

Halving the **environmental impact** of the UK packaging system

How industry and key stakeholders can
work together to drive positive change

Social Impact from **IGD**



Foreword

Creating sustainable packaging systems is a critical issue. Last year, we brought together stakeholders from across the food and consumer goods industry, packaging manufacturers, waste industry, experts and industry associations, to create a shared ambition – to halve the environmental impact of all packaging systems by 2030.

Recent events have thrown the context of this work sharply into focus, with unprecedented challenges around commodity inflation and supply affecting businesses and consumers alike. This has led to a significant reappraisal of packaging strategy and sourcing decisions.

Our challenge is to find solutions to future packaging systems that can not only help consumers do their bit for the planet, but also keep their costs down. And for businesses, the opportunity is to provide them with a framework for investment that minimises costs, while also giving them a platform for growth.

In response to these challenges, IGD has developed a 2019 baseline for the UK packaging system and modelled a series of scenarios to understand what further interventions are required to deliver our 2030 industry ambition. There is a huge amount of work to do; current legislation and planned policy reforms will not deliver the progress needed, as any impacts will be offset by a growth in demand for packaging.

Achieving the ambition requires a reduction in the amount of packaging, combined with significant environmental efficiency gains.

Our stakeholders across the whole value chain have been invaluable in challenging our industry to work together as one voice. But it will now take industry leaders, technical and commercial teams to reflect on and refocus their plans, to ensure that collectively, we can meet this ambition.

Join us in driving tangible, positive change on packaging.



Susan Barratt
CEO, IGD

Executive Summary

Our new insights show achieving our 2030 ambition will require a 20% reduction in the amount of packaging on the market, combined with significant environmental efficiency gains.

The Ambition

IGD has brought together key stakeholders from across the food and consumer goods industry to create a shared ambition – to halve the environmental impact of all packaging systems by 2030.

The ambition looks beyond current legislation and addresses all packaging materials, not just plastic. It covers a range of environmental impacts including climate change and water to tackle this critical industry issue.

Insights

IGD has developed a baseline and modelled scenarios to understand what is needed to achieve the ambition.

The results demonstrate that business as usual will not deliver progress as any reductions will be offset by a growth in demand for packaging.

Achieving the ambition will require a shift in focus from plastics to all packaging materials and look across the full value chain from raw materials to its end-of-life processes.

Levers for change

- ▲ Removal of packaging by eliminating unnecessary packaging, lightweighting, and moving to reusable packaging systems
- ▲ Increasing recycled content across all packaging materials
- ▲ Decarbonising existing supply chains or moving production to regions with lower carbon intensity

How to get involved

IGD is convening industry and key stakeholders to address these challenges and drive tangible, positive change.

1

Join our network

- Our working group aims to drive progress towards the ambition to halve the environmental impacts of all packaging systems by 2030

2

Partner with us on projects

- Trial solutions that drive consumer engagement for reusable packaging
- Test our new Life Cycle Assessment Decision-Making Guide

Get in touch at sustainability@igd.com

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Turning insight in action



A bold ambition

from **IGD**



It started from a shared challenge

IGD convened industry and key stakeholders to tackle a shared challenge – how to make packaging systems more sustainable whilst ensuring the benefits of packaging are maintained.

We looked at all packaging materials, not just plastic, to collectively set a common direction of travel that looks beyond legislation and industry commitments.

We took a whole system view across the packaging value chain from raw material extraction through to end-of-life processes to address unintended consequences where the environmental impact is moved rather than reduced.

The ambition creates a platform for accelerating industry's progress towards a sustainable packaging system.



Cross value chain collaboration



All packaging materials (not just plastics) and their environmental impacts



Industry ambition that looks beyond legislation and industry commitments



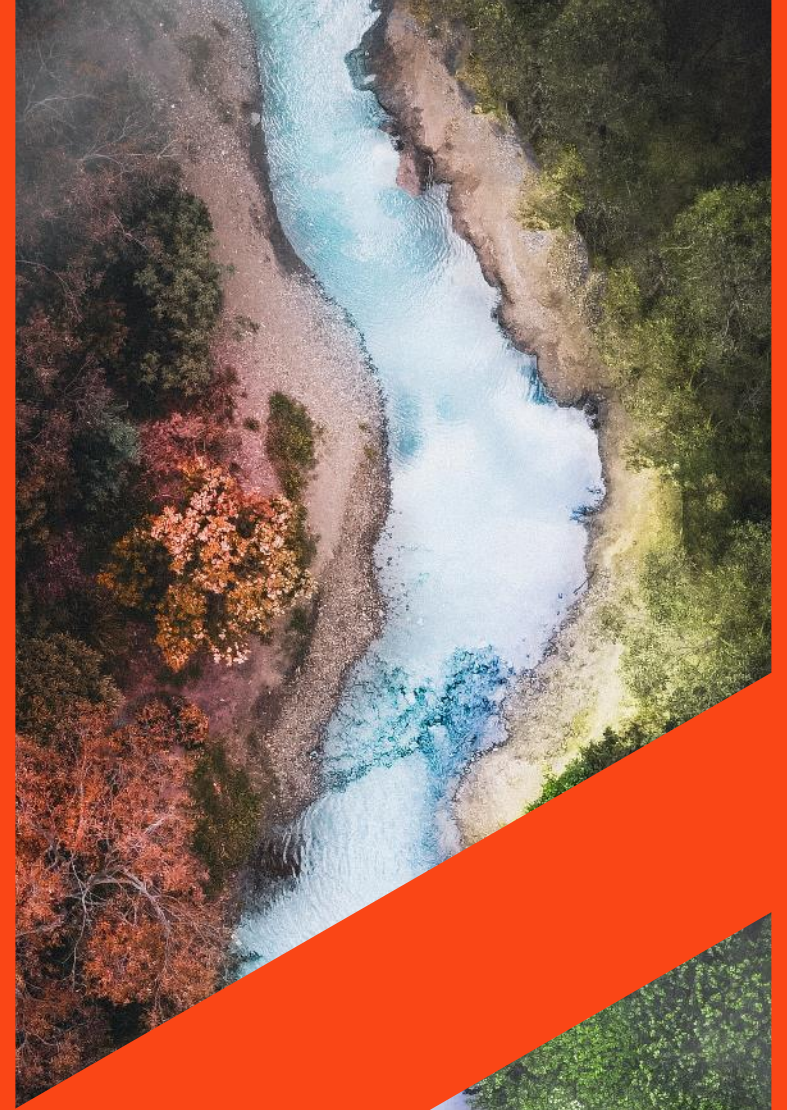
Stepping stone to collective action and change

Industry Ambition to 2030

To **halve** the environmental impacts of all **packaging** systems by **2030** whilst still **enhancing** the **benefits** and quality enjoyed of products and their packaging today.

