

CII National Award on Environment Best Practices 2024



Biodiversity
Management

Presented By

Godrej & Boyce Mfg. Co. Ltd. India

Ms. Tejashree Joshi, Head - Environmental Sustainability

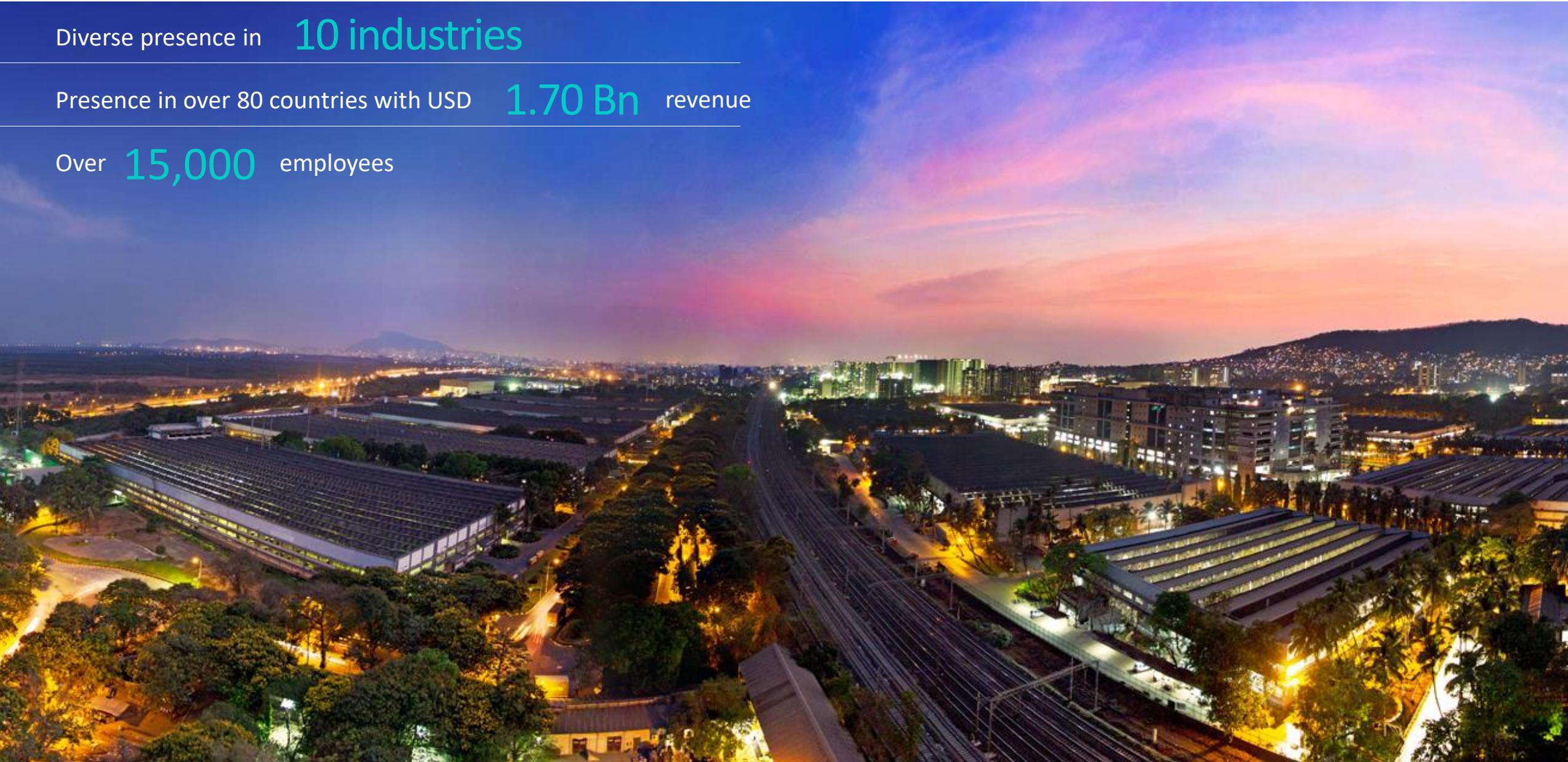
Ms. Aarti Bhambore, Head – Horticulture Management Services

