

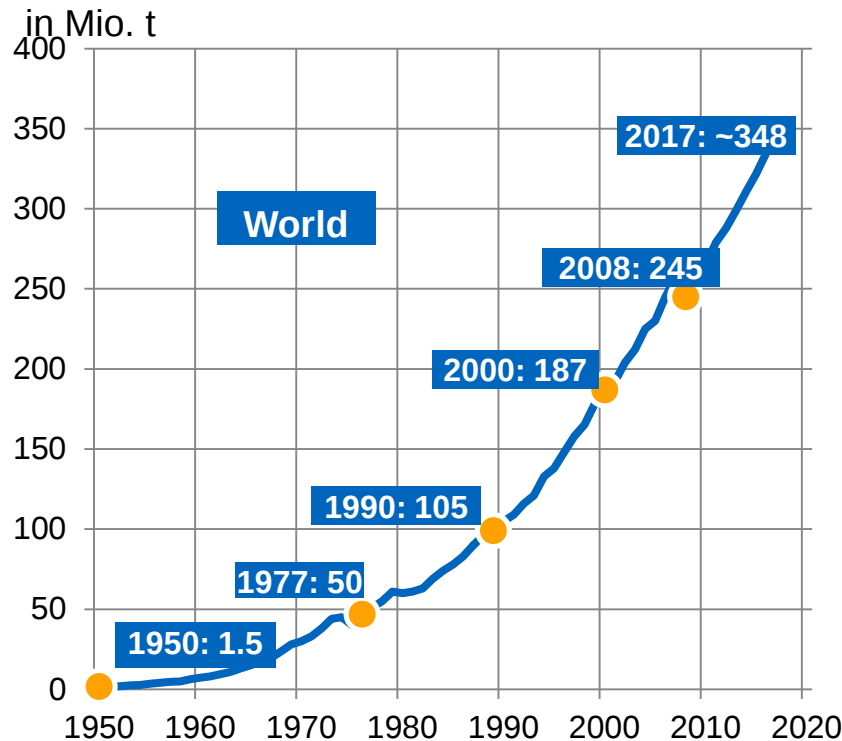


Challenges & chances for the material of the 21st century

Sven Weihe

Coperion Extrusion Days,
Stuttgart, 15.11.2018

PlasticsEurope
Association of Plastics Manufacturers

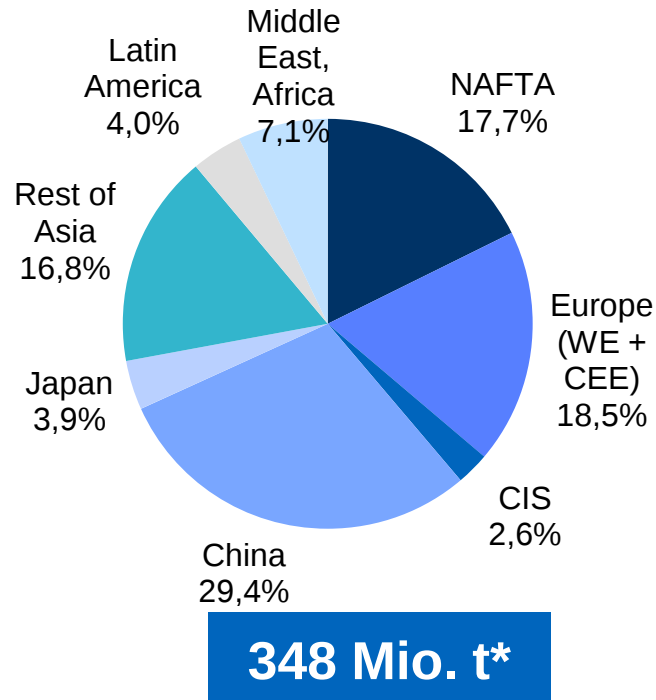


- Plastics are a global success story.
- Continuous growth for more than 60 years.
- Plastics production ramped up from 1.5 Mio t in 1950 to ~348 Mio. t in 2017.
- In 2017 global plastics production grew by 3.8% compared to 2016.
- Compound Annual Growth Rate (CAGR) from 1950 to 2017 is about 8.5%.

Includes Thermoplastics, Polyurethanes, Thermosets, Elastomers, Adhesives, Coatings and Sealants and PP-Fibers. Not included PET-, PA- and Polyacryl-Fibers

Source: PlasticsEurope

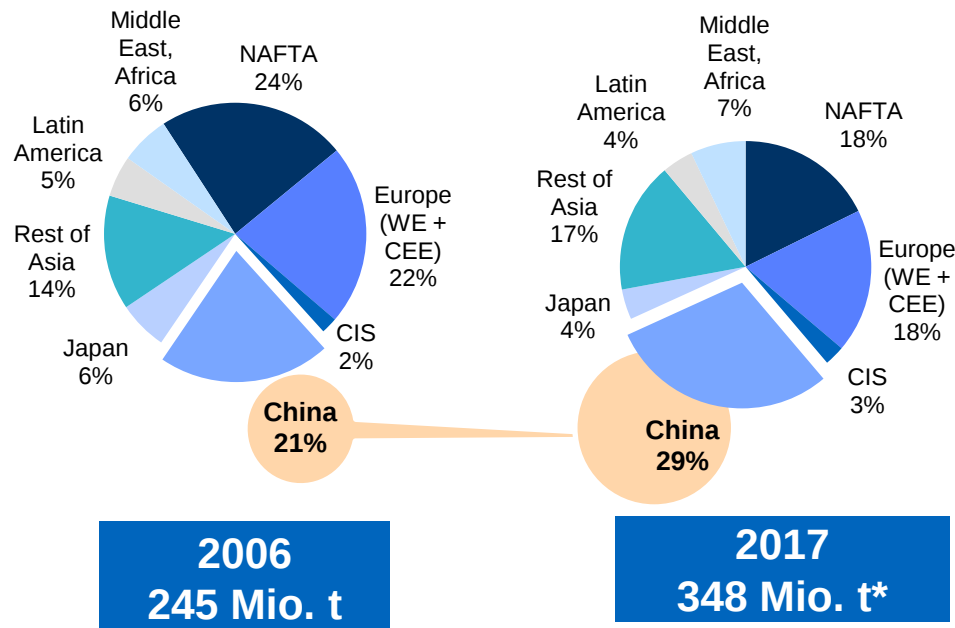
e = estimation



- Asia with the leading country China (29.4%) accounts for 50.1% of the worldwide plastics material production in 2017.
- Europe and NAFTA are on almost the same level with shares of 18.5% resp. 17.7%.
- The share of China in global production continues to increase and accounts for more than 100 Mio. t in 2017.

*with Other Plastics (includes Thermosets, Elastomers, Adhesives, Coatings and Sealants and PP-Fibers. Not included PET-, PA- and Polyacryl-Fibers)
Source: PlasticsEurope Market Research Group (PEMRG) / Conversio Market & Strategy GmbH

World Plastics Production 2006 – 2017



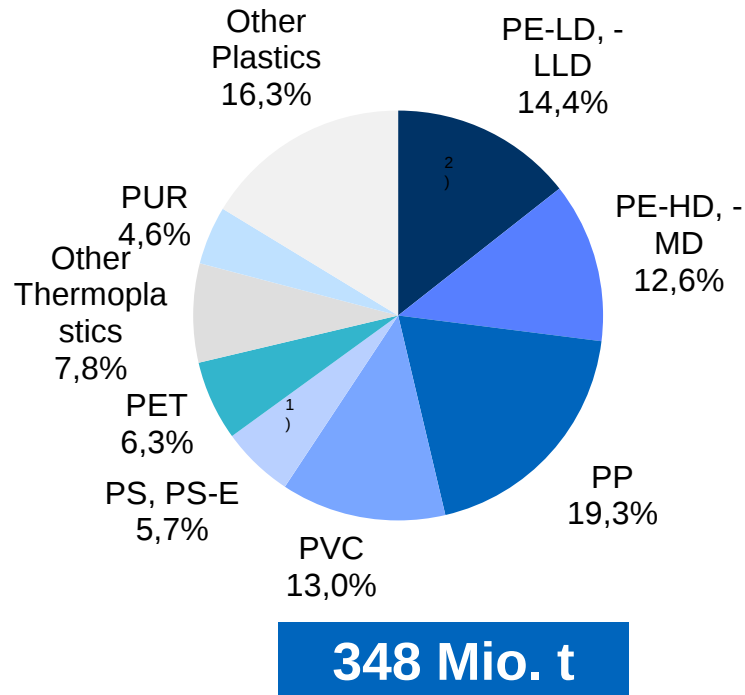
- Asia with the leading country China (29.4%) accounts for 50.1% of the worldwide plastics material production in 2017.
- Europe and NAFTA are on almost the same level with shares of 18.5% resp. 17.7%.
- Within a few years, China has risen to the most important plastics producer. All other regions except for Rest of Asia lost global production shares.

