

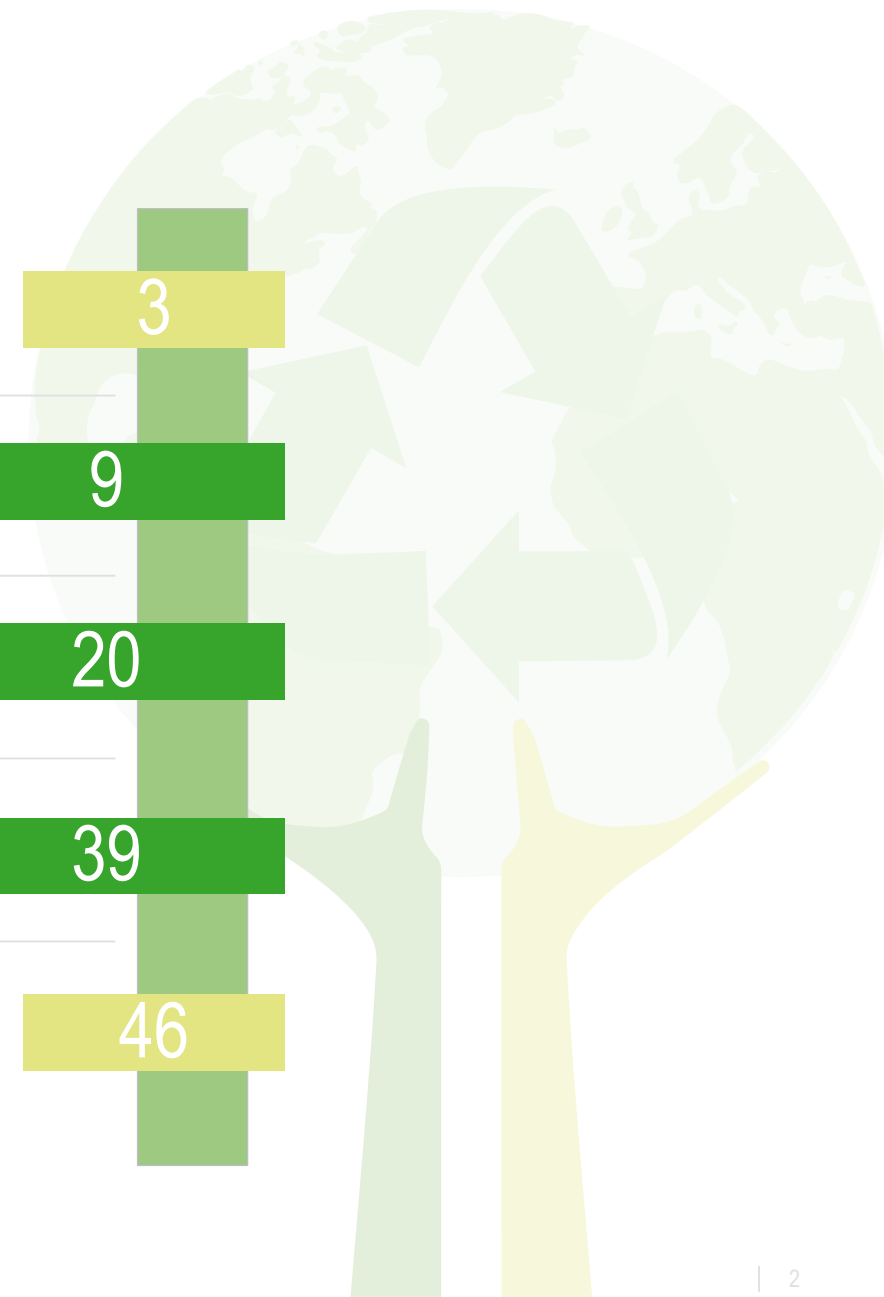
Packaging sustainability in the consumer goods sector



Roland Berger Perspectives and Expertise Highlights
September 2020

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**Executive summary,
study objectives and
approach**



Executive Summary (1/2)



Study Highlights

- > There are three key directions taken by FMCG producers to enhance their ESG impact: **optimizing packaging portfolio** based on environmental criteria, **developing self-sustaining collection networks** and **driving recycling performance**
- > Some of the important initiatives undertaken by FMCG producers to optimize their **packaging portfolio** include increasing **recyclability** of packaging (most visible ambition – all key FMCG producers aim for 100% recyclability of their packaging portfolio by 2025), followed by **reusability** (driven by both consumer demand and legislation), **packaging weight reduction/eco-design** and increasing **recycled content**
- > Key FMCG producers are actively involved in **stimulating collection of packaging materials** globally – They actively contribute to the **gradual build-up** and evolution of **packaging waste systems**, as part of a **joint and iterative process** with **authorities**

Executive Summary (2/2)

Study Highlights

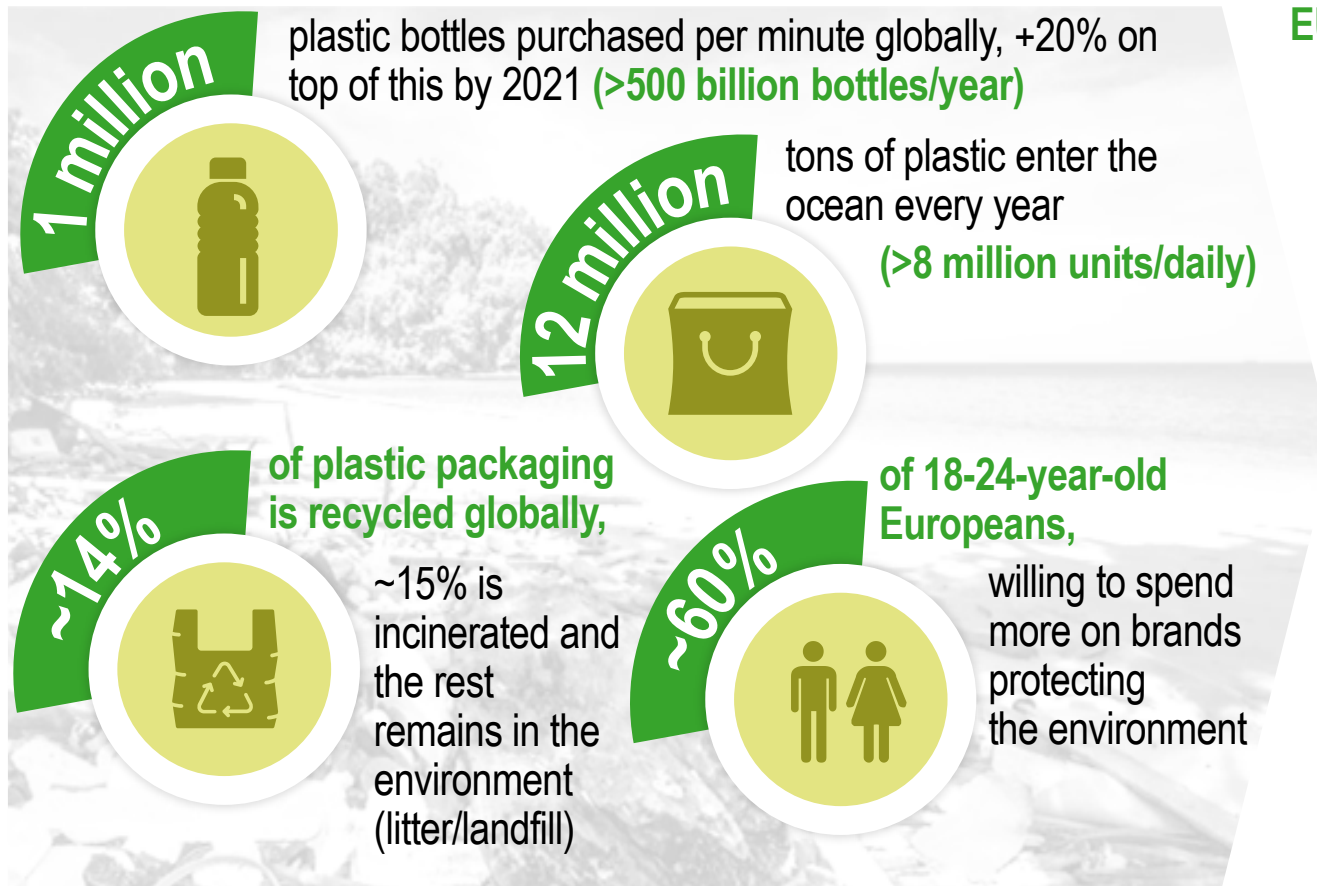


- > Packaging sustainability is an important pillar of the **wider sustainability agenda** of key FMCG producers that includes other topics such as **climate change, responsible water use, sustainable sourcing and human rights**
- > The recent **COVID-19 pandemic** has disrupted some of the momentum around packaging sustainability, for producers and authorities alike
- > While some of these effects are expected to last beyond the current pandemic, the future of packaging waste management is likely to be heavily influenced by a series of **innovations, across the value chain** – Their adoption is likely to contribute to **higher collection and recycling performance**, as well as **increased resource efficiency**

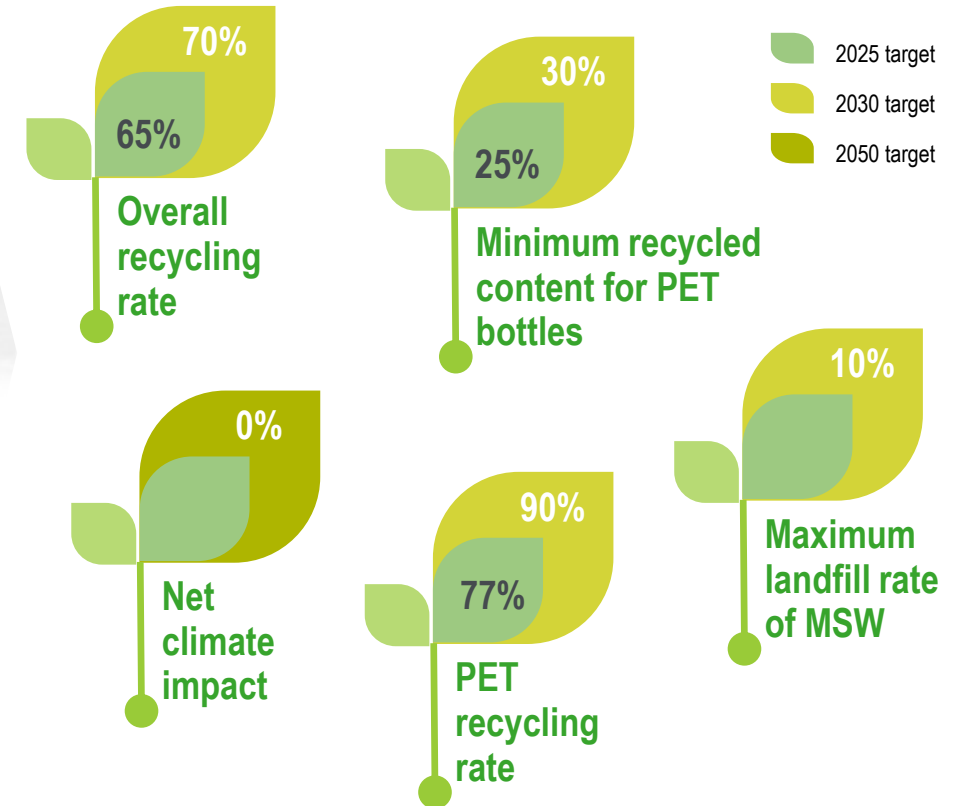
Packaging waste has become one of the key concerns of our generation globally – In particular, EU legislators have increased their focus

Context – Environmental impact of packaging waste and selected legislative efforts

Example – EU legislation



EU Directives on Circular Economy & Packaging Waste



Our study develops a fact-based platform for ambition levels and best practices in sustainable packaging strategies across the globe

Roland Berger Study – Objectives and methodology



- 1** Raise awareness and create a **platform for discussion** on sustainability topics
- 2** Identify **best practices** from across the globe, in terms of:
 - **Ambition levels** and **internal commitments** on sustainability
 - Concrete **initiatives and actions** that support achievement of ambition levels
 - **Organizational set-up/processes** in place to support sustainability efforts
- 3** Identify **differences in perception and ambition** between different countries, regions or sectors
- 4** Generate a **fact-based study** to be used by sustainability directors and packaging managers alike for raising awareness at the highest management levels
- 5** Create a platform for companies to substantiate external **stakeholder argumentation and positioning**



- > **Interviews**, both at local and HQ level
- > Review of **public and private reports**
- > **Statistical analysis** of operational waste management and packaging recycling data



Over 50 countries globally



H1 2020

Over 60 executive and expert interviews have been conducted across all continents as part of our study

Overview of stakeholders interviewed during our study

Global FMCG producers (~40 interviews)

L'Oréal Procter & Gamble
 Mondelēz Unilever
 Heineken Nestlé Ferrero
 Colgate-Palmolive Company
 PepsiCo Danone Coca-Cola
 Anheuser-Busch InBev Mars

Other selected stakeholders (~20 interviews)

Chipita Citeo
 Tetra Pak Delhaize
 Suez Hochland
 Remondis Maspex

Type of roles approached

- > Regional/national sustainability directors
- > Packaging collection directors
- > Public/corporate affairs managers
- > Packaging (R&D) directors
- > Supply chain directors

Type of stakeholders approached

- > Packaging producers
- > FMCG producers (local and global)
- > Retailers
- > Waste operators
- > Waste mgmt. startups



Key topics addressed

- > Packaging portfolio strategy and long-term sustainability targets
- > Key challenges and success factors in the achievement of objectives set
- > Perspective on packaging waste collection; position on EPR, DRS
- > Waste management trends, best practices
- > Promising technologies for the waste management sector
- > Key challenges and best practices in improving the packaging portfolio's sustainability

1. Packaging portfolio

Packaging portfolio

Chapter summary

Chapter Highlights



Recyclability

> **Recyclability** is becoming the key factor for any packaging put on the market, with FMCG producers having **100% targets by 2025** – Most initiatives focus on **improving the packaging** or **changing harmful/disruptive elements** to make the whole packaging recyclable



Reusability

> **Packaging reusability** is another key topic for FMCG producers, given the increased consumer interest in **grocery home delivery**

> While **glass bottles** are experiencing a growing share of returnable packaging, **reusable PET is still in the pilot phase**, given the challenge of ensuring food safety



Reduction

> **Reduction of packaging weight/complexity** is another key priority, with potential for immediate cost impact – There is a growing trend towards **eliminating** or converting **secondary and tertiary** packaging and also **reducing weight of primary packaging**