Godrej & Boyce has

Diverse presence in **10 industries**

Presence in over 80 countries with USD **1.70 Bn** revenue

Over **15,000** employees



Organization

OUR BUSINESS UNITS

Godrej Aerospace



Godrej Storage Solutions



Godrej Process Equipment



Godrej Lawkim Motors



Godrej Precision Engineering



Godrej Vending



Godrej Tooling



Godrej Interio



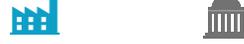
Godrej Construction



Godrej Appliances



Godrej Electricals & Electronics



Godrej Security Solutions



Godrej Material Handling



Godrej Locks & Architectural Fittings and Systems



Business to Business



Business to Customer



Business to Government

Godrej Good & Green

Beyond business: Building a more Inclusive and Greener India



Good & Green Products



Greener India



Ensuring Employability



Community Development

Minimizing our environmental impact



Doubled our energy productivity

Reducing energy use and emission intensity

Transition to low carbon technologies from Thermal Energy to Electricity

Green buildings developed for company's operations & tenants



Water positive

Reducing water use Intensity

Wastewater Recycling

Rainwater harvesting for own operations and in communities



Zero waste to landfill

Total waste minimization and recycling

Plastic use reduction and recycling

Increasing adoption of circularity



Preserving biodiversity

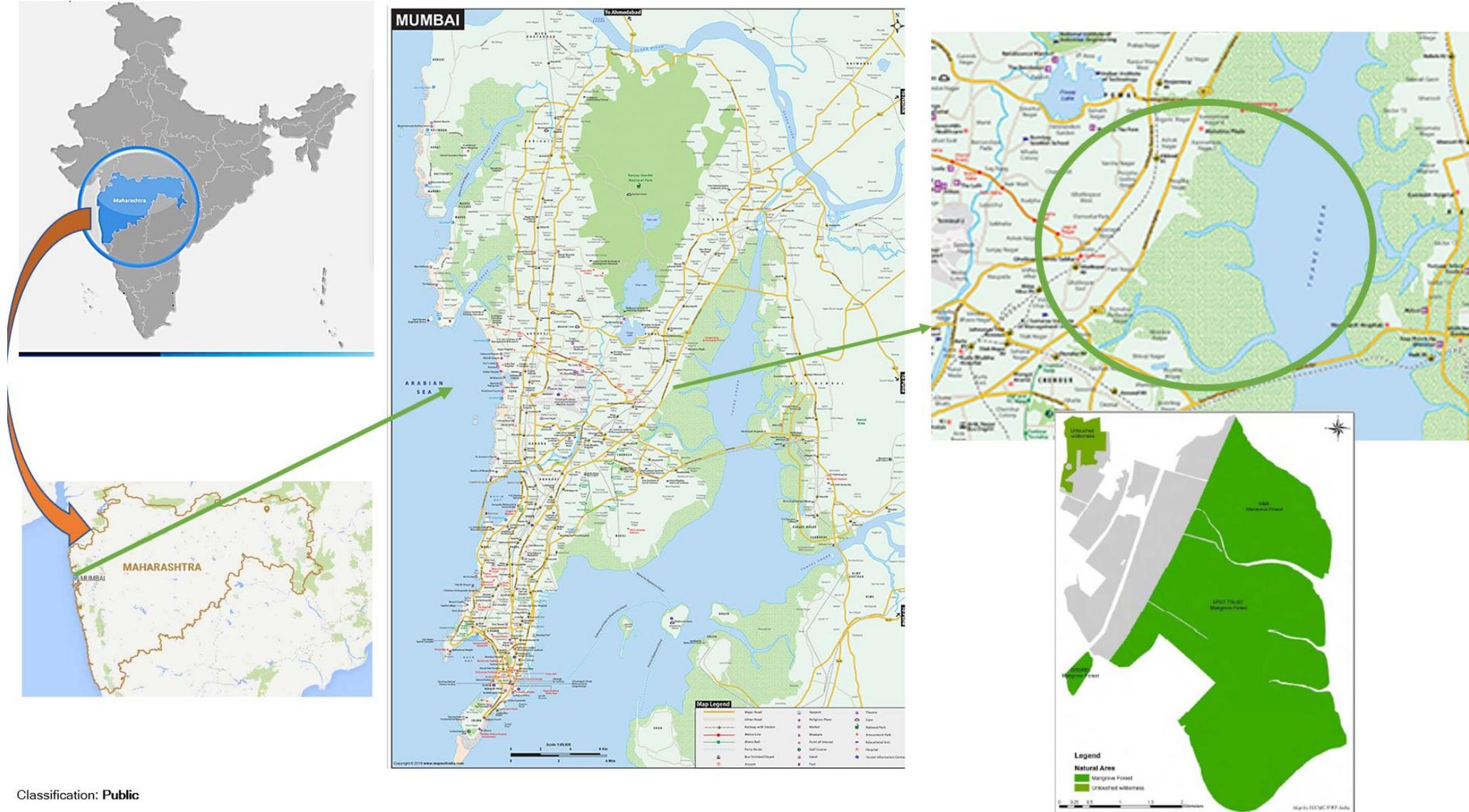
Mangroves conservation

Awareness and research

Rescue and rehabilitation of distressed fauna

Sustainable landscapes

Godrej & Boyce: An Oasis in Mumbai



India Business & Biodiversity Initiative



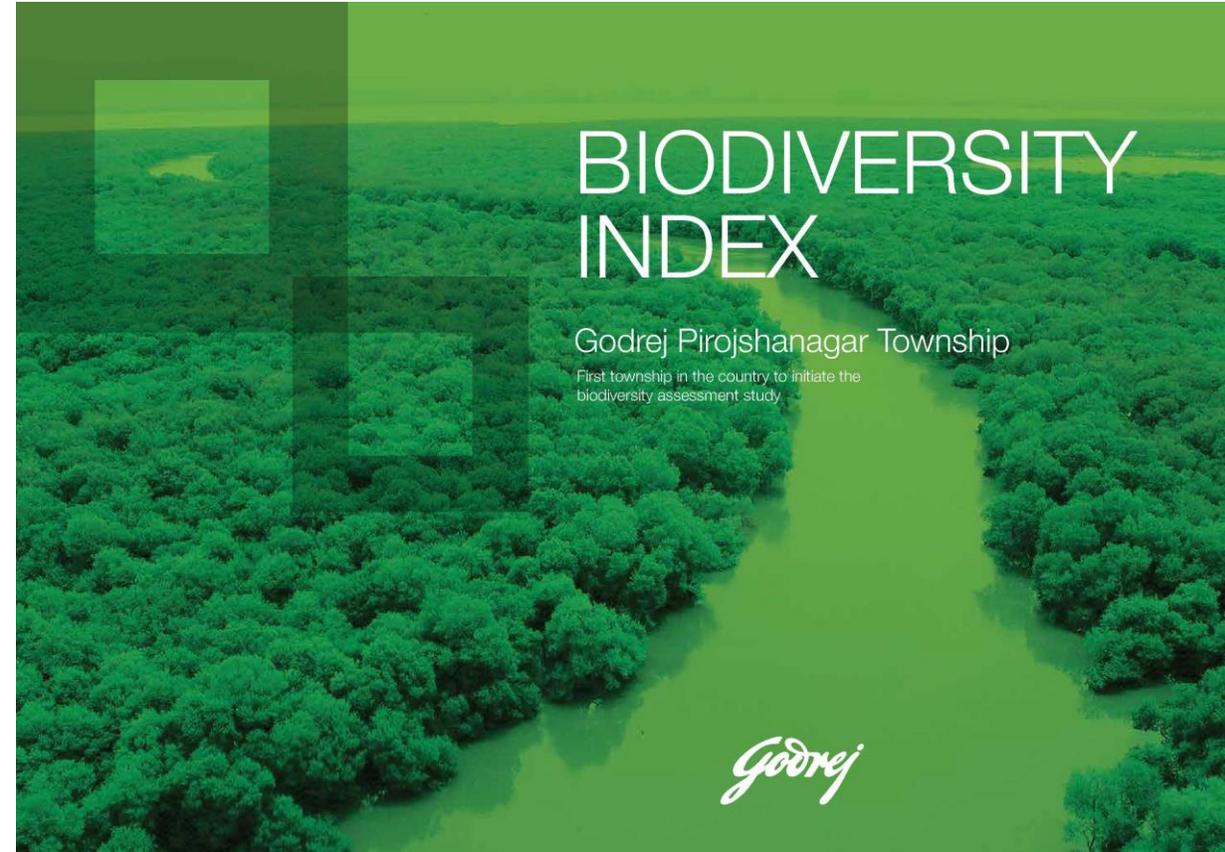
Creating A Sustainable Industrial Campus

- Environment Impact Analysis
- Environment, Biodiversity Policy
- Stringent pollution monitoring & control regime
- Increasing green cover for habitat
- Planting indigenous & naturalized species
- Controlling invasive species
- Creating habitats like wetlands, theme gardens etc.
- Installation of bird boxes, bird feeders, bird baths etc.
- Biodiversity rescue system
