

# EPW Symposium 2024

## Understanding the life cycle of plastics

### Measuring what Matters

7 August 2024

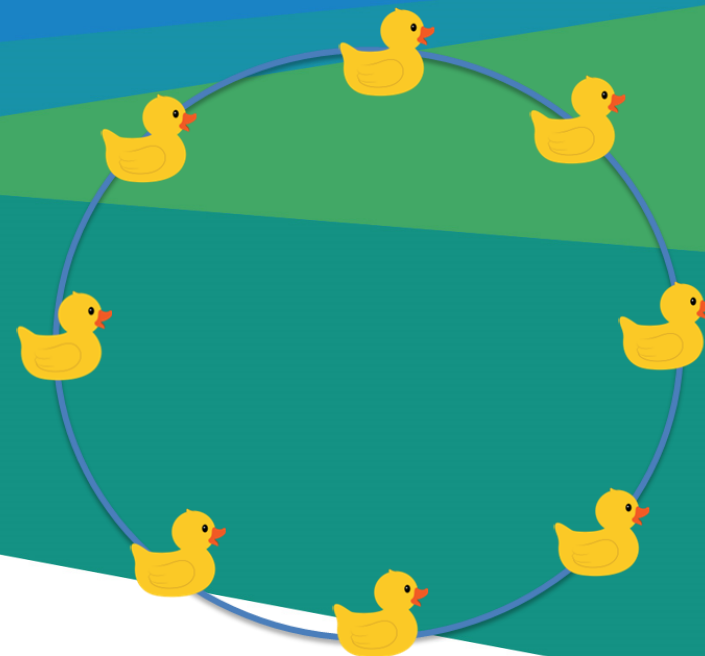
Peter Bury

Director – Circular Economy and Future Industries



**Chemistry  
Australia**

The Business of Chemistry  
Essential for Life



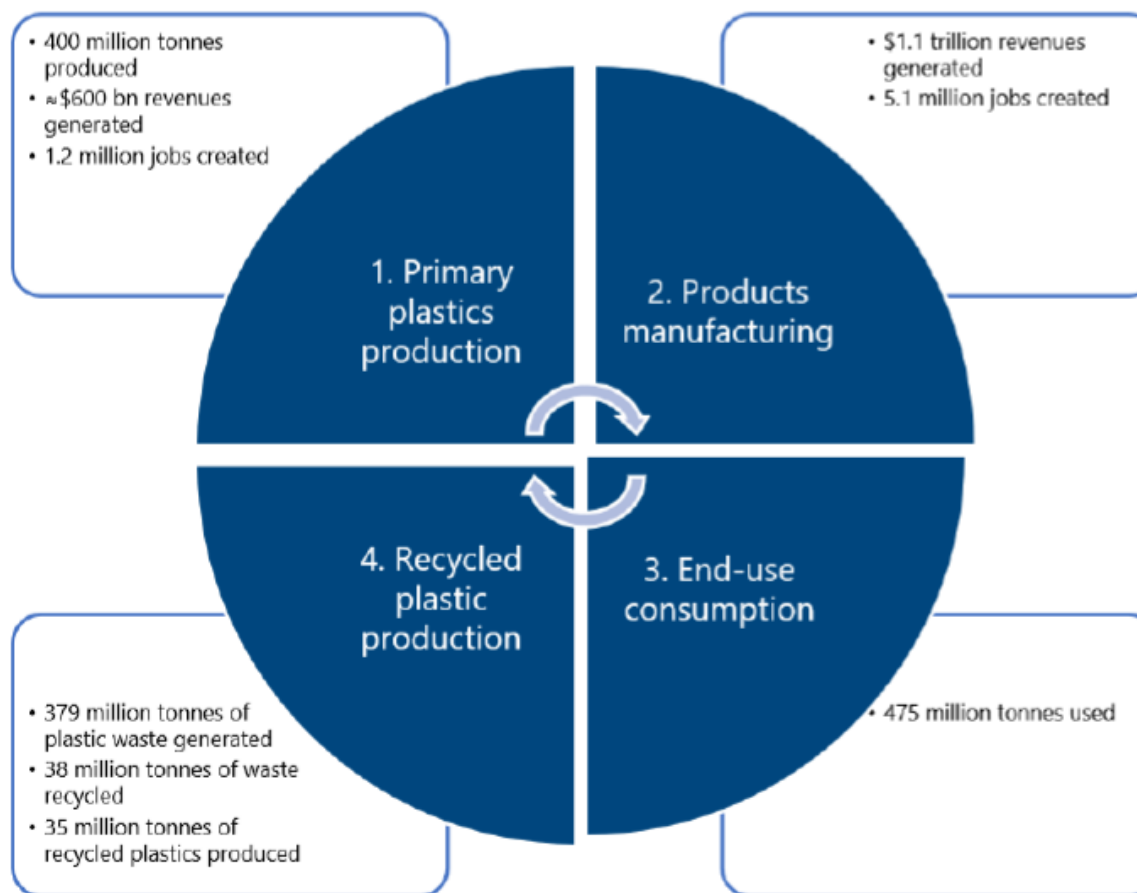
## A world without plastic pollution

A world in which plastics are sustainably produced, designed, used, re-used and recycled in a circular economy and don't become pollution.

