

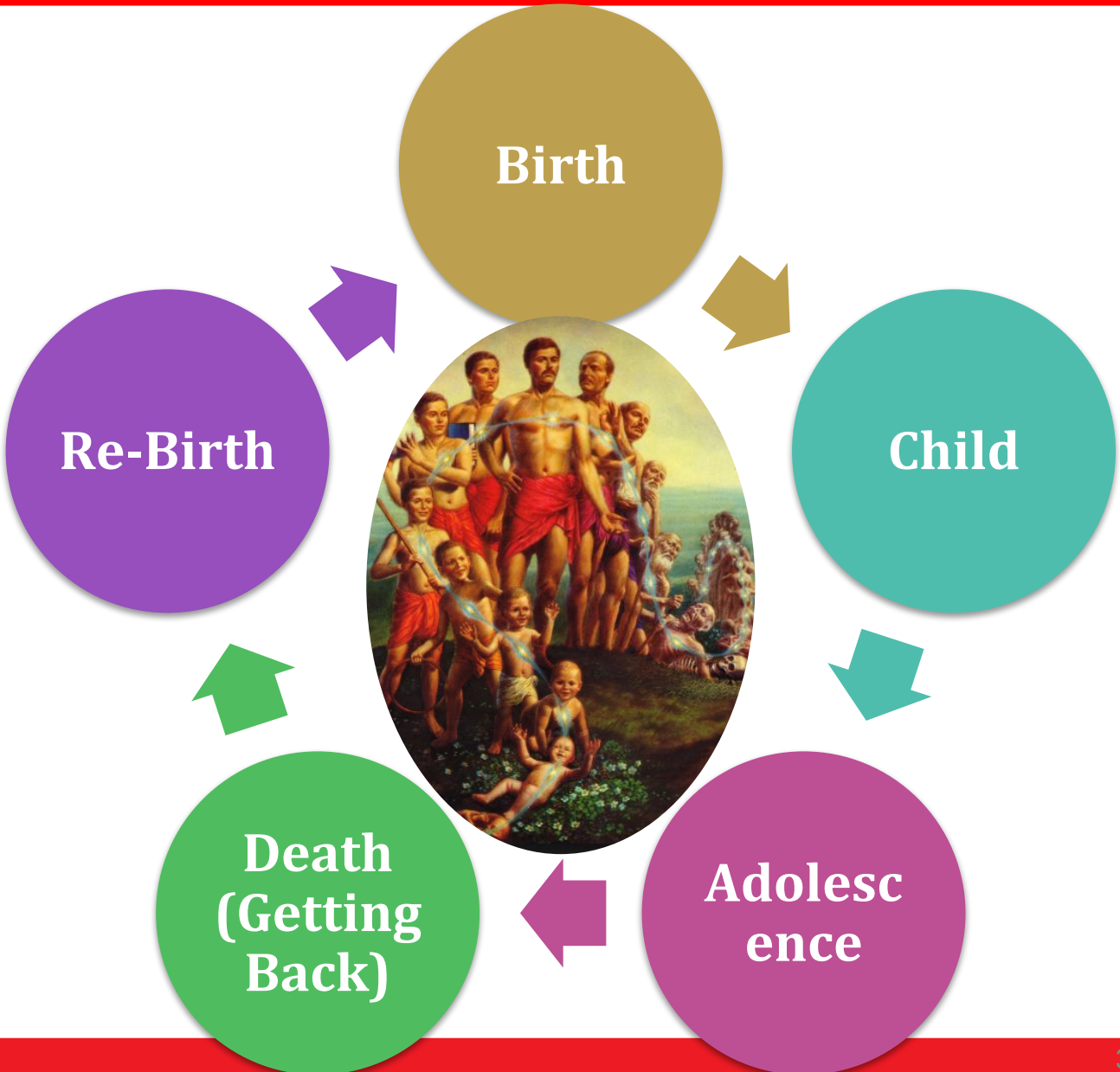
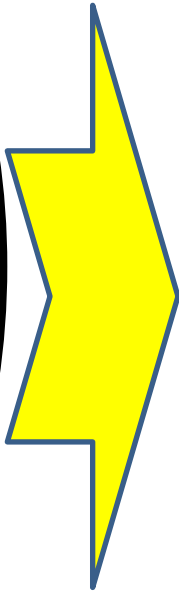
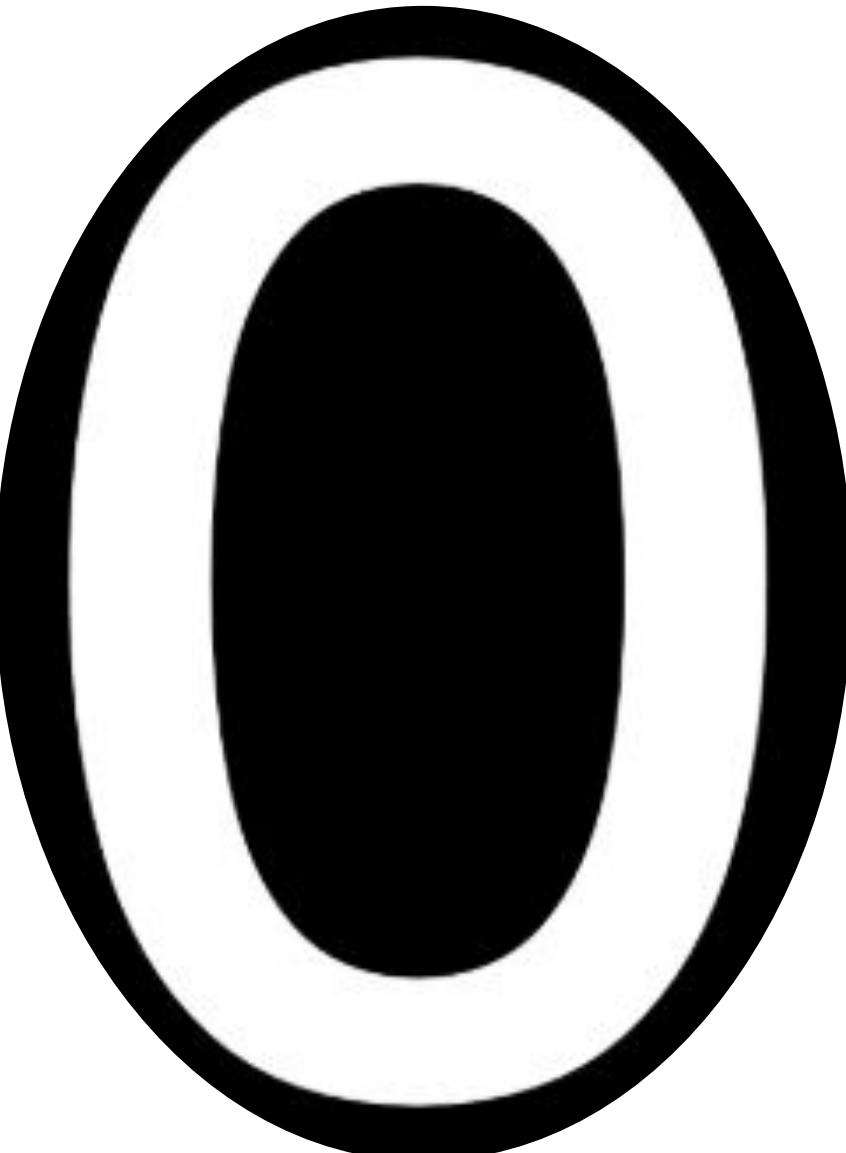


*Integrating Circular Economy in the
Net Zero Agenda*

27th June 2024

Circular Economy ??

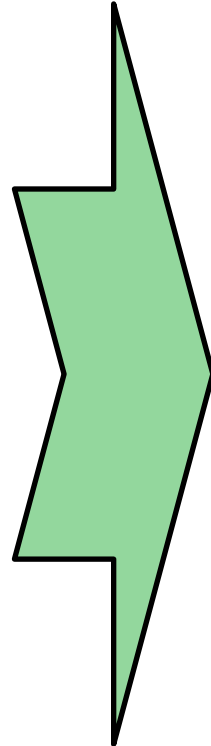
Circular Economy – Mythological Context



Circular Economy – Sustainability Context

Circular Economy:

- Model that emphasizes *resource efficiency and sustainability*.
- Involves *sharing, reusing, repairing, and recycling materials and products to minimize waste*.
- *Reduce and avoid carbon emissions*



- **Longevity:** Products are designed to last longer, encouraging repair and reuse.
- **Resource Recovery:** Materials are kept in the economy at the end of a product's life, promoting recycling and refurbishment.
- **System Change:** Consumers, businesses, and policymakers need to shift toward circular practices.
- **Value Creation:** A circular economy could unlock \$4.5 trillion of value by 2030.

Core Principles of the Circular Economy



Design for Circularity

Products and processes are designed from the outset to be reused, repaired, or recycled, minimizing waste and maximizing resource efficiency.



Regenerate Natural Systems

The circular economy aims to enhance natural capital by encouraging the flow of nutrients and creating conditions for regeneration of natural systems.



Keep Products and Materials in Use

Through reuse, repair, and remanufacturing, the circular economy extends the life cycle of products and keeps materials circulating in the economy.



Innovative Business Models

New business models, such as product-as-a-service and sharing platforms, support the transition to a more circular and sustainable economy.

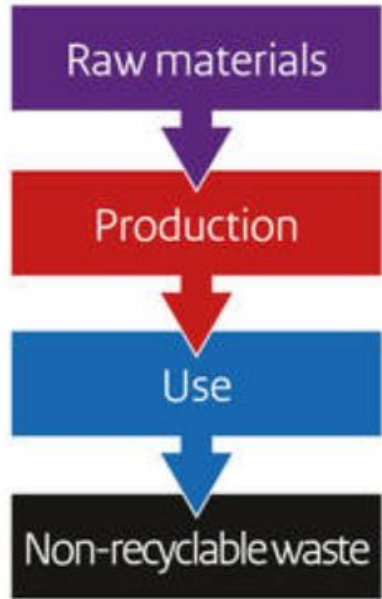
These principles will foster innovation, create new economic opportunities, and ensure the long-term sustainability of our planet's resources.

