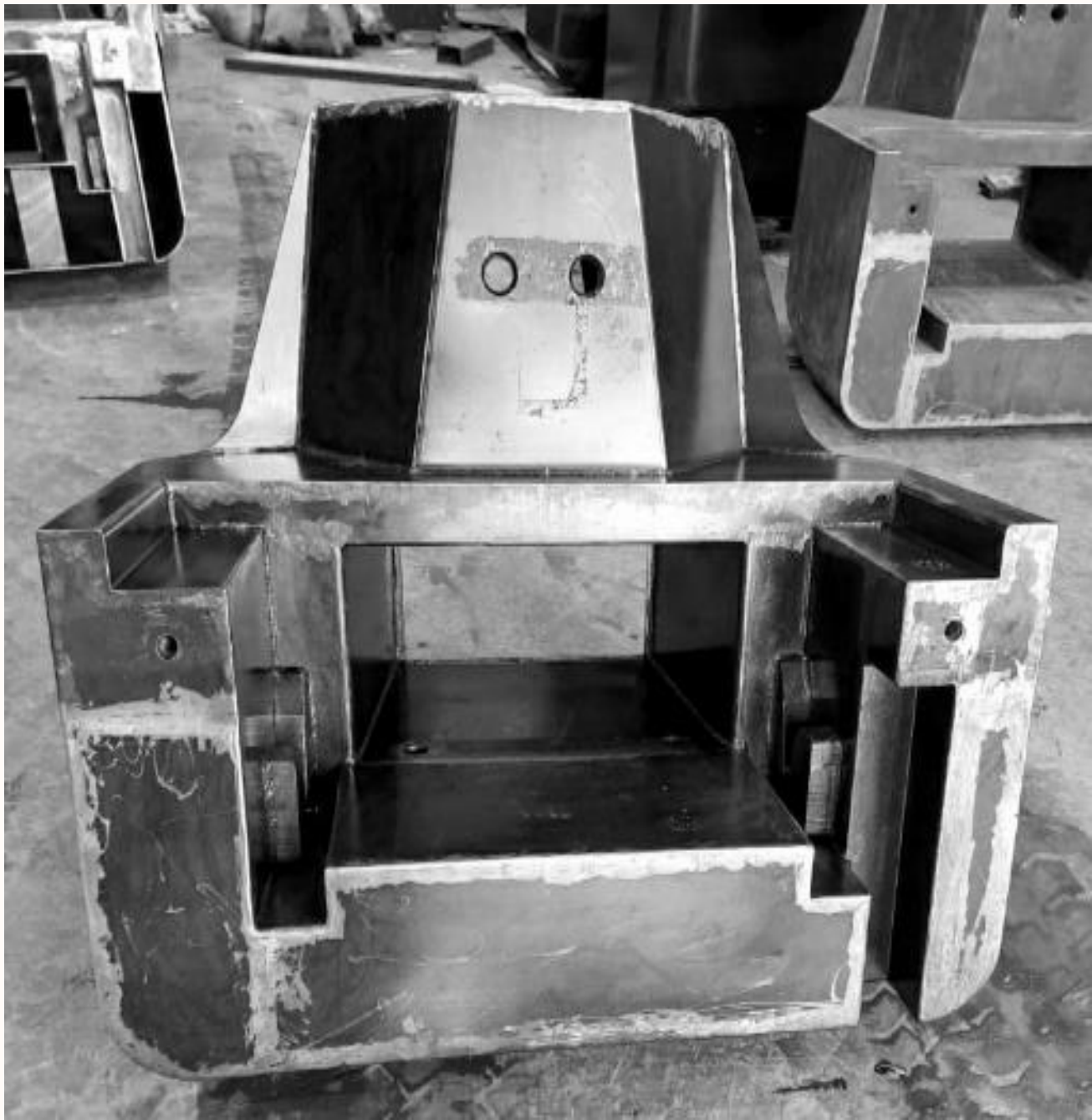


Fly Ash-----Waste product of thermal power plants

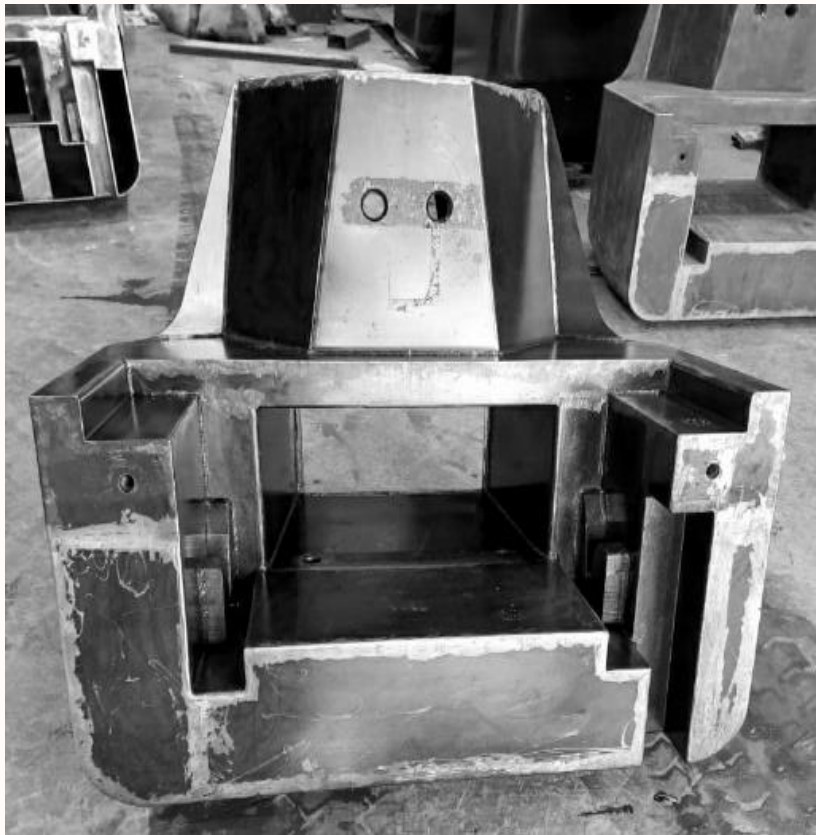
Green Power being used in filling process