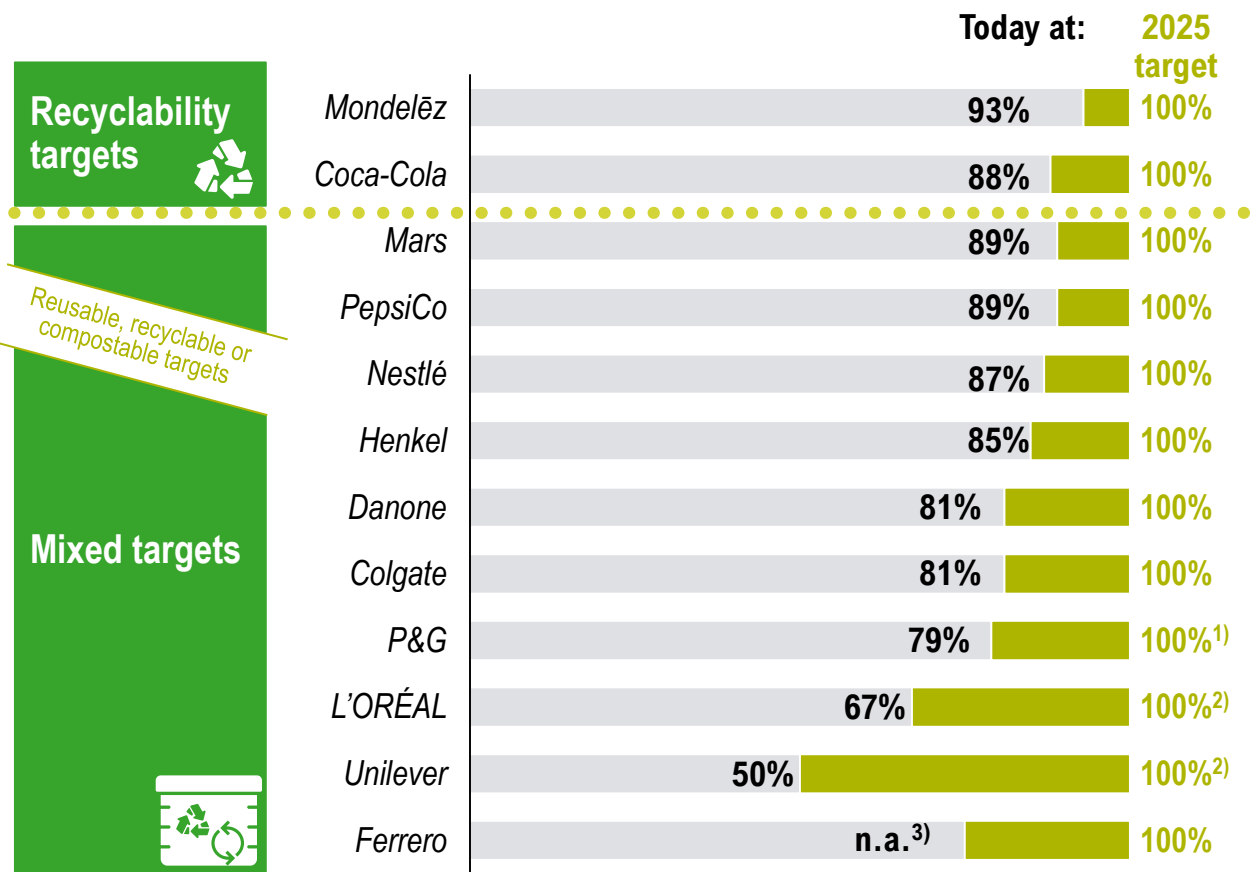


Recycled content

> FMCG producers' **focus** currently lies on **rPET**, given **mandatory legislation** in certain geographies, with several initiatives to use rPET as **majority content (>50%)**; focus is expected to **expand to other plastics**; recycled content in fiber-based packaging already at >50% for most key producers

Recyclability is increasingly becoming the premise for any packaging type put on the market – FMCG producers have 100% targets for 2025

Recyclability – Overview of targets and key insights for a selection of key global FMCG producers



Recyclability refers to the ability to reprocess a used packaging material into a product, a component incorporated in a product, or a secondary raw material

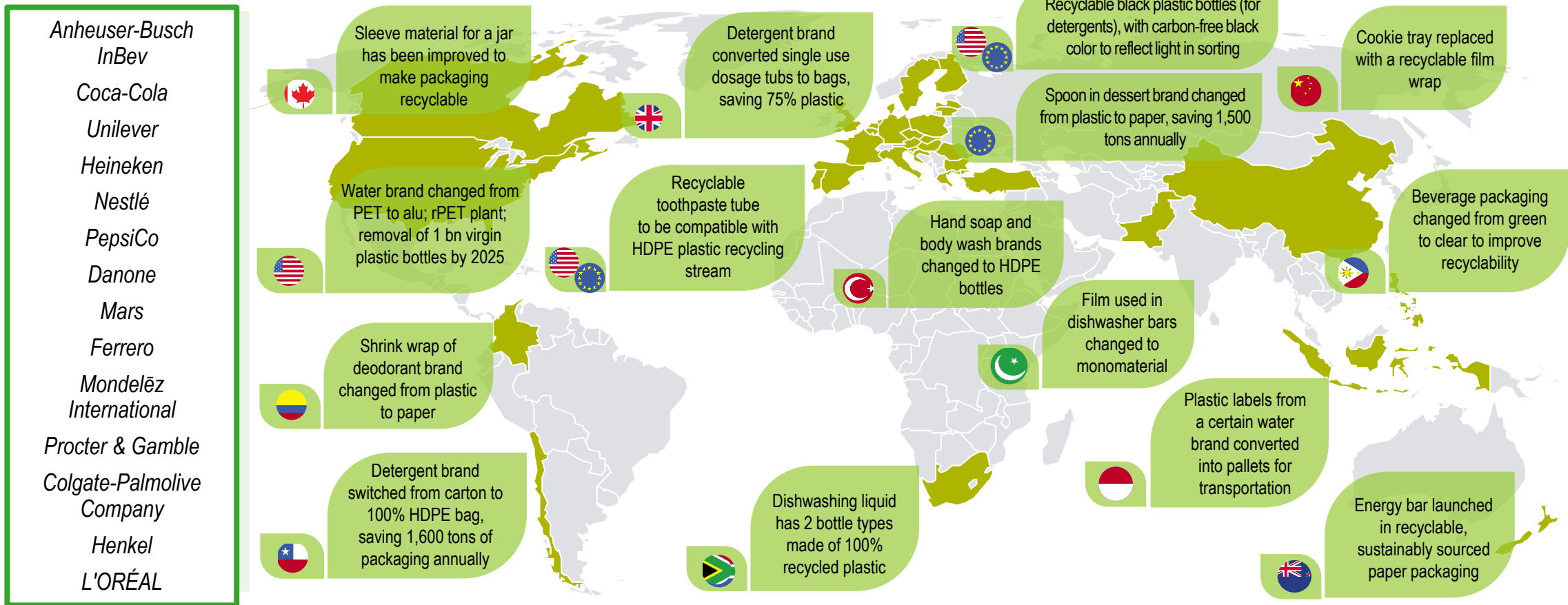
Key insights

- > **Beverage producers** have recyclability targets of 100% by 2025 (starting from a relatively high level: typically above 80% of packaging portfolio is already recyclable)
- > **Food and homecare producers** also have 100% targets, starting from lower levels than beverage producers
- > **Systematic process** conducted by FMCG producers to review their packaging portfolio from a recyclability perspective, resulting in:
 - **Elimination of non-recyclable** packaging in the next 2-4 years, gradually across all markets (e.g. PS, PVC, black plastic with carbon color, multi-material packaging/composites, various flexible packaging, sleeves)
 - Identification of packaging that is basically **recyclable but not across all regions/markets** (due to lack of recycling capacity)
 - **Monitoring of such packaging** to understand what recycling solutions can be developed, over a timeframe of 5-10 years; possibly selective elimination from the portfolio in certain markets where this packaging is not recyclable by 2030

2) 2030 target 2) Plastic packaging only 3) No progress data available

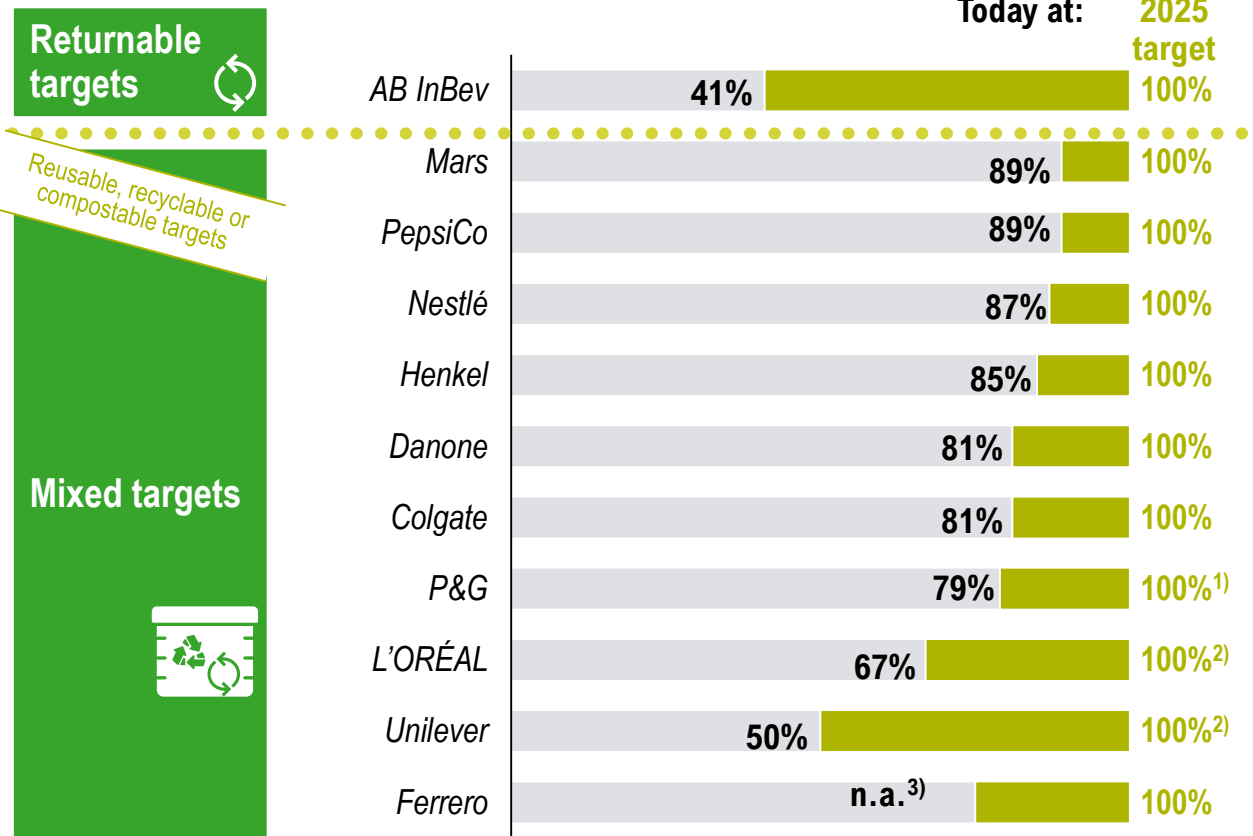
All key FMCG producers have a diverse range of ongoing global and regional projects under way to improve recyclability of their packaging

Recyclability objectives – Examples of initiatives for a selection of key global FMCG producers



Reusable packaging is (again) becoming increasingly important in the overall packaging portfolio, with upside potential from home delivery

Reusability – Overview of targets and key insights for a selection of key global FMCG producers



Reusability refers to packaging being refilled or reused for the same purpose for which it was conceived, with or without the support of auxiliary products (used to support refilling/loading of the packaging)

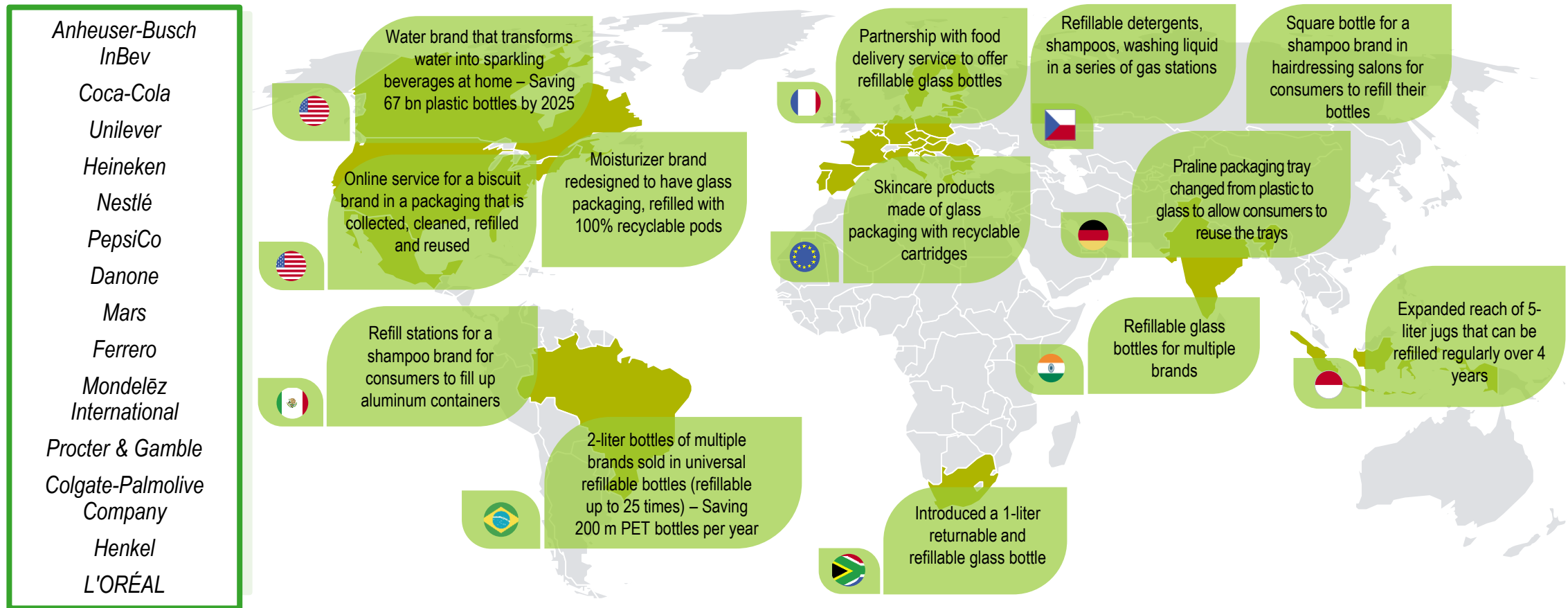
Key insights

- > **Reusability**, particularly with regard to **glass bottles**, is the most important objective for brewers, but also for soft drinks producers with a large share of glass packaging in their portfolio
- > **Glass returnable bottles** are expected to increase as a share of total packaging all over the world
- > **Reusable PET** also increasingly being piloted across various markets, in fact with the **lowest carbon footprint overall**
 - Key challenge to ensure food safety, given the chemical properties of PET vs. glass or aluminum
- > **Increasing importance of grocery home delivery** (also on the back of the COVID-19 pandemic) with potential to further develop/accelerate the increase of reusable packaging (combining the two logistical chains)
- > **Overall key challenge** in introducing the reusable stream is to ensure the **reduction of the overall carbon footprint** vs. the one-way packaging stream