So...

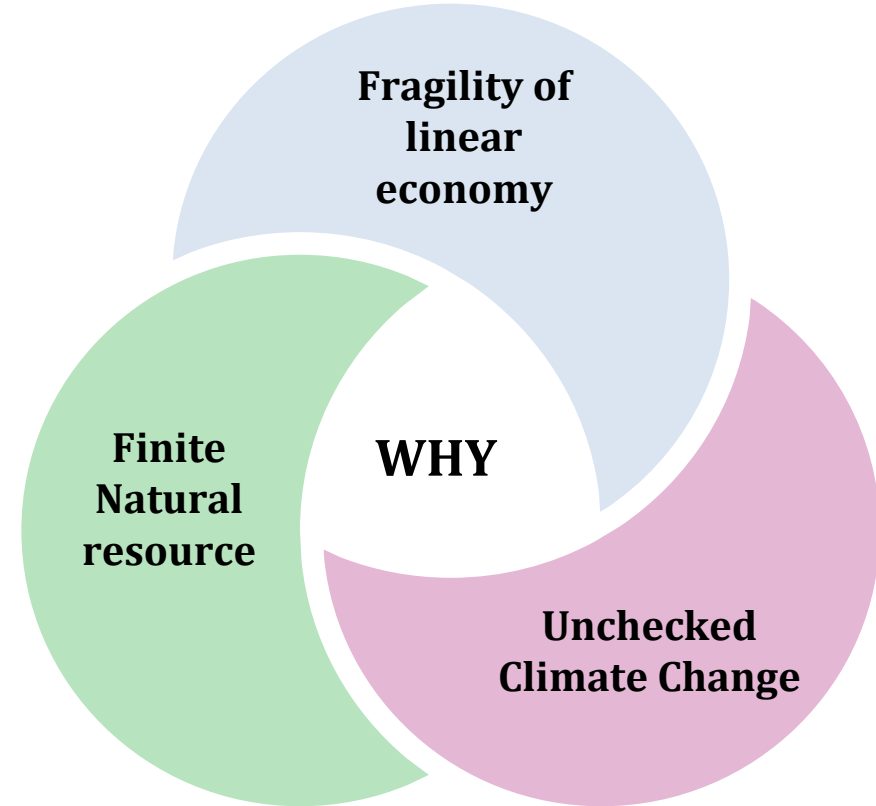
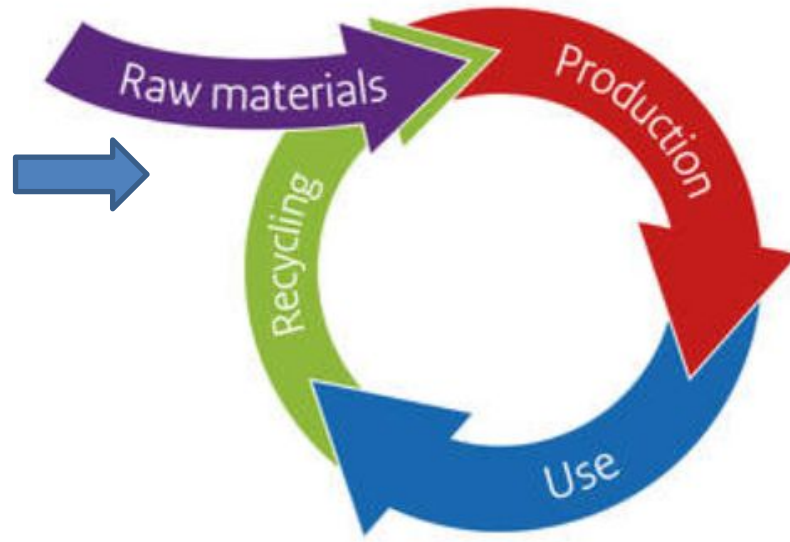
Why the renewed interest in Circular Economy

Linear to Circular Economy – What's the Trigger

Linear



Circular



A circular economy is one that is restorative and regenerative by design.

Business Opportunities in a Circular Value Chain

Circular Supply Chain

Product as a Service

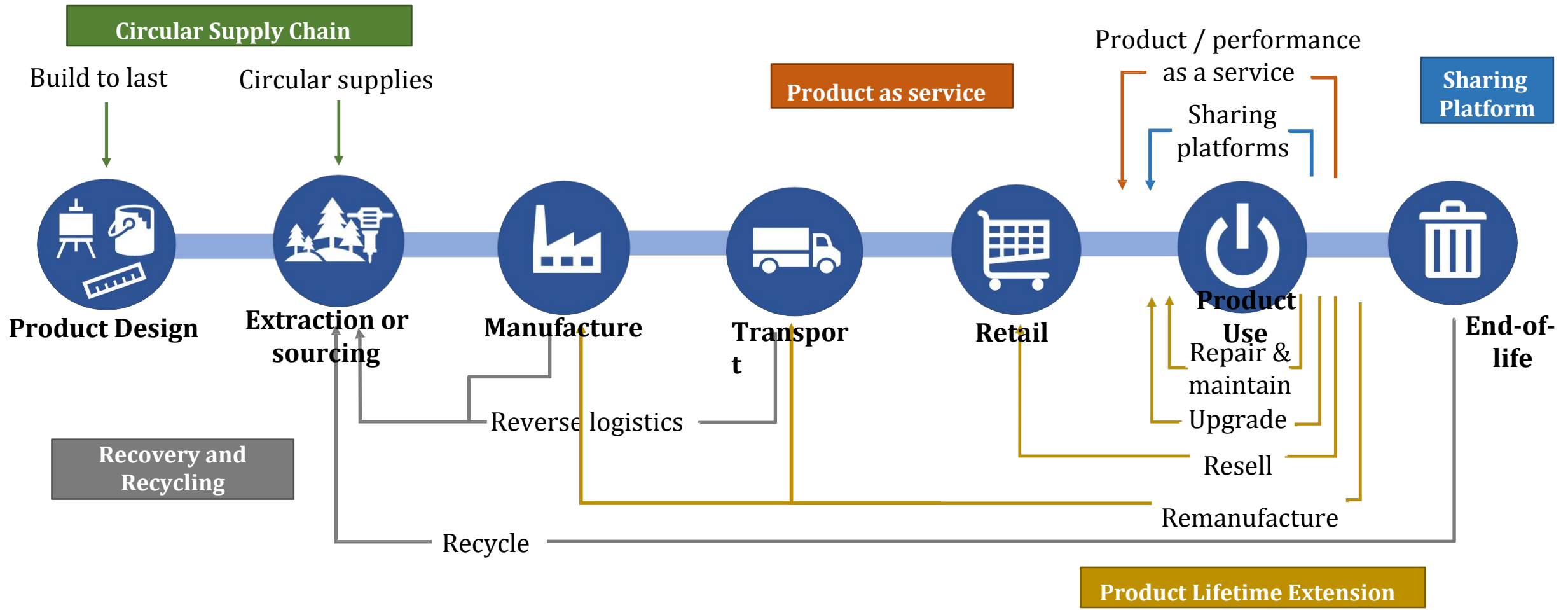


Sharing Platforms

Recovery and Recycling

Product Lifetime Extension

A Circular Value Chain: An elaboration



Circular economy triggers a paradigm shift

Traditional economy

We extract and use natural resources to produce goods, which are sold, then used, then disposed of at end of life.



Economic model



Unlimited natural resources are available to use and generate economic benefit.



Natural resources



End product with no value to be disposed of at the end of the usage cycle



Waste



Limited inclusion of this aspects in organization strategy.



Sustainability



Circular economy

Circular business consider products from design through end of life, diverting materials from landfill to be recycled, for second life reuse.

Resources are limited and are to be maximized and recycled whenever possible.

End Product can be re/used for manufacturing and/or other processes

An essential aspect of every sustainable and long term business

For Companies having sustainable strategies, understanding circularity is critical. From increasing long-term viability to generating significant cost savings, circularity brings value to business.