And a world in which plastics contribute significantly to the UN Sustainable Development Goals (SDGs), including a lower carbon future.

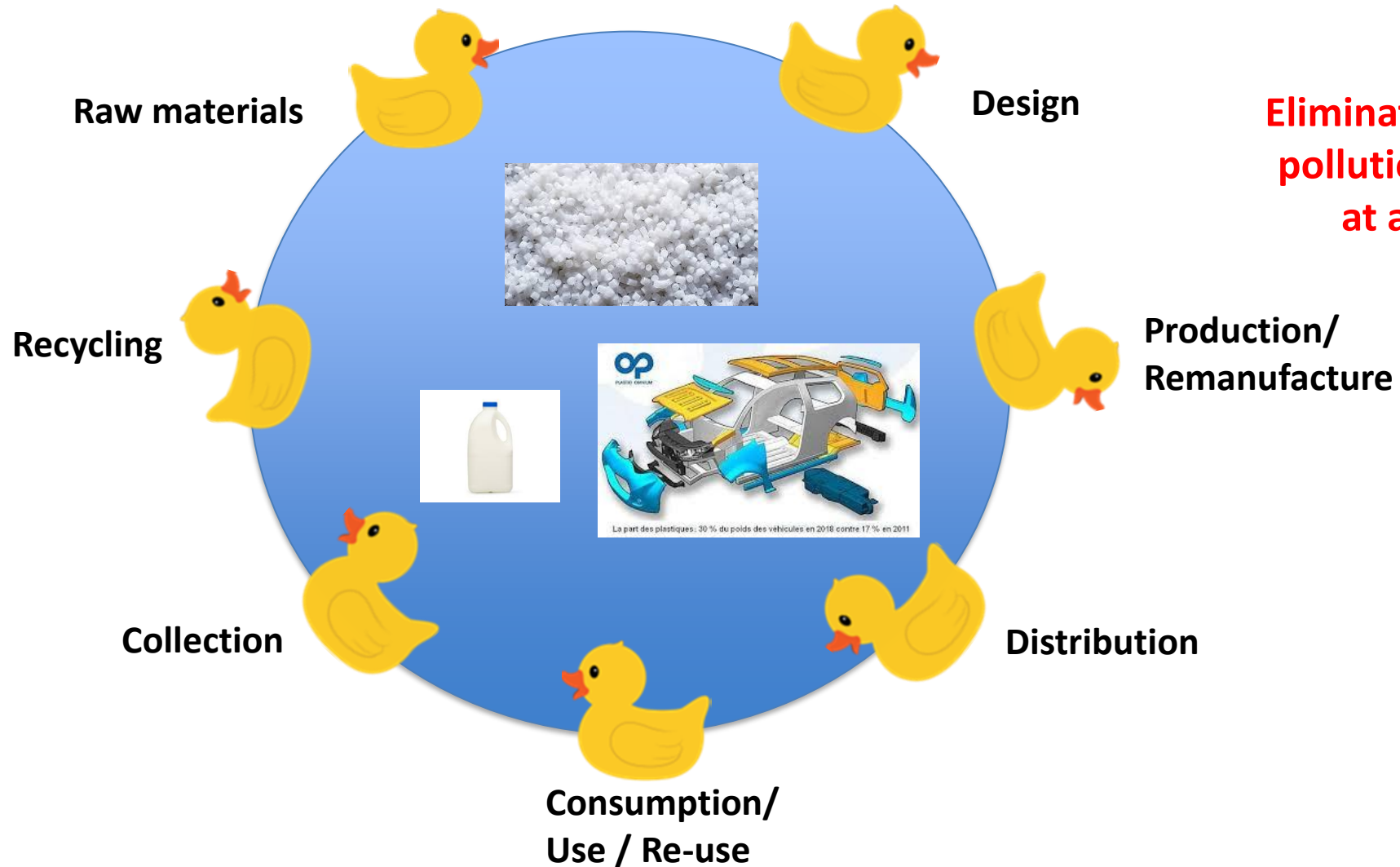
# The Plastics Value Chain

**Fig. 1. Key actors in the plastics value chain and main statistics for 2022<sup>1</sup>**



Source: Plastics Europe, Oxford Economics, OECD

# The Plastics Life Cycle



La part des plastiques: 30 % du poids des véhicules en 2018 contre 17 % en 2011

# Evolving needs –historical, current

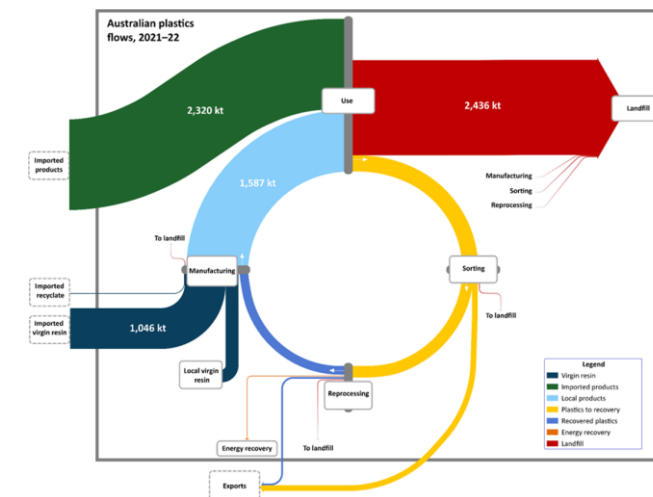
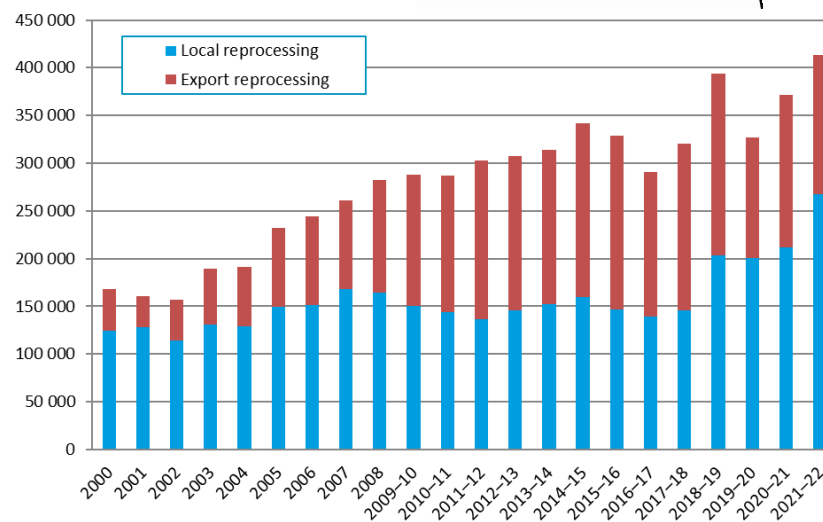
## 22 years of continuous measuring and reporting plastic circularity:

- Informed plastics recycling targets at national / state levels
- Informed policy and investment decision making