*with Other Plastics (includes Thermosets, Elastomers, Adhesives, Coatings and Sealants and PP-Fibers. Not included PET-, PA- and Polyacryl-Fibers)

Source: PlasticsEurope

e = estimation

World Plastics Production 2017 by Types



- Polyolefins account for around 46% of the global Plastics Materials demand.
- PVC is the second largest resin type following Polyolefins.
- Standard Plastics (Polyolefins, PVC, PS & EPS, PET) account for approx. 71% of the total demand.

1) The category "Other Thermoplastics" e.g. includes polyacetals (e.g. POM), polyesters excl. fibres (e.g. PBT), ABS, SAN, ASA, PA, PC, EPDM/ EPM and further thermoplastics not shown separately.

2) The category "Other Plastics" especially includes thermosets like epoxide resins, melamine resins, urea resins, phenolic resins and others (e.g. adhesives, coatings, sealants), which are not shown separately.

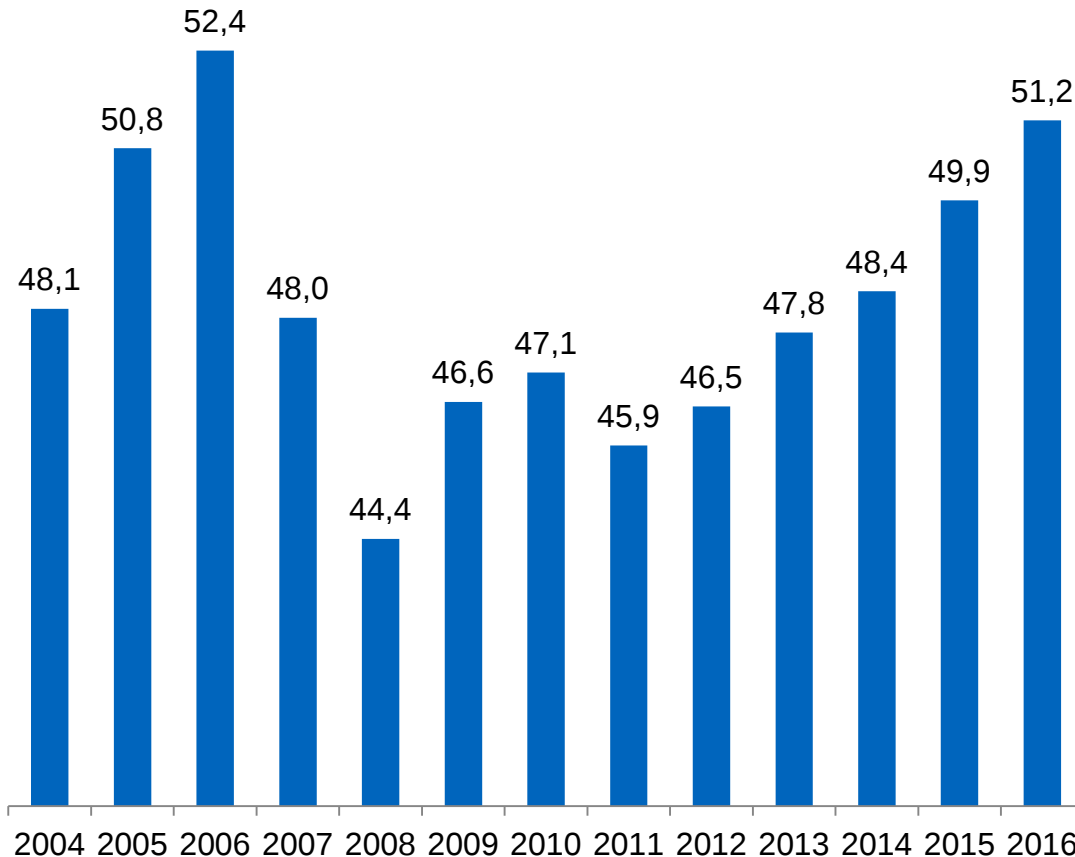
Source: PlasticsEurope

e = estimation

Europe

Development of Plastics Demand

in Mio. t

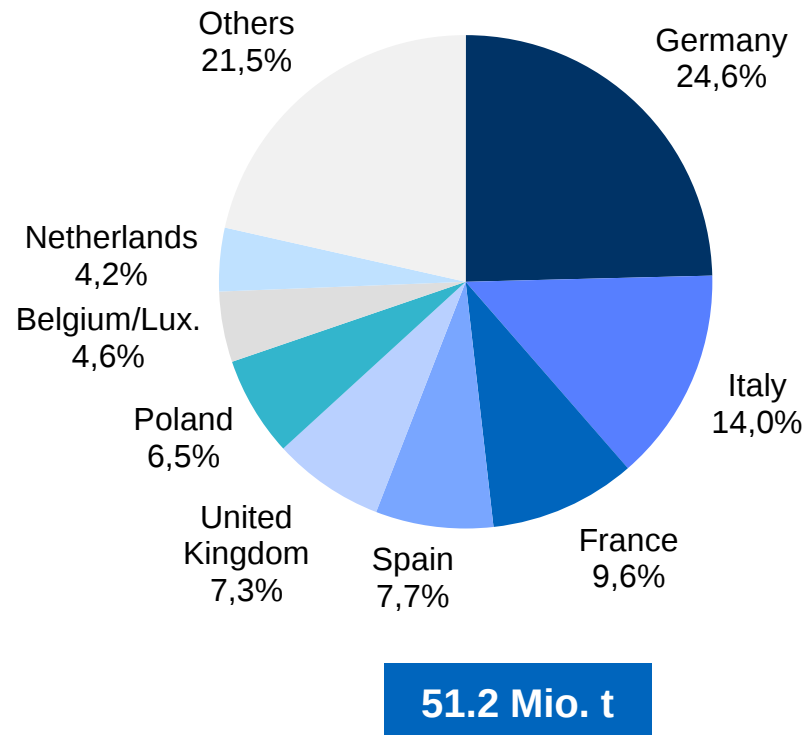


Source: PlasticsEurope

- During the economical crisis 2008/2009, the demand heavily dropped.
- The demand has not yet reached the pre-crisis level, but since 2012 the demand is constantly increasing.