1) 2030 target 2) Plastic packaging only 3) No progress data available 4) Returnable or made from majority recycled content

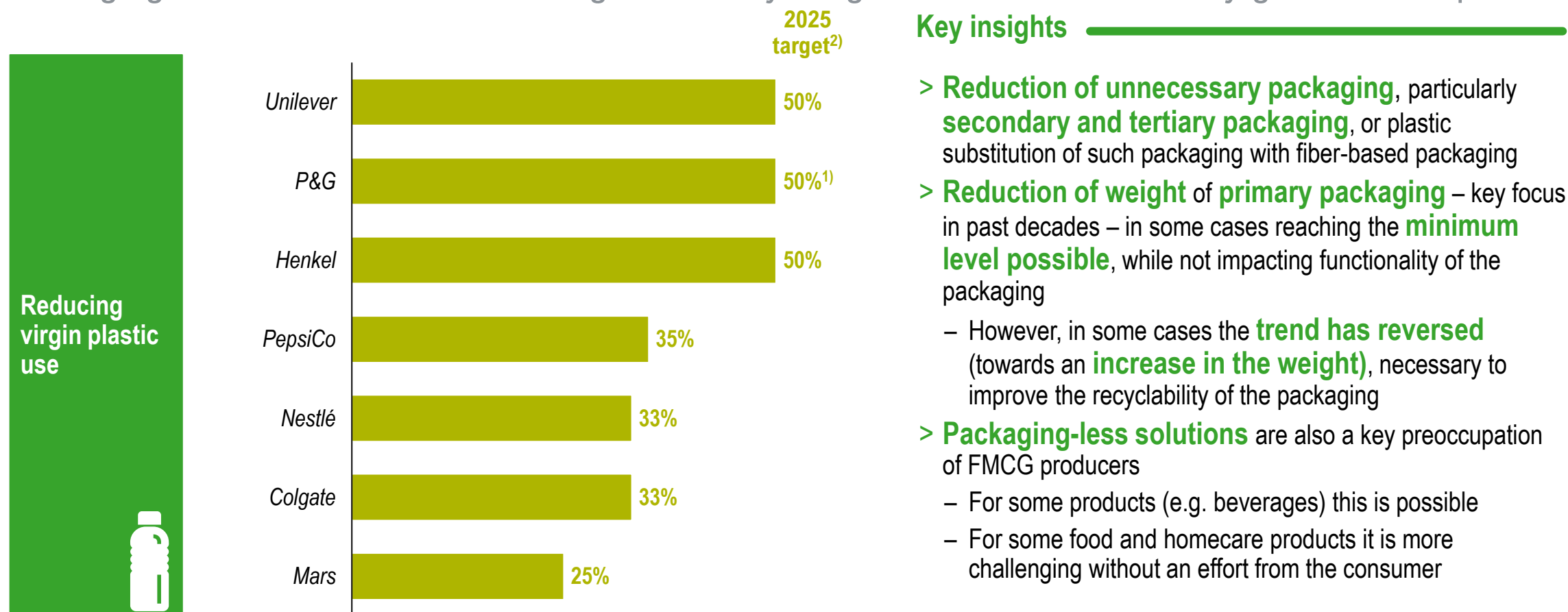
Expanding the use of reusable packaging, particularly for glass and PET packaging, is a key strategic pillar – Various projects ongoing

Reusability objectives – Examples of initiatives for a selection of key global FMCG producers



Reduction of packaging is also an essential strategic pillar in the overall packaging sustainability strategy of key FMCG producers

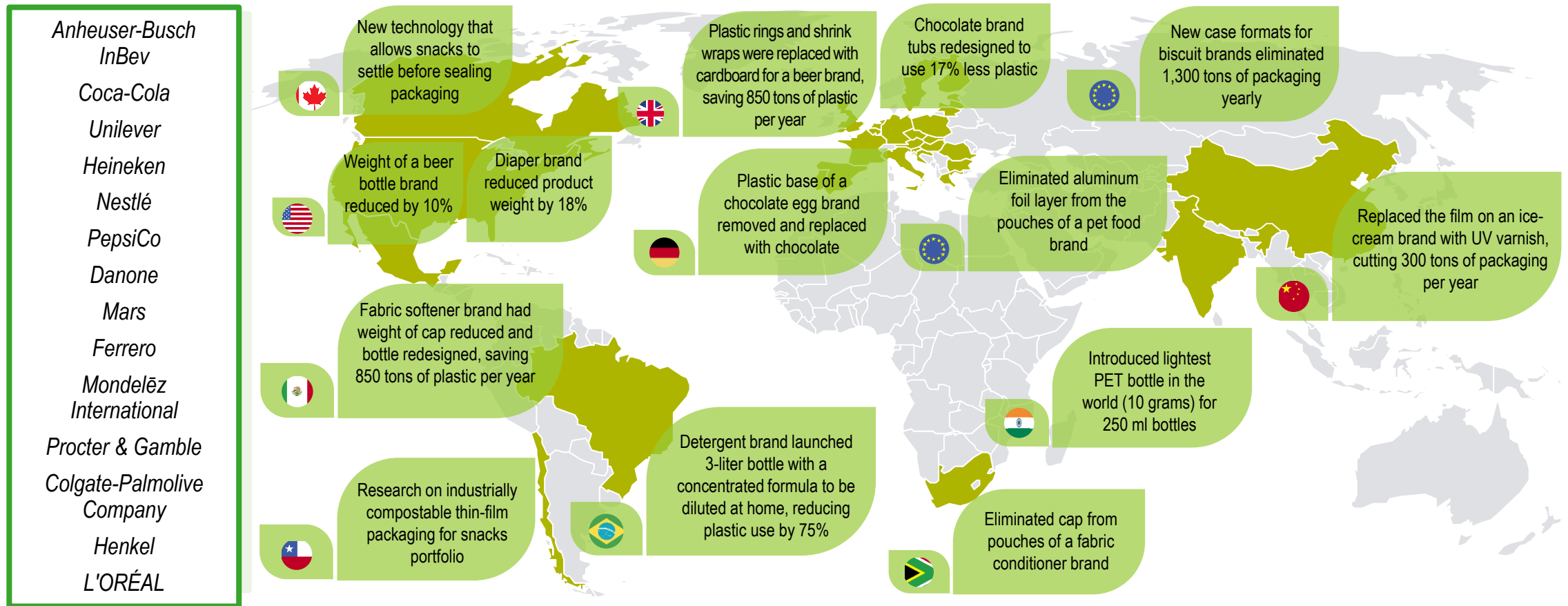
Packaging reduction – Overview of targets and key insights for a selection of key global FMCG producers



1) 2030 target 2) No progress data available

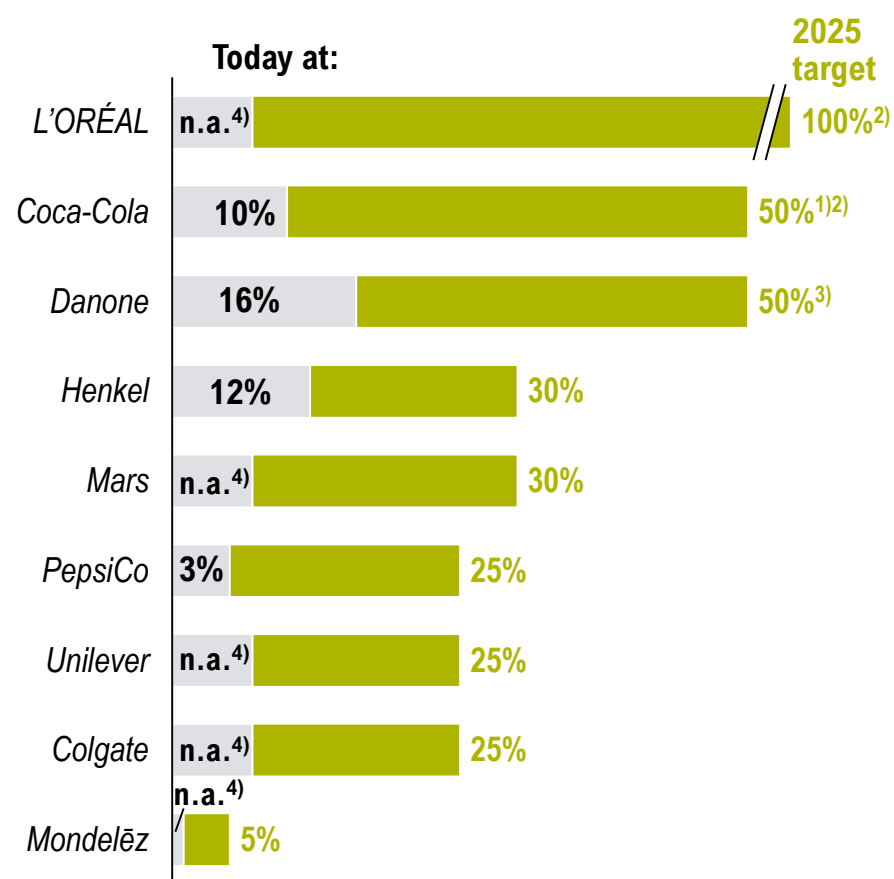
Reducing the weight of the portfolio and cutting down on unnecessary packaging are key initiatives for packaging elimination

Packaging reduction objectives – Examples of initiatives for a selection of key global FMCG producers



FMCG producers are anticipating circular economy legislation on recycled plastics content – Multiple initiatives for rPET in place

Recycled plastics content – Overview of targets and key insights for a selection of global FMCG producers



Key insights

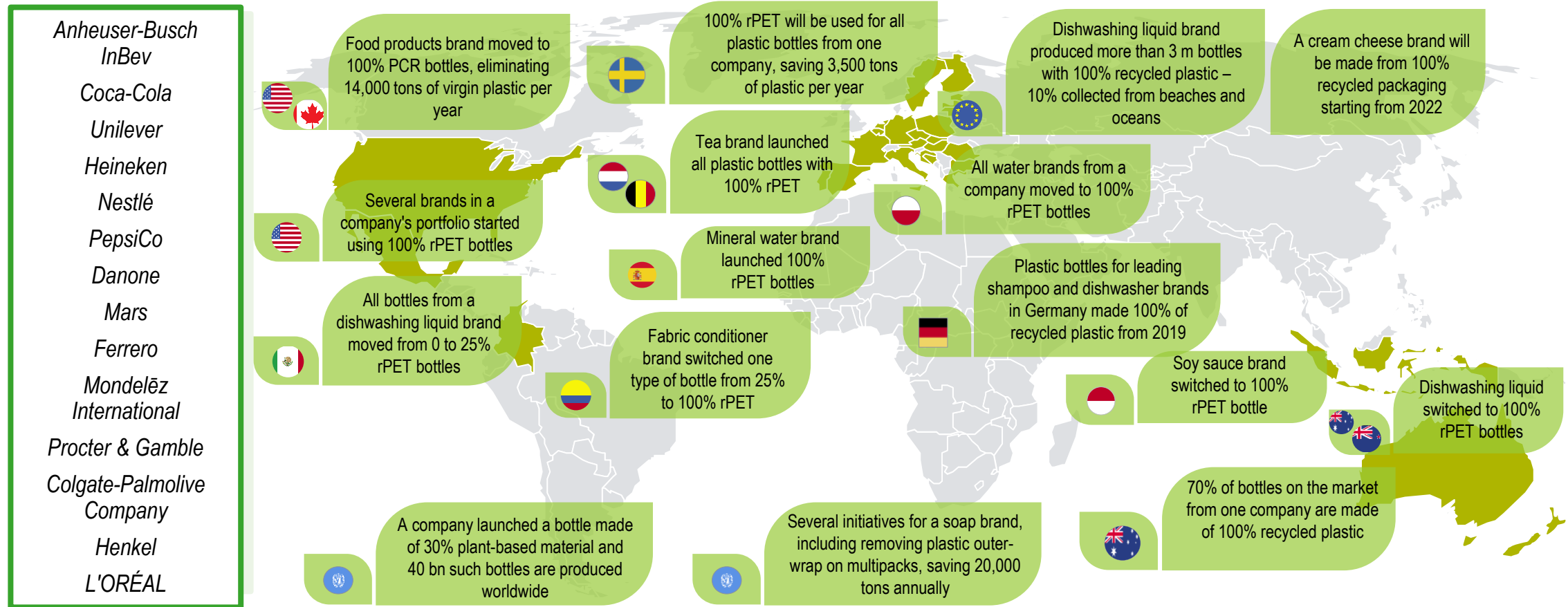
- > At EU level, mandatory legislation on **recycled plastics content** expected in **2021/2022**, but some countries (e.g. France) have **already rolled out** such requirements as part of national legislation
- > So far, FMCG producers' **focus and ambitions** lie mostly on **rPET** (recycled PET content), but this is expected to expand to **other plastics** and even to **other materials**
- > Several initiatives to switch products from all categories (food, beverages, homecare) to use rPET across all geographies, as **majority content (>50%)**
- > Some companies already involved in **infrastructure creation for rPET** (incl. investments in bottle-to-bottle recycling facilities); there are also several other initiatives in the form of **partnerships** to tackle plastic waste

! – Recycled content in paper-based packaging at 40-70% for majority of global FMCG producers

1) In all types of packaging 2) 2030 target 3) Recycled plastic in beverage bottles, 25% for all plastic packaging 4) No progress data available

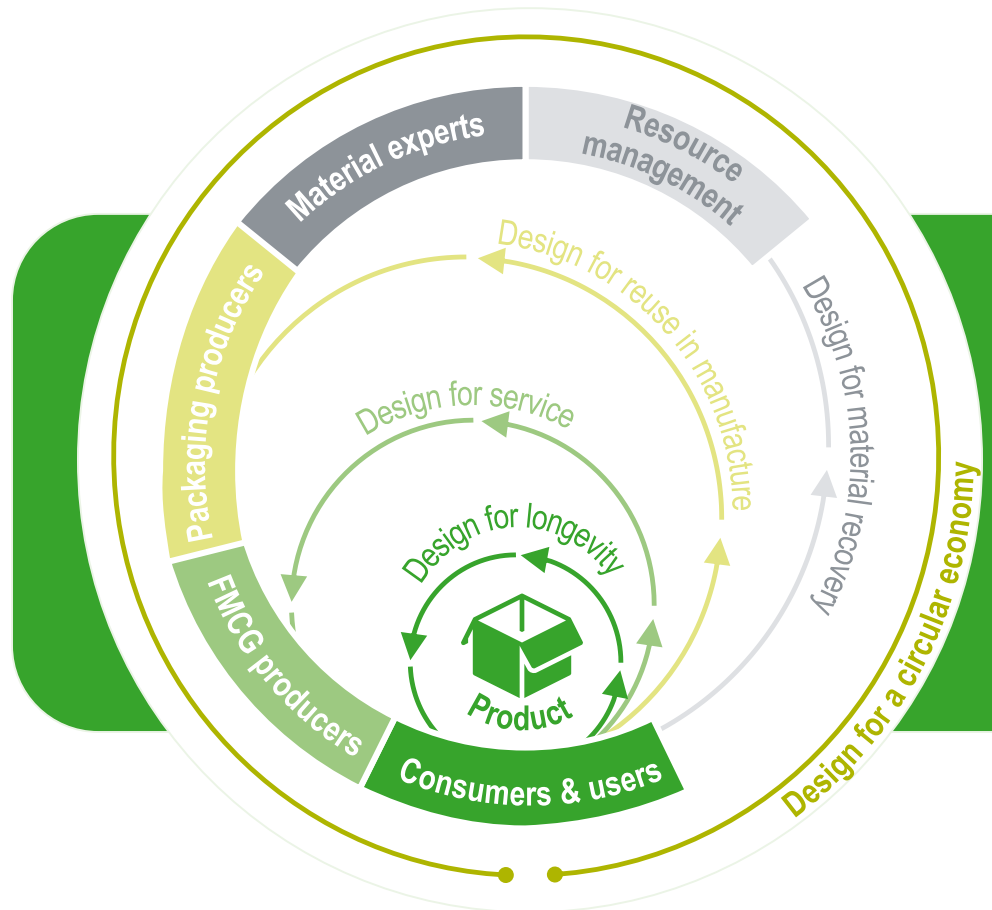
There are multiple initiatives across the globe to increase recycled content or to launch products with packaging made of 100% recycled content