- Tracks progress of policies and investments
- Allows comparison with other economies
- Enables the evolution of data needs over time
- Engages more decision makers over time



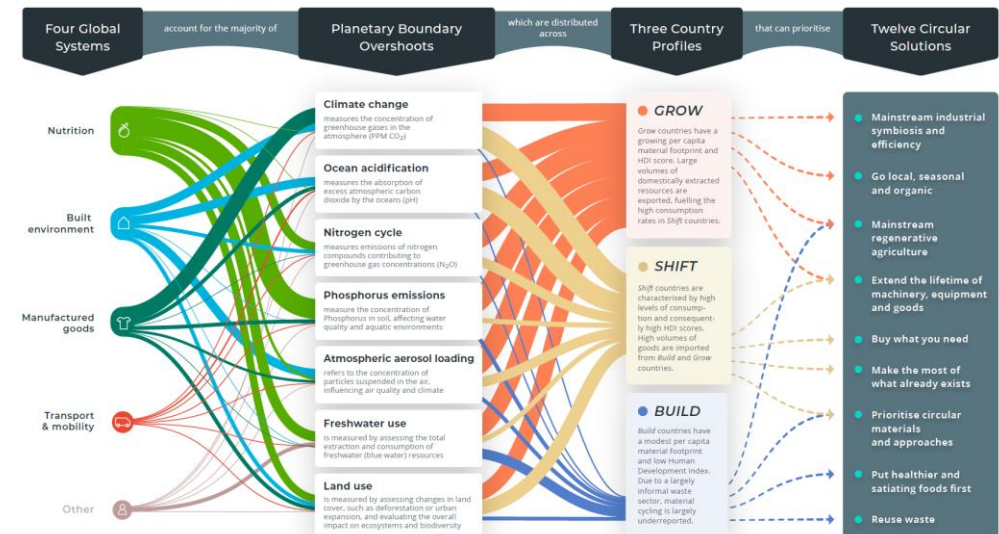
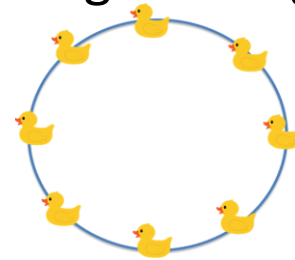
## Requires:

- Availability of actual data
- **Context**, Consistency, Currency
- Trust, Accuracy, Transparency,



# Current and future reporting

- Fates and Flows ongoing
- UN Treaty: 13 elements – National Action Plan
- Material flow analysis: progress against 2 stage strategy
- Circularity reporting by stages
- Circularity gap reporting
- ISO 59000: 59040 Circular Economy – Measuring & assessing circularity performance
- CEMAG: national framework outcome – 2025
- Actual waste, pollution leakage / mitigation
- Intervention ROI