The current landscape

from **IGD**



Packaging has a significant impact on the environment

Operations throughout the packaging system from raw material extraction through to processing, production, use and end of life processes impact on the environment driving climate change and biodiversity loss.



Climate change

Greenhouse gas emissions of food and consumer goods packaging accounted for over 1% of the UK's total footprint (2018)



Water

The industry was responsible for consuming as much water as ~40,000 Olympic swimming pools



Land use

The area of land used by the industry was larger than Greater London (1,700 km²)

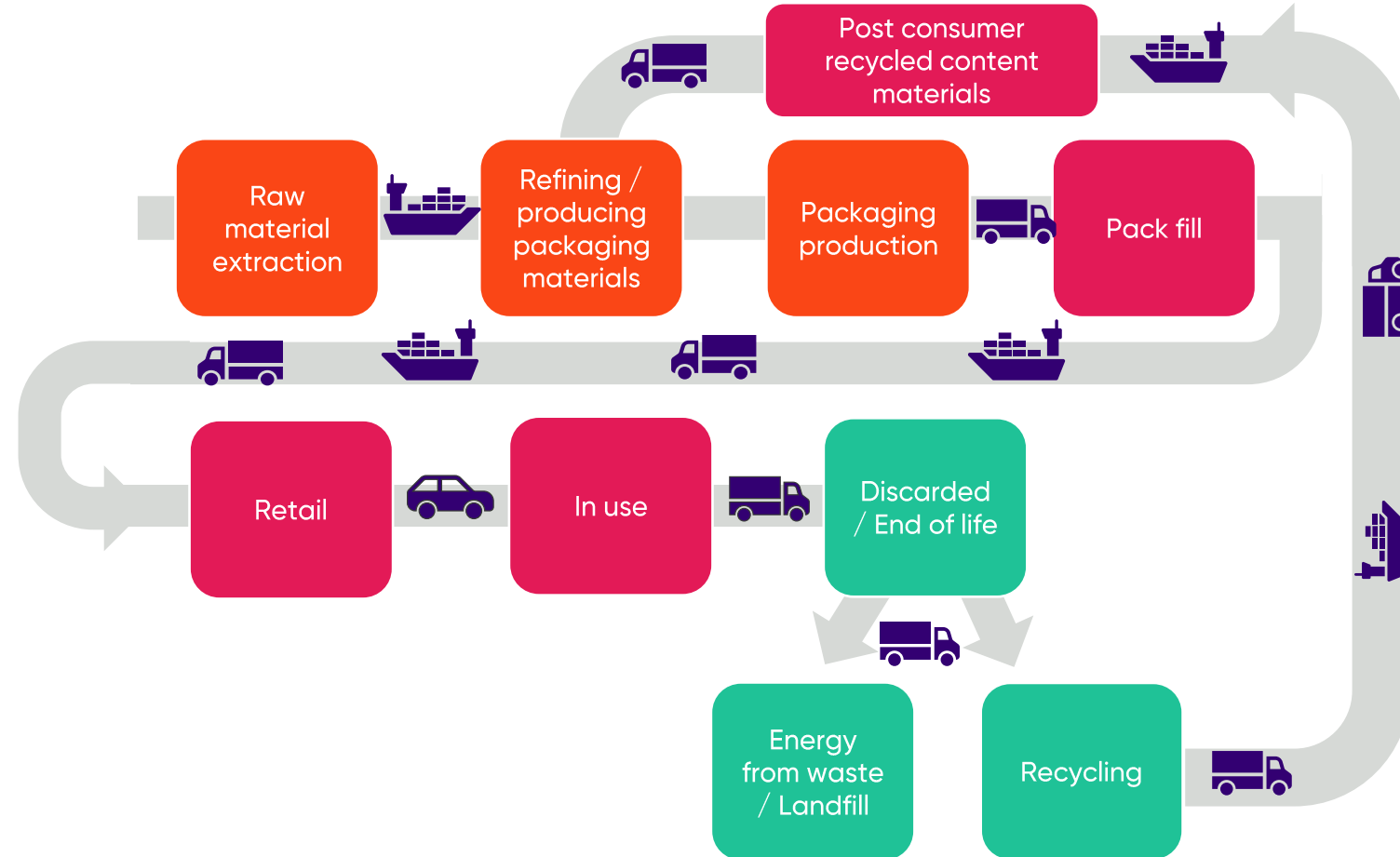


Virgin resource use

UK food and consumer goods packaging was made up of 57% virgin resources

The UK food and consumer goods packaging system is complex

From material extraction, through packaging production to end of life management, these supply chains span the globe, vary significantly by material and often lack transparency.