Change to Circular Economy – The Methodology



- *Minimize use of non-renewable resources and, where possible, identify renewable resource replacements,*
- *Commit to sourcing recycled content*



- *Consider full lifecycle environmental impact during design, manufacturing, use and end of life.*
- *Make products that can be recycled, modular designs, repaired, upgraded or reused.*



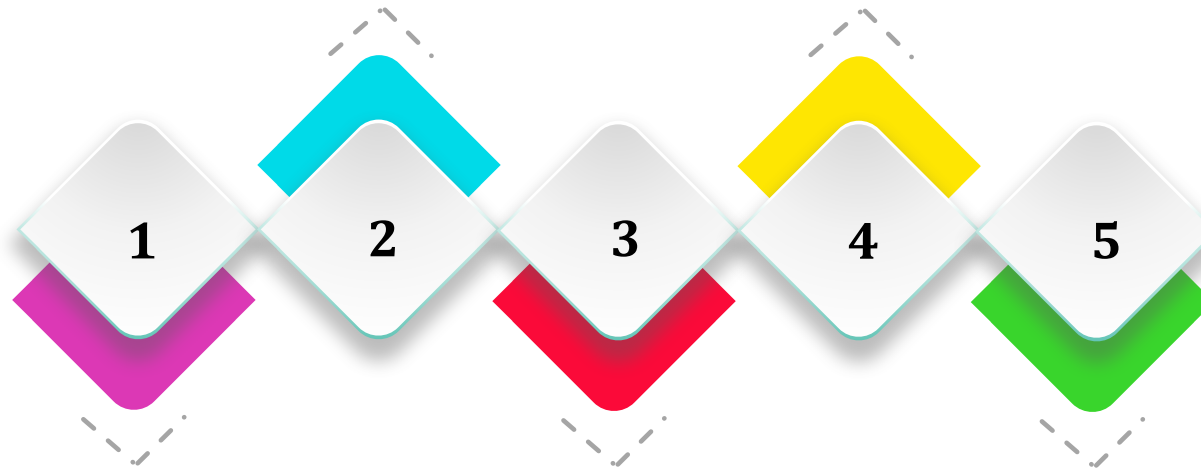
- *Rethink approaches to eliminate as much waste as possible through resource recovery, recycling, and reuse them as resources for other processes*

Five Steps Towards Circular Economy



**Consistent and Strong
Top Management
Support**

**Educate Employees
and foster
innovation culture**



**Engage with External
Stakeholders**



**Identify Specifics and
Develop a Business Case**



**Collaborate with External
Partners and
Communicate**



Circular Economy benefits

LINEAR



CIRCULAR

Take

Fewer resources used
Renewable resources used
Product rebuilt from used components

Make

Product designed for using Design for Environment and Life Cycle Aspects

Reuse

Waste Generated can be reused for secondary usage in other industry as their raw material

BENEFITS

Reduce use of finite raw materials

Maximize life and use of materials

Reduce waste to landfill – reduces GHG emissions

The circular economy aims towards reconciling economic growth with the environment

What are we doing @ HMCL.....?

Sustainable Landscape

GREEN MANUFACTURING

Sustainable Manufacturing Practices



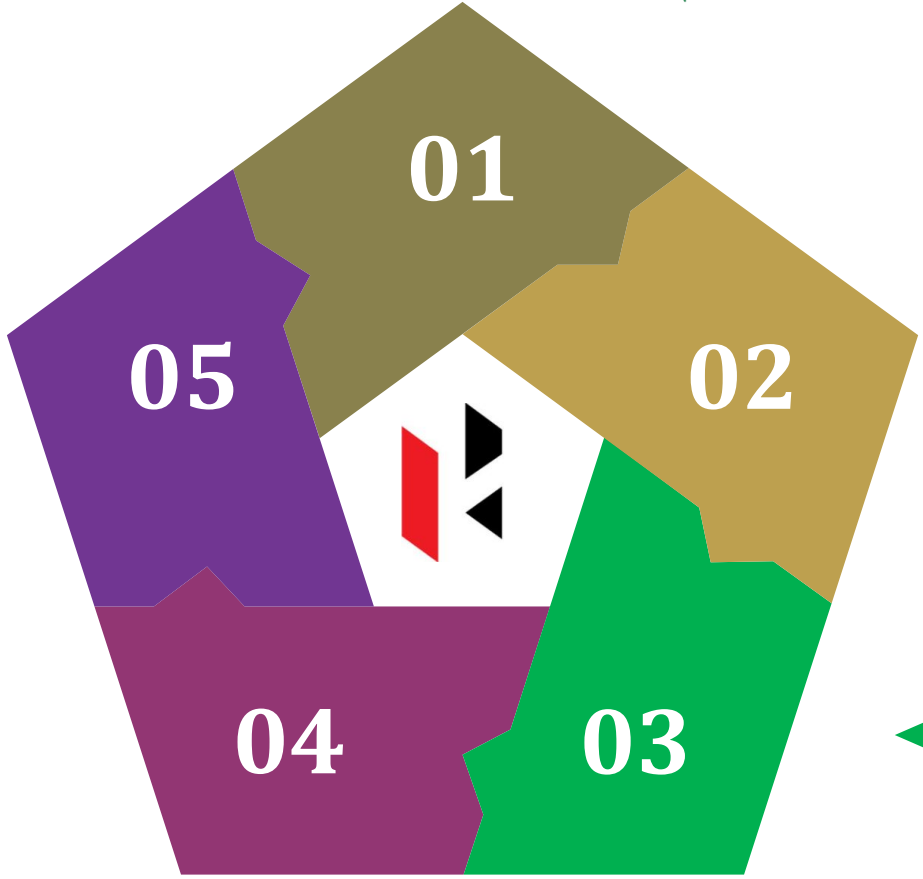
REGULATION

Synergy b/w Environment and Economy



DIGITALIZATION

Green footprint, Virtual Connectivity



VALUE CHAIN

Sustainable Business Partners



PRODUCT STEWARDSHIP

Design for Environment





We Care for a sustainable tomorrow

Reserve

Reserve resources for future



Respect

Respect human dignity & integrity



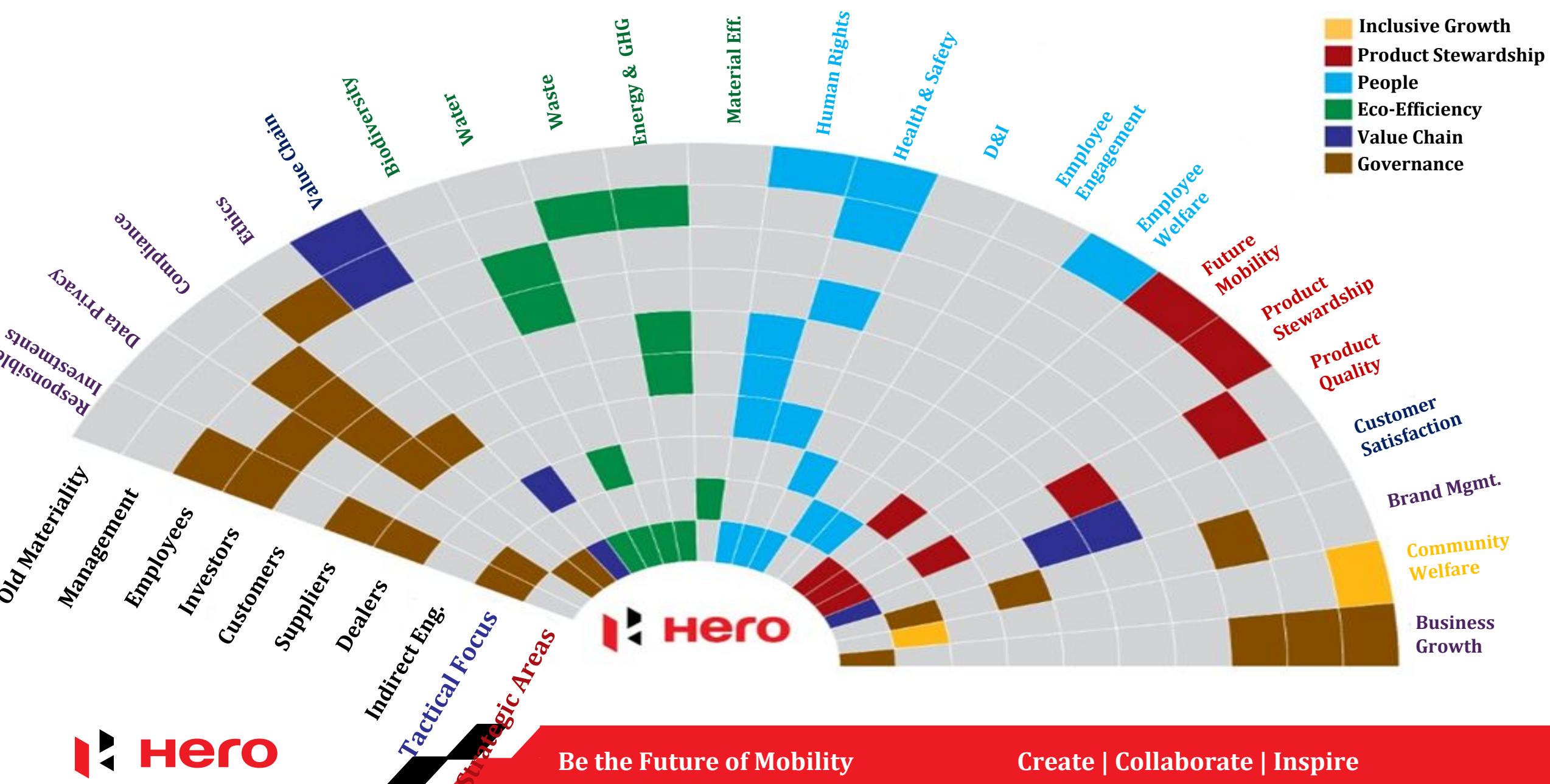
Reform

Reform to a resilient



Establish Next Practices rather than Best Practices

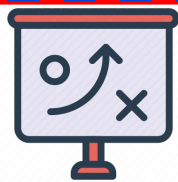
Materiality - Relevance Map



Be the Future of Mobility

Create | Collaborate | Inspire

Materiality – Assessment



Strategic Focus

Tactical Focus

Business Growth & Profitability**

Health, Safety & Well-being

Diversity & Inclusion

Human Rights

Ethical Practices***

Value Chain Sustainability

Climate Protection*

Employee Welfare & Retention

Material Efficiency

Brand & Reputation Management

Community Engagement

Responsible Investments

Data Privacy



Customers

Business Growth & Profitability**

Human Rights

Ethical Practices***

Climate Protection*



Investors

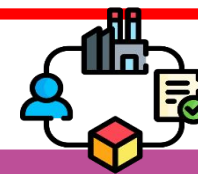
Business Growth & Profitability**

Data Privacy

Human Rights

Responsible Investments

Climate Protection*



Employees & Value Chain

Business Growth & Profitability**

Health, Safety & Well-being

Ethical Practices***

Climate Protection*

Responsible Investments



Board

Business Growth & Profitability**

Health, Safety & Well-being

Value Chain Sustainability

Ethical Practices***

Response from **2527** stakeholders

Outcome of Materiality Assessment

Strategic (Areas For Target Setting) & Tactical (Areas always in radar)