Europe

Plastics Demand by Countries 2017

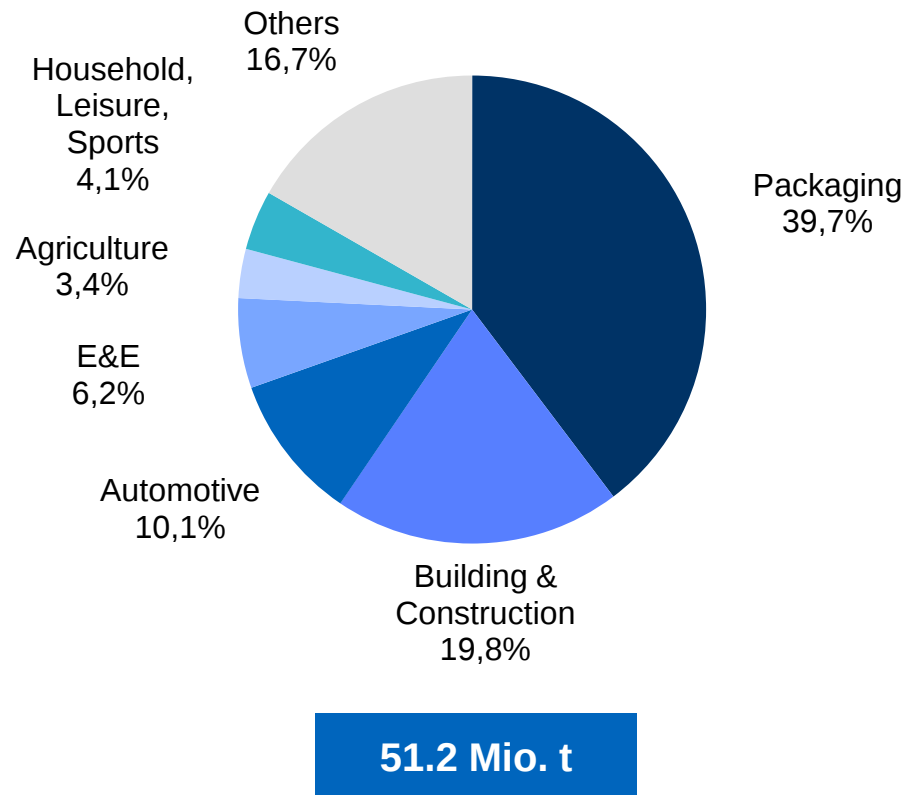


- **Germany** covers ~25% of the European demand followed by Italy with ~14%.
- The **six larger European countries and the Benelux** cover almost 80% of the European demand.

Source: PlasticsEurope

Europe

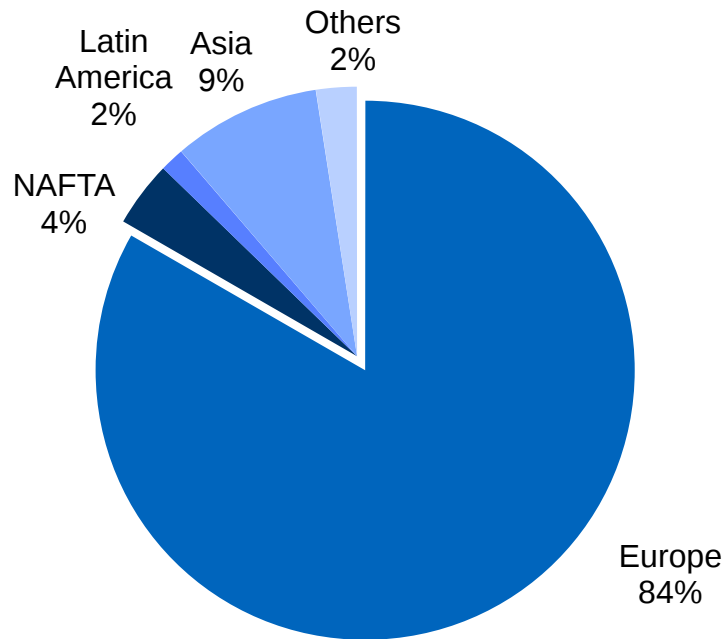
Plastics Demand by Segments 2017



- **Packaging**
by far represents the largest end-use market with a share of almost 40%.
- **Building & Construction, Automotive and E&E** follow.
- **Agriculture and Household, Leisure Sports** account for around 3% resp. 4% of the total demand.
- **Others**
includes appliances, mechanical engineering, furniture, medical etc.

Source: PlasticsEurope

Export Markets of the European Plastics Materials Industry* 2017



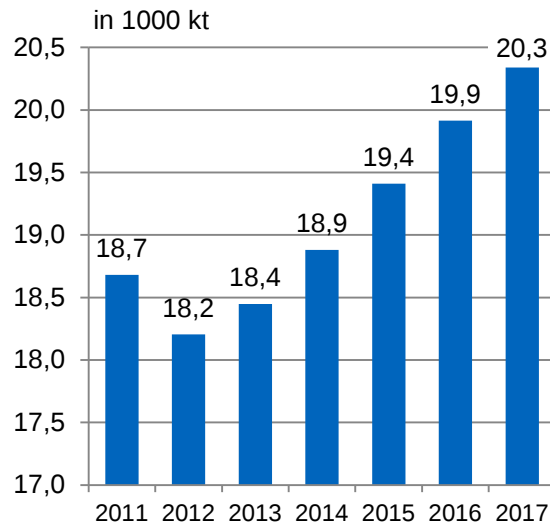
*EU 28 Exports of Primary Plastics

Source: Eurostat

- The main export market for plastics made in Europe is Europe.
- Thus, the slow economic recovery and the increasing insecurities due to the Russian-Ukrainian crisis in Europe hit the plastics producers especially hard.

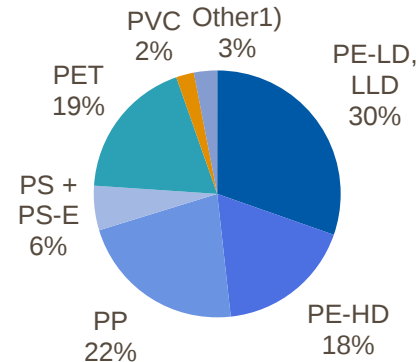
Europe Plastics Demand for Packaging 2017

Local Demand



2011-2017

Demand by Polymers



20.3 Mio. kt

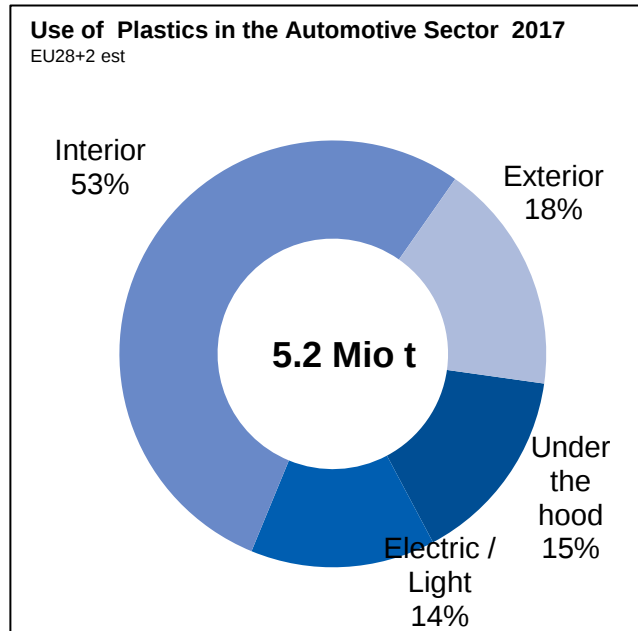
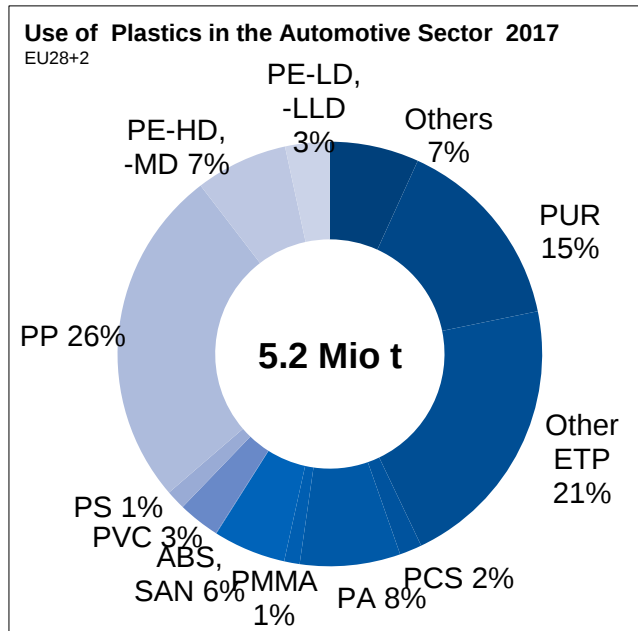
- The European demand for Packaging was ~ 20.3 Mio. Kt in 2017
- In 2017, the demand grew by 2.1 % compared to the previous year
- The main polymers used for packaging are polyethylene, followed by polypropylene

*Others: PVC, ABS, SAN, ASA, PMMA, PA, PCS, PUR, other Plastics; ** in EU28

Source: PlasticsEurope

Europe

Use of Plastics in the Automotive Sector



Source: PlasticsEurope

The European plastics industry includes plastics raw material producers, plastics converters and plastics machinery manufacturers in Europe