- Regular employee awareness



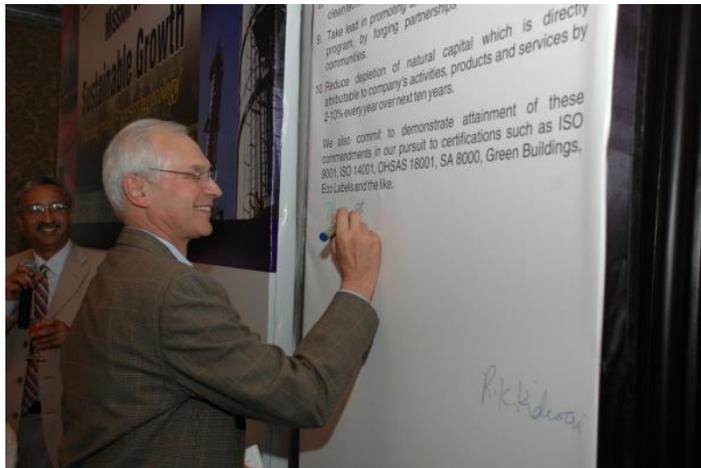
Uniqueness of project: Biodiversity Index

- Self-assessment tool for industries to evaluate and monitor the progress of their biodiversity conservation efforts against their own individual baselines
- Natural areas, connectivity measures, native & invasive species, water permeability, budgets, projects, institutional capacity, awareness etc.
- Useful to understand current status of biodiversity on campus and plan way forward
- Indicators measure **native biodiversity, ecosystem services provided by biodiversity, governance, and management of supply chain.**



Biodiversity Management Strategy

With the growing concerns for degradation of natural resources, climate change and biodiversity loss, it is crucial for businesses to reduce their impacts on nature by mainstreaming sustainable management of biological diversity by businesses.



ORGANISATIONAL COMMITMENT

- Inclusion in Environmental Policy
- Stringent legal compliance
- Implementation through process framework
- Green Procurement
- Networking and collaboration with stakeholders



APPROPRIATE GOVERNANCE

- Designated departments and resources
- Beyond compliance approach
- Discussions at Corporate, Division and Department levels
- Recognition and encouragement



ADEQUATE INFRASTRUCTURE

- Nurseries for terrestrial and mangrove species
- Zero Waste to landfill
- Water management by harvesting, treatment and reuse
- Educational facilities like nature trails
- Securing the premise

Study Area: Godrej Vikhroli Campus

Godrej Vikhroli Campus (Pirojshanagar Township) (19.11°N and 72.94°E) is in the heart of Mumbai and covers several acres area divided into residential, industrial and mangroves.

The Western bank of the Thane Creek is the single largest mangrove belt in Mumbai. A substantial tract of mangrove land is adjoining the Godrej & Boyce township, Pirojshanagar.

The study area of campus is further divided in the four sections based on the landscape, native flora, operation, and area management modalities.