* Includes Energy & Emissions, Water Conservation, Efficient Waste Management, Biodiversity Management

** Includes Assuring Product Quality, Emerging Mobility Solutions, Innovation and customer satisfaction.

*** Includes Regulatory Compliance

HATS Target (Progress as of FY 24*)



**figures unaudited*



Manufacturing Landscape



*Best in Class Technologies and equipment for **design, manufacturing & assembly of products***

Key Practices



Dense Forest Concept



Drip Green Houses - Hydroponics



Solar Power Wheeling



Wind Energy (Under Evaluation)



Smart Energy Efficient Grids




Roads from Recycled Plastic

Sustainable Manufacturing Facilities :: At Glance

*Hero continuously strives for **synergy between environment & technologies across facilities.***

GreenCO GOLD

Dharuhera 1985



Solar PV, Evaporator, ZLD, Trigenation : i. Electricity, ii. Hot Water &iii. VAM, Light Pipe, LED

GreenCO GOLD

Gurgaon 1997



Solar PV, Evaporator, ZLD, Trigenation : i. Electricity, ii. Hot Water &iii. VAM, Light Pipe, LED

IGBC Gold

GreenCo GOLD

Haridwar 2008



Solar PV, Evaporator, ZLD, Green Roof, Light Pipe, LED

IGBC Platinum

GreenCo : Platinum

Neemrana 2014



Solar PV, Big Foot, Hydroponics, Green roof & Wall, Evaporator, Solar Thermal, ZLD, Light Pipe, LED

IGBC Platinum

GPC 2014



Solar PV, Big Foot, Hydroponics, Green roof & Wall, Evaporator, Solar Thermal, ZLD, Light Pipe, LED

IGBC Platinum

CIT 2015



Solar PV, Big Foot, Hydroponics, Green roof, LED

IGBC Platinum

Halol 2016



Solar PV & BIPV, Big Foot, Hydroponics, Green roof & Wall, Evaporator, Solar Thermal, ZLD, Light Pipe, LED

Energy Conservation at Plants



Utilising Day Light



Auto ON-Off with Dimming Sensor



Efficient Lights with LUX setting



Arctic Master for Chilling Control



LED Flood Lights

HEAT PUMP



Waste Heat Utilisation

Overview – Water Strategy

01



Water positive facilities 455%

02



Water audits conducted periodically

03



Zero Liquid Discharge Facilities

04



15000 families water consumption per year conserved

More than 3500 Million Litre Water reused in five years

05



5.1 Mega Litre Water Condense potential from Bigfoot annually

06



260 Million Litre Water Conserved beyond fence

<https://pib.gov.in/PressReleaseFramePage.aspx?PRID=1604871#:~:text=As%20per%20Ministry%20of%20Housing,tor%20higher%20level%20by%20states>



Be the Future of Mobility

Create | Collaborate | Inspire

Water Initiatives within the Plant

Effluent Treatment Plants



Rainwater Harvesting



Zero Liquid Discharge



Sewage Treatment Plants



ETP Recycling Plants



Evaporators



STP Recycling Plants



Unique Rain water collection system at CIT



- **27 RAIN WATER COLLECTION PONDS** created at site with 40,000 KL holding capacity.
- Recharge of collected water is ensured through 181 recharge shafts placed in these ponds.

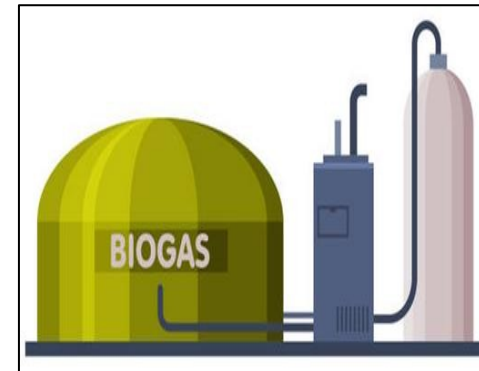
Waste Neutrality Overview

| Hazardous Waste (Categories) | Disposal Method |
|------------------------------|---------------------------|
| Paint Sludge | Recycling & Co-processing |
| Grinding Sludge | Recycling |
| Phosphate Sludge | C-processing |
| Waste Oil | C-processing |
| ETP & STP Sludge | C-processing |
| Other Hazardous Waste | C-processing |
| E-Waste | Recycling |

| Non-Hazardous Waste (Categories) | Disposal Method |
|----------------------------------|-----------------|
| Aluminium Scrap | Recycling |
| Steel Scrap | Recycling |
| Packaging Material | Recycling |
| Plastic Waste (Non-Packaging) | Recycling |
| Other Non-Hazardous Waste | Recycling |



Waste Treatment in Cement Industry



1

Hazardous waste: Co-processing in Cement Industry and Recycling

2

Non-Hazardous Waste/E-waste: Goes to Authorized Recycler

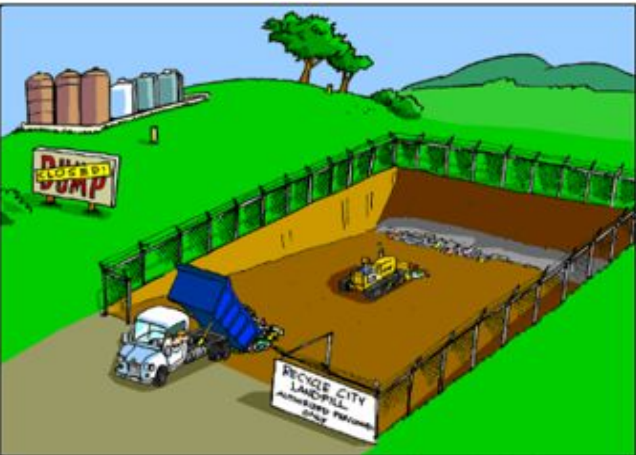
3

Food Waste: Feed for Bio-gas plant/Organic Waste Composter

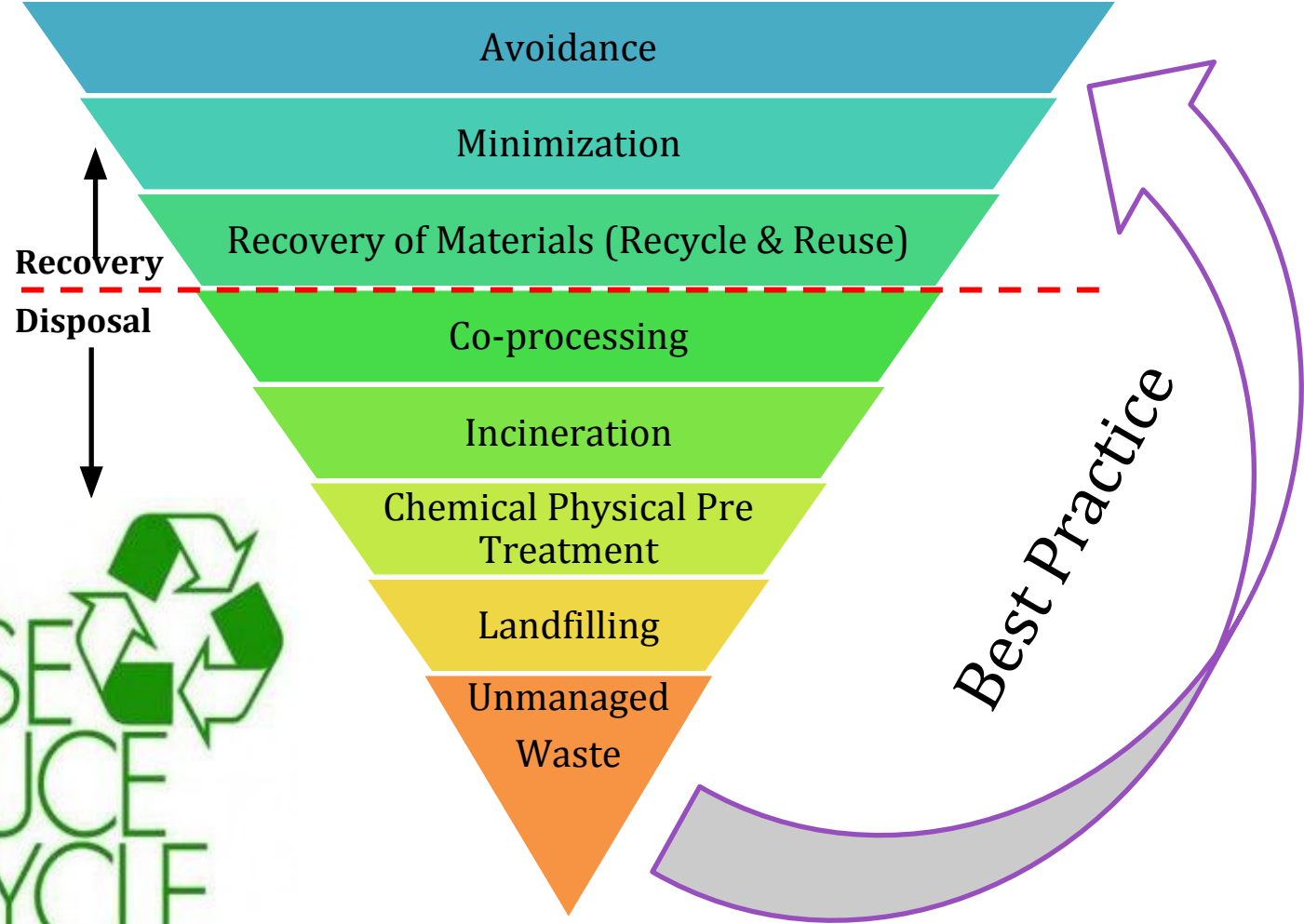
Waste management Hierarchy & ZWL approach.

