

Use of Pre-Consumer Nylon waste: Need of the Hour

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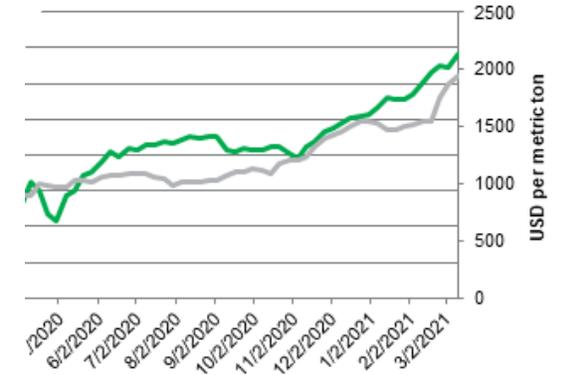
TATA MOTORS LTD.



- India generates nearly **26,000 tonnes of plastic waste** per day.
- Plastic waste **disposal & treatment issue** is causing severe damage to land, water & air.
- In spite of Government policies for land filling and waste disposal management are seen to be ineffective due to **unorganised and informal sector**.
- Discarded plastic waste **litter** the country's land and **water reserves**.



- For last 6-8 years, Automobile industry is facing issue of shortage of polymeric grades causing **fluctuation in raw material prices**, causing significant **business risk**.



- Nylon shortage due to global incidences **Texas grid failure** and **Shipping Container shortages** is leading to price rise.



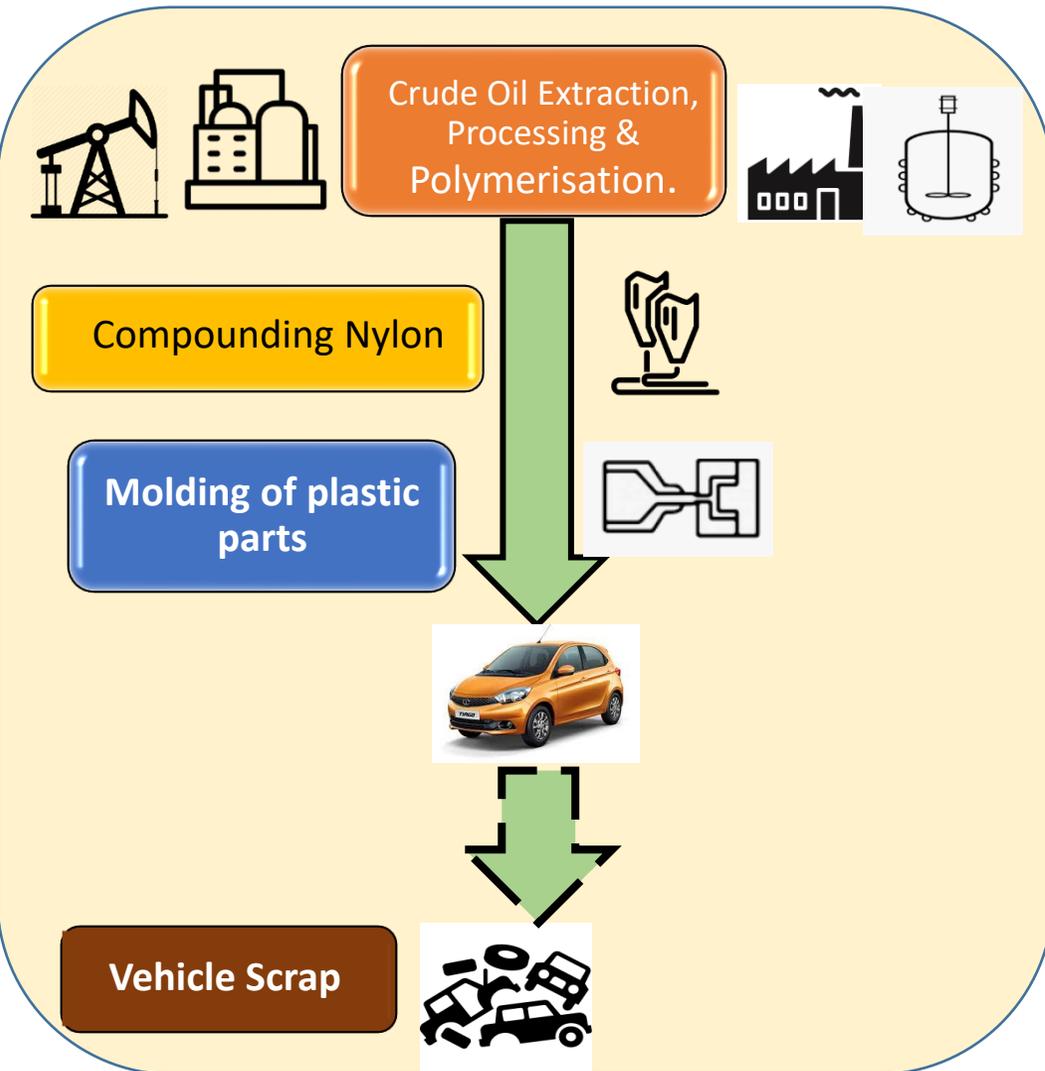
- Materials shortages due to **COVID 19** related slowdowns are evident in the Plastics industry.



