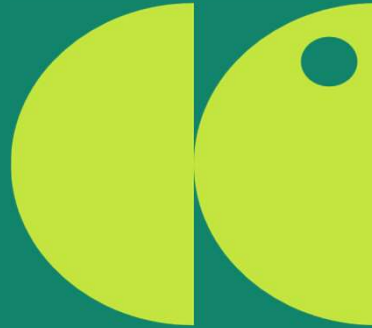




Turning Bottles into Car Comfort

Recycling PET Waste into Premium Automotive Textiles

Presented By Sanjana, Subodh & Asmita

Materials Science- PV Engineering,

Tata Motors Passenger Vehicle Ltd



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Group Member



Sanjana Deshpande



Subodh Borgaonkar



Asmita Sathaye

Tata Group Sustainability Vision

TATA MOTORS
Connecting Aspirations



Delivering the inaugural address at the Tata Sustainability Conclave 2022: Mr. N. Chandrasekaran, Chairman, Tata Sons

Laying out the Group Sustainability Vision with Mr. N Chandrasekaran, Group Chairman, Tata Group

As part of the inaugural address, the Group Chairman emphasised that while sustainability is one of the biggest challenges facing corporates today, it is also a big opportunity. Comparing the sustainability journey to an ultra-marathon, the Chairman encouraged companies to sharpen their sustainability agendas, lay out their decarbonisation plans as the world transitions to a low-carbon economy and invest in innovative solutions.

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Project Aalingana & Sustainability Targets

Driving Net-Zero



2030

25% REDUCTION IN ABSOLUTE CARBON EMISSIONS*

**From 2020 baseline (Scope 1 & 2); Tata Steel India to reduce emissions intensity by 28-30% from 2020 baseline*

2045

NET ZERO EMISSIONS ACROSS THE GROUP*

**Scope 1 & 2 across companies; scope 3 for JLR, TML, TCS, TCPL*

Pioneering Circular Economies



2025

MORE THAN DOUBLE THE CONTENT OF RENEWABLE OR RECYCLED RESOURCES IN PRODUCTS*

**Over 2020 baseline*

2030

REPLENISH FRESHWATER & ZERO WASTE TO LANDFILL*

**Freshwater target for India operations only*

2040

REPLENISH MORE FRESHWATER THAN CONSUMED

Preserving Nature & Biodiversity



2024

ACTION PLANS FOR NET POSITIVE IMPACT

2025

INVEST IN NATURE-BASED SOLUTIONS (NBS) PROJECTS IN INDIA

2030

GROUP IS AN NBS LEADER AND HAS SUPPORTED NBS MARKET IN INDIA

The Problem

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India's Plastic Waste Challenge

India chucks around 3,800 tonnes of PET plastic a day, 2.8 lakh tonnes of plastic bottle waste is uncollected and accumulates annually.