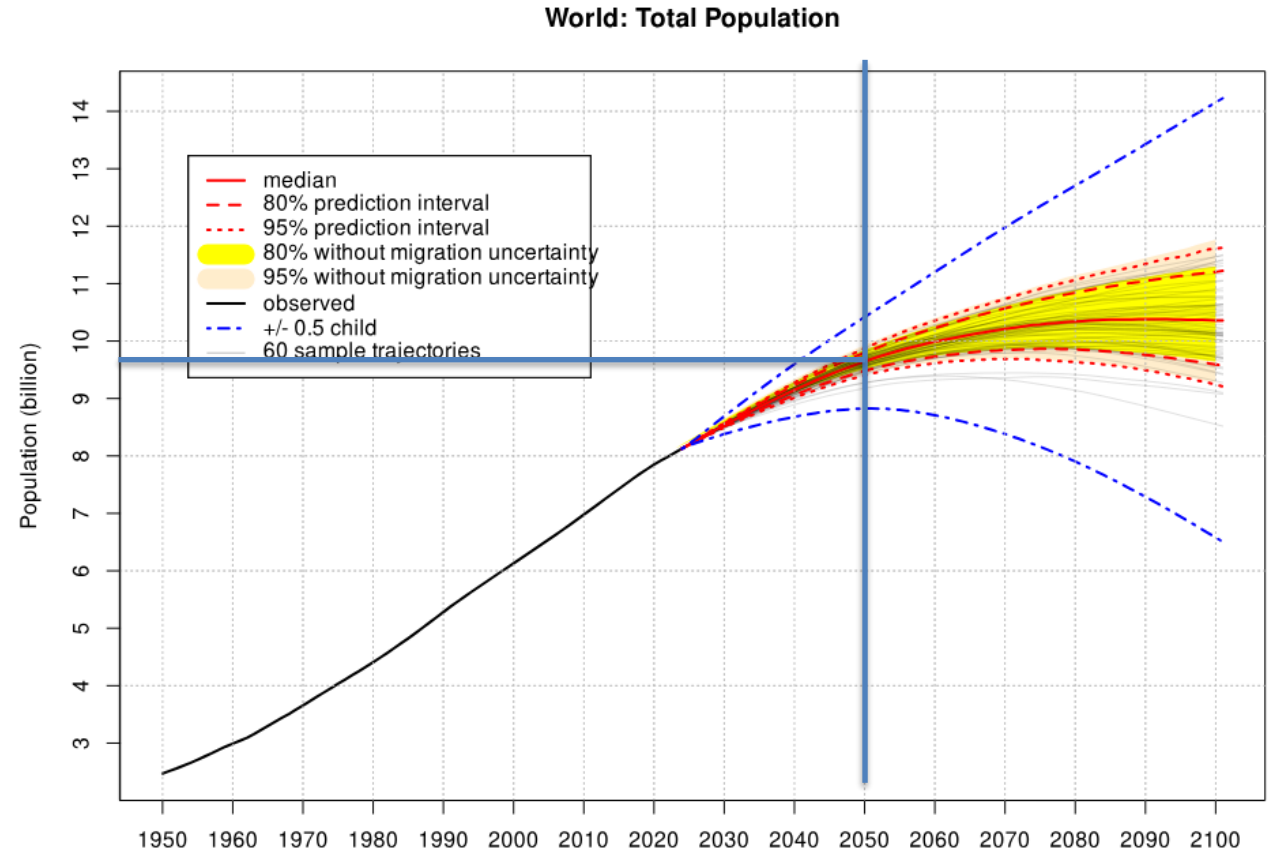
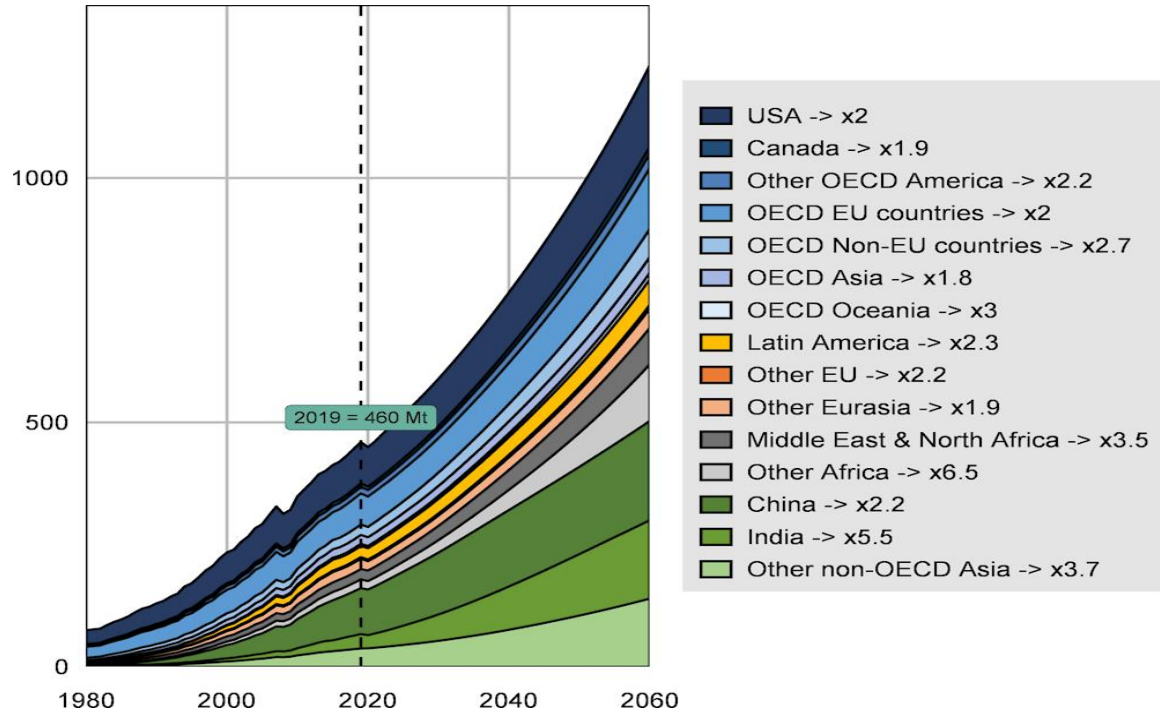
**More information, broad & diverse audiences, more complex decision making**