- Draft National level **Vision document from government** this under circulation.
- It focuses control on **Natural resource depletion & circular economy**

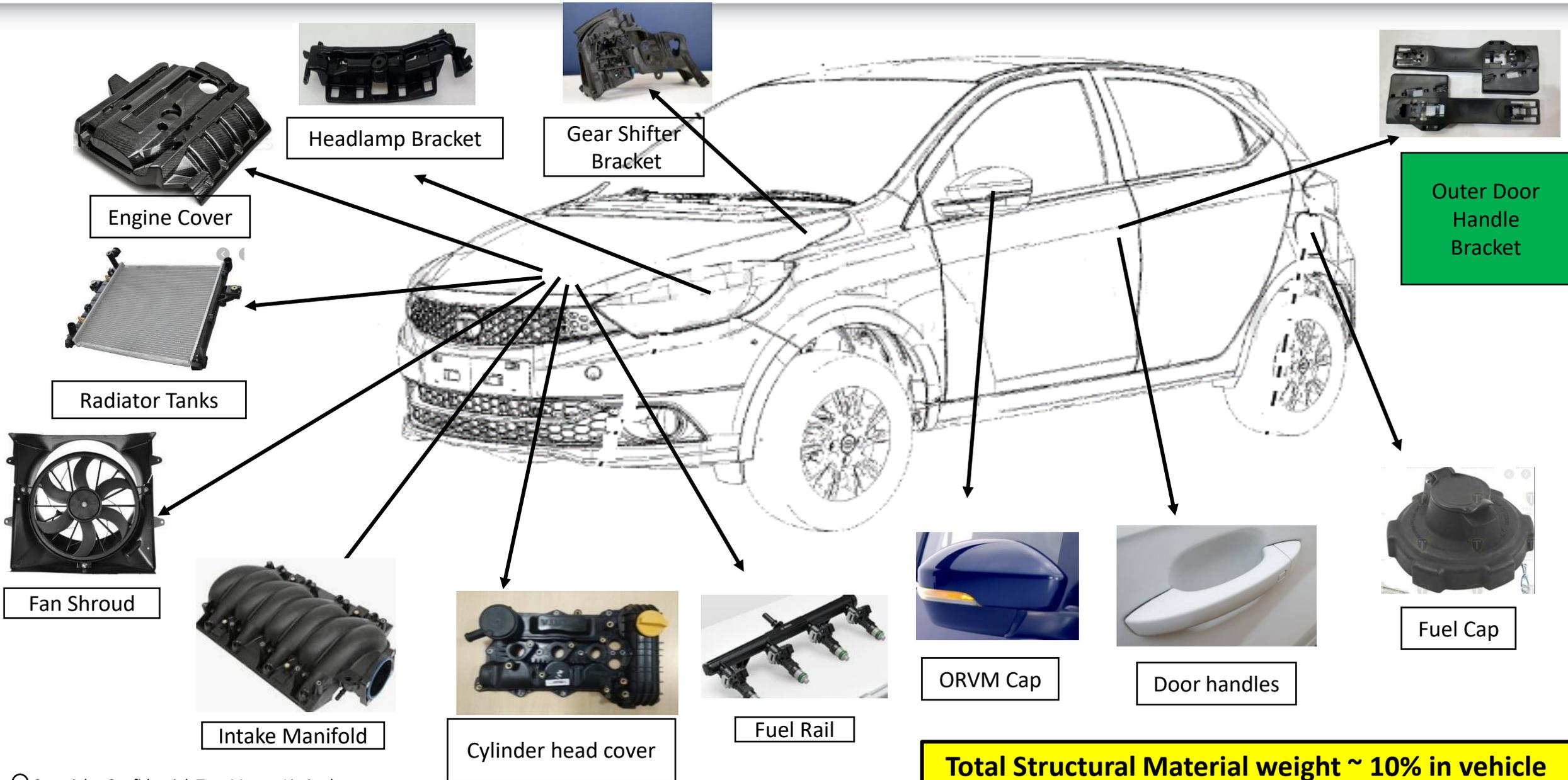


Existing Linear Economy Process



Circular Economy Process







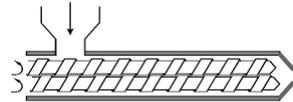
Waste from Textile



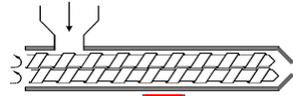
Waste from Fishnet



Collection of Nylon waste (FEEDSTOCK)



Nylon Granules from Fiber Waste



Final Nylon Recycled material developed



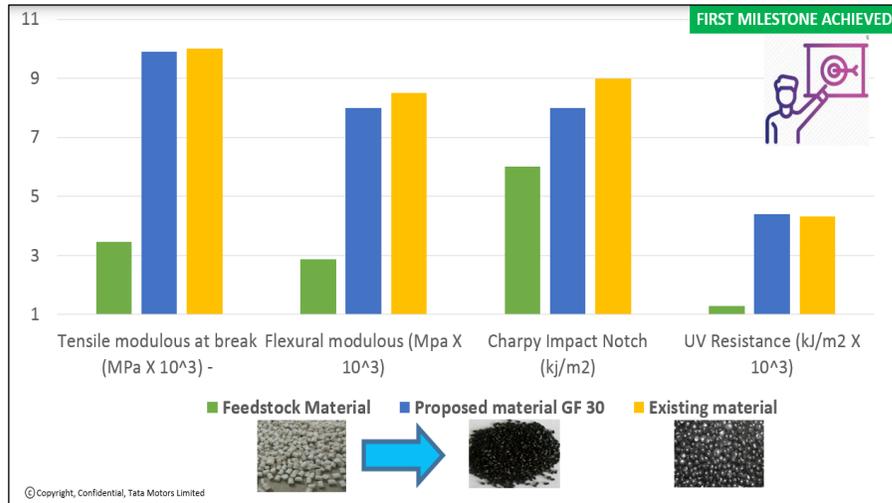
Moulder (Injection moulding)

Final component - Our First successful moulding trials on Passenger Cars
Outer Door Handle - Brackets