Zero Waste to Landfill (ZWL) is an approach to planning and materials management that maximally minimizes items/materials needing final disposal in a landfill or incinerator.

Implementing Zero Waste will eliminate all discharges to land, water or air that are a threat to planetary, human, animal or plant health.”



Waste Management Hierarchy



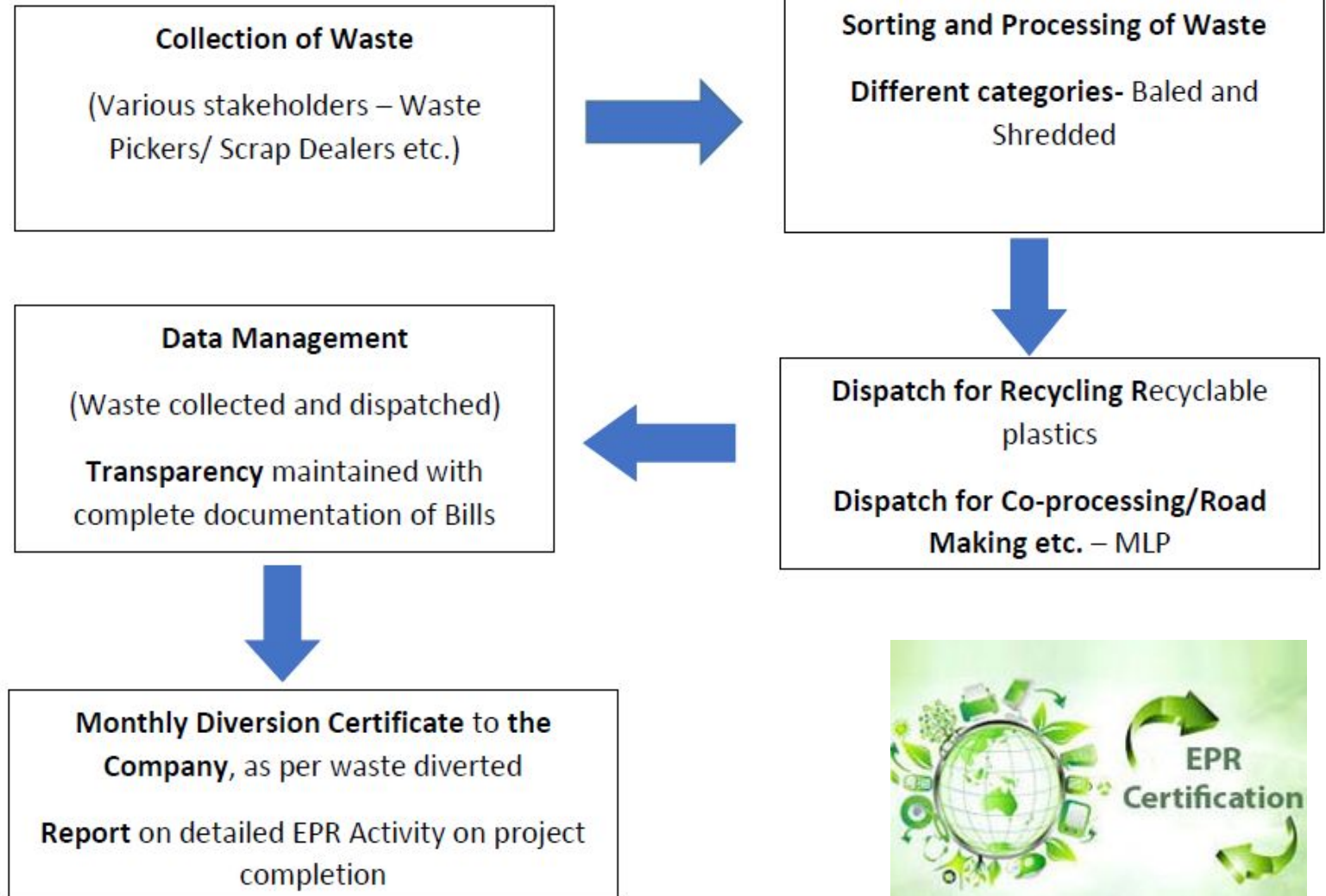
Initiatives for Waste Management

Extended Producer Responsibility

- Hero MotoCorp Ltd. is a Brand Owner using plastic packaging for products sold.
- Hero MotoCorp adopted the EPR Model to act on plastic waste by ensuring its collection, processing and sustainable disposal to bring in compliance to Plastic Waste Management Rules, 2016.

**4700+ Tonnes
disposed off in
sustainable manner**

The Model for EPR based Plastic Take-Back Service



Single Used Plastic Free Plant– Achieved

FY 23

✓ HM2G *

FY 24

✓ HM1D *

✓ HM3H *

✓ HM4N *

✓ HM5V *

✓ HM6T *

✓ GPC*

✓ CIT *



Achieved SUP Free certification for 100% of the facilities.