# What Matters

- 1. Build common knowledge and capability that actions net impact**
  - Inputs, Outputs, Outcomes, **Impacts**
- 2. Build consensus amongst a growing and diverse cohort of users**
  - Different audience needs
  - **Collaboration Impact Index**
- 3. Strong alignment between policy and investment objectives**
- 4. Ensure systems and people are responsive to change**
- 5. Principle and evidence-based transparency**

# Demand



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 United Nations, DESA, Population Division. *World Population Prospects 2024*. <http://population.un.org/wpp/>

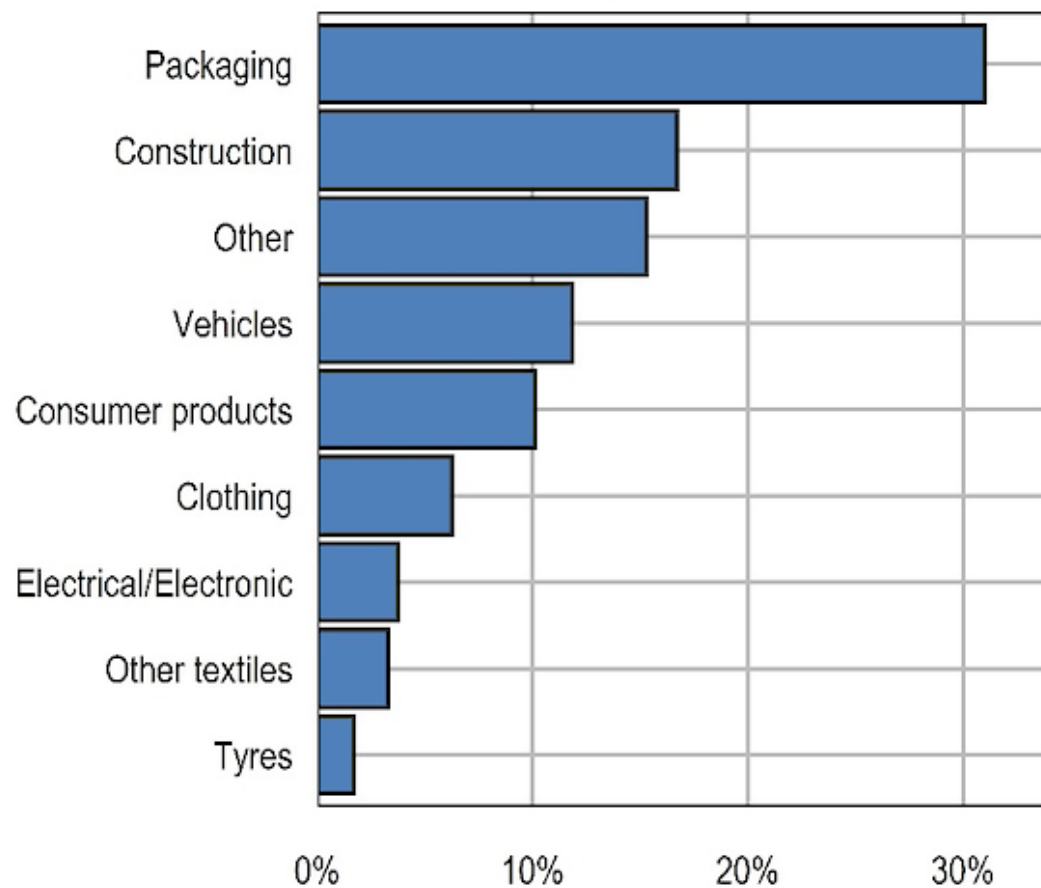
*Plastics use for the production of vehicles increases most, reflecting a rising demand for transport equipment as economies develop (see Section 3.2.3). Increasing digitalisation and electrification also sees plastics use increase for electrical and electronic products. OECD Global Plastics Outlook: Policy scenarios to 2060*