JOBS

The plastics industry gives direct employment to over **1.5 million** people in Europe

COMPANIES

An industry in which more than **60.000** **companies** operate, most of them SME's

TURNOVER

The European plastic industry had a **turnover** of **340 billion euro** in 2015

MULTIPLIER EFFECT

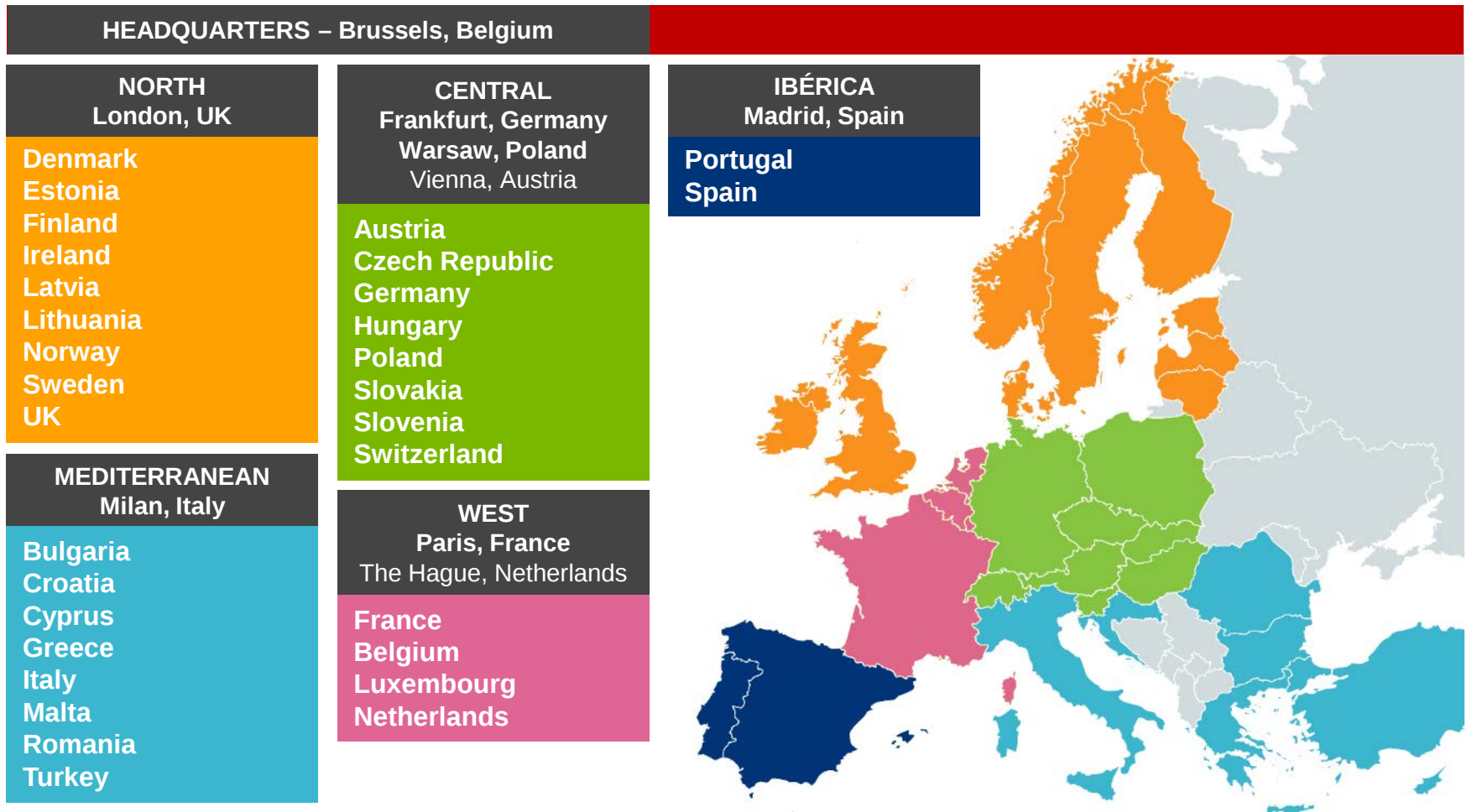
The European plastic industry has a **multiplier effect of 2.4 in GDP** and almost 3 in jobs

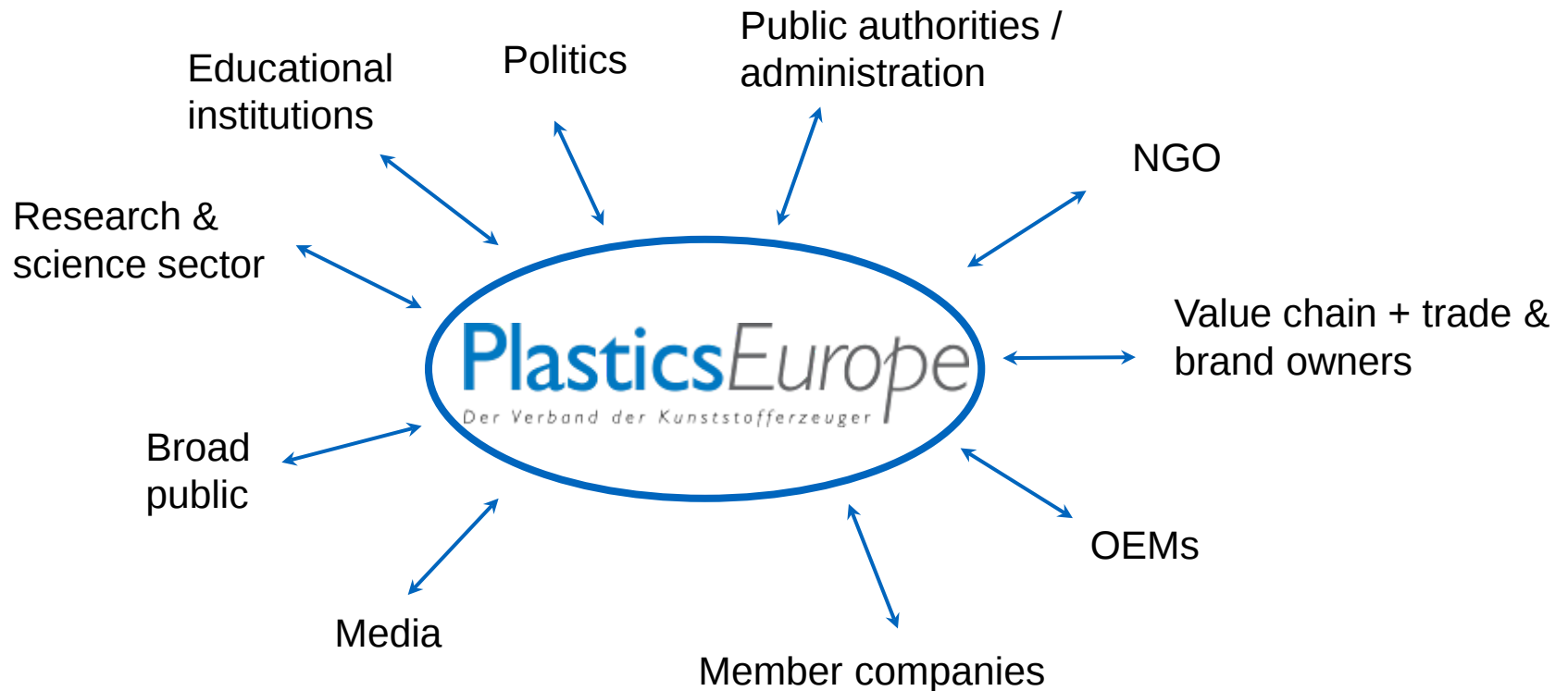
INNOVATION

The plastics sector is part of the **top 5 most innovative sector** in the EU representing 1 in 25 patents submitted by the industry between 2003 and 2012