3.5 million tonnes of primary packaging was put on the UK market in 2019

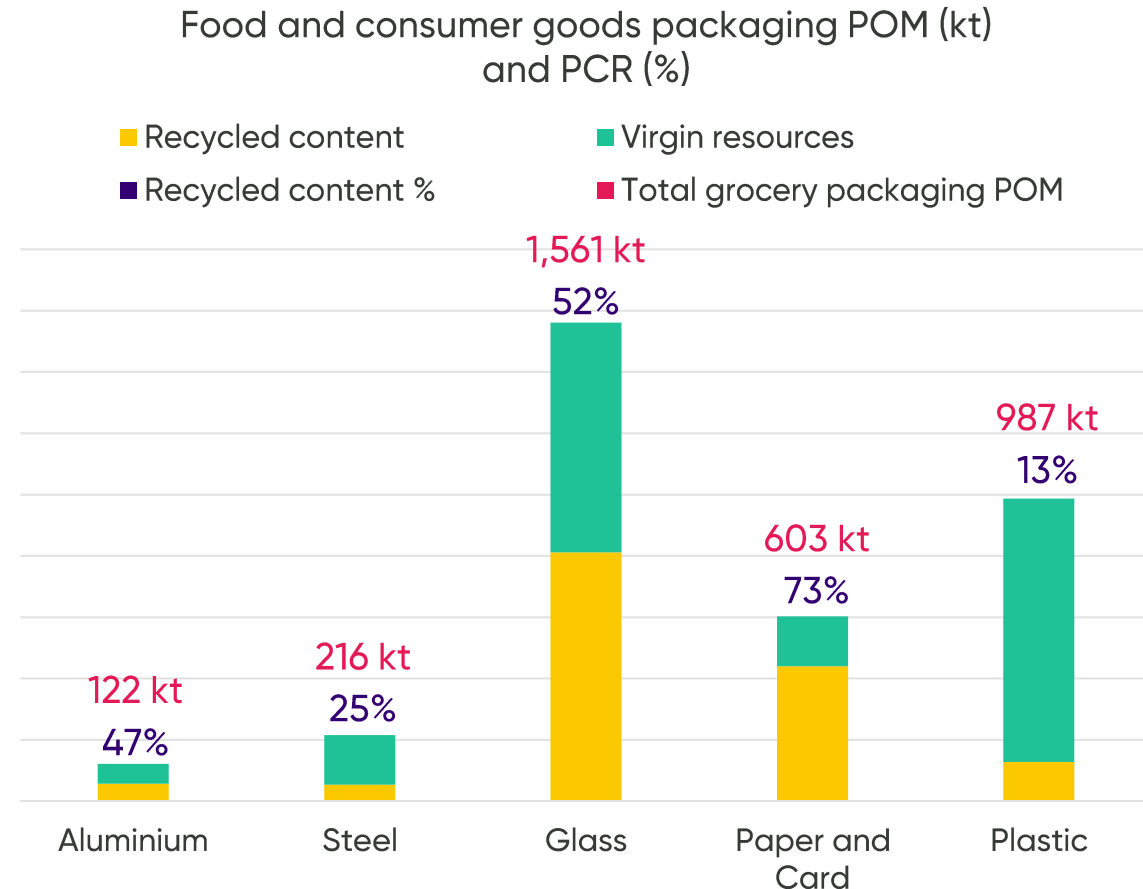


Packaging profile

Glass is the dominant material, due to its weight, followed by plastic.

Plastic accounts for the most units of packaging placed on the market (POM).^{*1}

Post-consumer recycled (PCR) content varies significantly across the materials, from 13% in plastic to 73% in paper and card.^{*2}



76% of packaging comes from Europe and the UK

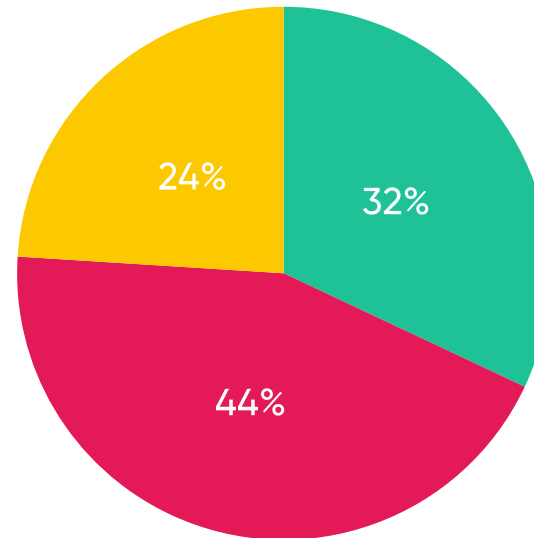


Sourcing supply chain

There is not full transparency of where all the raw materials for packaging come from, but we do know that:

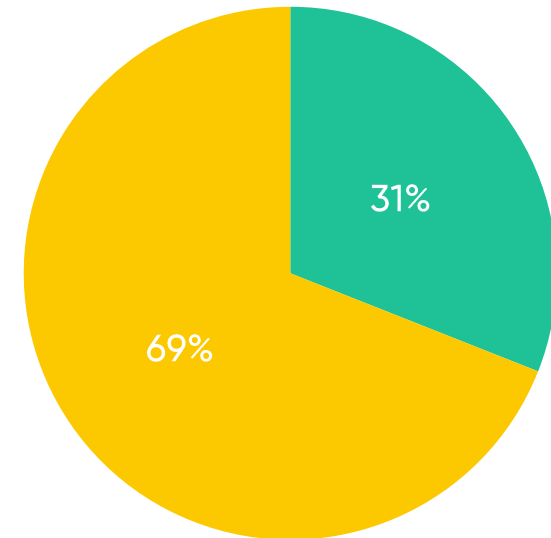
- 31% of plastic is produced in the UK
- Packaging supply chains are complex; for example, aluminium cans recycled in the UK need to be sent to Germany to be processed before being re-imported