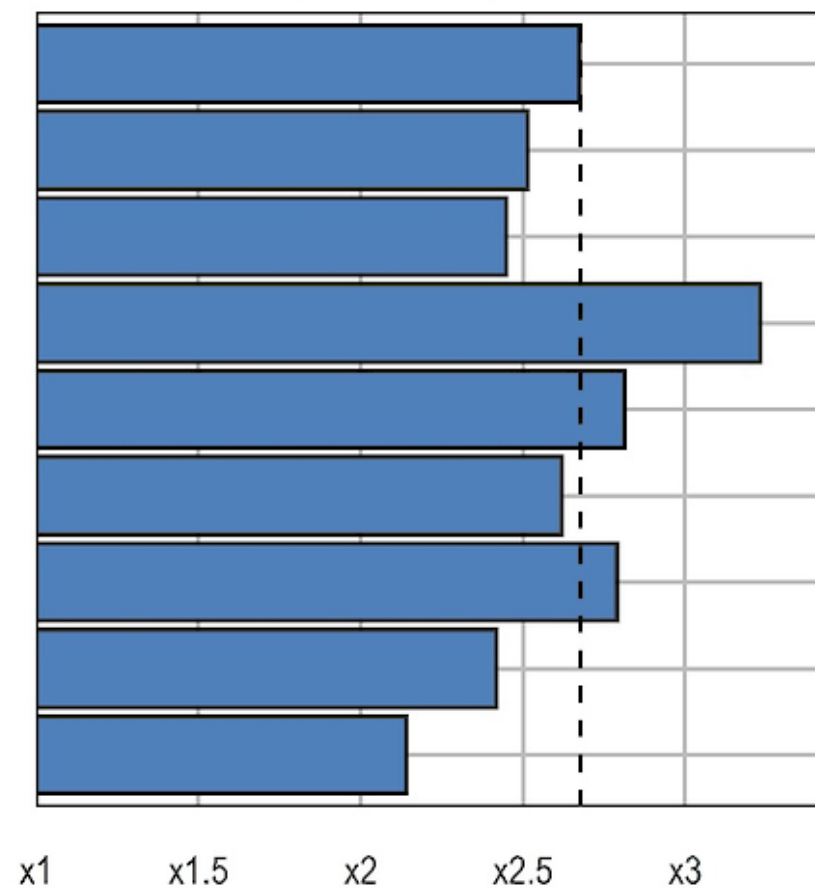
# Consumption

- · Average across applications

Panel A. Share of each application in total plastics in 2019, Baseline scenario



Panel B. Growth factor for plastics use by application in 2060 compared to 2019, Baseline scenario