Component Testing Status

Raw Material tests



Fixture Mounting



Low-High Temperature Cycle



Low Temperature Cycle



High Temperature Cycle

Impact and Humidity Test

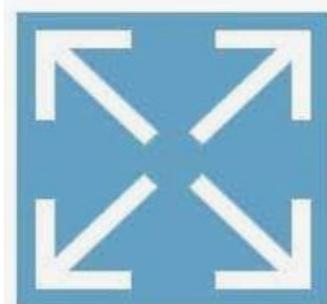


Impact Test



Humidity Test

Dimensional Stability



Vibration Test



Durability Testing : Door Slam Test





Structural automotive part using recycled Nylon



20%



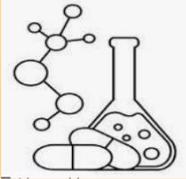
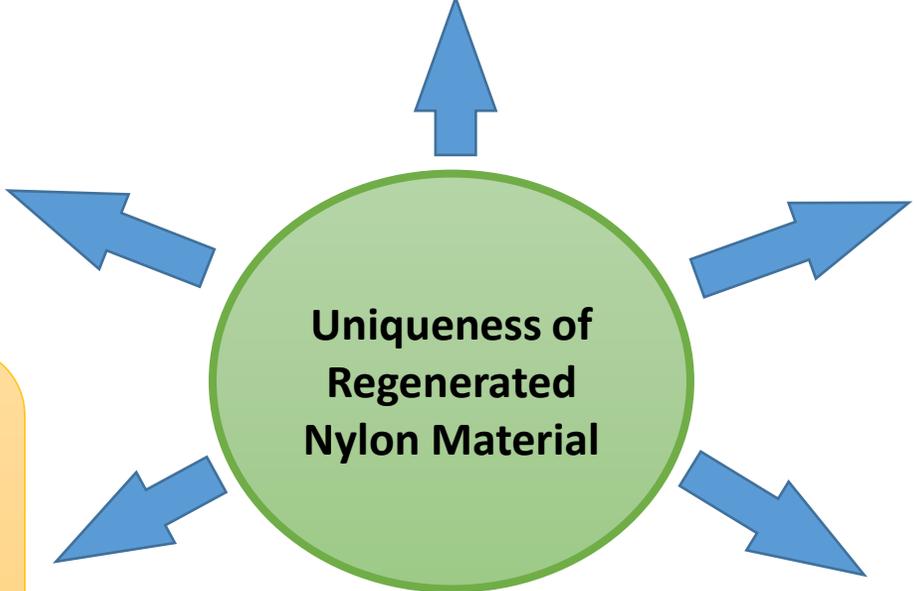
Green Initiative with a cost saving potential