RECYCLING

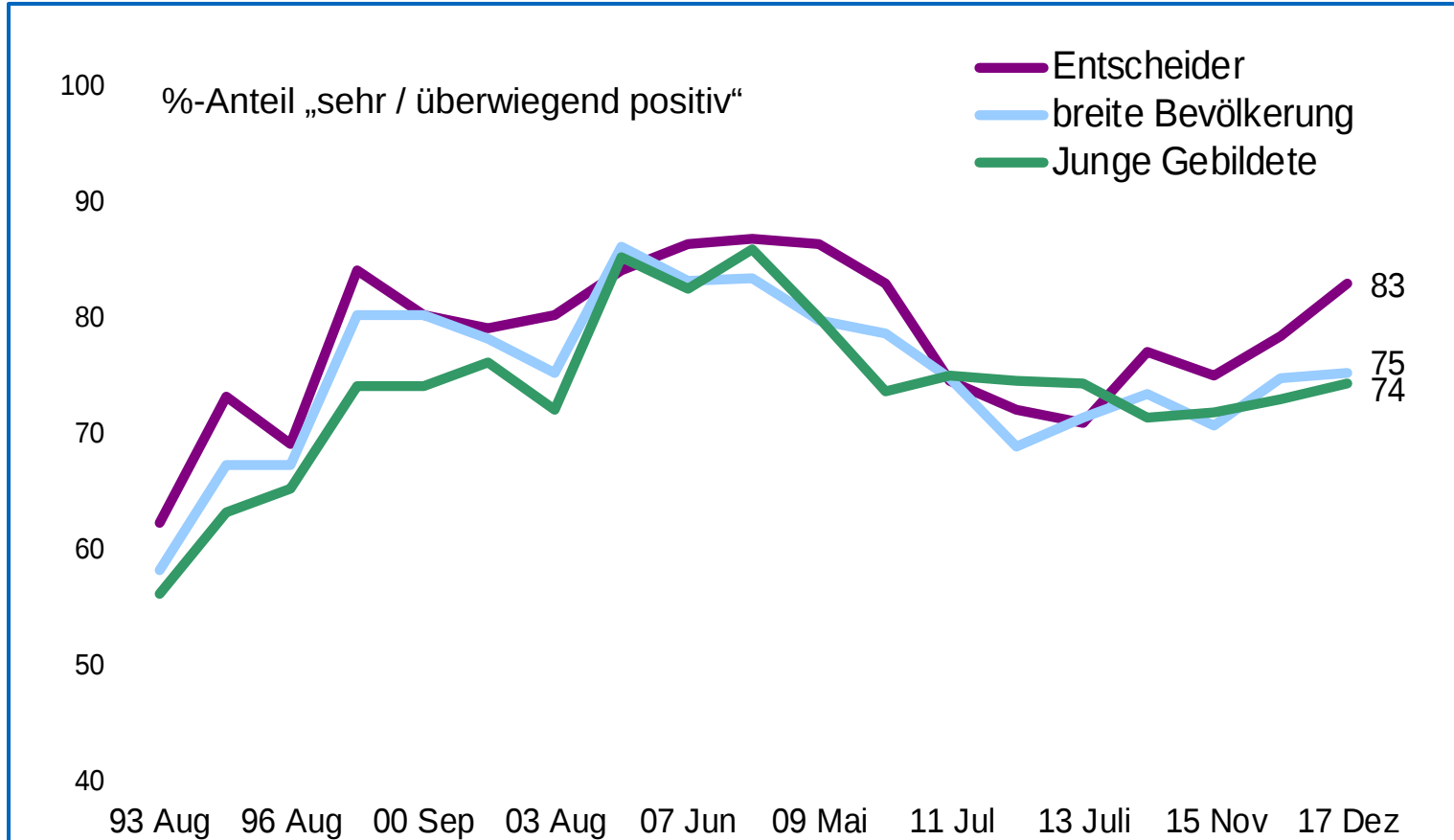
More than **7.5 million** tonnes of **plastics waste recycled**