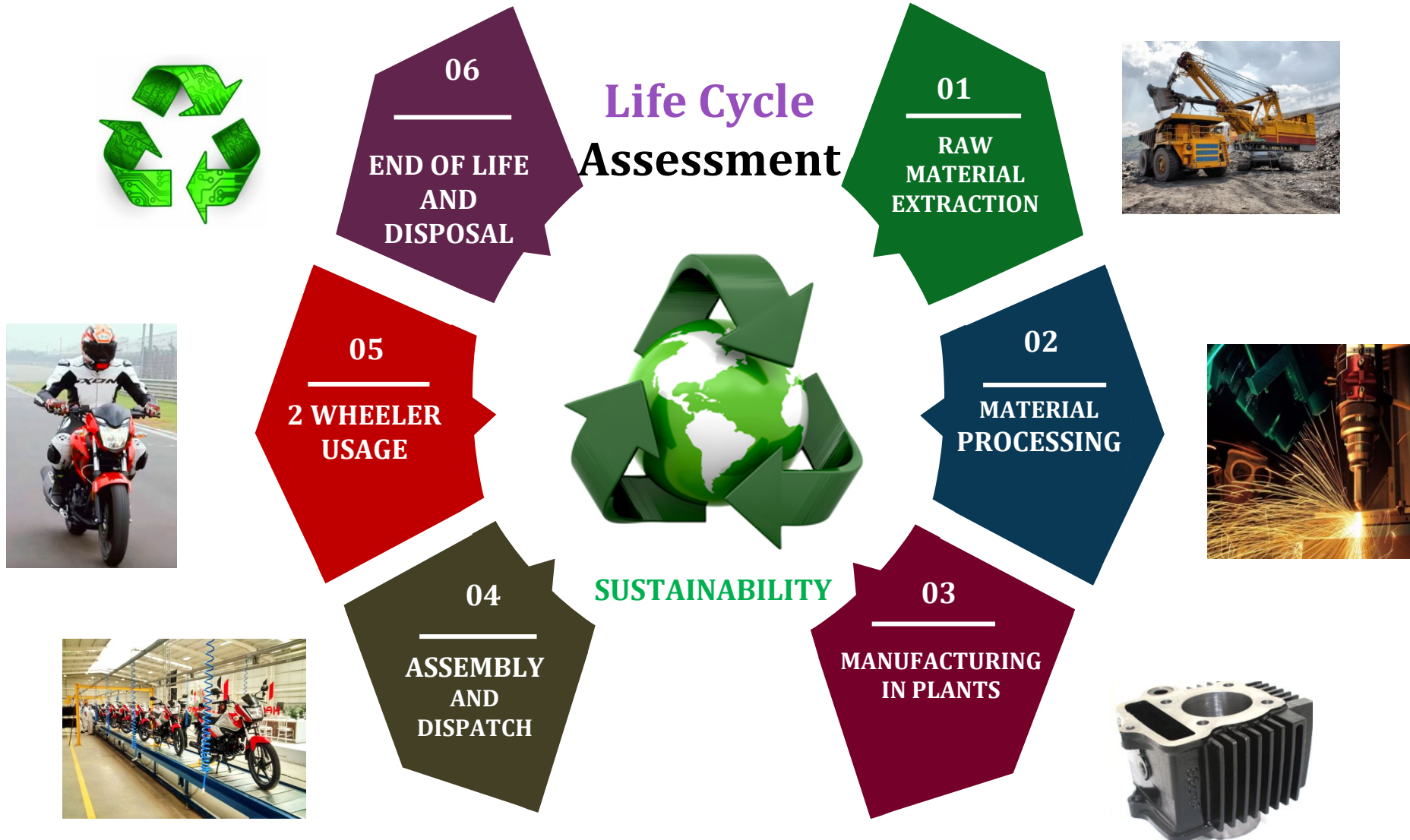
* Third Party Verified



Be the Future of Mobility

Create | Collaborate | Inspire

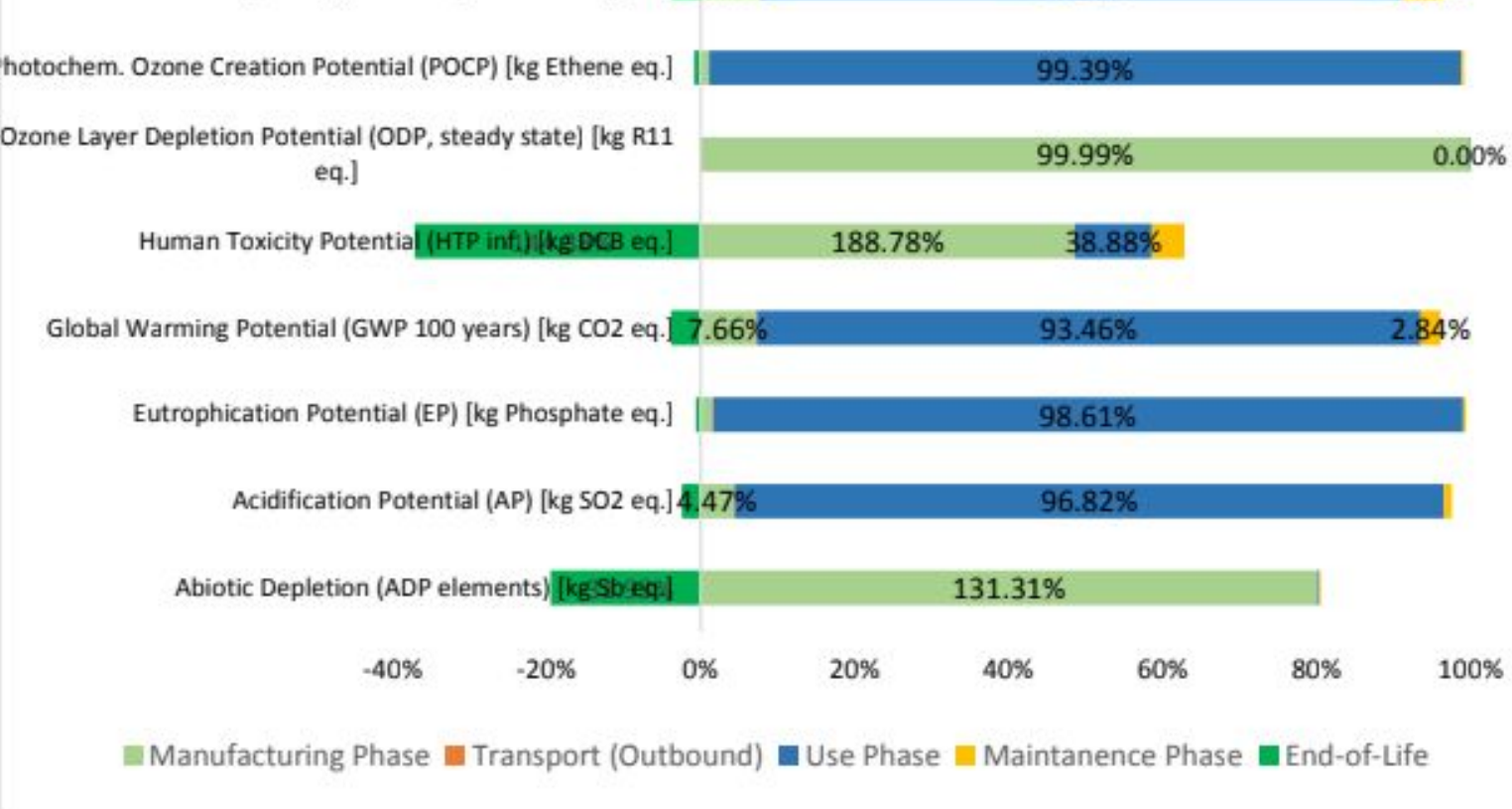
LCA - Life Cycle Assessment



LCA – Product Level

Percentage contribution of each life phase in various impacts is given below –

Cradle to Grave LCIA results for HF Deluxe Model

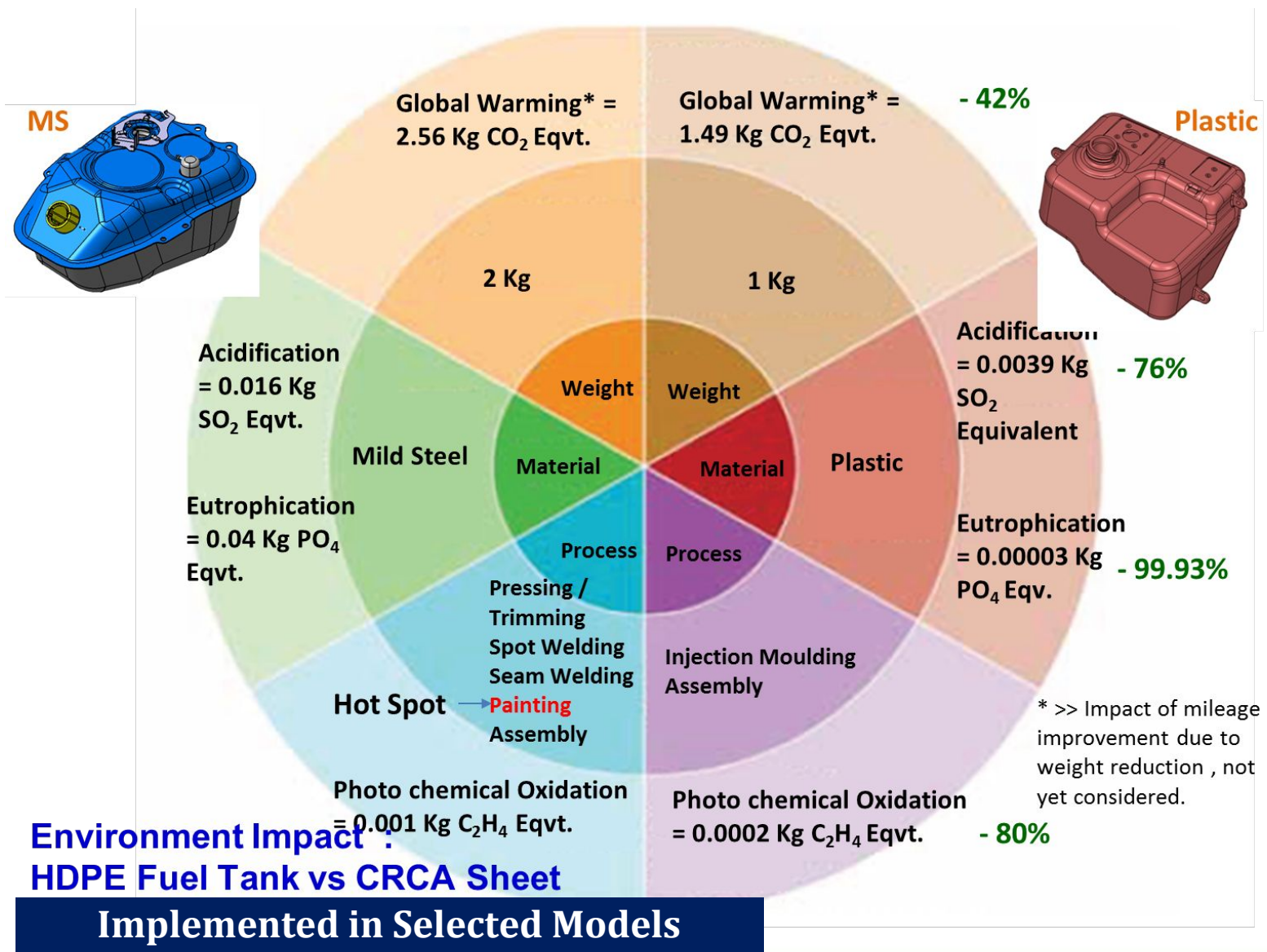


Major Impacts are observed in the use phase of the product

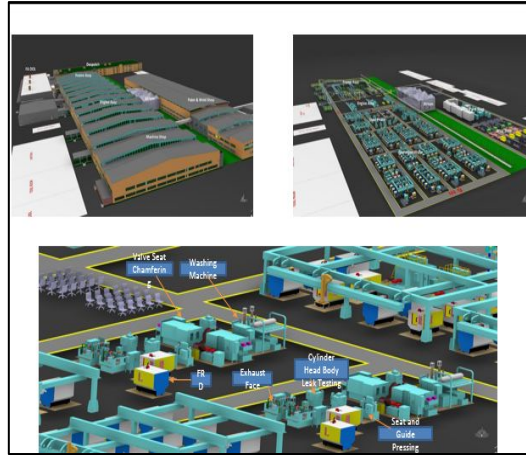
Modeling based on BoM list
Average data assumed wherever data not available



LCA - Part Level



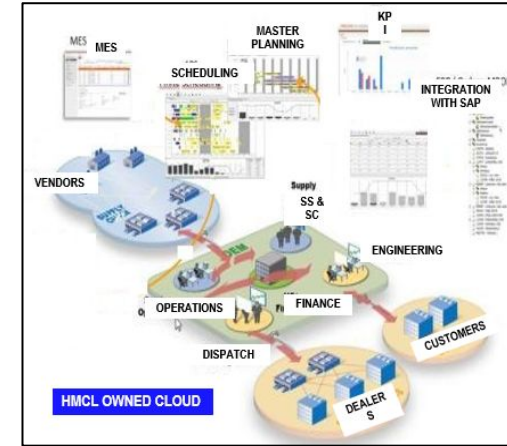
Tech. Interventions



Digital Twin



Augmented Learning



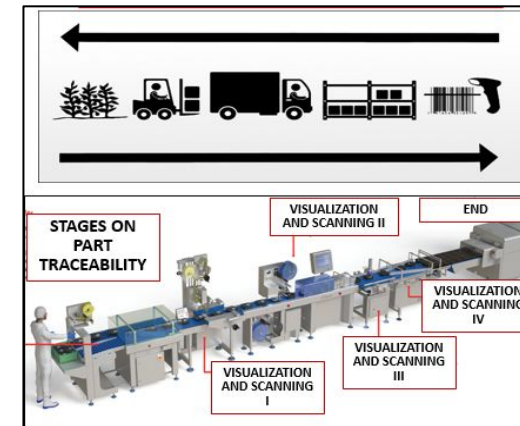
Manufacturing Execution System



Paperless Transactions



Virtual / Augmented Reality



Traceability

Stepping into Emerging Mobility



2w & 3w



Core vehicle, telematics,
data analytics



Charging / swapping
ecosystem



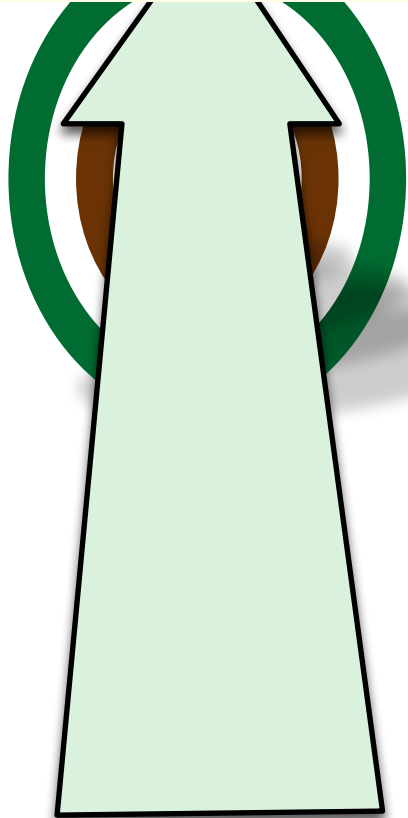
Mobility as a service
(MaaS)