**Multidimensional benefits :
Social impact, Increases profits,
Reduces CO2 footprint and
business risks**

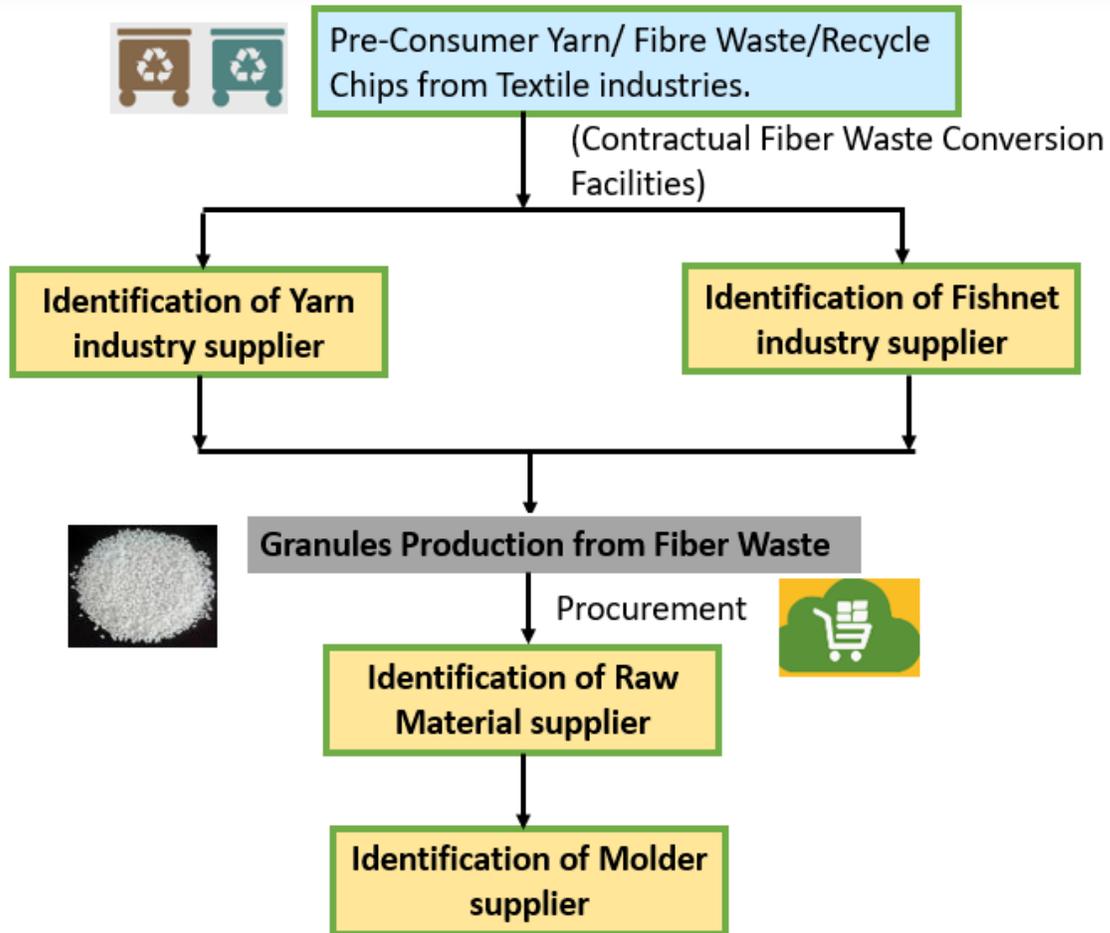


Innovative formula Copyrighted

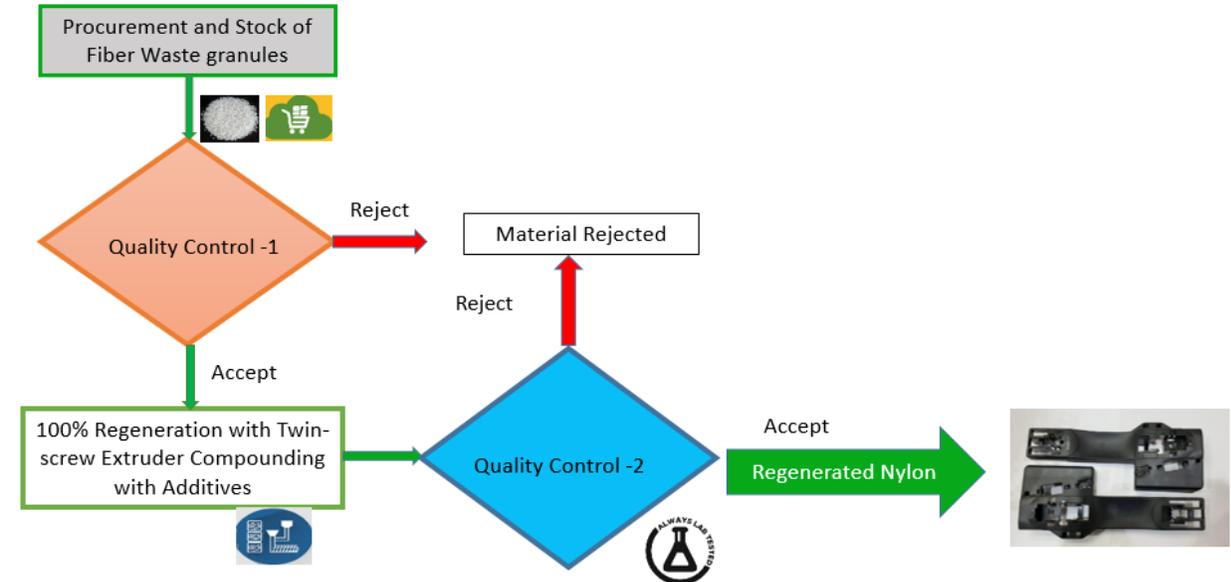


Unique formulation to meet performance target

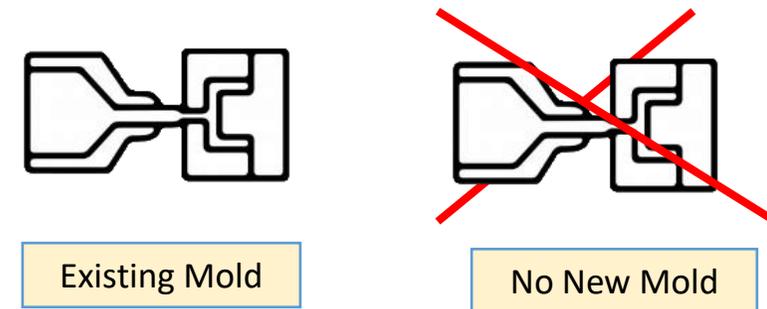
Stakeholder Finalization



Strict Quality Check and Control