Colony Areas	Industry Areas	Natural Area
Hill side colony	Industrial East	Mangrove areas
Station Side Colony	Industrial West	
Creek Side colony	Other area East	



Google Satellite image showing G&B Industrial and Colony Area (not to scale)

G&B Mangrove Area : An Oasis in Mumbai

- Second largest green lung of Mumbai city conserved since inception of Pirojshanagar Township of G&B in 1940s
- Rich biodiversity of 16 mangrove and associate, 210 bird, 83 butterfly and spider, 39 reptile, 20 fish, 13 crab, 7 prawn and 6 mammal species
- Scientifically managed with Research, Conservation, Awareness strategy
- The only private mangrove forest with ISO 14001 certification since 1998



Biodiversity Index: Benefits

The biodiversity index helps in evaluation, planning, improving, and reviewing the plant condition in biodiversity perspective.

The strengths of Biodiversity Index are:

- It is the only index that focuses on biodiversity and quality of ecosystem services,
- Its coverage is diverse and comprehensive, incorporating indicators on biodiversity, ecosystem services and good governance & management,
- The scores are quantitative; hence, it is possible to monitor the changes over a period,
- Each indicator is assigned a scoring range between zero and four points.

Particulars	Indicators	Score
a. Native Biodiversity in the campus	10	40
a. Ecosystem services provided by Biodiversity in the campus	04	16
a. Governance and Management of Biodiversity in the campus	10	40
a. Value Chain	01	4
Total	25	100

Pirojshanagar: Mosaic of Habitats, Green Oasis of Mumbai Metropolitan Region



Mangrove Forest (Largest private forest of MMR)



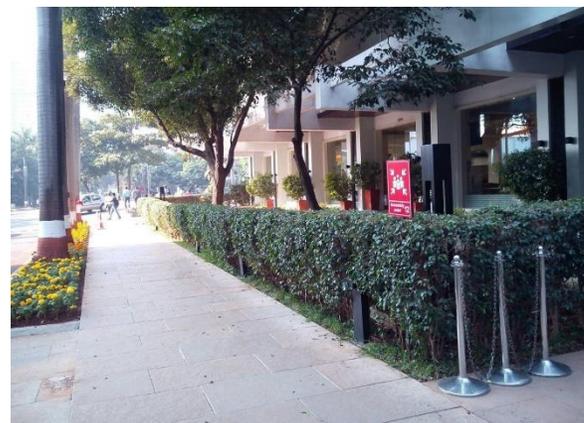
Other Natural Habitats (Grassland, Hill, Scrub etc.)



Industrial & Residential Areas



Theme Gardens (Medicinal, Palm, Butterfly)