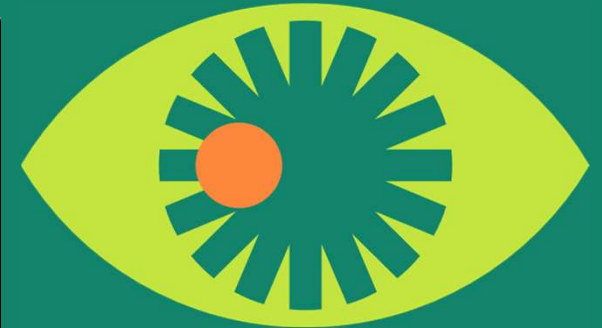
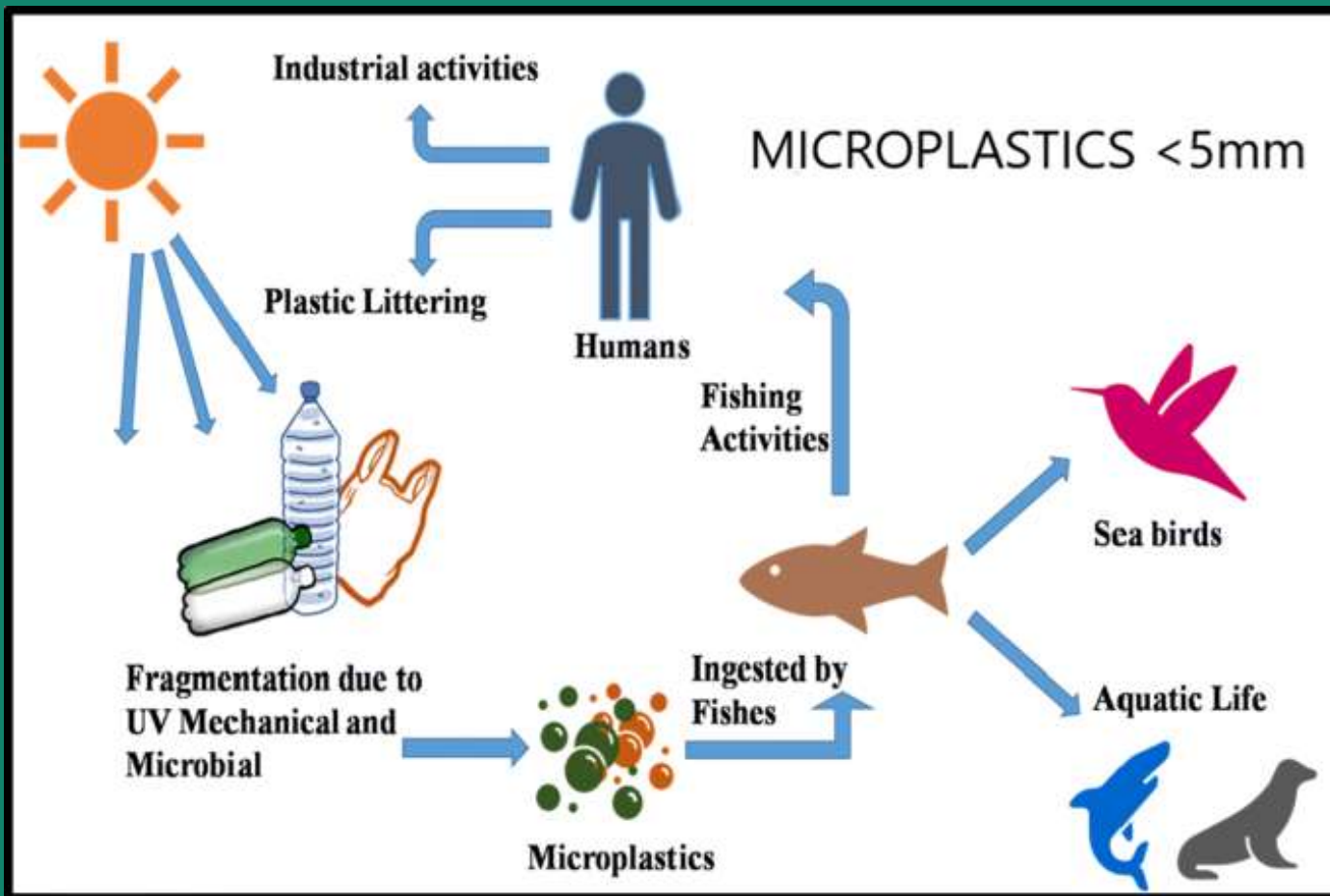
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The Problem

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The Idea

From Waste to Worth

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Virgin PET (from crude oil)

Crude Oil Extraction



Refining → Naphtha → PTA & MEG (monomers)



Polymerization → Virgin PET Resin



Yarn Production



Fabric Weaving/Knitting



 Car Interior Components

Recycled PET (from used bottles)