GPDP



SPDP

Sustainable Partner Development Program (SPDP)



Green Partner Development Program



Environment



- Greenhouse gas emissions
- Waste
- Water
- Energy

Social



- Human rights
- D&I
- Health, Safety & Well Being
- Community

Governance



- Code of conduct
- Business ethics
- Third Party Audits
- Internal controls

Green Partner Development Program

222 Supply Chain Partners are GPDP certified and 236 enrolled

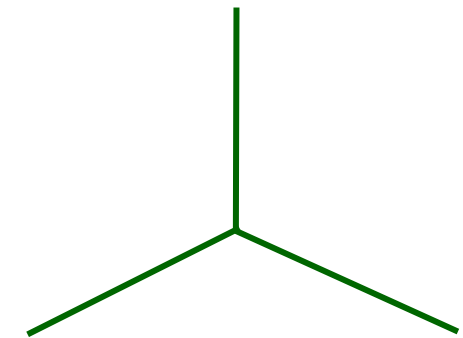
Six pillars have been assigned to this model



The initiative encourages a collaborative effort between Hero MotoCorp and its partners to achieve our overall corporate environmental goal.



Green Partner Development Program



Green Vendor Development Program

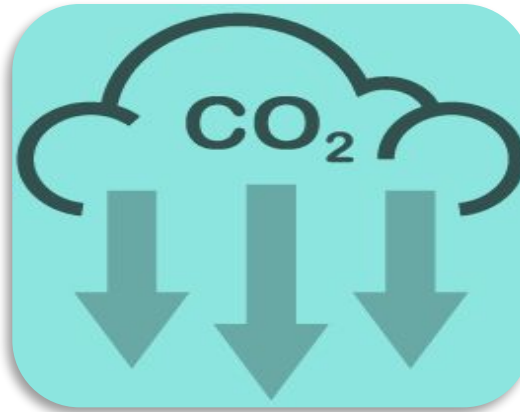
Green Dealer Development Program



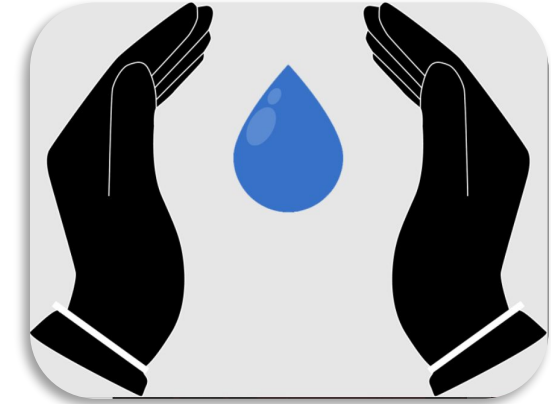
Key Highlights @ Supply Chain Eco-system



**Energy savings
-126 GWh**



**Carbon Offset –
99540 Tonnes**



**Water Conserved -
1910 Mega L**



**Solid waste reduction
-2200 tons**



**Liquid waste reduction
-54 Mega L**

Green Dealership- Framework

Green Energy

Green Products

Green Process



Increase use of clean energy

Solar Energy

Energy Conservation
Star Rated Appliances

Incorporate Green into the Product Strategy

Bio-Degradable consumables

Digitization
E-Shop
Virtual Showroom
Digital Payment

Incorporate Green across the entire Value Chain

Dry Wash

Disposing
Lubes & Wastes

Green Environment - Plantations

Adoption of Aravalli Biodiversity Park

Green Lungs for
Delhi-NCR

Enhances
Precipitation

Groundwater
Recharge Zone

Rich Habitat for
Biodiversity

A range of
minerals



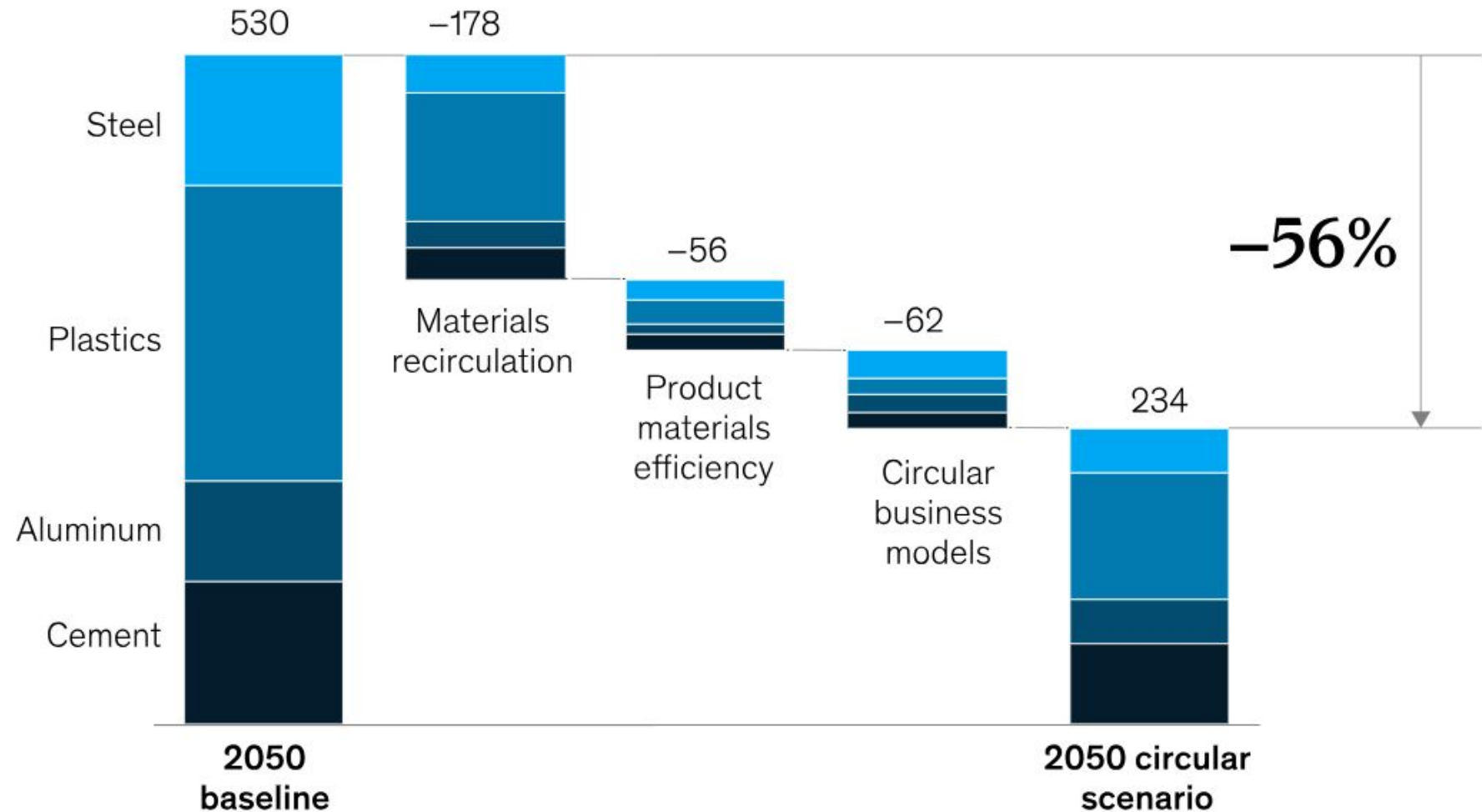
Hero MotoCorp is committed towards ecological restoration and has adopted the Aravalli Biodiversity Park at Gurugram, for the next 10 years from 2021.

Under the framework, Hero MotoCorp is promoting sustainable management of biodiversity, along with protecting the ecosystem of wildlife and the forest reserves.