All materials



■ UK ■ Europe ■ Rest of world

Plastic



■ UK production ■ All imports rest of world

Recycling rates are high for all materials except plastic



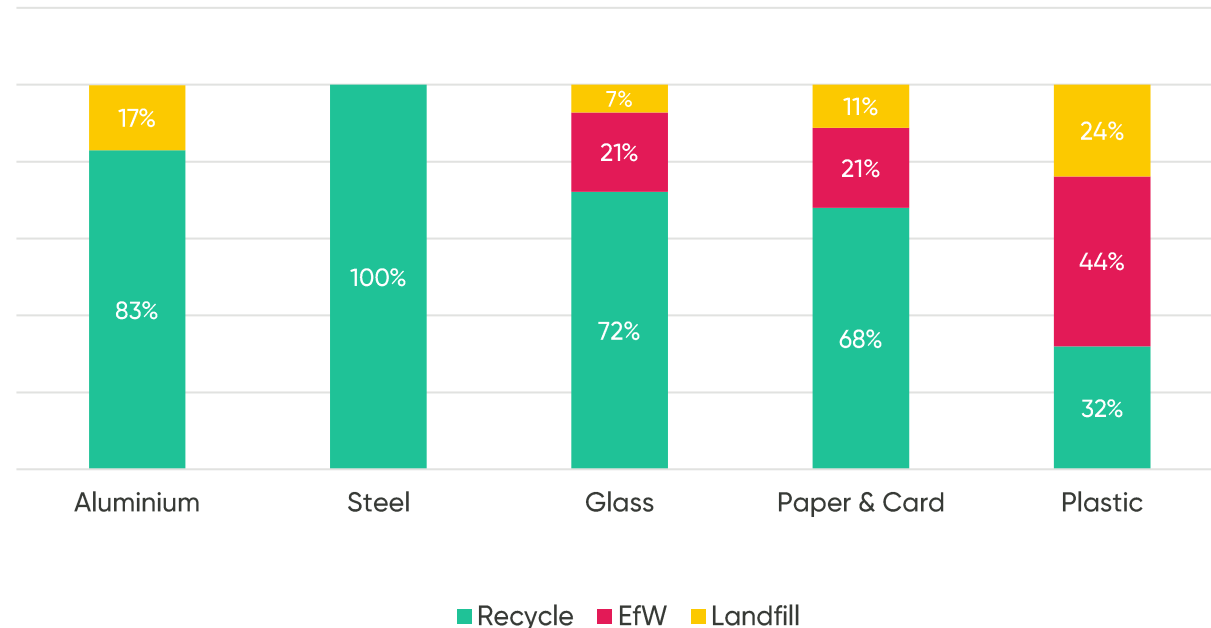
End of life supply chain

Recycling rates are high for all materials other than plastic, with glass, aluminium and steel* exceeding 70%.

44% of plastic is sent to energy from waste and **only 32% is recycled.**

Most of steel and glass packaging is recycled in the UK, but other materials are exported for recycling; plastic for example is sent to 11 different countries to be recycled.

Recycle, energy from waste (EfW) and landfill rates (%)



**We created a
2019 baseline**

from **IGD**



We took a science-based approach

We worked with Anthesis Group and our industry stakeholders to develop the 2019 ambition baseline covering the UK system for primary packaging.

1

Identified best data sources

Used [Valpak's PackFlow COVID-19 reports](#) and the [WWF/Tesco UK Global Packaging Materials Footprint](#) report (2021).

2

Reviewed packaging material flows

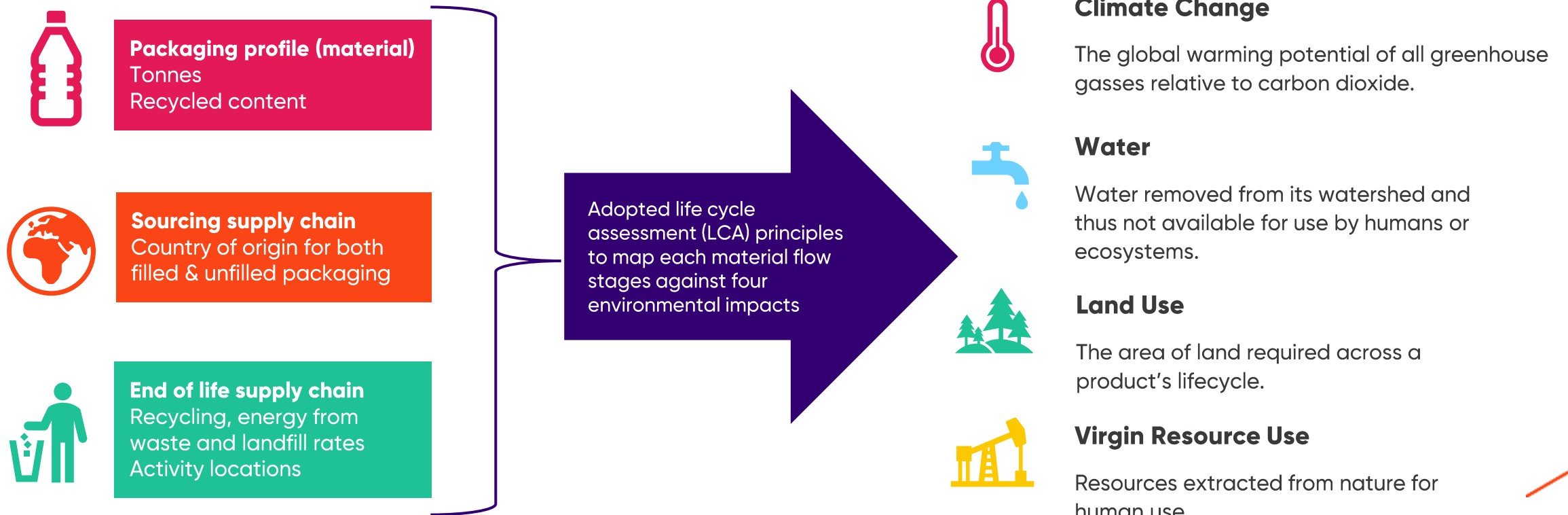
Included sourcing locations, packaging weight, recycled content and end of life activities for aluminium, steel, glass, paper/card and plastic.

3

Assessed environmental impacts

Mapped the material flows against environmental impacts.