The sustainable transition

Before



Now



Recycled Sand

Iron Scrap
/Punching scrap

Fly Ash

Iron Ore

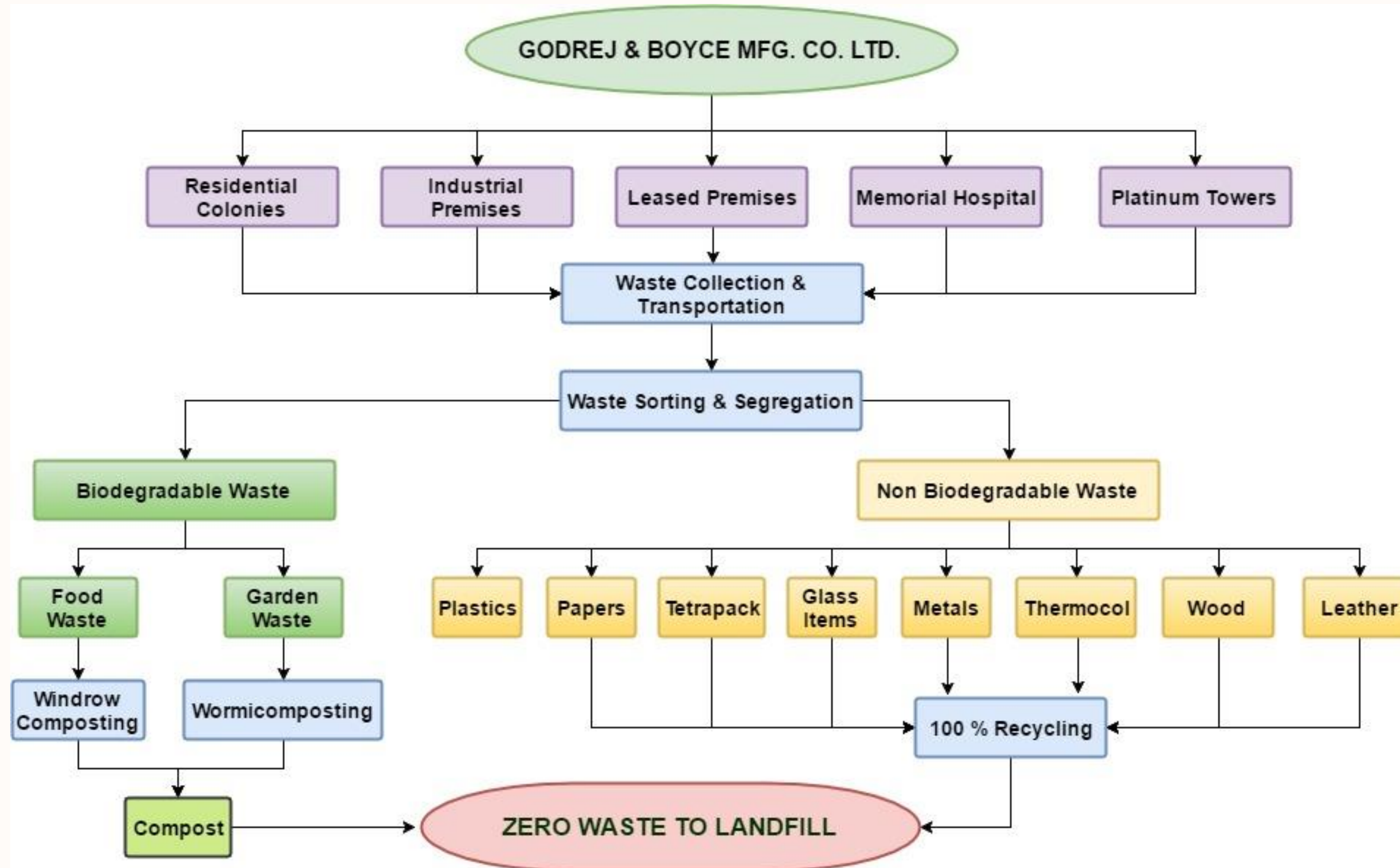


Industrial Materials Journey & Upcycling

- Incubated by Godrej & Boyce's 'Innovation & Design Centre' in Feb. 2015.
- Unique approach, moving towards taking accountability of its own footprint and being transparent about its waste generation.
- Alternative applications for non-hazardous industrial waste through material design and research.
- Survey of 39 Mfg. Facilities was carried out across India.
- Database of 800 Materials created.



MUNICIPAL SOLID WASTE - IMPLEMENTATION MODEL



Zero Garbage To Landfill Initiative at Pirojshanagar, Vikhroli



Waste Points	70 +
Area	1200 Acres
Location	Industrial, Leasing, Residential Colony, Schools, Hospital, Community Center
Qty. of Waste	10 to 11 MT / Day
Activities	Collection, Transportation, Segregation, Composting, Recycling of Solid Waste
Employment	34 From BPL Group
Worker Benefits	Stable Income ESIC & EPF Safety Measures Uniforms Better Working Conditions
Project Benefits	Legal Compliance, Reduced load to Dumping Grounds, Support to Swacch Bharat Mission, Decentralised Waste Management, Clean & Hygienic Environment, 100 % Recycling of Dry Waste, Compost for Horticulture Use