No Change in tool



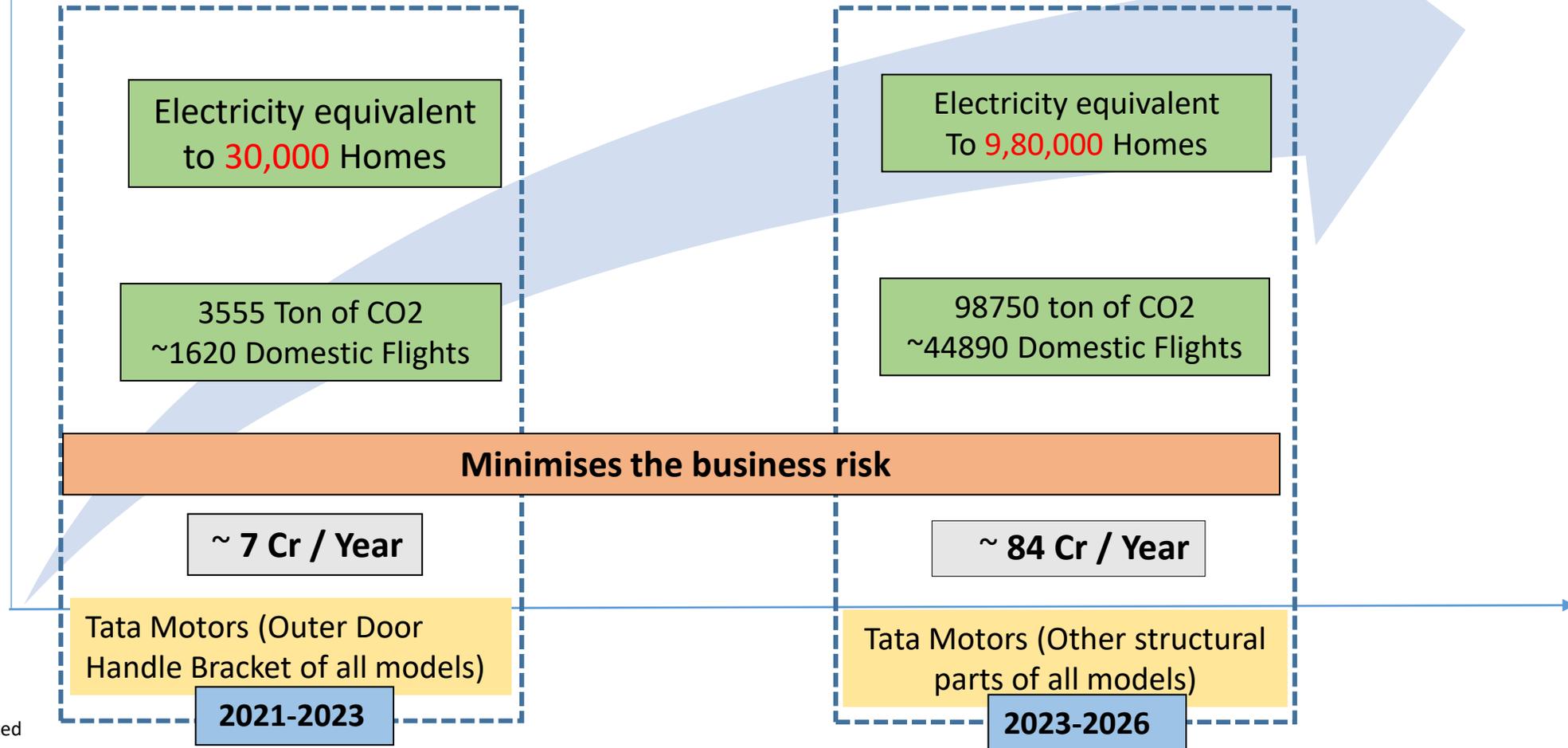


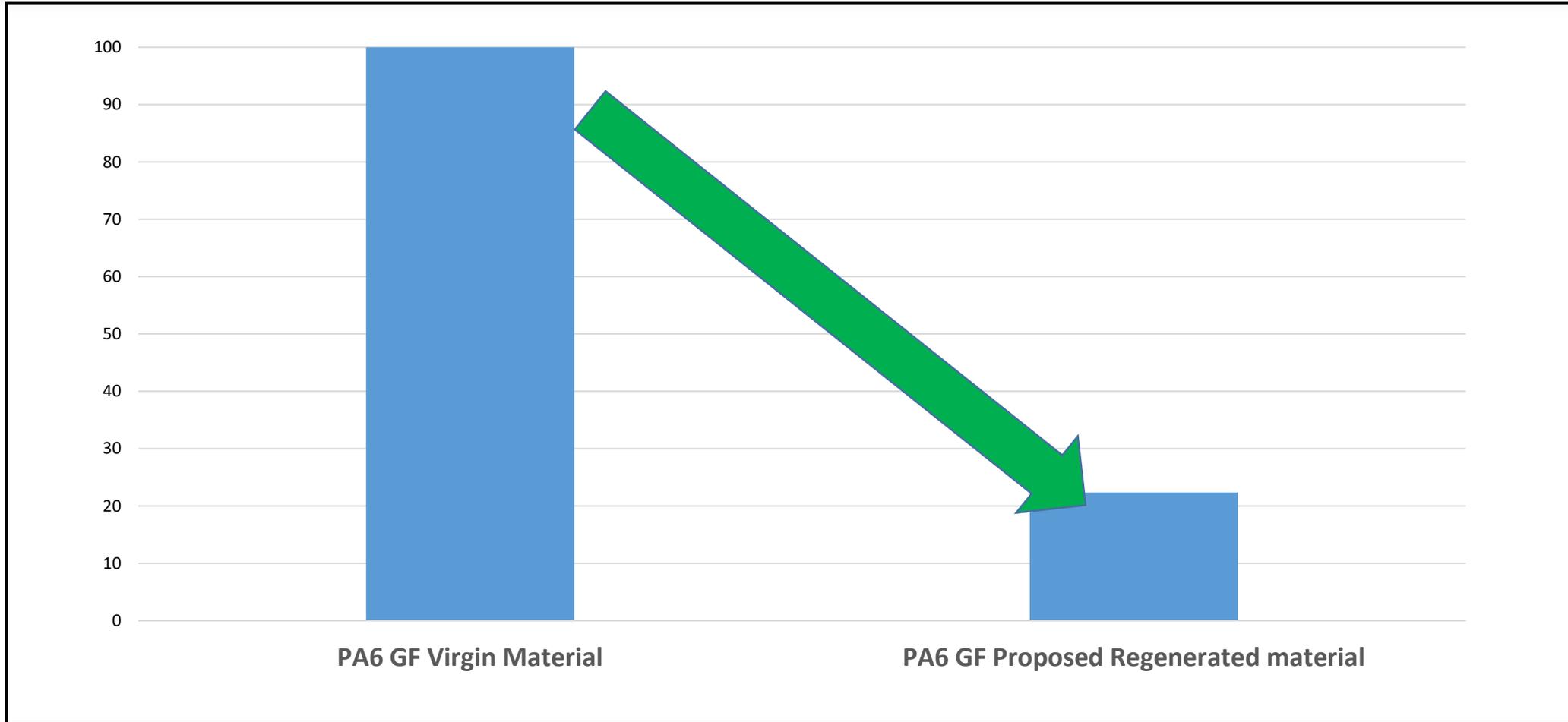
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Estimate

- 1) This will decrease dependency on fossil based polymer raw material.
- 2) This initiative will address national level issue of waste management.
- 3) This initiative will reduce landfill and it will reduce business risk due to fluctuation in price of raw material due to shortage.





Use of recycled material offers Approx. 75% Reduction in Carbon footprint with respect to Virgin Material which accounts to about **14.8 KG CO2 every vehicle**

Timeline tracker

“Fastest Implementation on product”

S.No	Gateway	Status
1	Idea phase	
2	Concept stage	
3	Testing	
4	Demonstration	
5	Implementation	Horizontal deployment in progress.





- Winner of '**The Economic Times Polymers Awards 2021**' in the category of **Recycling - Structural Applications**.
- Material innovative formula has been **copyrighted and certified** by Tata Motors Ltd., after successful completion of extensive testing and validation.