Our assessment approach



The four impacts provide a good indicator of overall environmental performance of the packaging system. These will be reviewed over time and connections with food waste loss and littering being a focus. Used the best available environmental impacts data in Ecolinvent which is the most widely used life cycle inventory database globally, providing over 19,000 unique international industrial processes covering resources, production and operation.

The 2019 baseline

This is the starting point for the UK food and consumer goods industry.

Plastic contributes 28% of the packaging by mass but is the biggest contributor to climate change, water and virgin resource use impacts.

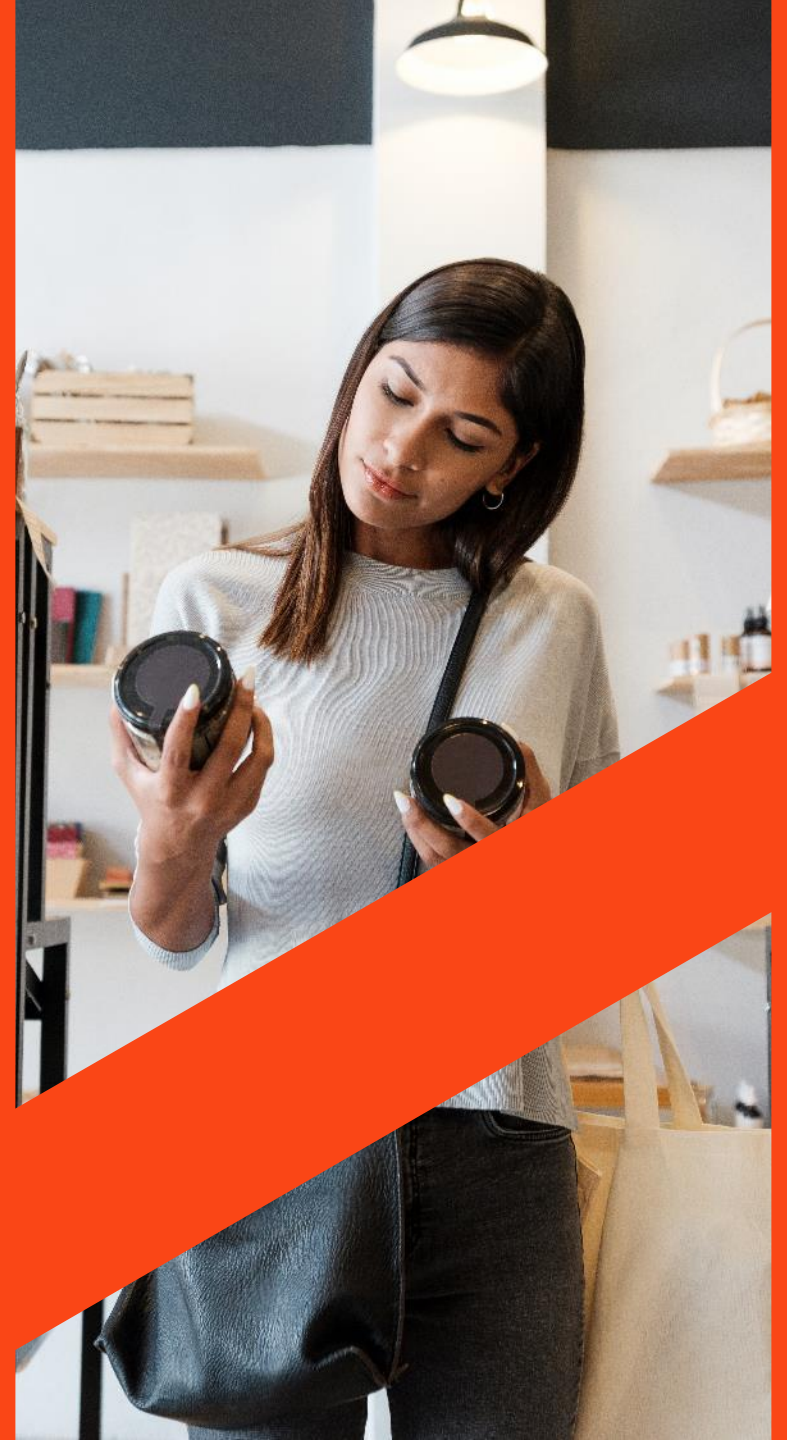
Paper/card has the greatest contribution to land use, despite only making up 17% of packaging by mass.