# Market demands and community needs

## Delivering multiple needs / expectations



### SUSTAINABLE DEVELOPMENT GOALS

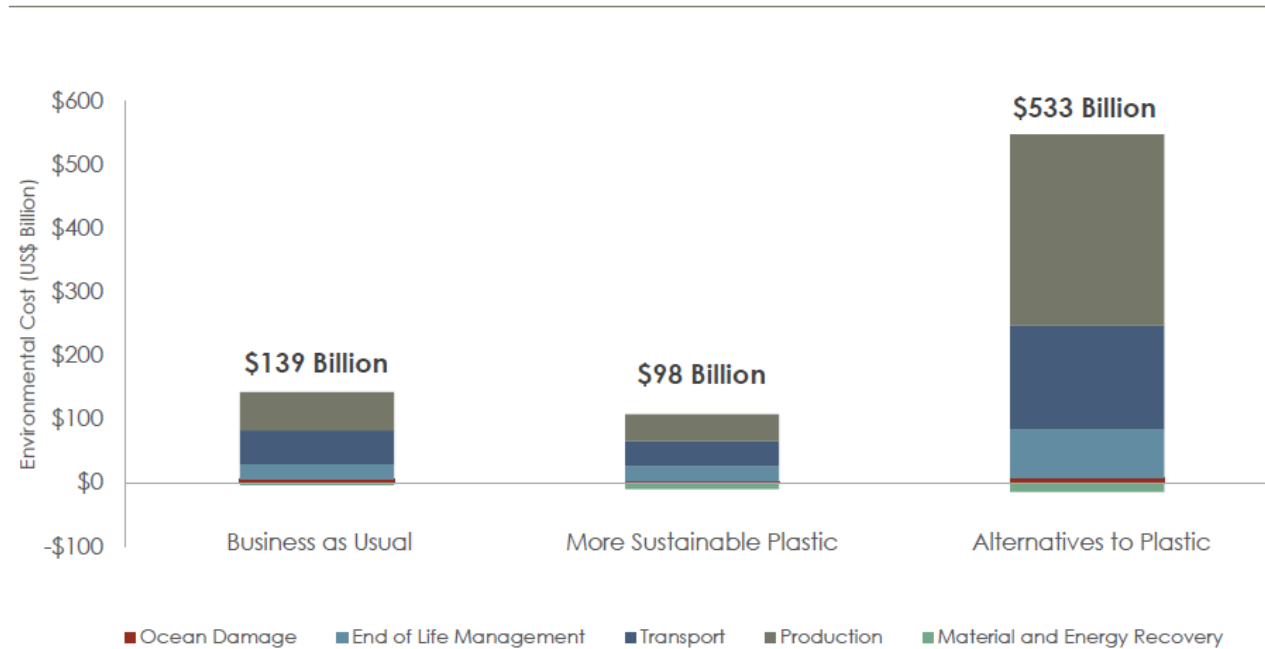


1. Human, animal, enviro hygiene and safety
2. Preserving content / food, reducing waste
3. Reducing net greenhouse gas emissions
4. Reducing net system waste
5. Increasing circularity, recycling, re-use
6. Reducing litter and pollution
7. Cost-effective
8. Supply chain compatible, durability
9. Meet or exceed regulations
10. Available and accessible

# Avoiding unintended consequences and regrettable choices



Figure 1: The Environmental Cost of Business as Usual Plastic, Alternatives to Plastic and a More Sustainable Plastic in Consumer Goods



Source: Trucost

# Circularity potential and improvement

## CSIRO Material Flow analysis strategic options:

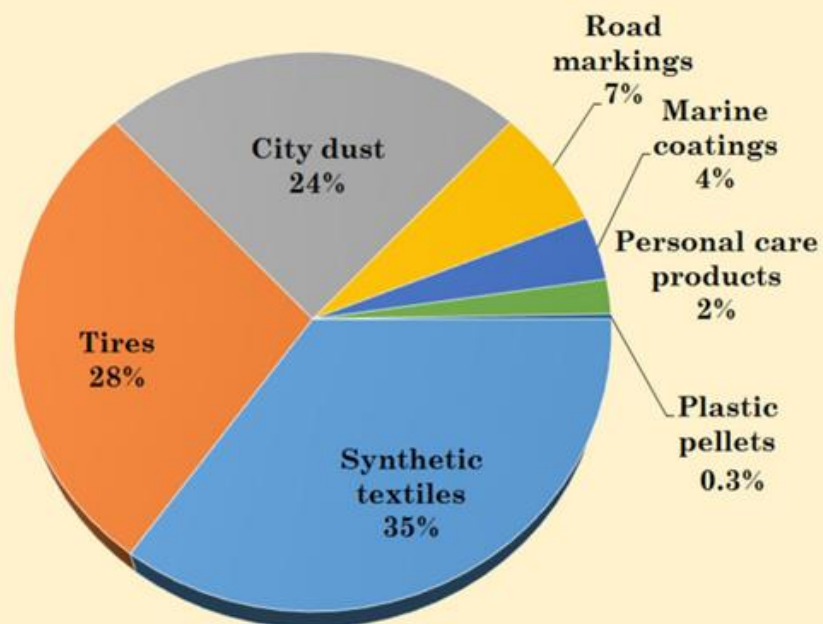
- 1. Transition to raise circularity potential** (eg: materials; technologies; design)
  - New technologies (chem recycling), inputs and capabilities
- 2. Reach the circularity potential** (eg: systems; markets; behaviours)
  - New market uptake, domestic recycled content % and use; re-use applications

## Harvard index of economic complexity: Australian rankings

- 2017: 89 / 133
- 2022: 93/133 (Uganda 92, Armenia 91, Honduras 90)

# Microplastics

## Where do microplastics come from?



Source: IUCN

- Road Transport: 1 MT / 37%
- Dust / Fibres: 0.81 MT / 30%
- Pre-production pellets: 0.28 Mt / 10%
- Artificial turf: 0.05 MT / 2%
- Other incl. wastewater sludge: 21%