Sphere Of Impact

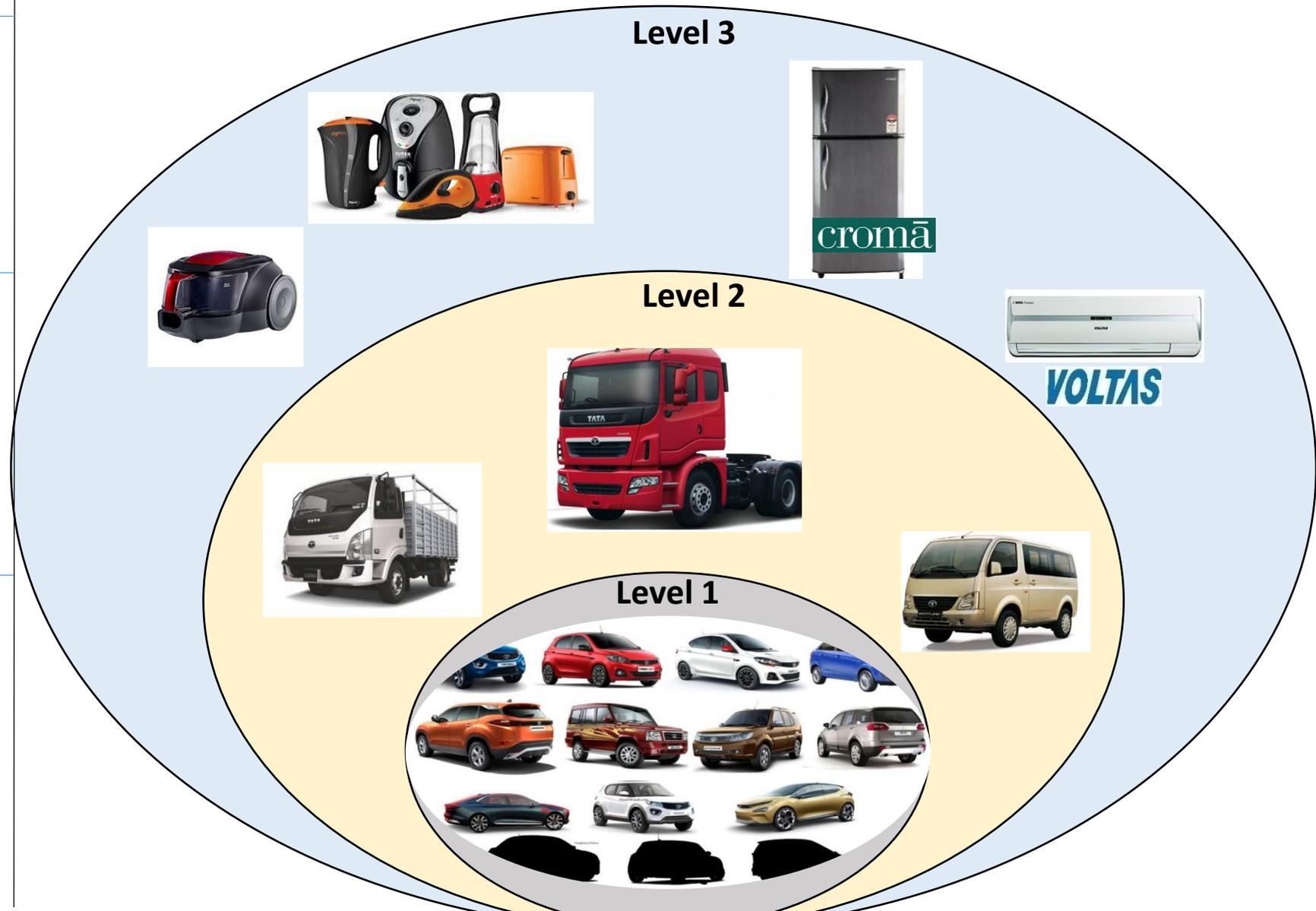
Across
Industries



TATA Motors
Commercial
Vehicles



TATA Motors
Passenger
Vehicles



We do not inherit the earth
from our ancestors; we
borrow it from our children.

Chief Seattle