Roadside Plantations



Terrace Gardens

Strategy of Mangroves Management



Research on ecosystem characteristics, services and management



On-site conservation



Awareness among stakeholders

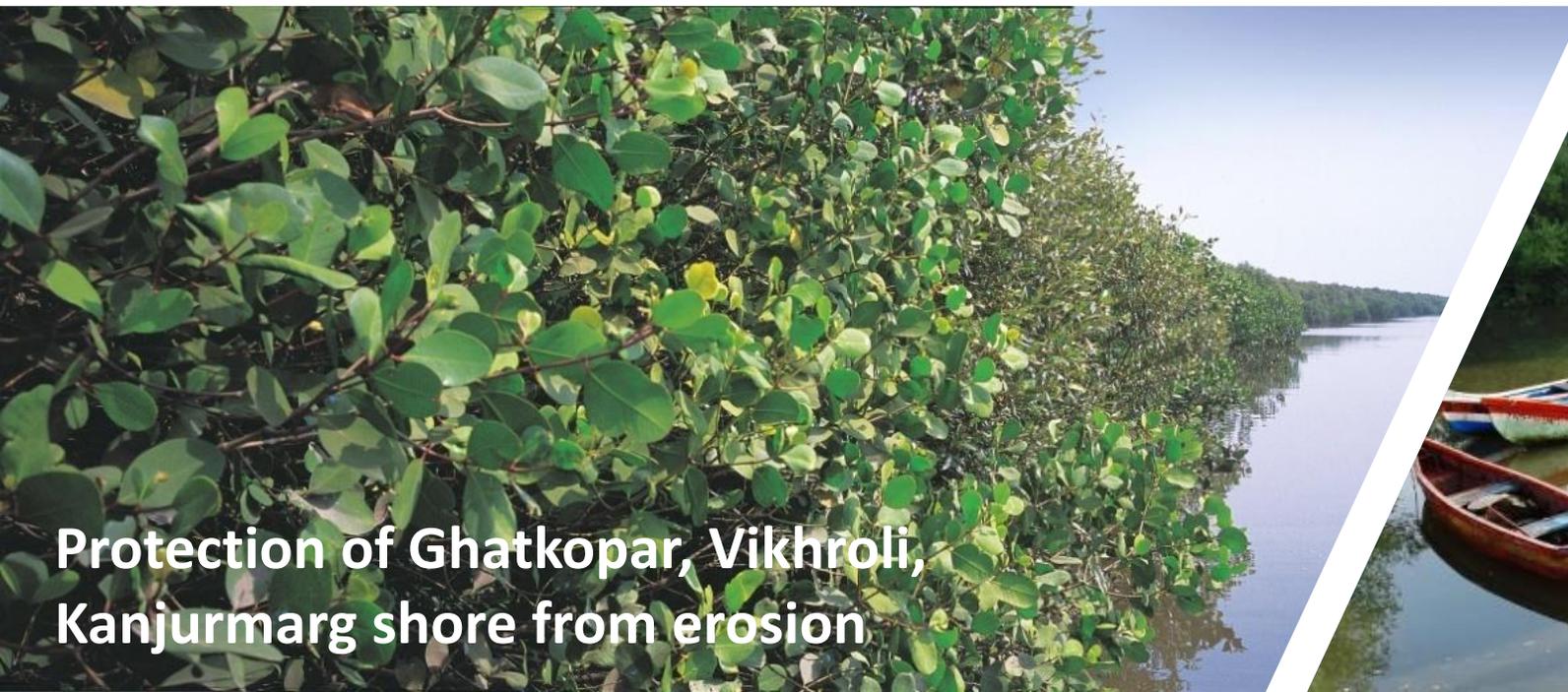
Carbon Sequestration



Habitat for wildlife



Ecosystem Services of Godrej Mangroves



**Protection of Ghatkopar, Vikhroli,
Kanjurmarg shore from erosion**

Livelihoods for fisherfolk



Godrej

MANGROVES OF INDIA: A DIGITAL GUIDE



- Pictorial guide to identify mangroves of India
- Identify mangroves by leaf shape, flower color, name and location
- Resource for teachers, students, researchers, forest department, NGOs, nature enthusiasts etc.
- First app of Asia for mangrove research and awareness
- Highest rated and downloaded in Google PlayStore
- Downloaded in 65+ countries

Know more about Godrej Mangroves on www.mangroves.godrej.com

Scan to know more



MAGICAL MANGROVES JOIN THE MOVEMENT

A Conservation Awareness Campaign by
Godrej & Boyce Mfg. Co. Ltd. & WWF-India

Campaign Objective:

To sensitize individuals & organizations of the Indian coastal states about mangrove biodiversity, conservation and their role through research, on site conservation & awareness

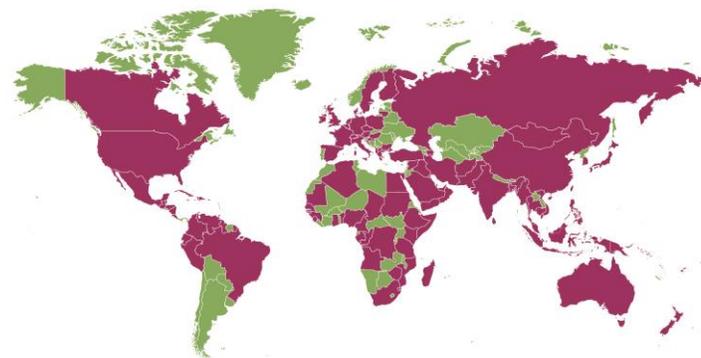
Campaign Impact:

- 83 trained volunteers as mangrove ambassadors
- 141 webinars in 5 months
- 9500 enlightened citizens of 8 Indian states
- 119 newspaper, magazine, website articles with 23,71,892 readership
- 31 social media posts with 85,525 clicks and 9,54,826 impressions