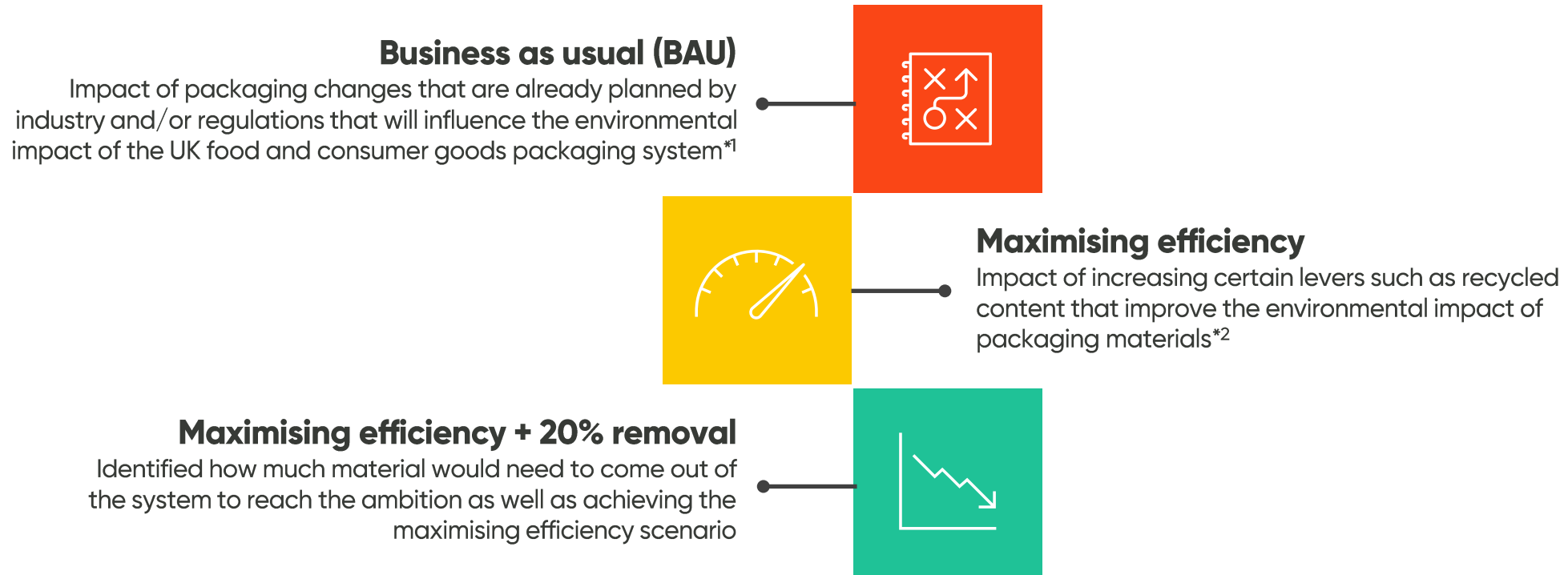
Material	Mass mt/y	Climate Change mt CO2e/y	Water mt/y	Land Use km2/y	Virgin Resource Use mt/y
Plastic	28%	4.3	40	640	0.9
Steel	6%	0.8	8	56	0.2
Aluminium	3%	1.3	21	54	0.1
Glass	45%	1.6	9	356	0.8
Paper/Card	17%	1.3	17	671	0.2
Total	3.5	9.3	95	1,777	2.0

What action is needed

from **IGD**



We modelled three scenarios to determine what actions drive change and the extent of change needed



*¹ Includes reforms to the Extended Producer Responsibility in the UK and the UK Plastics Pact commitment. Refer to Appendix A3 for further detail.

*² Increase recycled content to 60% for plastic, 80% for paper/card and 95% for other materials; Increase recycled rates to 75% for plastic, 85% for glass, steel & aluminium and 96% for paper/card; Increase supply chain (global grid) by 41% and transport decarbonisation. Refer to Appendix A4 for further detail on scenario modelling assumptions.

**Business as usual
will not deliver
progress towards
the ambition**

from **IGD**



Business as usual

Packaging demand outpaces environmental improvements made

Any environmental gains achieved by 2030 (from planned legislation and policy reforms) will be offset by an extra 10%* of packaging put on the market.

In addition:

- ▲ The current focus on reducing single use plastic (switching to paper packaging for example) has moved rather than reduced the overall environmental impact
- ▲ Reusable packaging and packaging free products have not led to measurable reductions as they are largely in trial stages and small-scale



	Mass mt/y	Climate Change mt CO2e/y	Water mt/y	Land Use km2/y	Virgin Resource Use mt/y
Baseline (2019)	3.5	9.3	95	1,777	2.0
50% Ambition		4.6	47	889	1.0
BAU 2030	3.8	9.2	99	1,792	2.0
% Change (Compared to Baseline)	+10%	-1%	+5%	+1%	-2%

Maximising efficiency

Leads to some environmental improvements

By increasing recycled content, increasing recycling rates and increasing supply chain and transport decarbonisation* **a reduction in impact occurs across all four indicators.**

Taking an average impact reduction across all four indicators, maximising lifecycle efficiency alone will not meet the ambition, but it will get us over half way.



	Mass mt/y	Climate Change mt CO2e/y	Water mt/y	Land Use km2/y	Virgin Resource Use mt/y
Baseline (2019)	3.5	9.3	95	1,777	2.0
50% Ambition		4.6	47	889	1.0
BAU 2030	3.8	9.2	99	1,792	2.0
Max 2030	3.8	6.3	71	1,718	0.7
% Change (Compared to Baseline)	+10%	-32%	-25%	-3%	-66%

Maximising efficiency + 20% removal

Reducing the amount of packaging is critical to meet the ambition



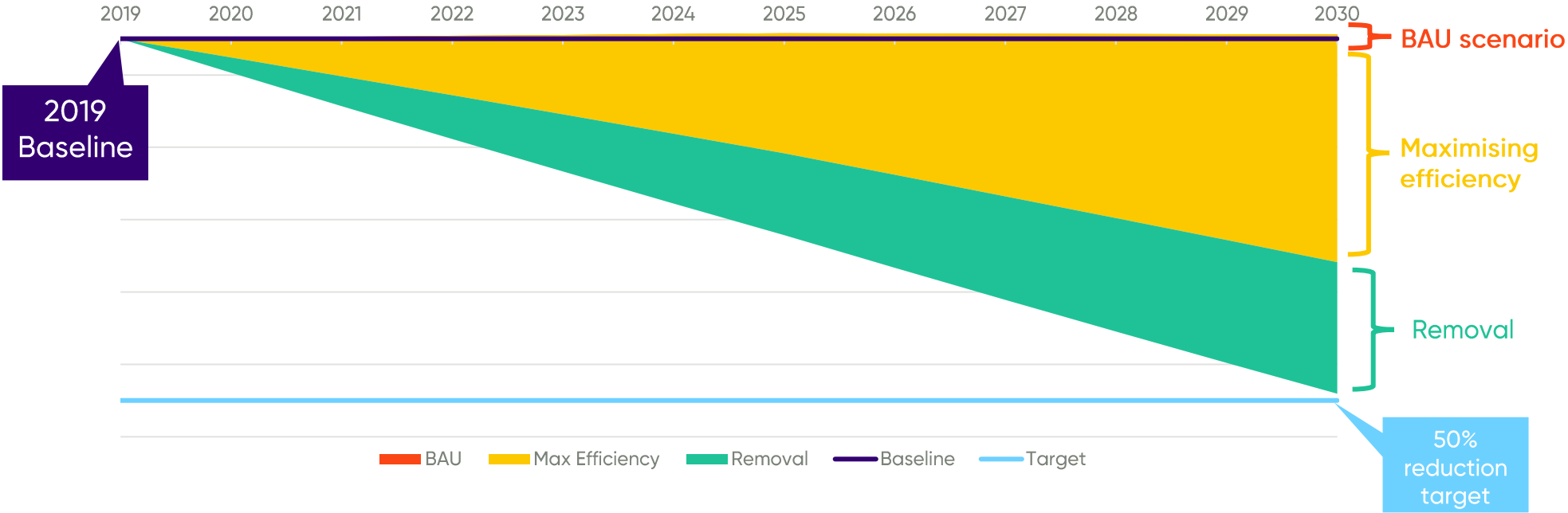
The 2030 impacts fall significantly across all four indicators, with targets met for climate change and virgin resource use.