Recycled plastics content objectives – Examples of initiatives for a selection of global FMCG producers



Rethinking packaging design typically occurs at multiple levels, maximizing material recovery and reuse

Packaging design in the circular economy – Conceptual framework



Rethinking design is focused on changing the design in:

- > Products as consumer goods
- > Internal processes such as production, logistics and manufacturing



The different areas impacting the design are:

- > Design for material recovery
- > Design for reuse in manufacture
- > Design for service
- > Design for longevity
- > Design for weight optimization



2. Packaging waste collection & recycling



Packaging waste collection & recycling

Chapter summary

Chapter Highlights



Objective

> FMCG producers actively seek to develop a **framework that supports high collection and recycling performance** for the packaging materials placed on the market



Strategies

> Considerable **differences in system characteristics** and **collection/recycling performance** around the globe – Therefore, FMCG producers must **adapt their strategies** to the specific market/archetype context



Legislation

- > One key pillar of high-performing packaging waste systems is an **effective legislative framework**
- > In general, FMCG producers are highly **supportive of EPR implementation** – However, implementation should be **adapted according to specific market conditions** (e.g. infrastructure-heavy/light)
- > **DRS** analyzed on **case-by-case basis**, due to high variance in cost implications, depending on system characteristics
- > Successful EPR/DRS implementation is a product of a **collaborative and iterative process** between **authorities and industry**



Innovation

> New technologies have emerged across the value chain to **improve cost efficiency and productivity**; these are expected to contribute to higher system performance in the future

FMCG producers are committed to increasing recycling rates – Yet few set more ambitious targets than the legal obligations imposed by EPR¹⁾

Collection & recycling rate objectives – Overview of targets and key insights

Collection and recycling objectives

Coca-Cola

Collect or recycle a bottle for each one sold by 2030²⁾

L'ORÉAL

EUR 50 m fund to promote circular economy and recycling efforts

PepsiCo

Increase recycling rates in key markets by 2025; ~EUR 60 m spent in 2018-20

Henkel

Zero landfilled & ocean waste by 2030

Anheuser-Busch InBev

Launched 100+ accelerators to invest in innovative ideas to improve recycling rates

Mars

Provide recycling guidance in all major markets where products are available by 2025

Danone

Launch & support collection and recycling in each of the top 20 markets by 2025

Unilever

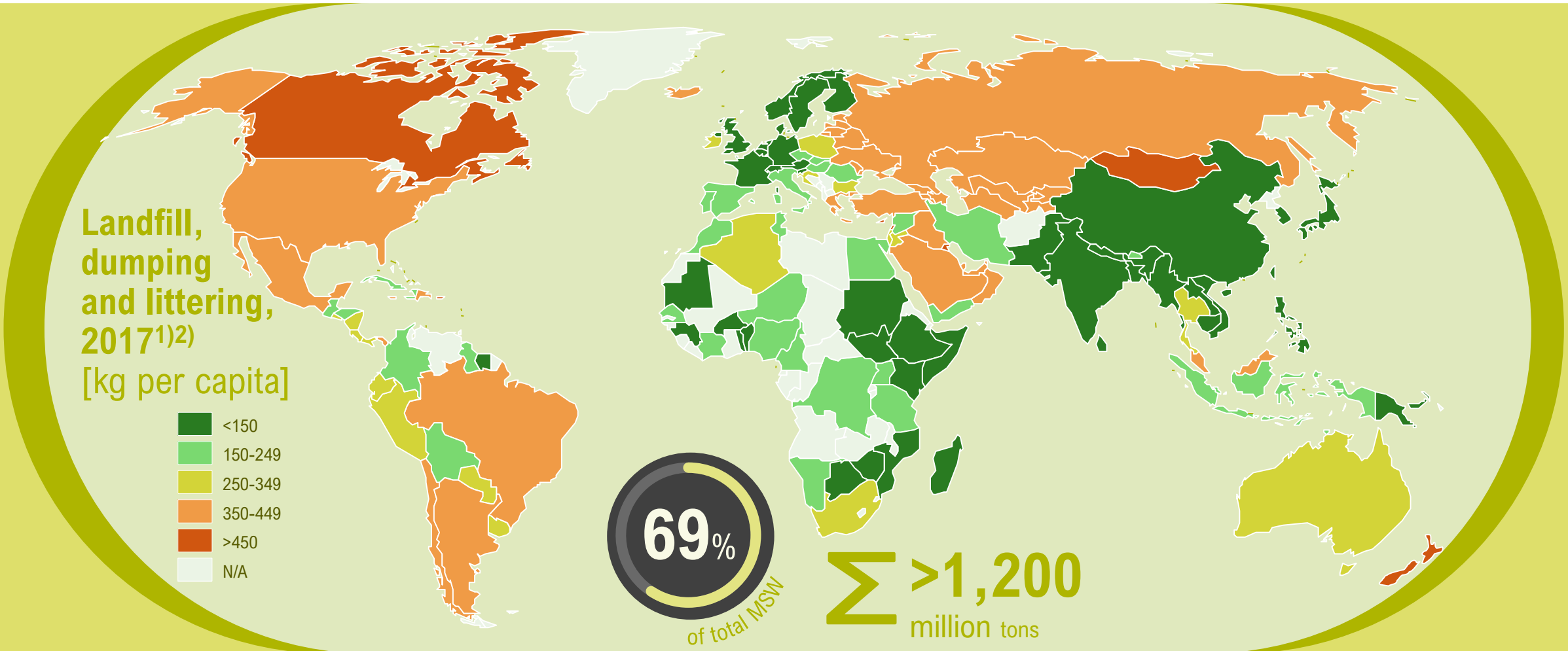
Working in partnerships to develop local recycling industry, especially in developing markets

Key insights

- > In recent years, extensive coverage of **plastics pollution** has shifted the global spotlight onto FMCG producers to urgently address packaging waste
- > FMCG producers have responded with **ambitious pledges** to support local collection and recycling, especially in **developing countries**
- > Around the world, multiple **partnerships** are being formed between **producers, packaging converters and recyclers** to tackle packaging waste topics
- > These range from **initial collection partnerships** to **voluntary recovery organizations** to **industry-wide agreements** to reduce environmental impact of packaging
- > Nonetheless, FMCG producers are generally reluctant to commit to **clear-cut targets** for collection and recycling – Efforts to improve collection and recycling are often highly dependent on **external factors**, such as legislation and involvement of public authorities

1) In the countries where this is the case, EU + selected other countries mainly in Asia 2) Equivalent to 100% recycling rate of packaging volumes put on the market

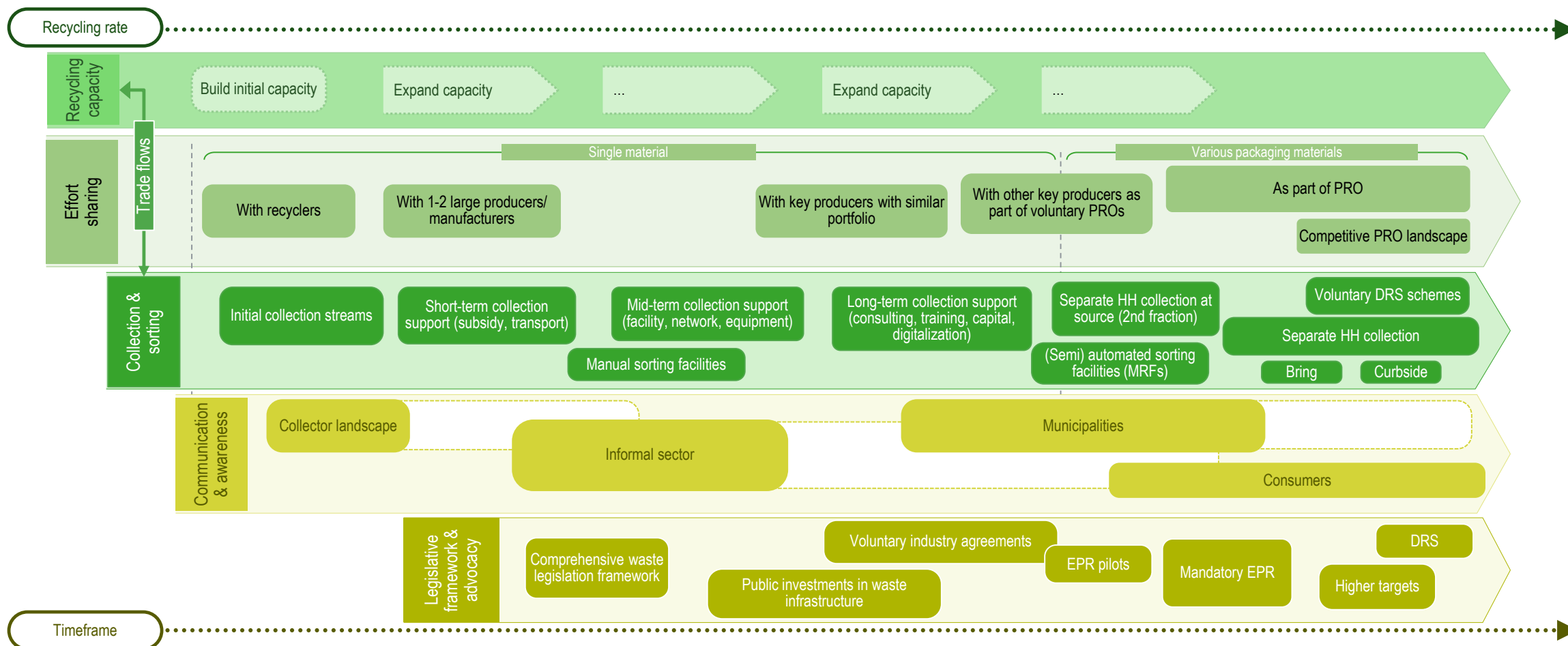
Collection & recycling performance varies considerably at global level – In many countries, waste is still landfilled without treatment



1) Or latest available data 2) Includes waste unaccounted for

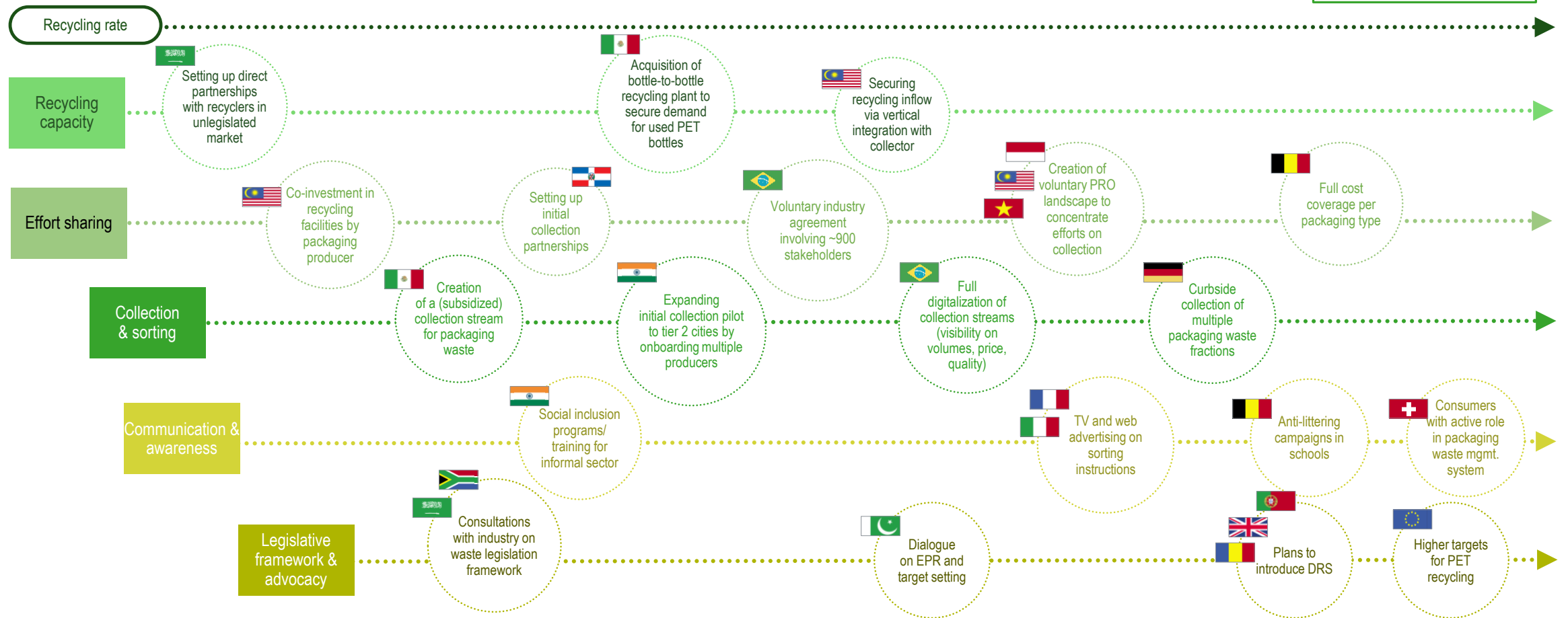
As such, FMCG producers must support the gradual build-up of packaging waste management systems at all stages

Key strategy pillars of FMCG producers for improving the collection and recycling rate – Concept