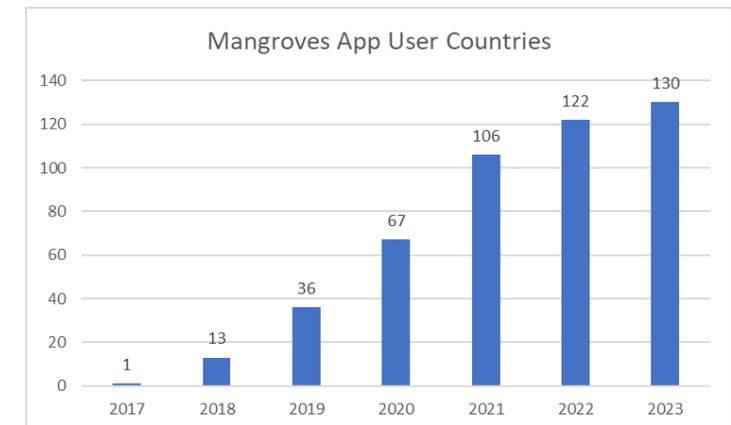


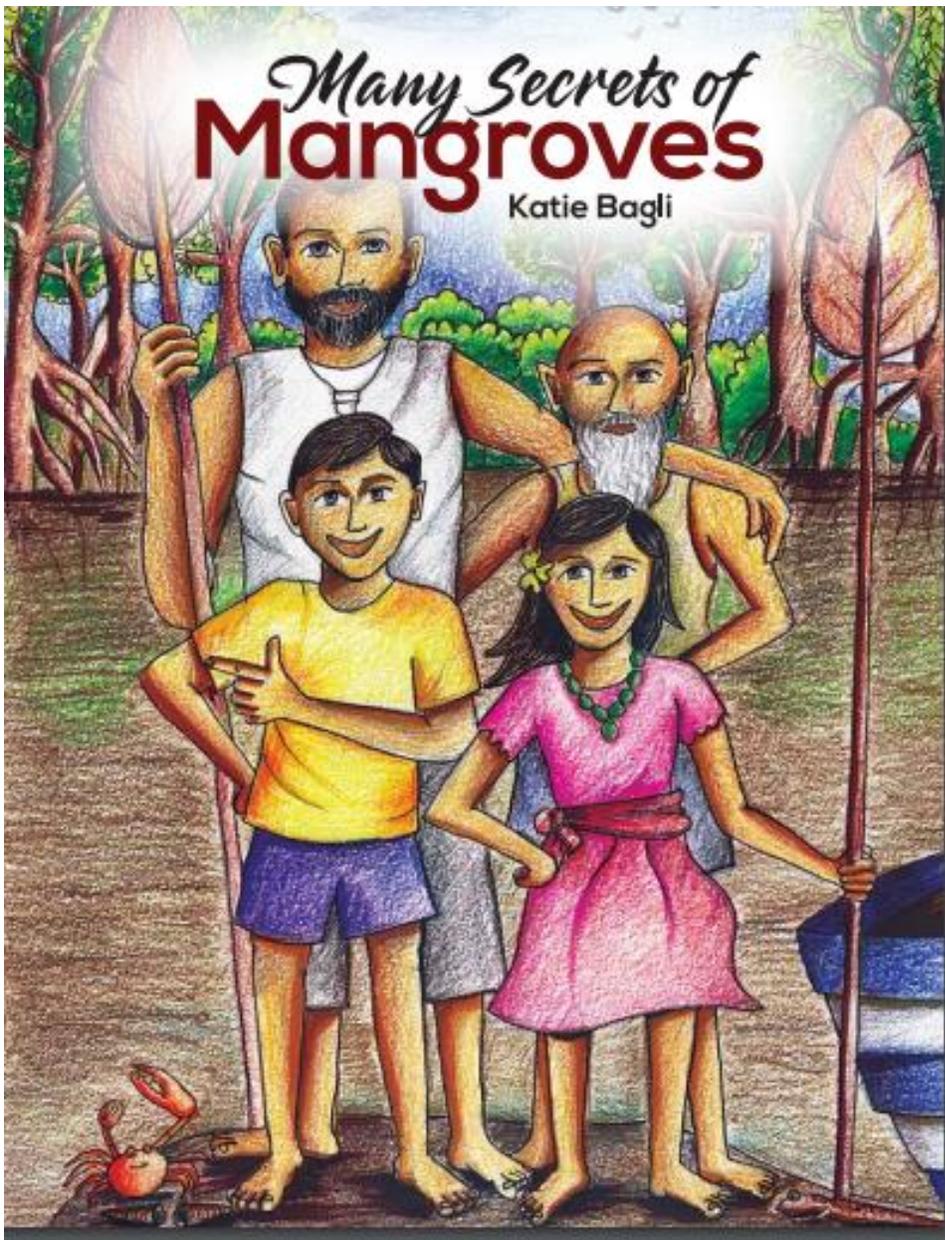
Godrej Mangrove Mobile App

- First mobile app of Asia
- Nine coastal regional languages with Hindi, English, French & Spanish
- Identify plants with leaf shape, flower color, name, state-wise location
- Users can send feedback, received by email
- Used by Godrej & WWF India to educate around 28000 participants in 4 years of Magical Mangroves campaign and regularly in mangrove research and nature trails by the academia across the world
- Visual taxonomy of 67 True & Associate species, used for species identification by forest departments and conservationists
- Over 1000 downloads every month across the world, Used as a resource by 131 countries
- Appreciation from Global Mangrove Alliance, Mangrove Alliance Project, Mangroves For Future, UNEP, UNDP, UNISCO & Netherlands, Papua New Guinea, Iraq, Antigua & Barbuda, Kuwait, Oman, Haitii, Gambia, Ghana, Angola



■ Mangroves App outreach



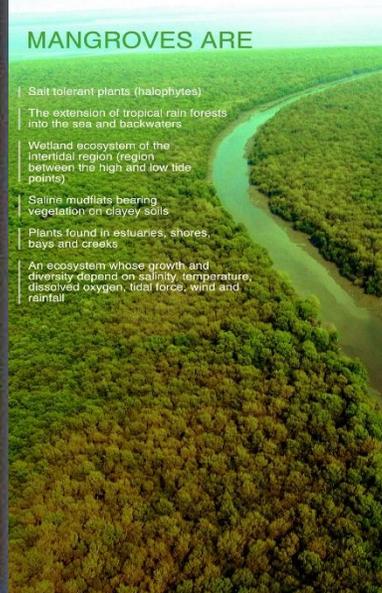


www.mangroves.godrej.com

KNOW YOUR MANGROVES

MANGROVES ARE

- Salt tolerant plants (halophytes)
- The extension of tropical rain forests into the sea and backwaters
- Wetland ecosystem of the intertidal regions (region between the high and low tide points)
- Saline mudflats bearing vegetation on clayey soils
- Plants found in estuaries, shores, bays and creeks
- An ecosystem whose growth and diversity depend on salinity, temperature, dissolved oxygen, tidal force, wind and rainfall



Developed by Godrej for awareness on mangrove ecosystem
www.mangroves.godrej.com



KNOW YOUR MANGROVES

MANGROVES ENGINEERING

Mangroves have evolved specific adaptations for survival in hostile environments.

ADAPTATIONS TO COPE WITH HIGH SALINITY	SPECIALISED ROOT SYSTEM	REPRODUCTIVE STRATEGIES
Preventing entry of salt at the root level	Stilt roots to support the plant in loose soil	Viviparous reproduction with germination of seeds on parent plants to avoid salinity
Possessing salt glands to expel excess salt from leaves	Breathing roots to absorb atmospheric oxygen to compensate for oxygen deficiency	Dispersal of germinated fruits within the water to anchor into soil during low tide
Lenticel glands to allow exchange of gases between the plant and the environment	Cable roots to absorb nutrients and anchor the breathing roots	

Developed by Godrej for awareness on mangrove ecosystem
www.mangroves.godrej.com



KNOW YOUR MANGROVES

THE MANGROVE FAMILY

Indian mangroves are represented by approximately 59 species from 29 families.