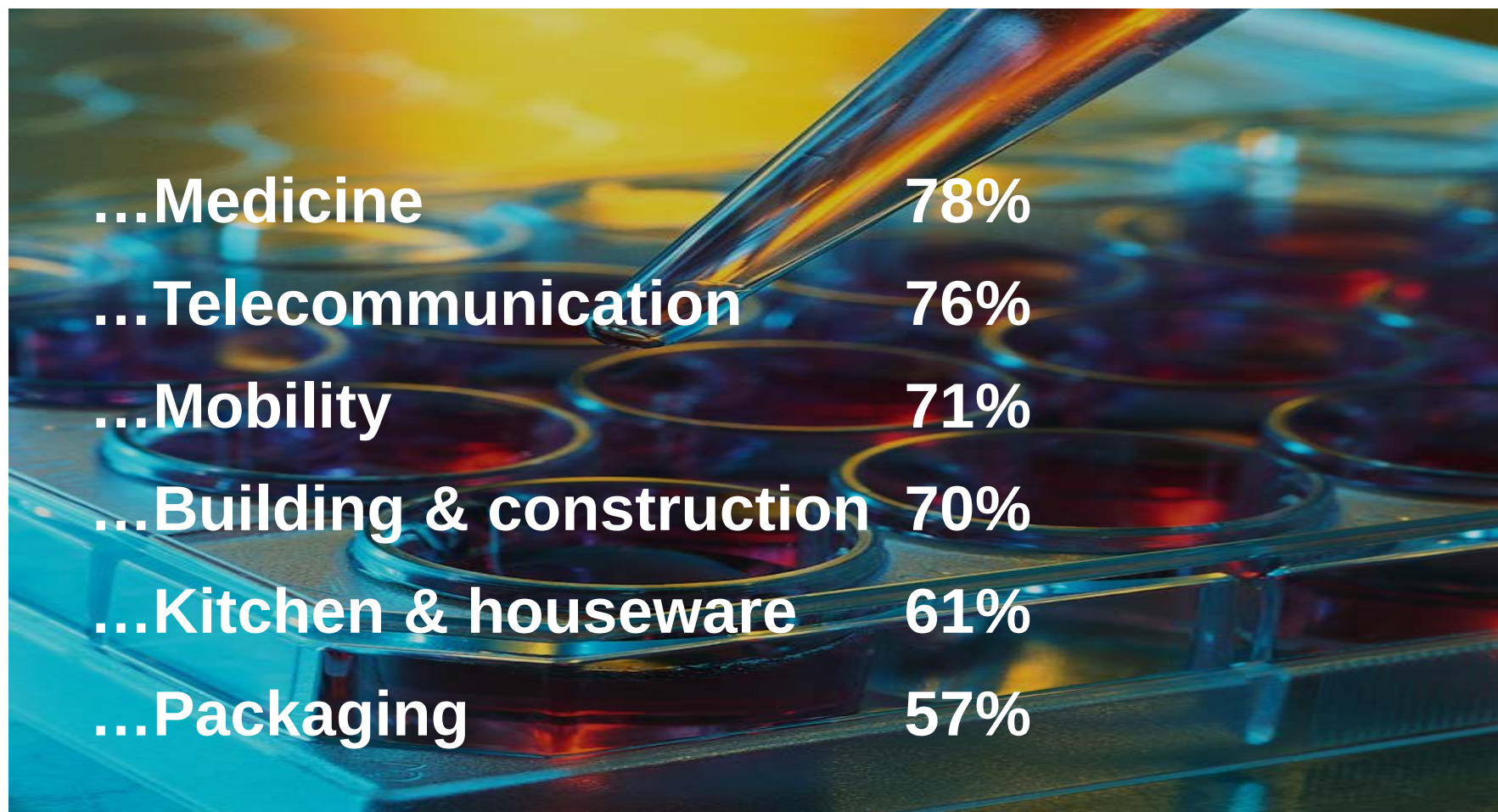




Key issues at PlasticsEurope

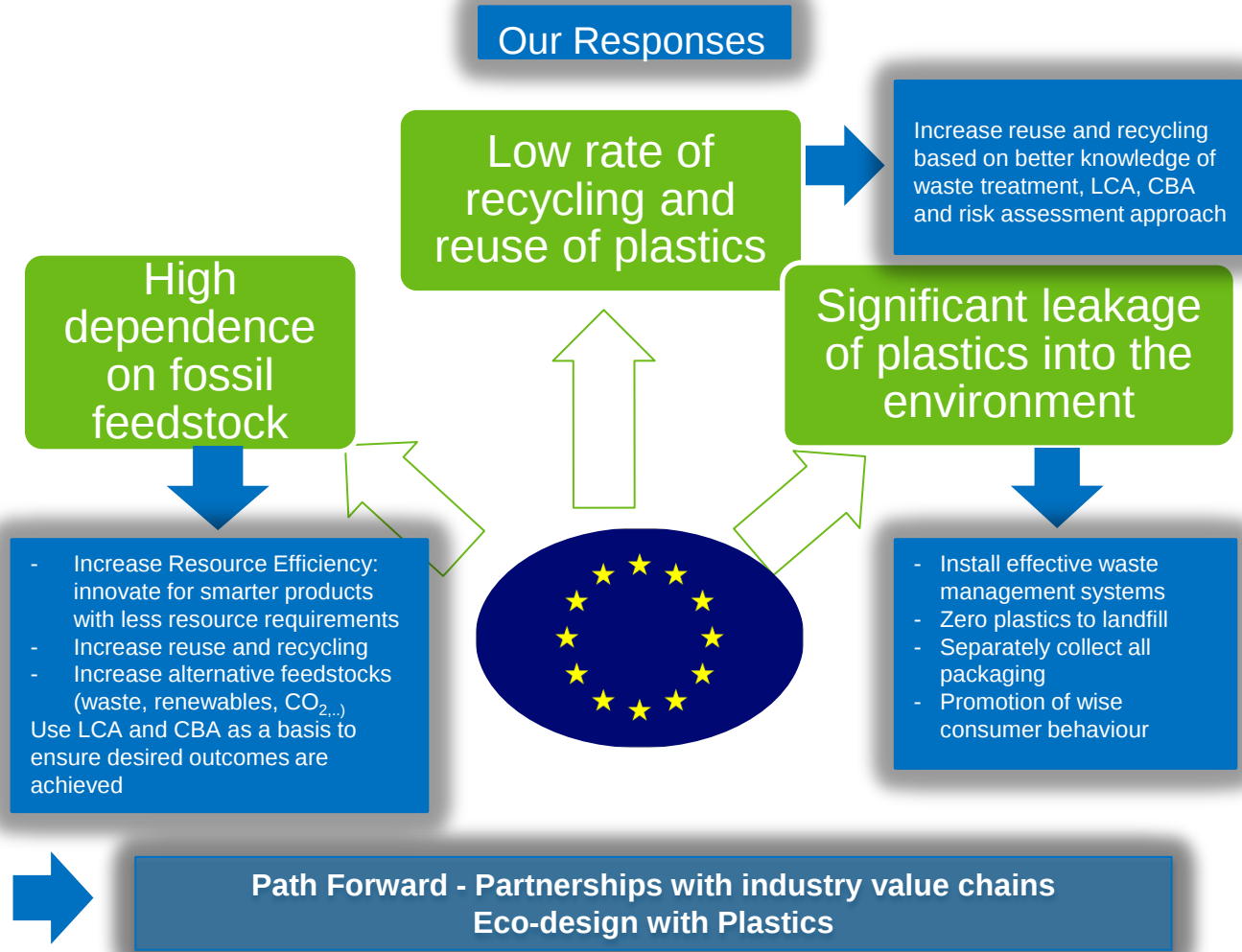
- Zero landfill for plastics waste
- Solutions against marine litter
- Plastics and health
- Plastics saves resources
- Eco-Design with plastics

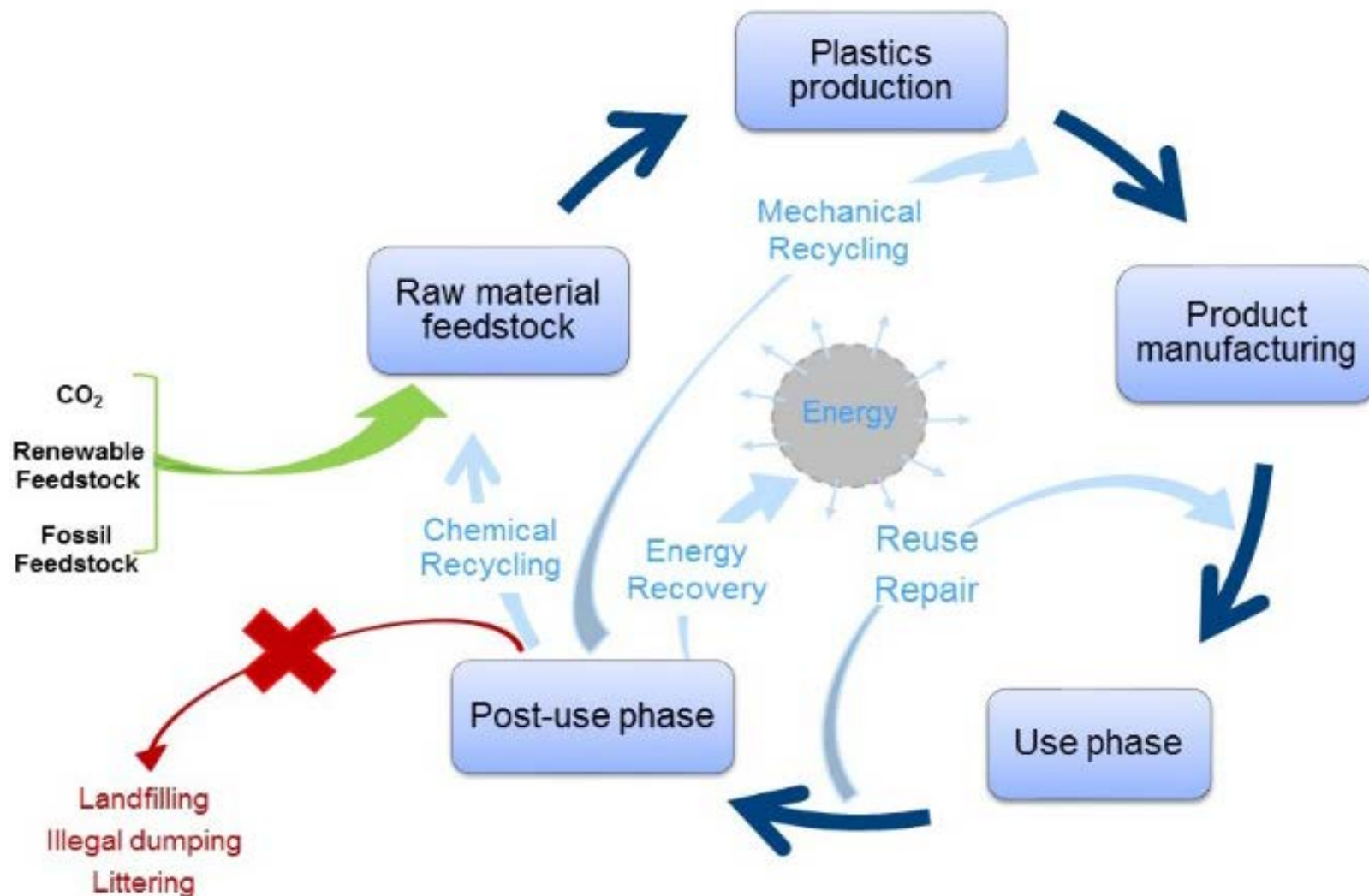




EU Commission Roadmap

– Strategy on Plastics –





EU Plastics Strategy I: Pan-European approach



**Supports 3 key goals
of plastics strategy**

- **Less plastics waste in the environment**
- **More recycling of plastics waste**
- **More saving of resources**

- Associations of German plastics value chain speaks with one voice on circular economy
- Joint position paper on EU Plastics Strategy



GKV Gesamtverband
Kunststoffverarbeitende
Industrie e.V.