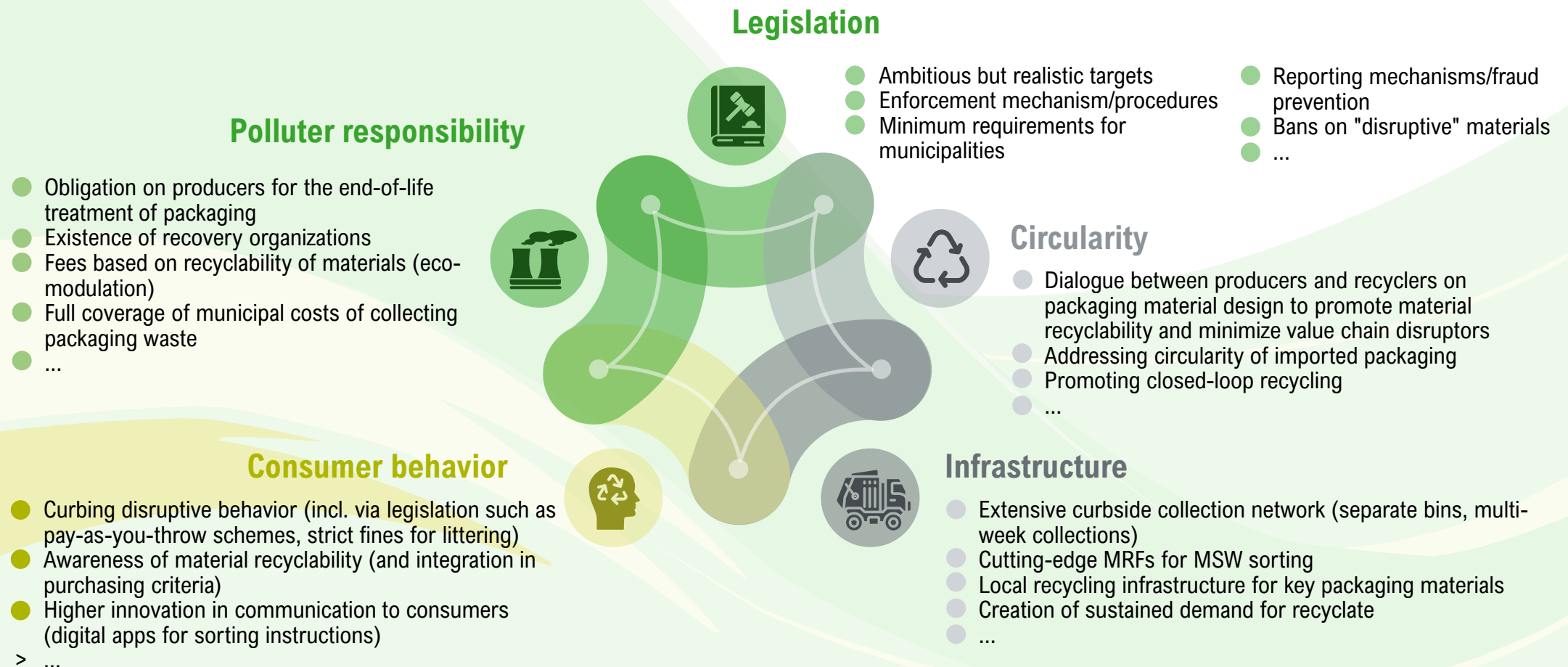
There are numerous examples of FMCG producers' involvement in the packaging waste value chain across the globe

Illustrative examples of FMCG producers' engagement in packaging waste value chain Selection of examples



A high-performing packaging waste management system has multiple prerequisites

Key elements of a high-performing packaging waste management framework



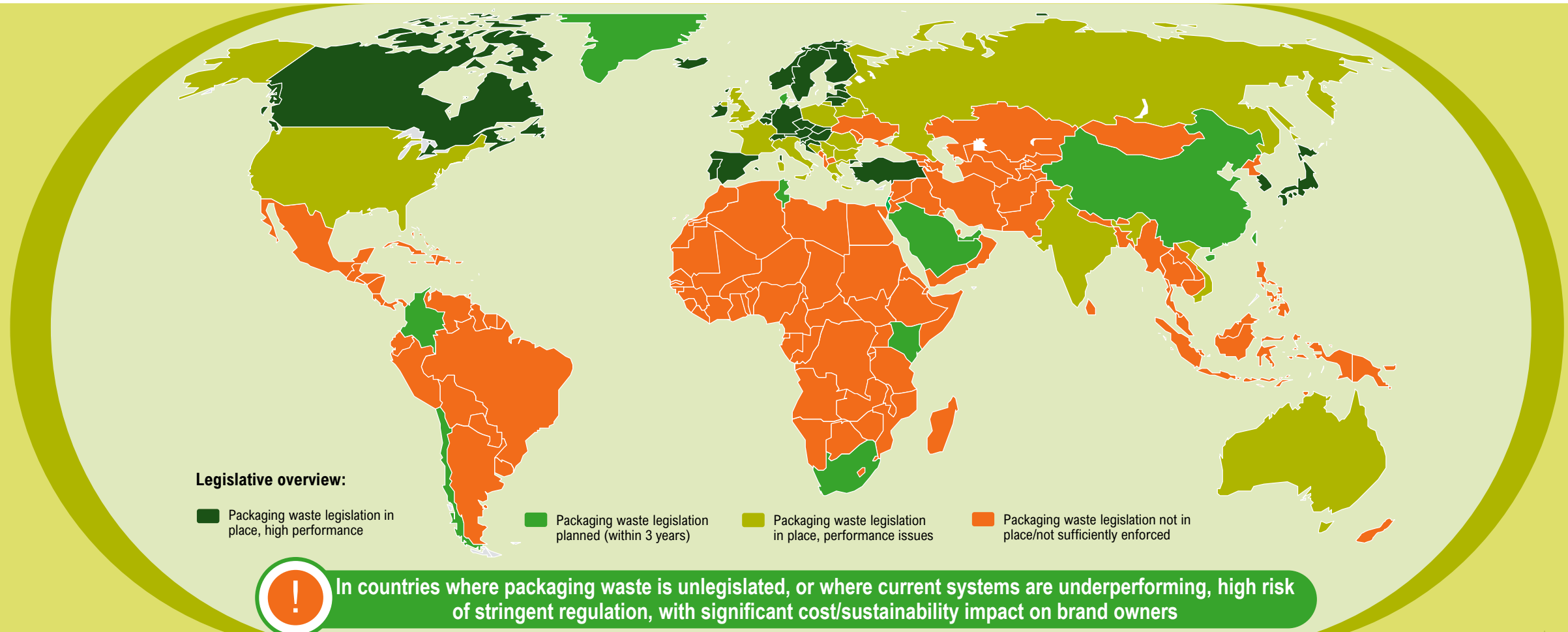
Depending on the regional/local context and market type, three types of "ideal systems" seem possible

Potential ideal systems for packaging waste management

	"European" infrastructure-heavy model	Alternative infrastructure-light model	Performant state-run scheme
Recycling capacity	<ul style="list-style-type: none"> > Sufficient capacity for covering collected key packaging material volumes, within a maximum distance range 		
Collection & sorting	<ul style="list-style-type: none"> > Curbside multi-fraction collection > Uniform collection standards across all municipalities/provinces > DRS if recycling performance <90% 	<ul style="list-style-type: none"> > Two fraction collection (mixed and recyclable) > Waste pickers & collectors network operating collection of the recyclables, municipalities handling the mixed stream > Manual sorting facilities 	<ul style="list-style-type: none"> > Curbside multi-fraction collection > Uniform collection standards across all municipalities/provinces > DRS if recycling performance <90%
(Cost) Effort sharing	<ul style="list-style-type: none"> > Via industry-controlled PROs > No material cross-subsidization & full cost transparency for EPR fee calculation > EPR fee differentiated according to material recyclability (incl. eco-modulation) 		<ul style="list-style-type: none"> > Via state-owned compliance scheme > Fees fully channeled back to packaging waste value chain, incl. investments in recycling facilities – Full transparency of financial flows
Communication and awareness	<ul style="list-style-type: none"> > Consistent communication and education campaigns across the value chain, financed via PRO/compliance scheme > High consumer awareness on sustainability topics 		
Framework & advocacy (legislation & institutions)	<ul style="list-style-type: none"> > Mandatory EPR with ambitious overall and material individual packaging recycling targets > Specific targets for most materials > Single PRO for all materials (not-for-profit and industry-controlled) > Integrated EPR and DRS operator 	<ul style="list-style-type: none"> > Mandatory EPR legislation, with lower initial targets (e.g. ~30%, overall packaging), gradually increasing > Focus on enforcement, reporting accuracy, restricting free riding > Clearly defined role for informal sector actors > Single PRO for all materials (not-for-profit and industry-controlled) 	<ul style="list-style-type: none"> > Mandatory EPR with ambitious overall and material individual packaging recycling targets > Specific targets for most materials > Single PRO for all materials (state-controlled) > Integrated EPR and DRS operator

Effective packaging waste legislation is a key element driving high performance – Currently, significant number of countries unlegislated

Overview of legislation for packaging waste at global level



Extended producer responsibility (EPR) legislation typically leads to a series of benefits

Key advantages of EPR legislation – Selected examples

1 Boost recycling performance



Countries with EPR legislation achieve consistently higher recycling performance than those without – Overall recycling rates can exceed 90% in some countries¹⁾

2 Efficient use of scarce resources



Producers are actively encouraged to select packaging according to recyclability criteria and to minimize packaging weight, thus engaging in a more efficient use of resources

3 Reduction of carbon footprint



Recycling reduces extraction/production of primary packaging and avoids emissions from disposal – For some materials, CO₂ reduction is over 60%²⁾

4 Jobs creation in recycling sector



Potential to create thousands of new jobs across the waste management value chain – In production, waste operation, sorting facilities, recycling industry, NGOs, system administration, etc.

5 Social inclusion of waste pickers



In most emerging markets, the informal waste sector is essential to system functioning (at times accounting for 30-70% of waste collected); formal recognition must be complemented with social inclusion programs, ensuring safe work environment, training, etc.

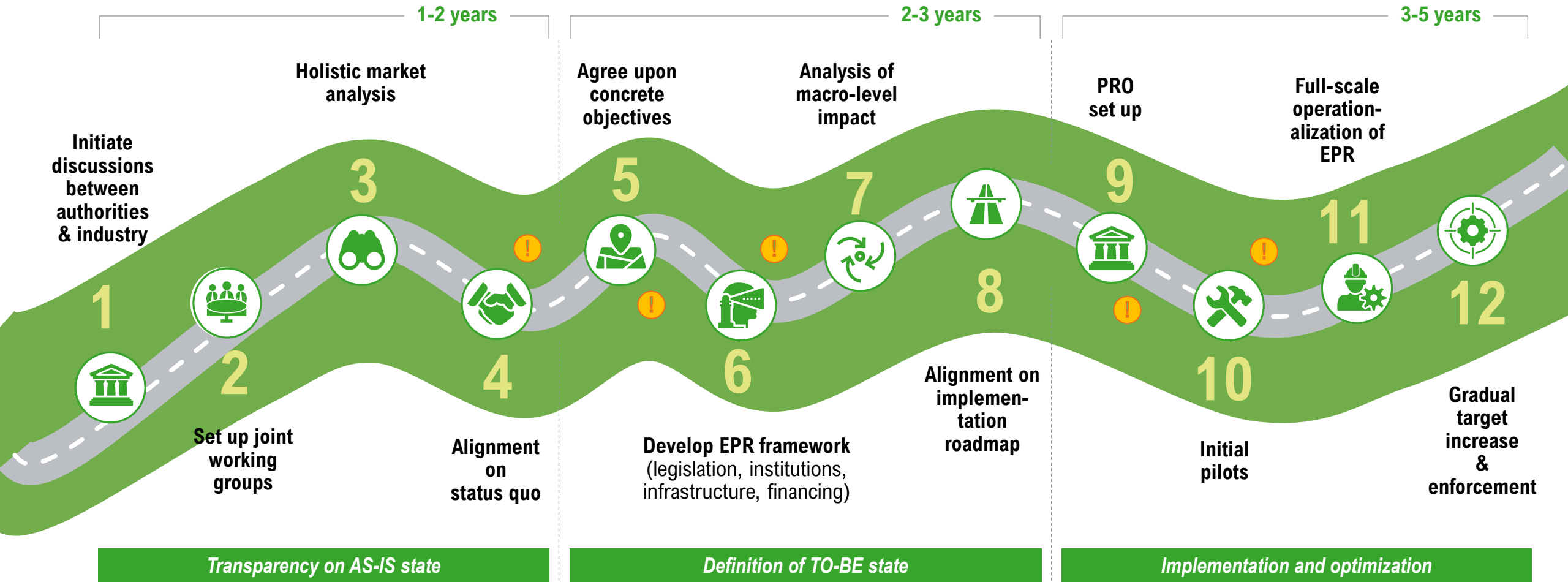
6 Awareness among consumers



Successful EPR schemes raise awareness and onboard consumers to actively engage in selective collection and integrate recyclability as a key purchasing criteria

1) e.g. Belgium 2) e.g. aluminum cans

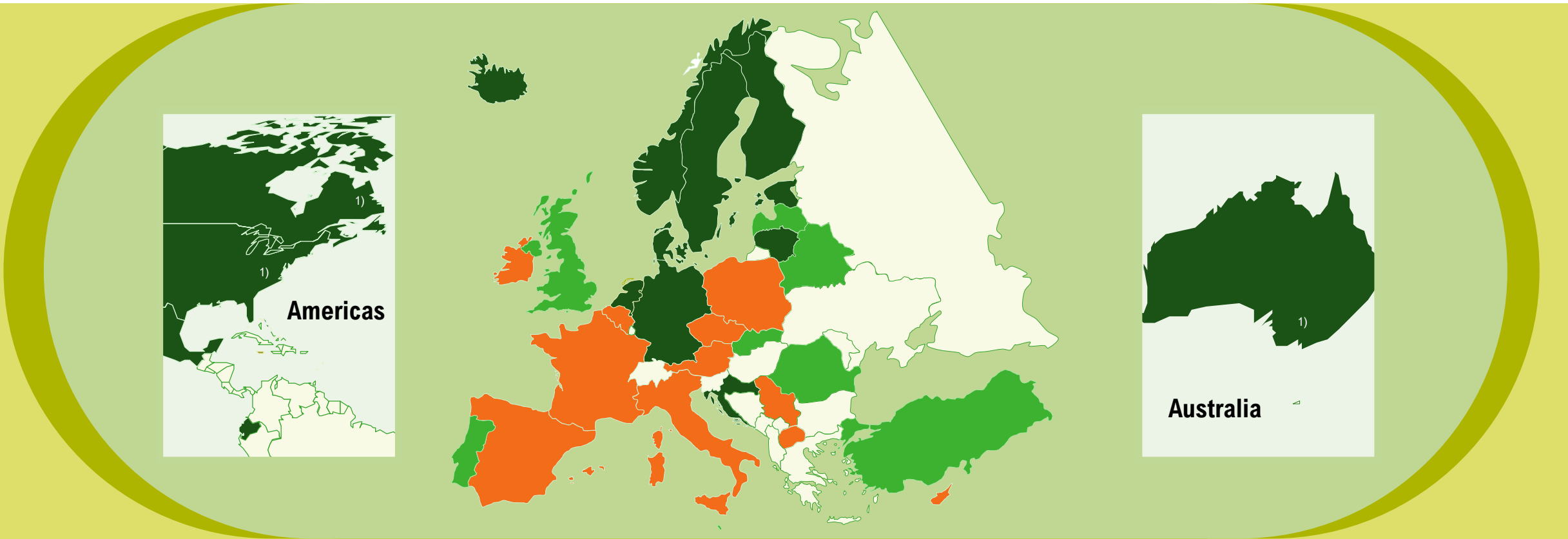
It is essential that an EPR framework is developed jointly by authorities and industry, as part of an iterative process