SEGREGATED DRY
WASTE





COMPOSTING PROCESS





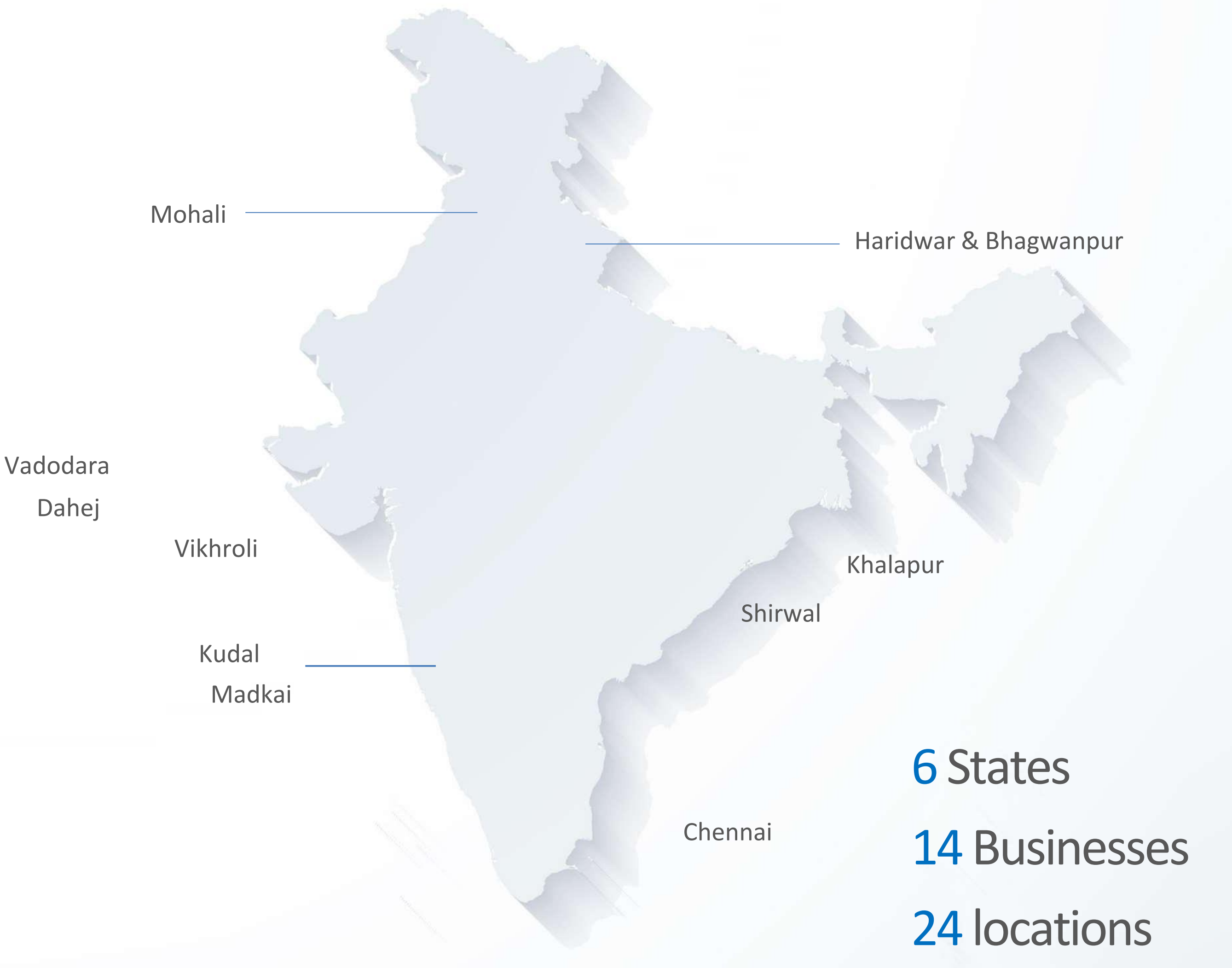
WATER CONSERVATION

Location: 24 Manufacturing plants

Key Initiatives

- Water Audit of process and utilities
- Use of low flow water efficient fixtures
- 100% Effluent treatment
- Zero liquid discharge
- Optimising Recycling Systems performance
- Maximising utilization of Recycled water
- Maximising harvesting of Rainwater

Godrej & Boyce : Zero Wastewater Discharge & Treated Water Recycling



- Godrej & Boyce Campus Vikhroli
- Godrej & Boyce Campus Khalapur (South)
- Godrej Appliances Mohali
- Godrej Appliances Shirwal
- Godrej Appliance Pirangut
- Godrej Interio – Shirwal Plant 1
- Godrej Interio – Shirwal Plant 2
- Godrej Interio – Bhagwanpur
- Godrej Interio – Haridwar
- Godrej Interio – MEPZ Chennai
- Godrej Lawkim – Shindewadi
- Godrej Locks – Madkai, Goa
- Godrej Locks – POR, Vadodara
- Godrej Locks – Kudal
- Godrej PED – Dahej
- Godrej SSG – Ambattur, Chennai
- Godrej Construction (7 RMC plants) – Mumbai (3) Pune (2) MMR (2)
- Godrej Construction RCM Plant – Vikhroli

INITIATIVES TAKEN TO MEET WATER TARGETS

Water Recirculating in processes

- Recirculating tank installed for cooling purpose
- Only Well or Recycled water is used for cooling

Change of Taps

- All conventional taps in domestic use are replaced with Push type or Sensor type Taps
- Aerator is fitted on tap to reduce the flow

Rain Water Harvesting

- Rain water Harvesting initiative at corporate level.
- Over 80% of actual potential is captured for manufacturing plants

Waste water Recycling for Process use

- ETP or STP treated water is used in RO
- RO water is used for major water consuming process i.e. Powder Coating
- RO reject is reused after blending

Recycling in other applications

- For Toilet flushing, Irrigation and gardening and cooling applications ETP or STP treated water is used



GODREJ
VIKHROLI
CAMPUS WATER
RESOURCE
RECOVERY BY
WASTE-WATER
RECYCLING
TO SUFFICE
AROUND 50 % OF
WATER
FOOTPRINT



CETP - 750 m3/day



STP @ Gate NO.7- 750 m3/day



STP Station colony - 900 m3/day



STP @ GGE – 550 m3/day



STP @ Gate No 1- 240 m3/day



STP @ IT Park- 800 m3/day

G&B's Water Recycling Initiatives to Ensure Availability of Water with Optimistic OPEX