PlasticsEurope
Der Verband der Kunststoffherzeuger

Kunststoff- und
Gummiindustrie

¶

Eine europäische Strategie für Kunststoffe in der Kreislaufwirtschaft – Gemeinsame Position der deutschen Kunststoffbranche¶

¶

Für die Kunststoffindustrie in Deutschland ist Kreislaufwirtschaft ein zentrales Thema. Nur eine Industrie, die nachhaltig im Sinne der Ressourcen- und Umweltschonung, aber auch ganzheitlich mit unternehmerischer Verantwortung und zum Wohle der Gesellschaft handelt, kann langfristig ihre Zukunftsfähigkeit sichern. Die Kunststoffindustrie begrüßt daher die mit der Strategie für Kunststoffe in der Kreislaufwirtschaft gemachten Vorschläge der Europäischen Kommission.¶

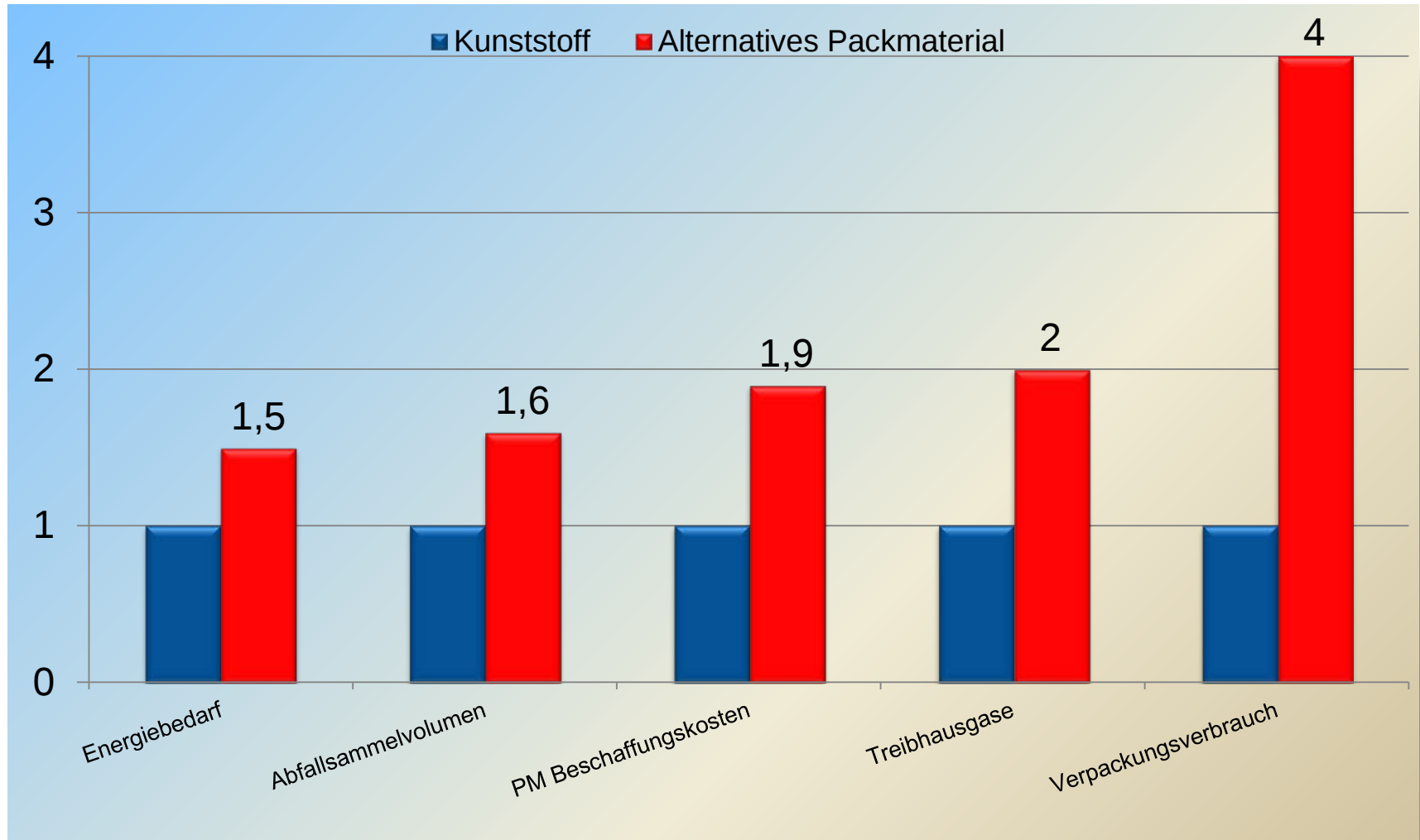
Die enge Kooperation innerhalb der Kunststoff-Wertschöpfungskette ist in Deutschland langjährig etabliert und anerkannt. Daher unterstützt die Kunststoffindustrie insbesondere den Vorschlag der EU-Kommission zur Intensivierung des Dialogs der betroffenen Akteure wie Hersteller, Recycler und Verwaltung. In Deutschland haben wir bereits ein vorbildliches Qualitätsniveau erreicht, sowohl bei der Produktherstellung und Performance als auch der Abfallverwertung. Dies sehen wir als sehr gute Basis, die wir kontinuierlich weiterentwickeln. Dabei unterstützen wir den



More from everything: hygiene, protection, shelf life, information

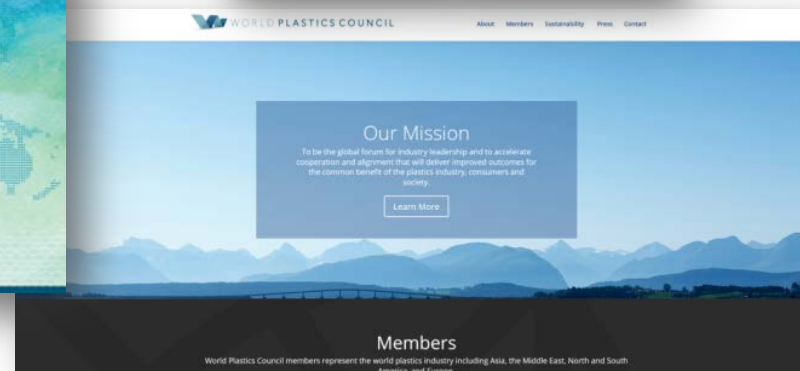


Packaging without plastics? Rather not!



Quelle: GVM-Studie

More recovery, no ban (1/4)



Knowledge transfer I: Worldwide measures against marine litter

- 2011: Joint Declaration against Marine Litter – currently 355 projects
- 2012: Start Toolkit Operation Clean Sweep
- 2013: World Plastics Council – more circular economy, less marine litter
- 2015/2017: G7/G20-initiative of the German government (supported by PlasticsEurope)
- 2016/2018: PolyTalk – stakeholder dialogue

More recovery, no ban (2/4)



Knowledge transfer II: Zero landfill, more plastics recovery
(Photo: IdentiPlast 2017)



More recovery, no ban (3/4)



GEMEINSAM FÜR MEHR GEWÄSSERSCHUTZ!



Bäche, Flüsse, Seen und Meere sind ein kostbarer Schatz – doch sie wurden allzu lange als einfachste Möglichkeit gesehen, Zivilisationsmüll loszuwerden. Müll im Meer ist kein neues Phänomen – aber ein sehr aktuelles. Darauf wollen die beteiligten Organisationen und Verbände aufmerksam machen und zum Handeln auffordern.

Am besten sollte überhaupt kein Abfall, gleich aus welchem Material, in die Umwelt gelangen. Jede weggeworfene Verpackung, jede Plastiktüte, jede Flasche kann ernste Folgen haben.