🚩 Key decision point




Deposit-refund systems (DRS) are increasingly being considered as an alternative solution to higher performance in packaging waste recycling

Overview of deposit-refund systems at global level



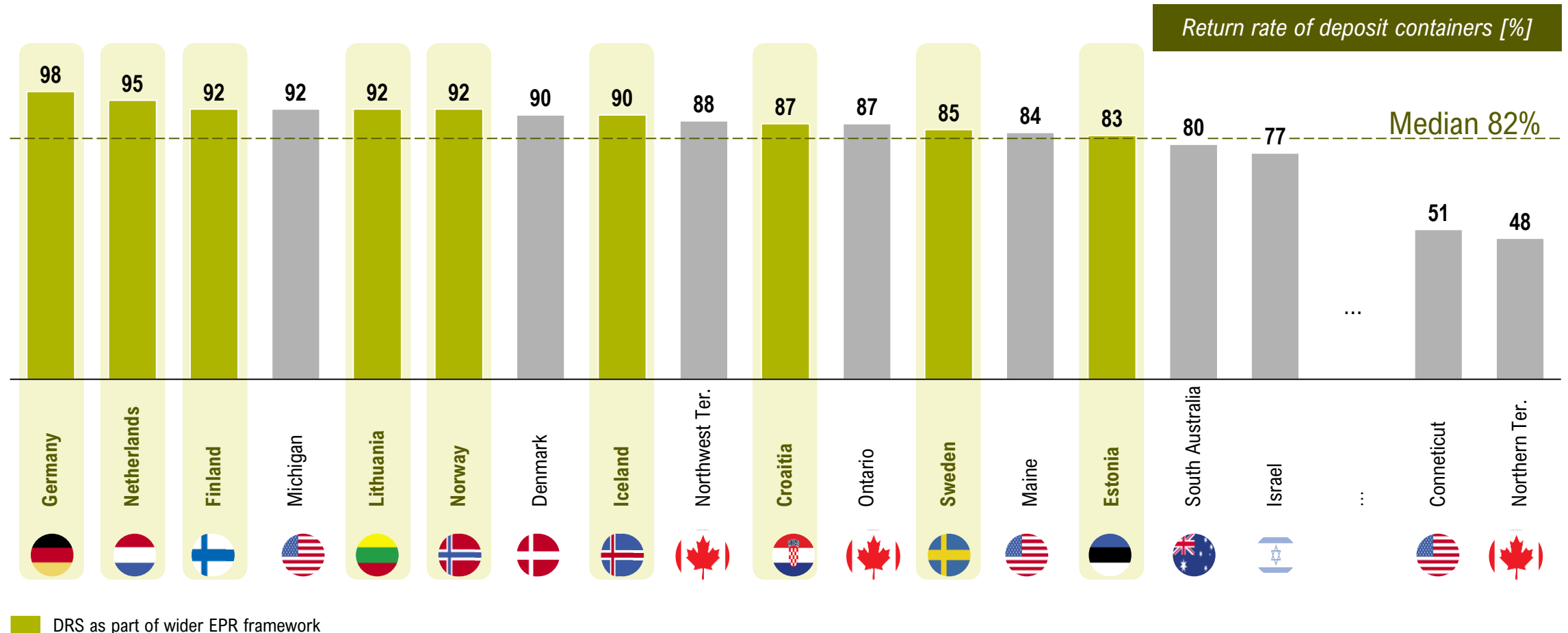
1) DRS in some states/provinces

Legislative overview

-  DRS currently in place
-  DRS planned (within 3 years)
-  DRS discussions ongoing

On average, deposit-refund systems generate ~80% return rate – Performance is even higher when integrated as part of EPR framework

Overview of deposit-refund systems at global level



FMCG producers widely approve of EPR, albeit differentiated according to market conditions – Mixed views on DRS

FMCG producers' perspectives on:

Extended producer responsibility (EPR)

- > Mandatory EPR scheme introduction seen as an **essential pillar to drive recycling performance** by most FMCG producers approached
- > However, in unlegislated markets, a **paced/gradual introduction** is seen as essential
- > Some companies view the **infrastructure-heavy scheme** developed in Europe for separate waste collection as "utopian" for less developed markets, due to its very high costs (CAPEX and OPEX) and the long timeframe required to build it
- > **Waste pickers** are seen as a good substitute for the European infrastructure in **less developed markets**, with potential to achieve sufficient **recycling performance at reasonable cost**, while also ensuring a **high number of jobs** for a socially disadvantaged class
- > FMCG producers are actively advocating for the following system characteristics:
 - **Responsibility of municipalities** in waste collection clearly defined by legislation – EPR implementation as joint industry-state effort
 - **Pilot period of 3-5 years** before enforcing targets and penalties for not achieving the set targets
 - Gradual increase in **targets**
 - **Industry-led compliance** scheme and recovery organization

Deposit-refund systems (DRS)

- > DRS schemes are **supported in selected countries** (particularly in Europe) by key bottlers (Coca-Cola and PepsiCo), as they are seen as the required solution to **drive recycling performance to above 90%** (PET bottle recycling target in 2030)
 - Therefore, DRS schemes for PET, cans and (selectively) glass are expected to be **widespread across Europe** (~20 countries vs. ~10 today) and other selected developed markets
 - Brewers and local producers are less supportive of DRS in general, particularly given its **very high cost** (CAPEX, OPEX) compared to the EPR system

Other legislation

- > Legislation for **refillable targets for glass** preferred by key FMCG producers (both brewers and soft drinks)
- > Most FMCG producers welcomed **recycled content targets** (some already have internal targets in place) but **expressed concern** about certain types of packaging, where significant **innovation** is required

Recently, new innovations have emerged across the packaging waste value chain to support collection and recycling efficiency

Innovation examples in collection

Key trends in innovation

- > **Digital solutions** are supported by key brand owners across all geographies, across the collection value chain: from collection at source to sorting
- > Particularly in the emerging markets, **affordable digital solutions** for routing, price making, collection frequency optimization, etc. lead to **accelerated increase of collection efficiency**
- > Key brand owners **initiate and finance innovation** and startup hubs for **development of digital solutions** in the waste management field
- > Sorting is also a field in which **automation and AI** strongly increase the efficiency (with higher CAPEX requirements, however)

Case studies of innovation in collection and recycling – Selection

1. "Uberization" of waste collection

Rubicon Technologies

2. Digitalization of packaging waste flows

Global packaging producer

3. Advanced waste collection infrastructure

*Envac AB CargoCap
Gro Tek Inc Sensoneo*

4. Bottle-to-bottle recycling plant

PetStar

Rubicon, the "Uber of waste", uses technology and partnerships to optimize revenue and costs of independent collectors

"Uberization" of waste collection – Overview

Rubicon Technologies

Value proposition

Expand the business and optimize the costs of independent collectors/sorters

Description

- > Clean technology cloud platform **linking waste producers and independent collectors/recyclers**
- > Reuse and recycling of mostly **household and out-of-home waste**
- > **Over 2.6 million service locations worldwide**, incl. network of **5,000 independent waste haulers** in USA and Puerto Rico
- > **All waste streams addressed** (cardboard, plastic, paper, metal, glass, e-waste, construction waste, organics recycling, wood waste)
- > **International partnerships**
 - Collaboration with **Suez** in 2017 on technology and data collection
 - Non-landfill waste solution development with **TerraCycle**
 - Subscription agreement with **Helvetia Environment**

Benefits for consumers



> Collection management:

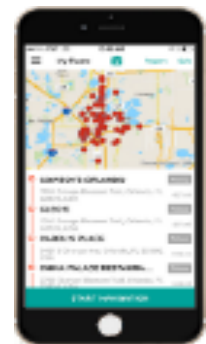
- On demand (and not imposed) & proximity based
- Allocation of all types of waste (out-of-home included)
- Simplified planning and tracking via Rubicon as a single entry point – app and portal
- Possible exchange with other clients, investors, shareholders and targeting of education programs



For independent collectors/recyclers



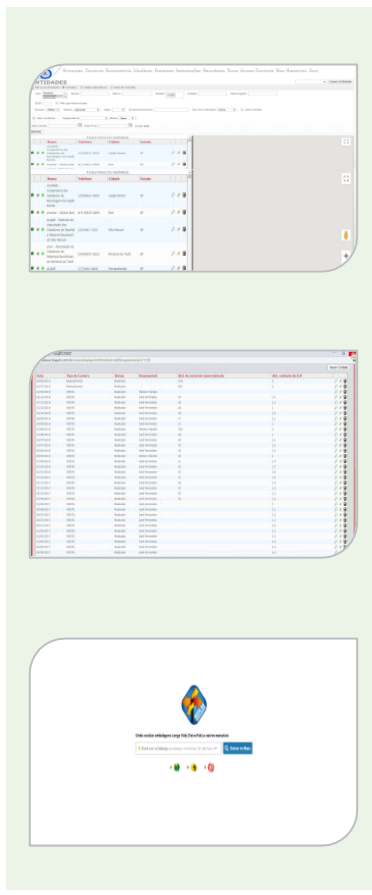
- > **Software flow management:** route optimization, distance minimization, fleet management, real-time confirmations
- > **Optimizing** the utilization rate of collection trucks & recycling centers, while **improving customer service**
- > Carbon emission impact measurement
- > Joint purchasing



In Brazil, a packaging producer has sought to fully digitalize the collection stream for its packaging

Digitalization of packaging waste flows – Overview

- **Value proposition**
 - Full transparency of collection flows and network characteristics*
- **Description**
 - > **Digital platform** created by packaging producer to create transparency on collection network
 - > Over **5,000 collection points** mapped for consumers, covering over **60% of the population**, with **20% more municipalities covered** with selective collection between 2016-2018
 - > Network of **~20 field consultants who create and maintain platforms** via field visits, audits, training & support of collectors
 - > **Blockchain project** – Variable subsidy to brokers for BCs calculated based on the price offered on the market, cross-checked with financial documentation



Benefits for consumers

- > **Creates transparency** regarding **collecting points at national level**
- > Contributes to an **improved image** of packaging material by indicating **existence of multiple outlets** for collection/recycling

Benefits for (FMCG/packaging) producers

- > **Full transparency** regarding collection flows and collection network characteristics (incl. entities, volumes, flows, other packaging types collected, equipment, price fluctuations of collected materials)
- > **Proactively identifies issues** (e.g. **capacity, challenges** in specific areas, etc.) incl. via direct discussions

Benefits for independent collectors/brokers

- > Creates **feedback loop** with producers
- > **Facilitates mid- and long-term support** to bolster performance (e.g. price incentives, bonuses, training, investment in equipment, routing, etc.) from producers

Advanced waste collection infrastructure technologies and systems are set to cater to all types of developments

Advanced waste collection – Overview

Selection of technologies

1

Automated vacuum-based underground waste collection pipeline infrastructure covering building and public waste bins



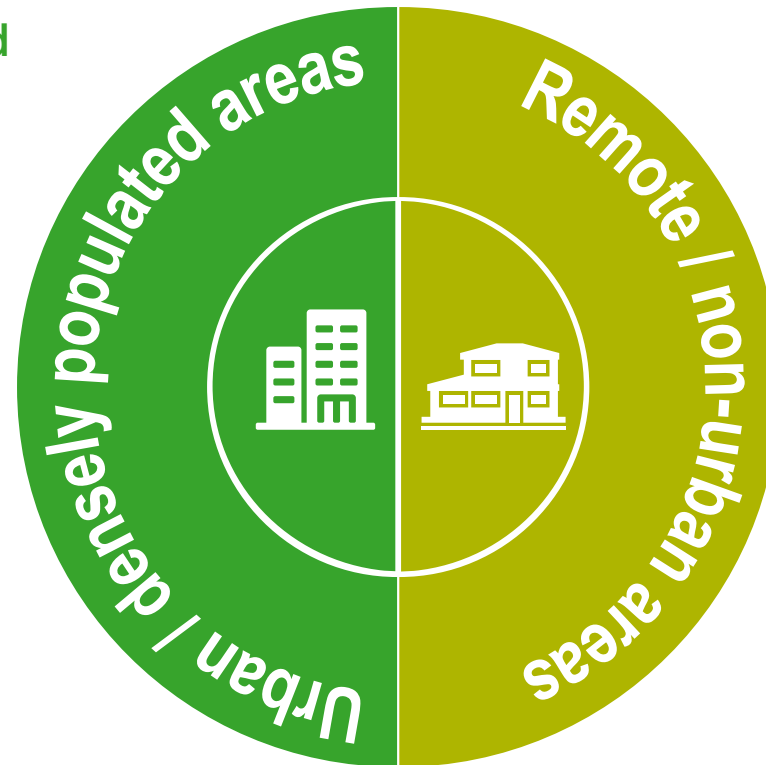
Envac AB

2

Underground connected capsules as a transport mechanism enabling long-distance collection center



CargoCap



3

Drone-based waste collection and landfill monitoring systems



4

IoT sensors embedded in waste bins to **notify** authorities and communities on **waste situation**



PetStar Mexico has developed the largest bottle-to-bottle recycling facility for food-grade PET resin in the world