HOLLY MANGROVE <i>Excoecaria agallocha</i> Purple or white-flowered prickly shrub with spiny leaves	RIVER MANGROVE <i>Avicennia officinalis</i> Bulky shrub with oval leaves and chili-like fruits	GREY MANGROVE <i>Avicennia marina</i> Tree with long breathing roots
MILKY MANGROVE <i>Excoecaria agallocha</i> Tree with leaves having milky latex and only male or only female flowers	RED MANGROVE <i>Rhizophora mucronata</i> Tree having leaves with pointed apex and prominent salt roots	MANGROVE TIT-LE <i>Sonneratia apetala</i> Large tree with elliptical leaves and conical breathing roots
MANGROVE APPLE <i>Sonneratia acuta</i> Tree with night-blooming white flowers pollinated by bees	ORANGE MANGROVE <i>Excoecaria agallocha</i> Tree with characteristic triangular roots and long elliptical leaves	YELLOW MANGROVE <i>Casuarina equisetifolia</i> Small tree with reddish brown leaves beneath narrow at the base
MESWAK <i>Sonneratia portulacastrum</i> Shrub with fresh green, leathery leaves and roots used in tooth paste	SHORE MANGROVE <i>Sonneratia portulacastrum</i> Ground dwelling fleshy salt leaves used as a vegetable	COMMON CERRIS <i>Cerris telfordii</i> Climber with light purple flowers growing on other mangrove trees

Developed by Godrej for awareness on mangrove ecosystem
www.mangroves.godrej.com



KNOW YOUR MANGROVES

GODREJ MANGROVES: A PROTECTED PARADISE

The Godrej Group has conserved 1,750 acres of the mangrove ecosystem since the establishment of industrial township in 1940s at Vikhroli. The ISO 14001 certified Godrej mangrove forest is visited by 8200+ stakeholders every year, and is scientifically managed with a three-pronged approach of Research, Conservation and Awareness. You are welcome to visit the Godrej mangroves as a group of teachers and students, employees or citizens. Know more about us on www.mangroves.godrej.com

Developed by Godrej for awareness on mangrove ecosystem
www.mangroves.godrej.com



Introduction, Importance, Adaptations, Biodiversity, Threats, Conservation, Godrej Mangroves

Mangrove outreach programs have sensitized 100,000+ citizens over last 6 years.



BLOCK THE DATE
2 JUNE AT 5 PM
Celebrate World Environment Day
with our #MangroveFunda!



Don't miss the
**Mangrove Matters
Exhibition**
at Inorbit Mall, Malad
2-5 February, 11am to 8pm



Powered By  Organised by **Greenaiders** Venue Partner  Supported by  **eco folks** ...it's my nature!  Maharashtra Pollution Control Board
महाराष्ट्र प्रदूषण नियंत्रण मंडळ

The Vikhroli Mangroves

Three pronged approach: Research. Conservation. Awareness



AWARENESS & OUTREACH

100000+ Direct outreach
300+ Papers Published,
media coverage in
newspaper, magazine, website
articles with **40+ Lakh readership**



MANGROVES APP

11 Languages
67 Species
10000+ downloads
131 countries



RESEARCH PROJECTS

30+ projects on various
aspects
Over 38+ years of in-situ
research
Over 1600 species identified



FAUNA IN DISTRESS

Rescued over **2200 birds,**
reptiles and other animals like
monkeys, jackals & a leopard in
distress from the urban settings
and scientifically rehabilitated



SI No	Indicator	Total Score	Score in 2016	Score in 2023
1	Proportion of Natural Areas	4	4	4
2	Connectivity Measures	4	3	4
3	Total Biodiversity recorded	4	4	4
4	Number of Native Species (Trees and shrubs Plants)	4	4	2
5	Number of Native Species - Herbs species	4	0	3
6	Number of Native Species – Butterflies	4	0	4
7	Number of Native Species - Reptile, Mammals, Amphibians	4	2	2
8	Number of Native Species – Birds	4	0	4
9	Proportion of Protected Natural Areas	4	4	4
10	Proportion of Invasive Alien Species	4	0	0
11	Regulation of Quantity of Water	4	4	4
12	Carbon Storage and Cooling Effect of Vegetation	4	3	4
13	Recreational Services	4	2	4
14	Educational Services	4	4	4
15	Budget Allocated to Biodiversity	4	4	4
16	Number of Biodiversity Projects Implemented	4	1	3
17	Rules, Regulations and Policy	4	4	3
18	Institutional Capacity (Biodiversity Functions) (Biodiversity Champion)	4	4	3
19	Institutional Capacity (Inter-Agency Cooperation)	4	2	3
20	Participation	4	1	4
21	Partnership	4	3	4
22	Education and Awareness to employees & stakeholders	4	4	4
23	Number of outreach or public awareness events or best practiced shared	4	3	4
24	Future targets on biodiversity	4	-	2
25	Initiatives for value chain	4	-	3
	Total Score	100	60/ 92	84/100

Key learnings

The biodiversity baseline assessment, and biodiversity index shows there is an urgent need to implement a site-specific Natural Capital Action Plan (NCAP). The proposed NCAP will help in improving biodiversity quotient of the project area and help in mitigating risks.