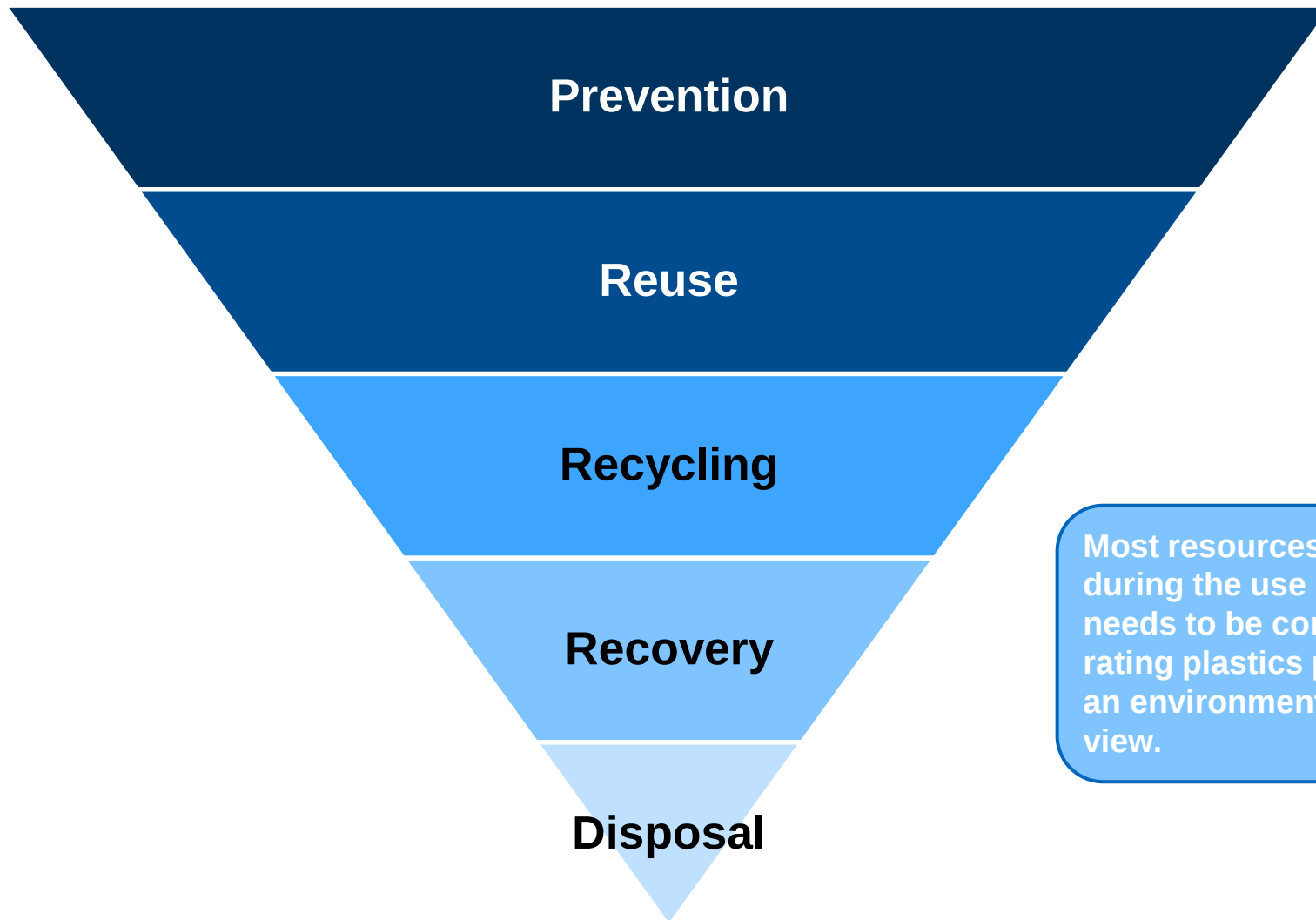
Vieles, was wir jeden Tag selbstverständlich nutzen, ist aus Kunststoff. Gerade deshalb ist es so immens wichtig, dass Kunststoffprodukte verantwortungsvoll gehandhabt und Plastikabfälle richtig entsorgt werden. Nichts soll unkontrolliert in die Landschaft und in Bäche, Flüsse, Seen und Meere gelangen.

Jeder kann durch richtiges Verhalten dazu beitragen, dass unsere Gewässer wieder sauberer werden. Gewässerschutz beginnt bei jedem Einzelnen.

Helfen Sie mit.

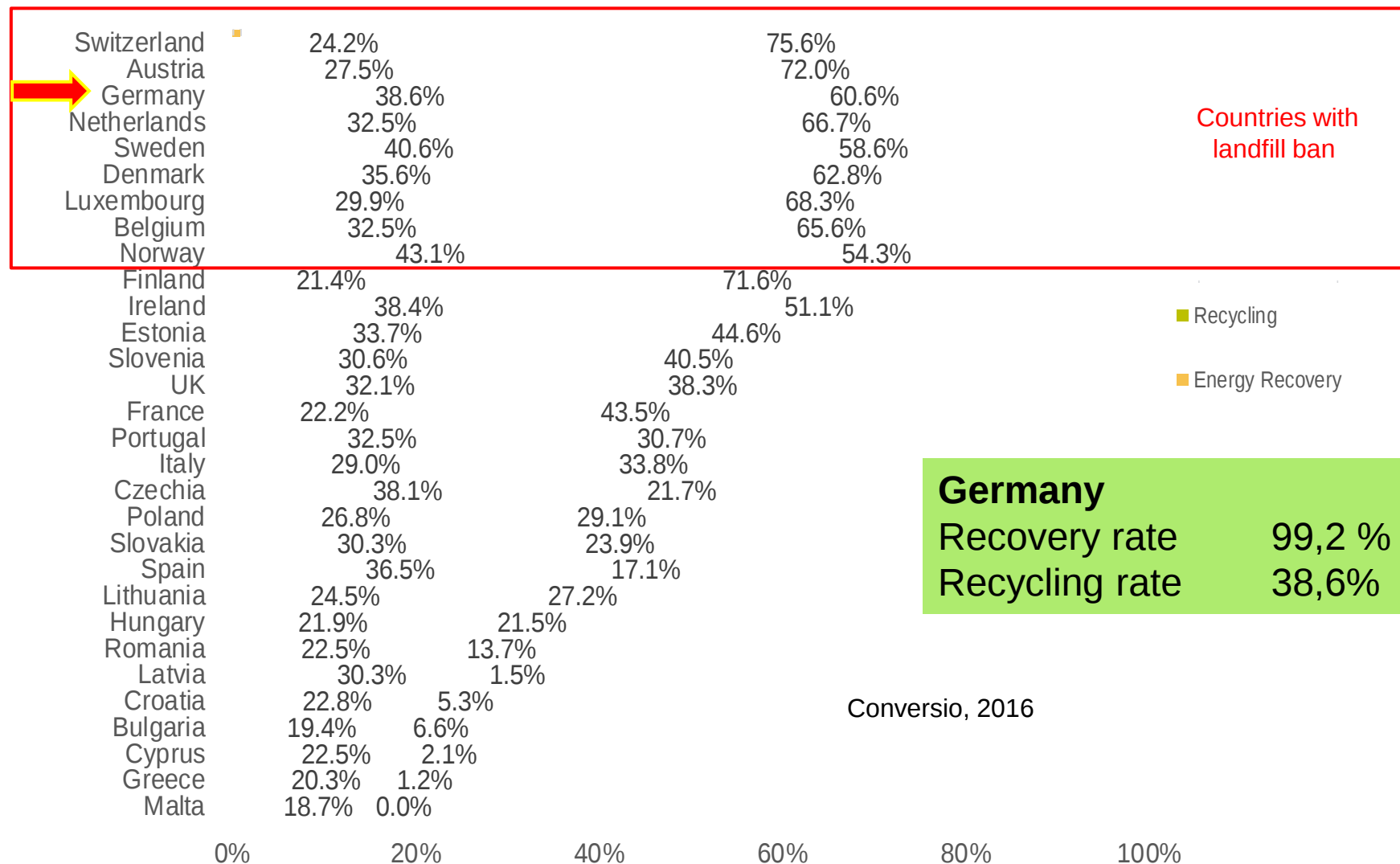
**GEMEINSAM
FÜR MEHR
GEWÄSSERSCHUTZ!**





Most resources are saved during the use phase. This needs to be considered when rating plastics products from an environmental point of view.

Landfill ban works



- Population growth and changing societal demographics
- Globalization and urbanization
- Climate change and global warming
- Shortage of resources and energy
- Healthcare revolution and consumer protection
- Accelerating technological change





Solar Trees, EXPO 2015: In the German pavillon, photovoltaic cells on breath-thin folie were displayed, adapting themselves to every form.

Photo: Schmidhuber + Partner GbR



Biodegradable mulch film in agriculture for an easily ploughing under.

Photo: BASF



Higher efficiency for wind turbines due to extremely robust rotor blades made of plastics composites.

Photo: PlasticsEurope



First flight around the world in a solar-powered plane, only with the power of the sun and a lot of plastics know-how .

Photo: Jean Revillard