Post-consumer PET Bottles Collection



 Sorting & Cleaning



 Shredding → PET Flakes



Pelletizing → rPET Resin



Yarn Production



Fabric Weaving/Knitting



 Car Interior Components

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The Idea

From Waste to Worth

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Recycled
PET

+

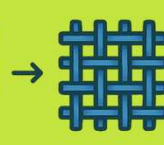


Virgin
PET

→



Fabric blends in various
ratios



Color Fastness

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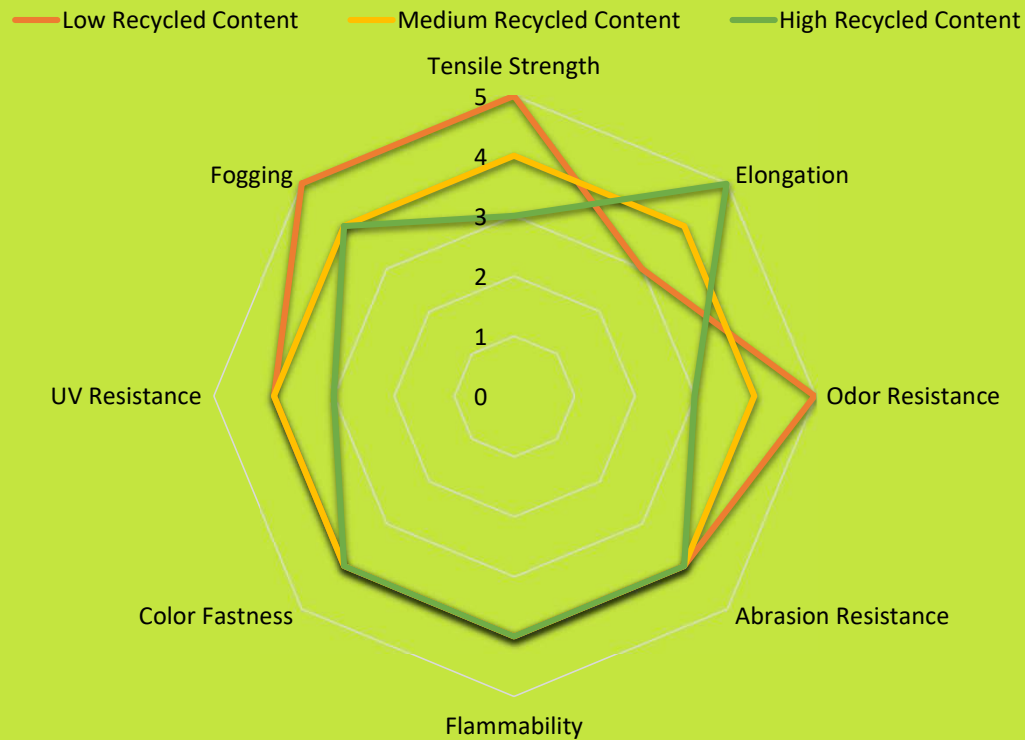
The Idea

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Performance of blends with increasing recycled content



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The Idea

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Complies with **Tata Motors Ltd standards of performance** (abrasion, UV, durability, flammability, mechanical properties) **with premium feel**



Supports **Plastic Waste Management Rules 2022** framework

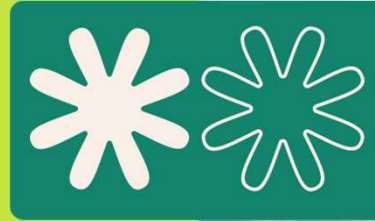
Contributes to **India's Net Zero 2070 & 45% emission reduction by 2030** (UNFCCC, 2022)

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Tangible benefits



Approx. 40% savings in energy used in manufacturing rPET yarn as compared with virgin yarn from crude



For 100,000 cars = 30 million bottles diverted from landfill and oceans

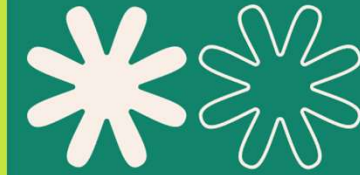


Approx. 50% savings in energy used in manufacturing rPET yarn as compared with virgin yarn from crude

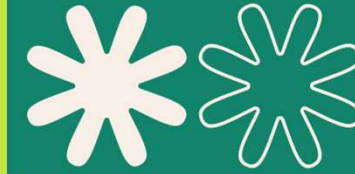


Intangible benefits

- Stronger sustainability branding
- Pride among employees
- Customer trust & loyalty
- ESG alignment + regulatory readiness



Replication potential



- Easy integration with minimal disruption- Manufacturing of rPET based yarns and weaving in automotive fabrics
- Ready to use sustainability solution

It's not just scalable; it's an opportunity for the entire industry to move forward together.





Uniqueness of the project

Waste into Value

Automotive Grade Innovation

Environmentally Smart Manufacturing

Scalable and Replicable





Challenges



01

Ensuring consistent raw material quality

02

Meeting stringent automotive standards

03

Supply chain readiness

04

Costing



Way Forward



Move towards **100% recycled materials** for car interiors without compromising quality.

Create **smart blends** of recycled and bio-based fibers for even greener solutions.

Extend the scope of sustainable textiles into a wider range of automotive applications beyond current trims

Establish an **integrated ecosystem within group companies** to collect post-consumer PET bottles and other plastic waste, and convert them into high-quality automotive-grade materials.

Identify and **scale new applications** across group businesses, maximizing circularity and resource efficiency.



Conclusion



Waste management can evolve beyond disposal-becoming a driver of innovation, sustainability, and circularity for the automotive industry



Thank You