Bottle-to-bottle recycling facility in Mexico – Overview

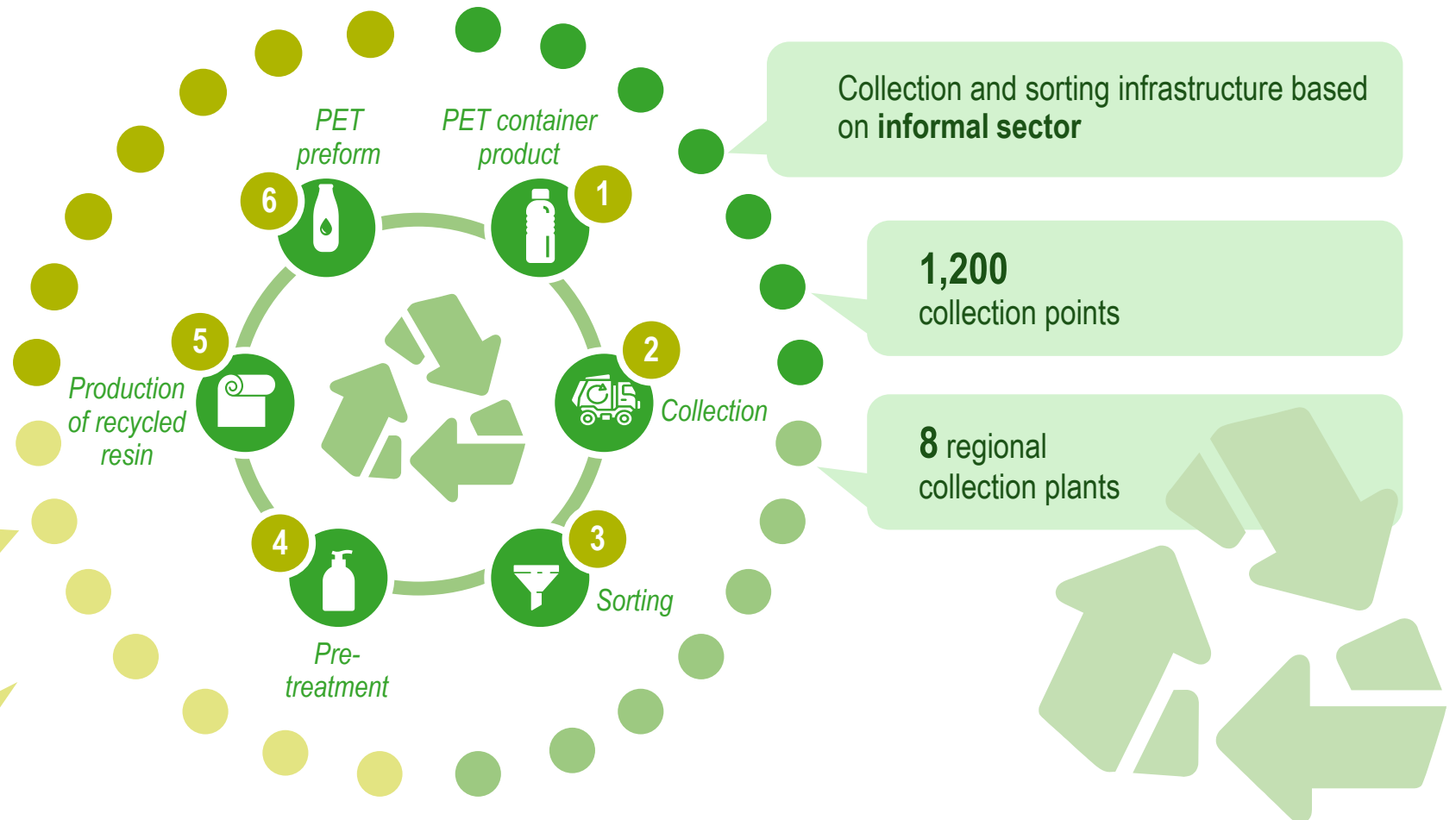
PetStar

Key figures

- 100% recycled bottle resin
- 1,500 employees
- 65,000 tons/year recycling capacity
- Plans to double capacity in next 5 years

FDA-approved production process that meets highest food-contact-grade standards

75% energy savings in production process vs. virgin resin



3. Packaging sustainability in the overall sustainability strategy

The sustainability strategy includes several key pillars - packaging sustainability focus has been growing considerably in the past years

Overview of corporate social responsibility pillars

Overall sustainability strategy



1. Climate change

Climate change impact is already felt across industries, as FMCG producers have committed to reduce emissions globally



2. Sustainable sourcing

Quality of products starts from the bottom of the supply chain – Sustainable agriculture and sourcing are key pillars of the sustainability agenda



3. Packaging

Packaging is starting to be considered as a key issue by FMCG producers, with a focus on key topics such as recyclability, reusability, reduction and increased recycled content



4. Responsible water use

With water being essential for FMCG producers and global water stress increasing, promoting responsible water use and ensuring access to clean water are key issues

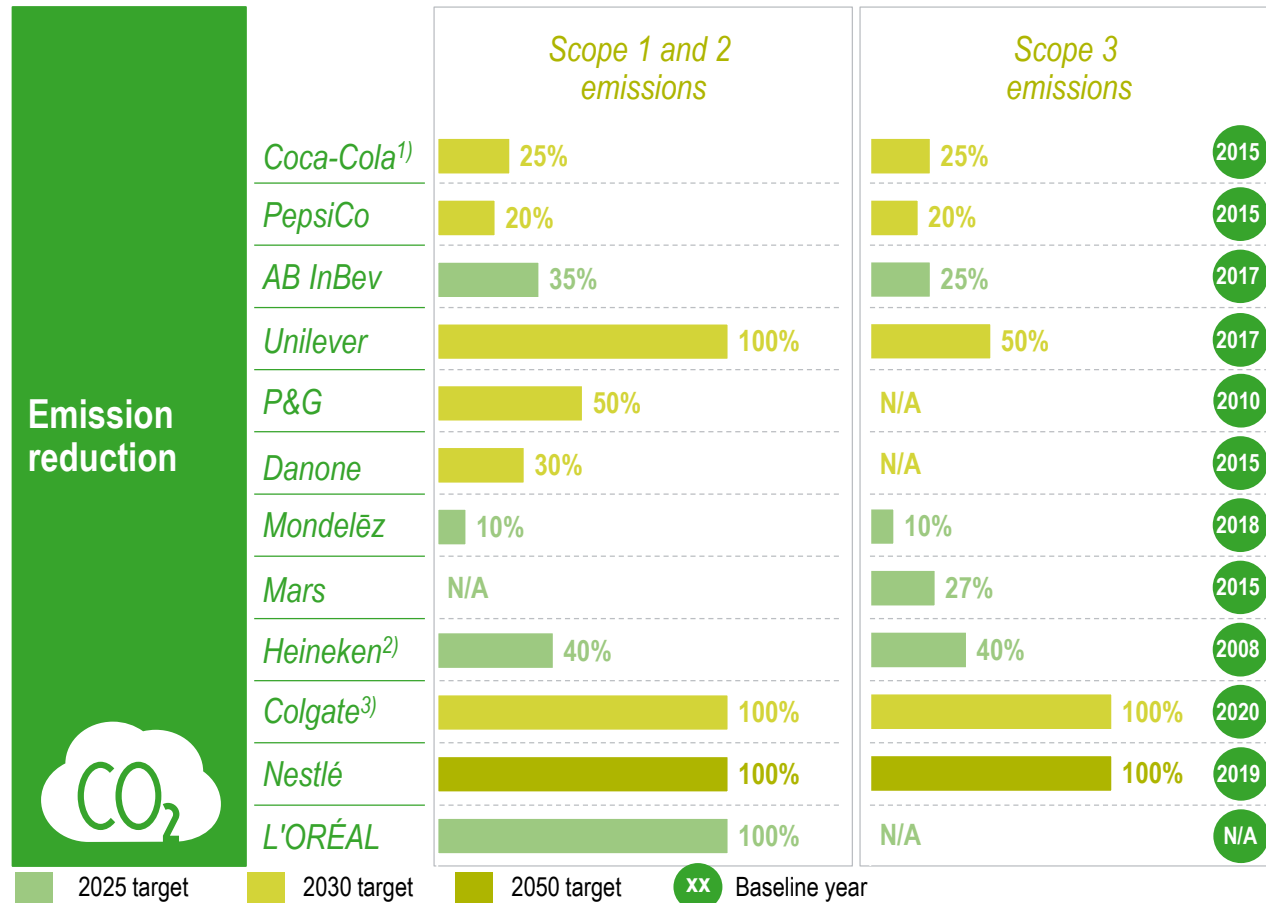


5. Human rights

People are the heart of any business and FMCG producers are focusing on positively impacting the wider communities

Climate change objectives consist of reducing emissions across manufacturing and value chain and switching to renewable energy

Overview of emission reduction objectives & key insights for a selection of global FMCG producers



Scope 1 emissions are **direct emissions** from manufacturing, **scope 2** are indirect emissions from manufacturing such as **purchased electricity**, while **scope 3** emissions originate from the **value chain**

Key insights

- > Focus on **carbon emissions** grew in the past two years as multiple FMCG producers signed the United Nations Declaration to **limit global warming to 1.5°C**
- > Thus, FMCG producers aligned **their strategy** to considerably **reduce emissions** or even achieve **zero carbon emissions** across manufacturing and supply chain
- > Previous **2020 targets** mostly consisted of reducing a **proportion of emissions** compared to early baselines (2005-2010)
- > **Besides increasing the share** of purchased **renewable energy**, some companies have **on-site green generation projects** for their own production

1) Reduce absolute emissions across all scopes 2) 2020 target for overall emissions; further, Heineken announced a program aimed at growing its share of renewable energy in production to 70% by 2030

3) 100% renewable electricity by 2030 and net zero carbon emissions by 2040

Source: Annual reports, press research, Roland Berger

FMCG producers are committing to sustainable sourcing of raw materials and protecting the wider ecosystems

Overview of sustainable sourcing objectives – Examples and key insights

Objectives and initiatives	
Farmers 	AB InBev wants all farmers to be skilled (access to technical training), connected (improved information) and financially empowered by 2025 – Introduced a development program to help growers improve productivity
Forests 	P&G pledged to increase the area of certified forests globally and develop a science-based forest positive approach that supports sustaining and expanding forests by 2030
Palm oil 	PepsiCo wants to achieve 100% sustainably sourced palm oil by 2020 through the verified environmental, social and economic principles of the farming program
Cocoa 	Mondelēz wants to source 100% of cocoa by 2025 through a program that provides the best opportunities for farmers and allows sustainable harvesting
Milk 	Danone wants 100% of the fresh milk volume to be covered by a program that allows the calculation of greenhouse gases from livestock and offers concrete action plans such as manure management and feed optimization
Hazelnuts 	By 2020, Ferrero wants to achieve 100% traceability of hazelnuts through its sustainable sourcing roadmap

Key insights

- > Sourcing of raw materials is **highly affected** by **climate change** and **water stress** and also has a key impact on **livelihoods**
- > As FMCG producers depend on a global sourcing supply chain, **sustainable sourcing** goals have been considered in recent years, ensuring **raw materials** are **extracted** in a way that **respects workers** and also **protects ecosystems**
- > Multiple **improvement programs** are run to ensure **key global suppliers** adhere to the **same standards** as **FMCG producers** do, e.g. sustainable sourcing of raw materials, farmer training, animal rights, crop improvement
- > **Most** sustainable sourcing **objectives** have been set to the year **2020** but recently producers have **increased their ambitions** for the years **2025** and **2030**

Efforts towards packaging sustainability have only intensified in recent years – Several driving forces behind this trend

Driving forces behind increased focus on packaging sustainability as strategic pillar – Selection

1 Higher consumer awareness



- > Potential for **increasing top line and gross margins**, as a result of:
 - Availability/willingness of consumers to pay higher prices for sustainable packaging
 - Readiness to substitute packaging that does not meet sustainability requirements

2 Tougher regulatory pressure



- > **Up to 3% of revenues** spent by FMCG producers as OPEX to comply with legal recycling requirements
- > High potential to **optimize compliance costs** – Two options, depending on ambition level:
 - **Increase recycling performance** while keeping compliance costs relatively **stable**
 - **Decrease costs for compliance** without compromising recycling performance/**remaining above legal obligations**

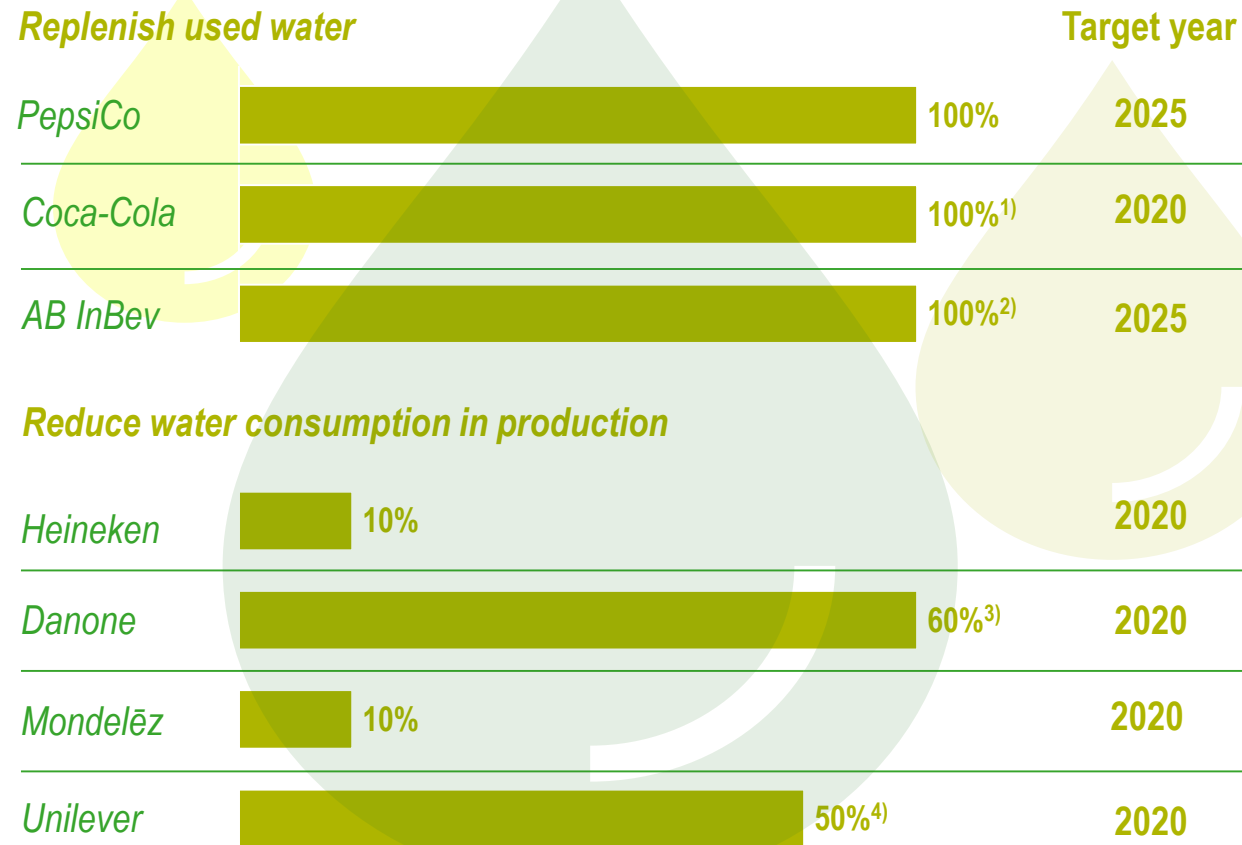
3 New business potential



- > Recycling business is attractive, with high upside potential
- > FMCG producers can consider it as either a **stand-alone activity** (with potential to generate additional revenue streams) or as an **integral component of supply chain management** (to improve availability, quality, price, sustainability of raw materials)

FMCG producers focus on initiatives for reducing water use and replenishing used water in water stress areas

Overview of responsible water consumption objectives for a selection of key global FMCG producers



Water stress occurs when demand for water exceeds the available amount during a certain period or when poor quality restricts its use

Key insights

- > **Water security** became a key sustainability topic in recent years for FMCG producers to **assure business continuity** and to positively contribute to communities
- > One key topic is to **replenish the water** used in manufacturing operations in high-water risk areas and deliver safe water to communities in these areas
- > Thus, **wastewater treatment** has also become a key issue – Some producers have adopted strict internal standards for disposal of waste water (incl. standard for marine life)
- > FMCG producers are also striving to **reduce average water consumption** in the **production sites**, especially in water-stressed areas

1) Goal achieved in 2016 2) 100% of communities in high-stress areas will have improved water availability and quality 3) Compared to 2000 baseline 4) Water associated with consumer use of products

FMCG are increasingly involved in efforts related to human rights, such as diversity, community safety and health & safety

Overview of human rights objectives & initiatives for a selection of key global FMCG producers