WATER POSITIVE CAMPUS: WASTEWATER COLLECTION, TREATMENT, RECYCLING & REUSE

GODREJ CHENNAI

Zero Liquid Discharge by implementation of effluent recycling through RO AND MEE

WATER POSITIVE by on campus RAINWATER HARVESTING





RAINWATER HARVESTING

Location: Vikhroli, Khalapur, Shirwal, Mohali, Haridwar,
Madkai, Goa, Chennai

Key Initiatives

- Maximum catchment capacity
- Efficient Storm water management
- Assessing Extraction Impact
- Realtime ground water level monitoring
- Monitoring extraction
- Capture for substituting use
- Ground water recharge

Good & Green Products

37%

of revenue through
Good & Green products

695+

certified Green products

130+

products completed life cycle
assessment



Greener India : Impact of the last decade

60%

reduction in energy and carbon intensity

60%

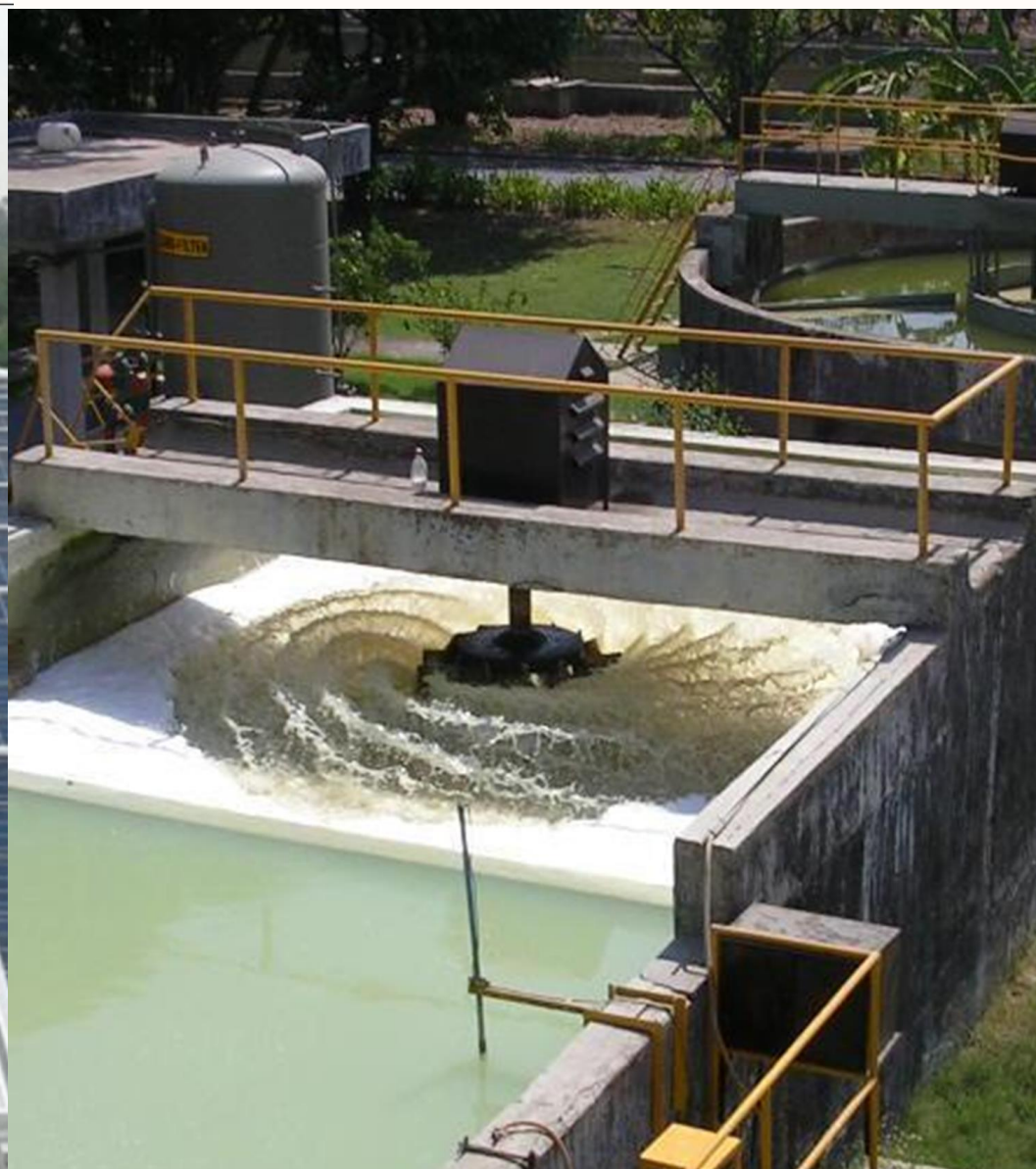
reduction in water consumption

0

Waste to landfill

+ve

water balance since 2016





Godrej Enterprises Group



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