Circularity Significant potential to facilitate 'NET ZERO'

56%

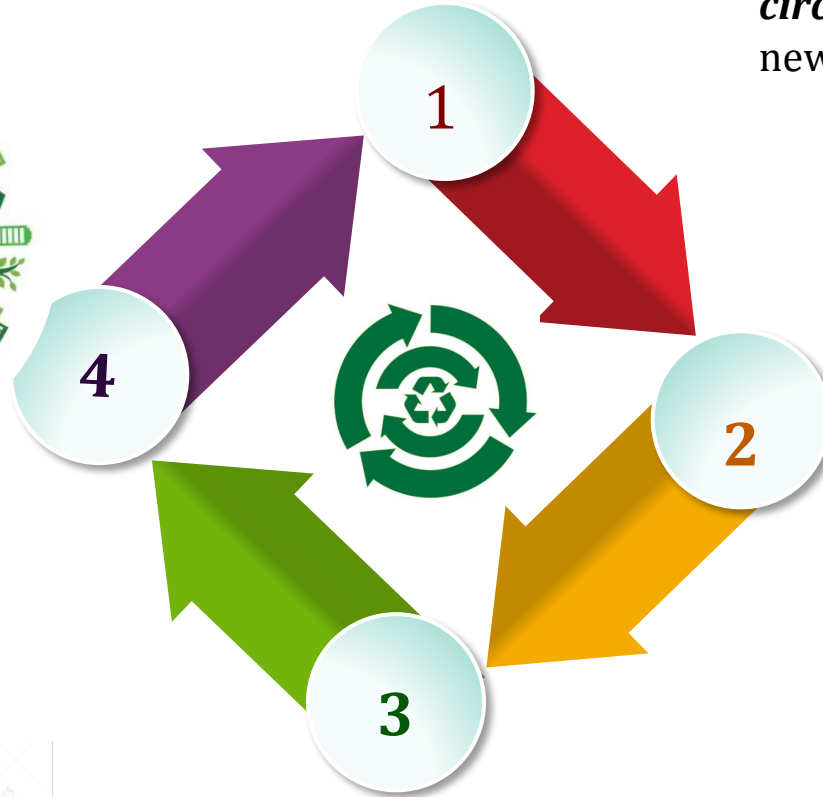
CO₂ reduction potential can be achieved by embracing circularity (combining material recovery, reuse and circular business/supply chain).



Source: Material Economics Study by McKinsey

Way Forward - Suggestions

To ensure a Sustainable Future for all, we need to **switch from a linear to a circular economy**.



Innovative businesses based on circular-economy principles, will generate new business models and revenue streams.



Risks like costs for recovery and reverse logistics, lack of competence and opportunities need to be understood.

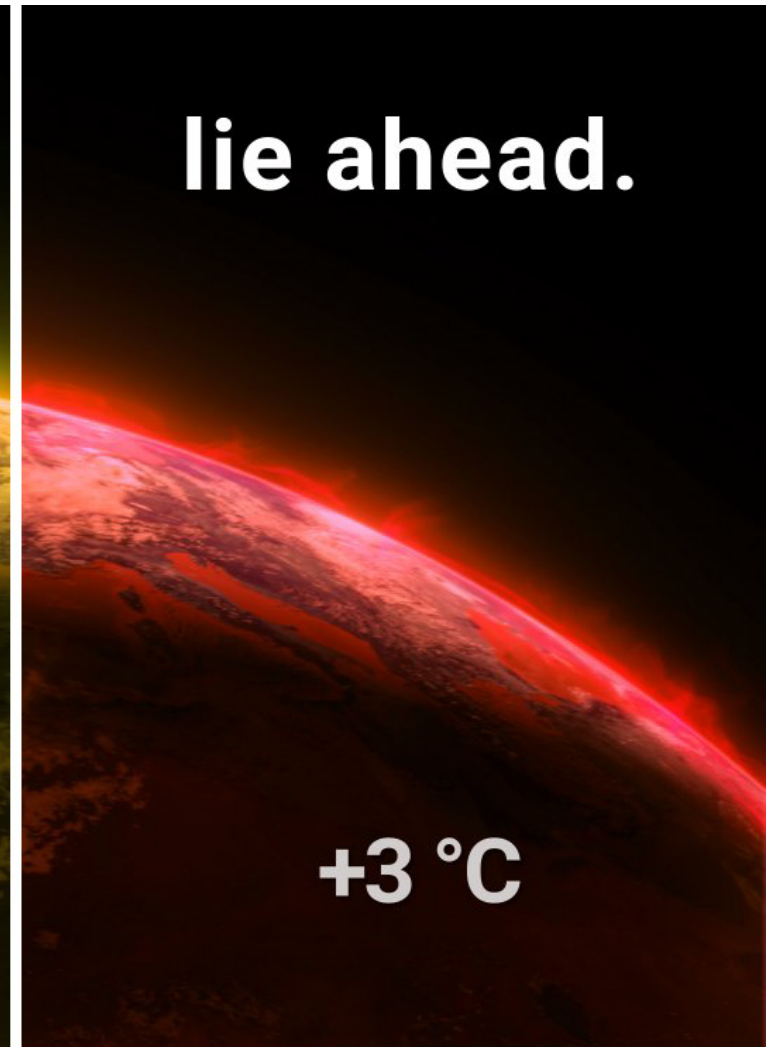
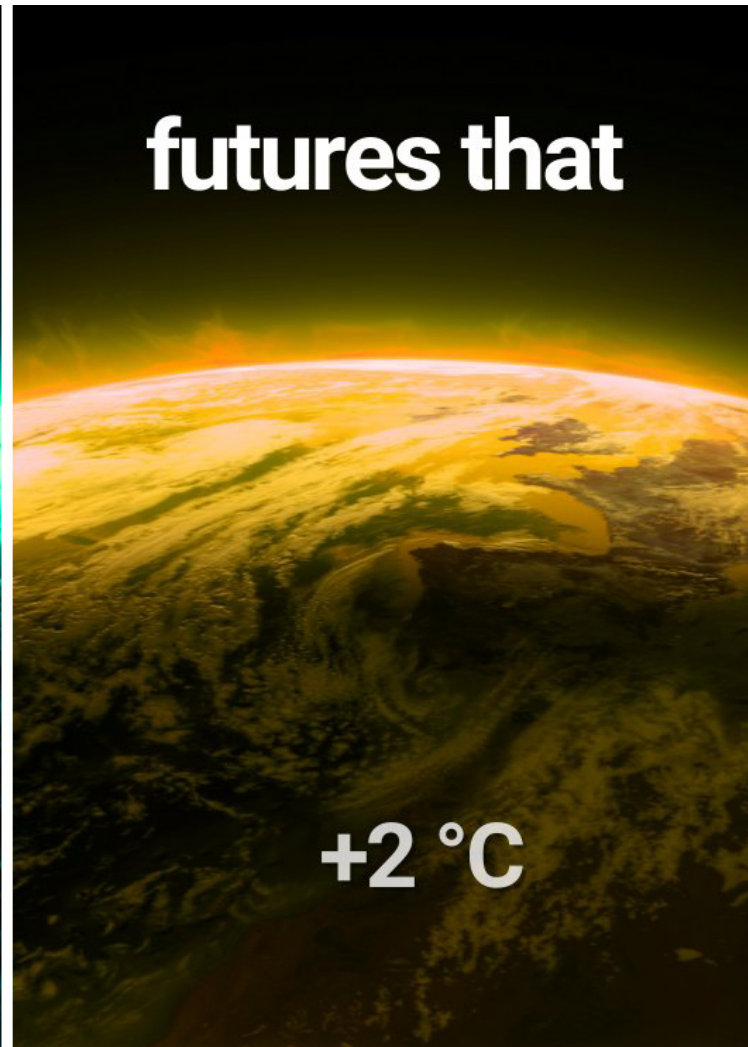
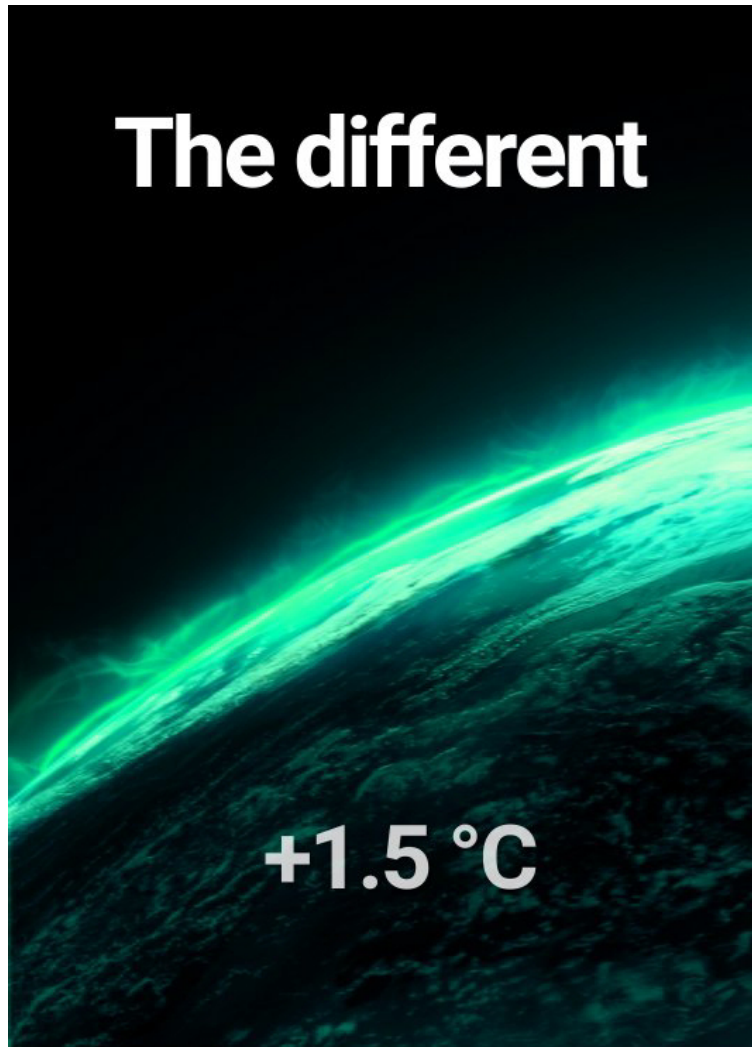


The largest opportunities for improvement lies in value chain partner which have significant contribution for growth.



We must come together and join hand in hand to adopt this change to promise a sustainable future.

The Choice is with all of us.....



IPCC report indicates 1.5 degrees warming will be reached by 2040 or earlier...

**OBJECTS IN MIRROR ARE CLOSER
THAN THEY APPEAR**

6AX98