**UNEP 2023 – Treaty Options Paper 2/4**

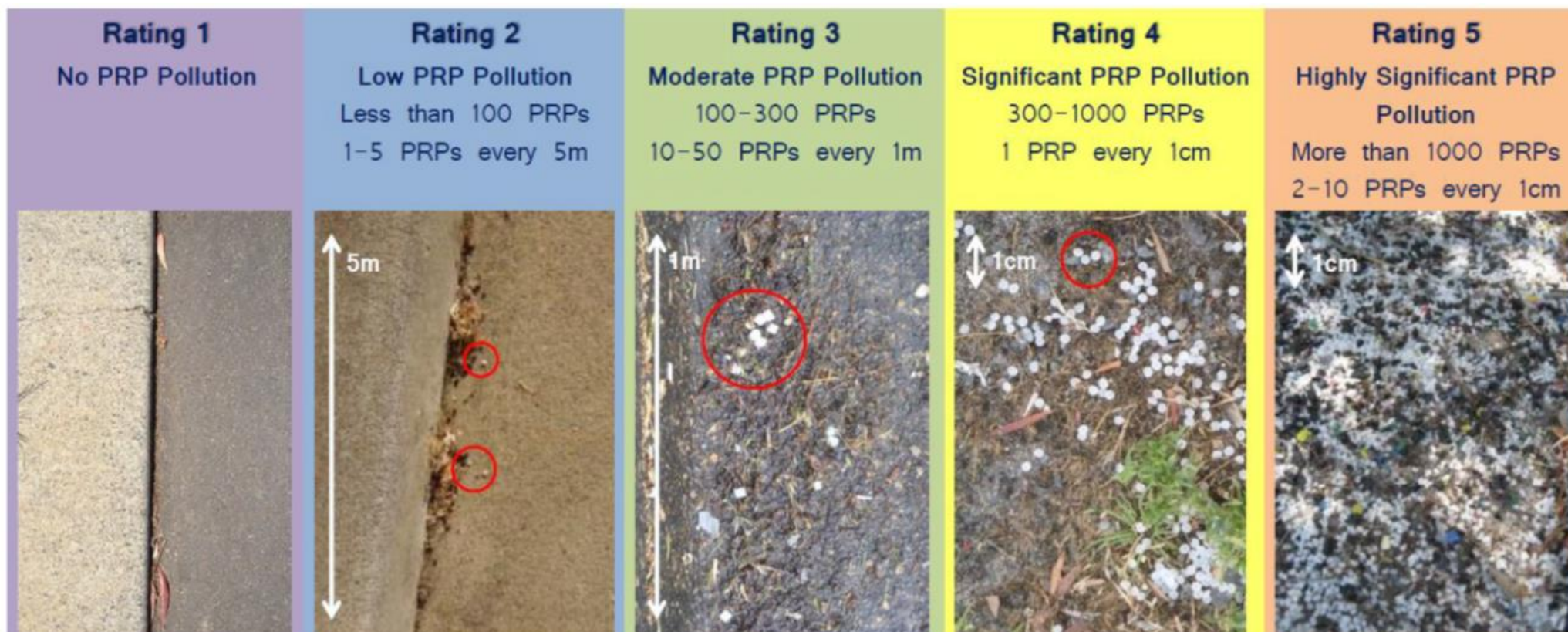
## Measurement:

- **Generation**
- **Mitigation**
- **Outcomes and Impacts:**
  - Progress over time



**Inputs and Outputs:** Signatories; EPAs; programs; tools and resources

**Outcomes and Impacts:** Audit and change over time

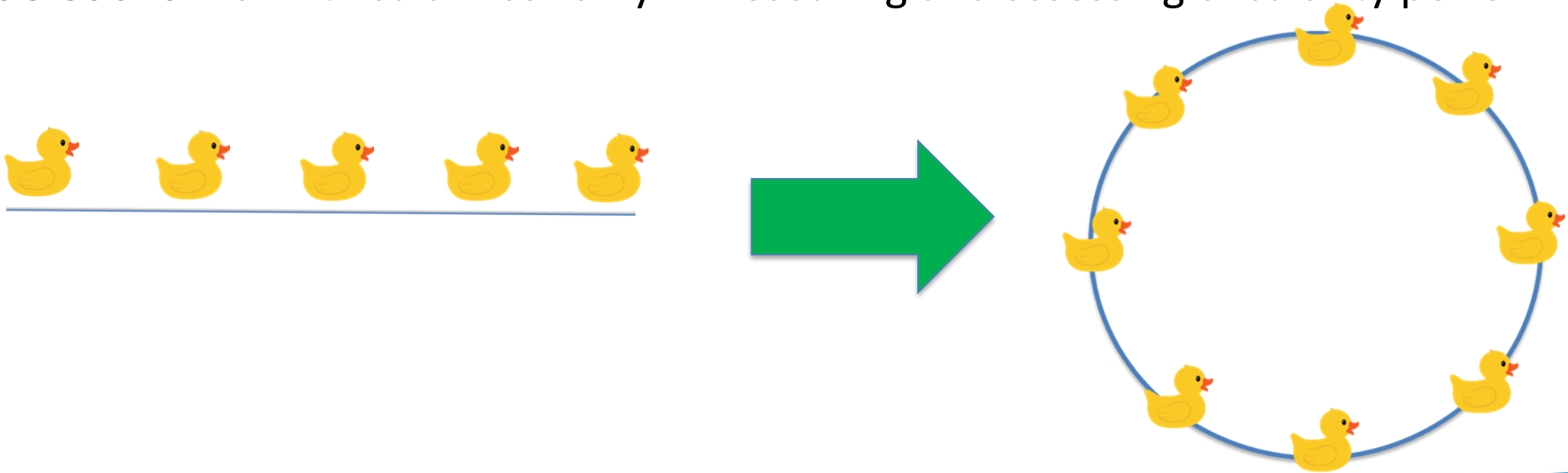




# ISO 59000 series

Recently published.

- **ISO 59004:2024** Circular Economy – Vocabulary, principles and guidance for implementation
- **ISO 59010: 2024** Circular Economy – Guidance on the transition of business models and value networks
- **ISO 59020: 2024** Circular Economy – Measuring and assessing circularity performance



# Thank you