Water impacts reduce by 45% but **land use impacts only reduce by 29%**.

Taking an average impact reduction across all four indicators, it will take a 20% reduction in packaging combined with maximising efficiency gains to meet the ambition.

	Mass mt/y	Climate Change mt CO2e/y	Water mt/y	Land Use km2/y	Virgin Resource Use mt/y
Baseline (2019)	3.5	9.3	95	1,777	2.0
50% Ambition		4.6	47	889	1.0
BAU 2030	3.8	9.2	99	1,792	2.0
Max 2030	3.8	6.3	71	1,718	0.7
Max 2030 + removal	2.8	4.7	53	1,263	0.5
% Change (Compared to Baseline)	-20%	-50%	-45%	-29%	-75%

Meeting the ambition will require a 20% removal of packaging and maximum efficiency gains



**We need to look
at all materials
across the whole
value chain**

from **IGD**



Current efforts are a launch pad

The industry and its partners are already working hard on sustainable packaging & net zero initiatives.

Commitments like the UK Plastics Pact and preparing for the packaging Extended Producer Responsibility policy reforms, have resulted in industry leading the way on the sustainable packaging agenda.

These efforts are a critical launch pad to the next phase of activity.

Current efforts are focused on:

- ▲ Material switching
- ▲ Plastic reduction
- ▲ Lightweighting
- ▲ Increasing recyclability
- ▲ Increasing recycling rates



We identified three key levers to meet the ambition

Removing packaging will have the biggest impact, as it eliminates the full lifecycle impact from production right through to disposal.

1 Remove

- ▲ Removing unnecessary packaging from the system
- ▲ Using the least material required to preserve/protect the product
- ▲ Adopting reuse systems to reduce overall packaging required

2 Increase recycled content

- ▲ Increasing recycled content is a priority for all materials as it has a high impact reduction across all environmental indicators
- ▲ Maximising recyclability is critical to support this action

3 Decarbonise

- ▲ Decarbonising existing supply chains or moving production to regions with a lower carbon intensity offers significant carbon benefits

Turning insight into action

from **IGD**



Cross-stakeholder action is needed

Delivering the ambition will require businesses and other key stakeholders to:

Packaging has an important role in protecting and preserving products. Any decisions made should consider food waste implications throughout the product life cycle.

1

Review

Reflect and engage with your colleagues and stakeholders to understand the potential implications and opportunities for your business

2

Revise

Revise your packaging commitments with a focus on removal, increasing recycled content and decarbonising your supply chains. Align with your net zero ambitions, investment plans and supply chain strategy.

3

Collaborate

Co-ordinate action with suppliers and customers to deliver ambitious change.

IGD is here to support industry

We will mobilise industry across the following workstreams

Ambition

Enhance insights by incorporating secondary & tertiary packaging and defining the role reusable packaging will play.

Projects

Deliver projects that help industry to work towards the ambition:

1. **Reuse:** Consumer insights & trials that support making reusable packaging mainstream
2. **Decision-making LCA:** Guide to help industry make more robust and consistent decisions between packaging solutions

Collaboration

Continue to convene stakeholders across the whole value chain focused on collective action, innovation and positive systemic change.