Key aspect needs to be considered during NCAP implantation for biodiversity enhancement

1. Biodiversity policy with measurable commitments on biodiversity
2. Avoid monoculture plantation in suggested areas
3. Prefer native plants for plantation
4. Reduction of lawn cover
5. Wildlife rescue and management
6. Developing dashboard for biodiversity monitoring
7. Invasion of Subabul in area surrounding the mangrove

Replicating Potential: Creating a Greener India



6 States

14 Businesses

24 locations

Replication potential of the project in Indian Industry

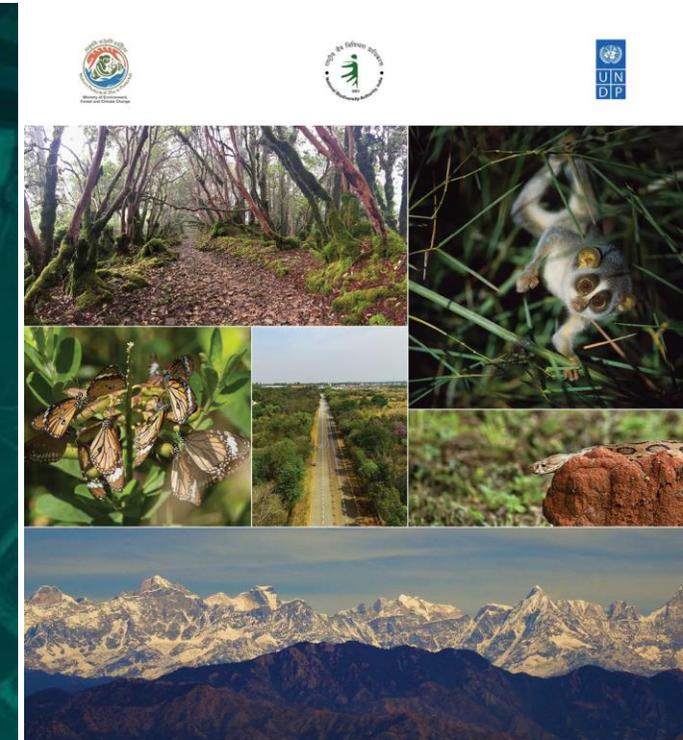
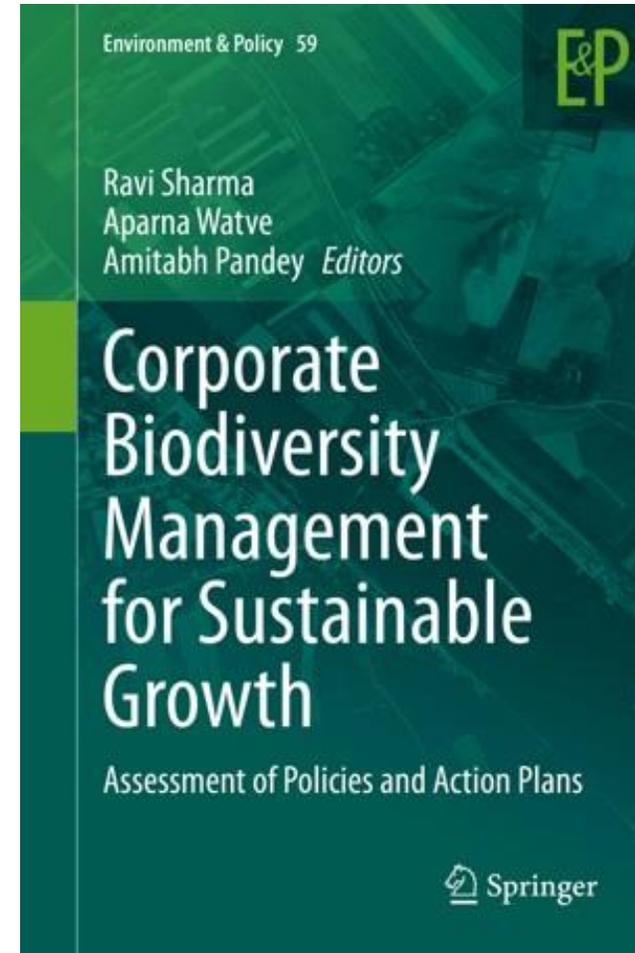
The Guidelines for planning and monitoring corporate biodiversity performance offer an approach for developing a corporate-level biodiversity strategic plan, including measurable goals and objectives and a set of core linked indicators, that will allow companies to measure their biodiversity performance across their operations. The Guidelines can be used by any company in any sector that has impacts and dependencies on biodiversity, whether large or small, national, or multinational.

- Companies can achieve a net biodiversity gain because of our operations.
- Development of nature-based solutions to protect and enhance forest and wetland ecosystems.
- Conserve and restore natural habitats and threatened species around our (sites) and contribute to SDG 15 Life on Land.
- Ensure that critical habitats and threatened species thrive in the places where we operate.

Setting Benchmark:

Pirojshanagar Biodiversity Management International Case Study Publications

- **‘Other Effective Area-based Conservation Measures’** Compendium (Industrial Estates for Conservation Purposes Category) by IUCN-WCPA & UNDP, Oct 2021
- **Compendium on Nature-based Solutions** by ICLEI S Asia under CDKN Knowledge Accelerator Project, funded by IDRC, Canada and The Netherlands Government, March 2021
- Pirojshanagar: An Illustration of Co-Existence and Biodiversity Conservation Since Seven Decade, Corporate Biodiversity Management for Sustainable Growth by Springer Nature Switzerland, May 2020
- G&B case study and Mangroves app showcased as Global Solution on PANORAMA, 2022
- Mangrove App recognized as 5-star rated best practice in the International Best Practices Competition, 2023



OTHER EFFECTIVE AREA-BASED CONSERVATION MEASURES (OECMS)

A Compendium of OECMs in India

Setting Benchmark: 5 Star rated International Best Practice





Godrej Construction | Godrej & Boyce Mfg. Co. Ltd. wins CII ITC Sustainability Awards 2023 for Excellence in Biodiversity

Review / Next Steps

- Reaching new geographical areas
- Action on OFIs identified in the study – Immediate, Medium term and Long term
- Planned implementation of various initiatives
- Reassessment of impact with interim internal assessments every three years.
- Extend the learnings and action in supply chain through sustainable procurement policy and practices.





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