<p><i>Coca-Cola</i></p> <p>Create positive impact on the communities in which it operates – Committed to give back 1% of operating income annually</p>	<p><i>PepsiCo</i></p> <p>Support workforce readiness and empowerment of women – Committed to invest USD 100 m by 2025</p>	<p><i>Procter & Gamble</i></p> <p>Donated 1.7 million hygiene products to Syrian refugees living in camps in Turkey</p>
<p><i>Heineken</i></p> <p>Improve quality of life of wider community – Contributed EUR 20 m since 2009 to rural households across Central and Western Africa</p>	<p><i>Danone</i></p> <p>Mission to bring health through food to as many people as possible – Launched Danone Institute to increase nutrition knowledge and address local public health issues</p>	<p><i>Nestlé</i></p> <p>Improve 30 million livelihoods in communities directly connected to business activities by 2030</p>
<p><i>Colgate-Palmolive Company</i></p> <p>Improve oral health of 2 billion children by 2025</p>	<p><i>L'ORÉAL</i></p> <p>Help more than 100,000 people from underprivileged communities gain access to employment</p>	<p><i>Mars</i></p> <p>Understand and improve working conditions globally – Conducted due diligence analysis of human rights risk in 93% of its manufacturing sites</p>

Key insights

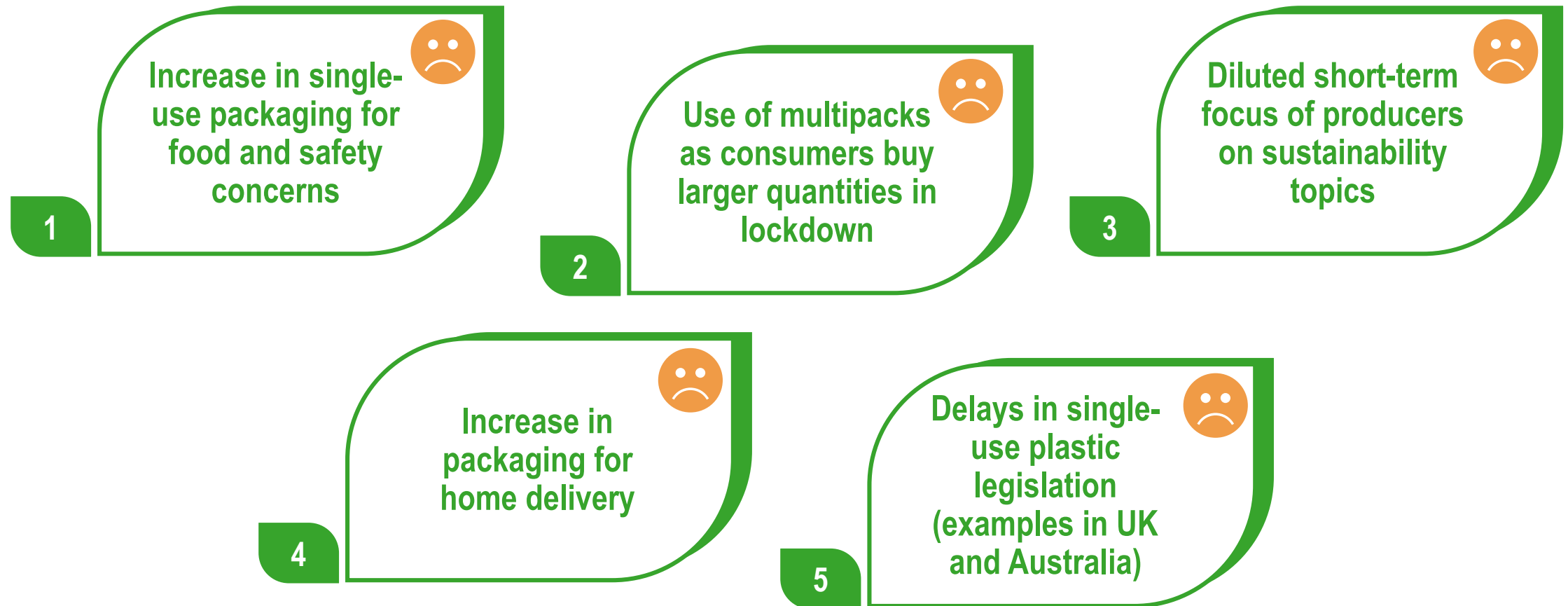
- > **Human rights** are a key topic of interest for FMCG producers to make sure direct employees and employees from suppliers and partners around the globe have a **safe, supportive and respectful work environment**
- > **Creating inclusive environments and empowering women** in the global economy is also a key initiative for producers to offer equal opportunities through **gender parity roles or equal pay programs**
- > **Community growth and health** is a key initiative for all producers, with multiple initiatives such as volunteering, investments or foundations set up to improve the overall quality of life for local communities

**Addendum
COVID-19 impact outlook on
packaging sustainability**



In the short run, COVID-19 disrupted the momentum for increasing packaging sustainability

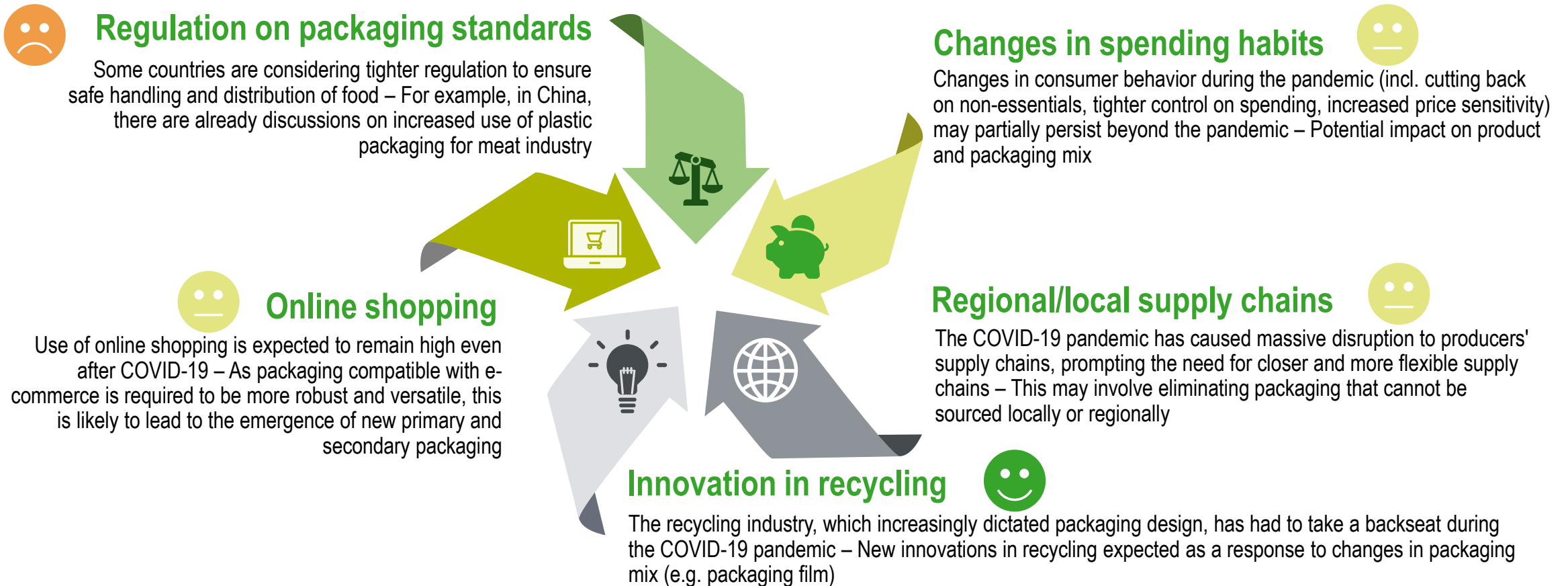
Short-term impact of COVID-19 on packaging sustainability – Selection



Impact on packaging sustainability:  Positive  Neutral/unknown  Negative

We expect several trends to persist beyond the COVID-19 pandemic, with direct and indirect impact on packaging sustainability

Mid-term impact of COVID-19 on packaging sustainability – Selection



Impact on packaging sustainability:  Positive  Neutral/unknown  Negative

The long-term packaging waste landscape remains unchanged and is likely to be defined by a series of innovative trends

Future of packaging waste management systems

Products & packaging

- > Focus on **reusable/returnable packaging** (not only glass and aluminum but also reusable PET – Lowest CO₂ footprint)
- > **Home delivery** to the **returnable container** stream (reverse logistics)
- > Ban on all **non-recyclable and/or multi-layered packaging** (technical requirements for imports)
- > **Packaging-less solutions**

Consumer awareness

- > **Digital packaging** to trace the journey of the waste after disposal
- > **Smart bins** communicating with consumer/packaging in the household
- > **Deposit systems at home**, linked to smart bins



Collection & sorting

- > **Underground collection system** to limit waste exposure to humidity and sun, etc.
- > **Multi-bin system for disposal**, based on recycling streams
- > **Smaller decentralized sorting capacities** for individual materials
- > **Electric unmanned cars/drones/hydrogen-powered trucks** to collect waste at higher frequency
- > **Fully automated sorting facilities** (with AI integration)

Recycling

- > **Smaller decentralized primary recycling capacities** (at district/household level) for individual materials
- > **Nanotechnology** for **separation and remanufacturing** of objects, via **3D printing technology**
- > **Reuse of organic waste** – Composting:
 - At place of **disposal**, e.g. in garden
 - Nearby for **local compost production**

**Addendum
Roland Berger packaging
waste management expertise**

Roland Berger has successfully assisted clients across the globe on packaging waste management topics

Roland Berger profile and selected references on packaging waste mgmt. topics

Selection of client portfolio

Roland Berger – Profile

Founded in **1967** in Germany

>50 offices on all continents

with around **2,400** employees

>100 projects on packaging strategy and recycling in past 10 years alone

Dedicated team of consultants with outstanding experience on the topic



Authorities & state-owned companies

Umwelt Bundesamt Saudi Investment Recycling Company (SIRC)
 Arbeitsgemeinschaft Verpackung und Umwelt (AGVU) Stadtwerke Leipzig
 Public Investment Fund of Saudi Arabia Abu Dhabi Development Holding
 Altstoff Recycling Austria Bee'ah Sharjah Jadwa Investment



Recycling & waste industry

Remondis Veolia Environmental Services Sumitomo Corporation Suez Sita Shanks Veolia Cryo Pur
 Der Grüne Punkt Wasco Green Group Saubermacher EGF Valpak Ecorom Citeo Alba Coved
 Eco-Emballages Umicore Saur Ecofolio Plastic Omnium APR Haniel Paprec Eco-Systèmes
 DPG Deutsche Pfandsysteme GmbH e3e yoyo eew Evac Gulf Environment & Waste FZE Interseroh



Consumer goods producers & retailers

Dukat Dia E.Leclerc Maspex Procter & Gamble SAB Miller Gadius Barilla Kraft Heinz Agrokor Mondelēz
 Südwestdeutsche Salzwerke AG Coca-Cola Hellenic Bottling Company Konzum Vion Hipp Vandemoortele
 Groupe Pomona Danone Waters Metro Group Del Monte Carrefour PepsiCo Molson Coors Compass Group
 Unilever Groupe Casino Big Dutchman Chipita Red Bull Lekkerland frenaco BEL Pernod Ricard Frey Auchan

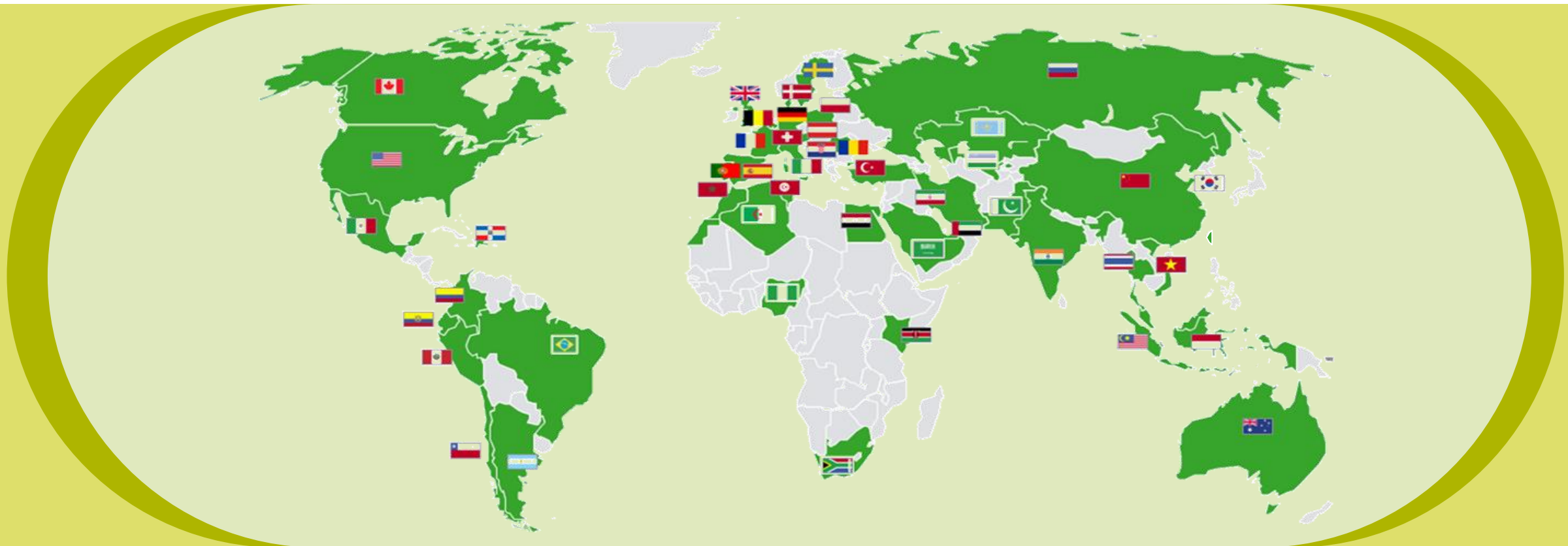


Packaging producers

Bell Packaging Europe Stora Enso Saint-Gobain PPG Packaging Coatings Antalis PSB Industries
 Transcendia Constantia SCG Irlplast Electrovac Rexam Perlen Papier AG Mondi
 Oystar IWK A.Schulmann Sequana Synbra Smurfit Kappa Proplast Tetra Pak Kronos

We have conducted numerous projects across the world on strategic and operational packaging waste management topics

Overview of recent¹⁾ Roland Berger projects on packaging waste management globally



1) Past 5 years

We can support you on a variety of topics linked to packaging waste management

Your contacts at Roland Berger



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Selection of relevant packaging waste topics



Development of **integrated waste legislation framework** from concept to implementation

1



Design, cost and investment need simulation and detailed business & implementation plan for **EPR schemes**

2



Design, cost and investment need simulation and detailed business and implementation plan for **deposit schemes for beverage containers**

3



Development of **packaging sustainability strategy** at both global and local level, including concept and delivery of training workshops for executives on the topic

4

Roland
Berger

THINK:ACT