Get in touch at
sustainability@igd.com

Thank you

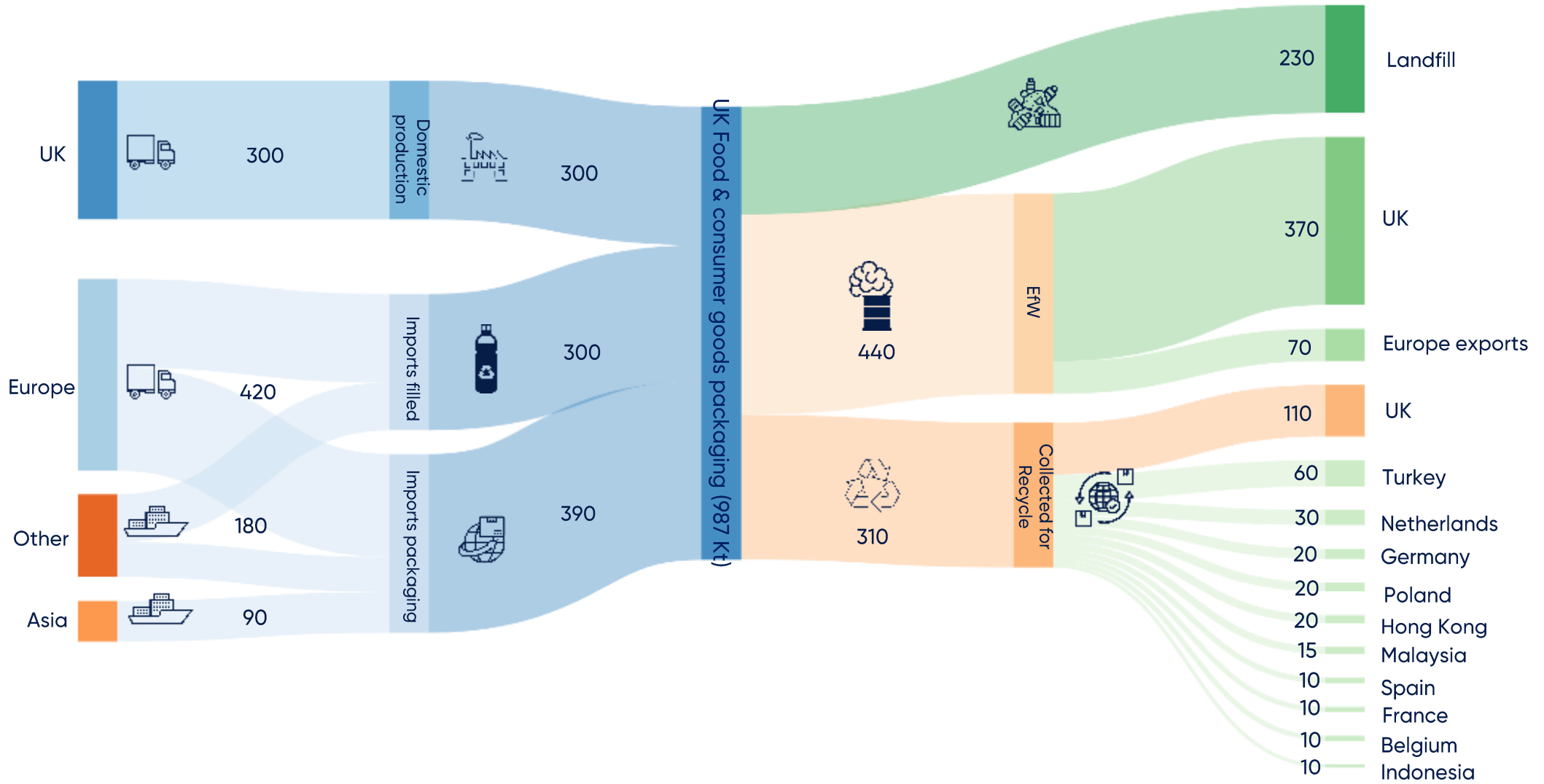
We would like to thank our invaluable stakeholders who have taken a complex issue, tackled it head on, and together continue to drive industry to reduce its impact on the environment and create positive change.

We would also like to thank our delivery partner at Anthesis Group.

Appendix

A1: Supply Chain Flow Plastic Packaging (kt)

28% of the total packaging materials footprint
13% Post consumer recycled (PCR) content



A2: Building the baseline

We used publicly available data and life cycle assessment principles to model the environmental impact of these complex supply chains. The results set the ambition baseline for primary packaging.

Packaging profile

- ▶ Valpak Packflow Covid-19 reports per material: aluminium, steel, glass, paper & card and plastic
- ▶ UK food and consumer goods packaging POM in tonnages
- ▶ Repartition of packaging per category and per packaging format

Sourcing supply chain

- ▶ 2020 WWF/Tesco Global Packaging Materials Footprint report
- ▶ UK Consumer packaging demand composition: Domestic production, imports type and countries

End of life supply chain


- ▶ Valpak Packflow Covid-19 reports per material
- ▶ UK Consumer packaging recycling rate
- ▶ UK Consumer packaging Incinerated and landfilled in tonnages
- ▶ Waste end markets


Environmental Impact Assessment

- ▶ Ecoinvent 3.6 database, 2019
- ▶ Applying LCA processes to the UK food and consumer goods packaging baseline (In tonnes)
- ▶ Packaging production and waste management impact calculation per material
- ▶ Including imports and exports impact























A3: Future legislation and initiatives

Key industry legislative, policy and industry initiatives that may result in impacts across packaging profile – sourcing, end of life.

 Packaging material:
1) tonnes and 2) recycled content

 End of life:
3) recycling, EfW and landfill rates and
4) activity locations

 Sourcing:
5) country of origin for both filled and unfilled packaging

Policy	Policy type	Geography	Target/Launch Year	Material	Format	Impacts
Deposit Return Scheme	Legislation	Scotland	2022	Plastic; glass; aluminium; steel	Beverage containers	 
		England	2023			
Extended Producer Responsibility	Legislation	UK	2023	ALL	ALL	 
Consistent collections	Legislation	UK	TBC	ALL	ALL	
Plastic Packaging Tax	Legislation	UK	2022	Plastic	ALL	 
Single-use Plastics Directive	Legislation	EU/UK	2021	Plastic	ALL	 
UK Environment Plan	Legislation	UK	2025-2050	ALL	ALL	 
Basel Convention	Legislation	Global	2021	Plastic	ALL	
UK Plastics Pact	Initiative	UK	2025	Plastic	ALL	 
EMF New Plastics Economy	Initiative	Global	2025	Plastic	ALL	 
WWF Sustainable Basket Metric	Initiative	UK	2030	ALL	ALL	 
Retailers and brands	Industry	UK	2021-2025	ALL	ALL	 
Waste industry	Industry	UK	2021-2025	ALL	ALL	 

A4: Assumptions summary

Element	Materials Affected	Baseline	BAU 2030	Max 2030
Annual sector growth	Steel	N/A	-1%	-1%
	All other materials		1%	1%
Recycled Content	Plastic	13%	30%	60%
	Paper & Card	73%	80%	80%
	Glass	52%	52%	95%
	Aluminium	47%	47%	95%
	Steel	25%	25%	95%
Recycling*	Plastic	32%	52%	75%
	Paper & Card	68%	84%	85%
	Glass	72%	96%	96%
	Aluminium	59%	71%	85%
	Steel	67%	76%	85%
Global Grid Decarbonisation	All	N/A	-19%	-41%
Transport Decarbonisation	Sea freight	N/A	-0.6%	-1.2%
	Road freight	N/A	-1.2%	-2.5%