



SEAS AT RISK

for the protection and restoration of the marine environment

SINGLE-USE PLASTICS AND THE MARINE ENVIRONMENT

Leverage points for reducing
single-use plastics

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Seas At Risk gratefully acknowledges EU funding support. The content of this publication is the sole responsibility of Seas At Risk. It should not be regarded as reflecting the position of the Executive Agency for Small and Medium-sized Enterprises.

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June 2017

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Annual consumption,
EU28

 **46** billion
BEVERAGE BOTTLES

 **16** billion
COFFEE CUPS

 **580** billion
CIGARETTE BUTTS

 **2.5** billion
TAKEAWAY PACKAGING

 **36.4** billion
DRINKING STRAWS

Key findings

An estimated 100,000 tonnes of plastic from EU countries ends up in the sea every year from coastal land areas alone.¹ Seas At Risk commissioned Eunomia Consulting to calculate the estimated quantities of 'on-the-go' single-use plastic items in Europe (as these are most likely to escape normal waste collection systems), and to identify effective legislative routes by which they might be reduced. The research conducted by Eunomia can be found in the background report 'Leverage points for reducing single-use plastic'.

Key findings from the research:

- Single-use plastics make up on average 49% of beach litter, with cigarette butts being the most littered item in all four European Regional Seas Areas.
- Many of these items either do not need to be made from plastic (e.g. glass and paper alternatives exist), while others are used unnecessarily (e.g. drinking straws).
- Measures to reduce plastic consumption enjoy a high level of public support, which increases after the measures are implemented.
- Solutions to reducing the consumption of single-use plastics exist, and have been running in multiple places around the world.
- Drastically reducing consumption of these key single-use plastic items would effectively eliminate a major source of marine pollution in all of Europe's seas.
- Data on the quantities of single-use plastic on the market in Europe is very scarce.

European and national legislation presents crucial opportunities to reduce consumption of single-use plastics, particularly in view of the forthcoming European Plastics Strategy:

- Targets to reduce single-use plastic consumption should be tabled for other items, similar to the Plastic Bags Directive.
- Extended Producer Responsibility should encompass the full range of product life cycle costs, including litter prevention and clean-up.
- Green Public Procurement guidelines for Food and Catering should be made binding, and include reducing single-use plastic items and prioritising the waste hierarchy.
- Environmental Management and Auditing Schemes should explicitly identify the waste hierarchy as best practice for all sectors, with a focus on increasing the numbers of participating businesses, particularly in the food service sector.
- As part of the Circular Economy Package, the Waste Framework Directive should impose responsibility for the waste hierarchy on those producing or storing waste.
- Municipalities should mandate reuseables at public events.
- Data should be made available on the quantities of single-use plastic items on the market to enable reduction efforts.



Introduction

An estimated 100,000 tonnes of plastic waste from EU countries ends up in the sea every year from coastal land areas alone,² with still more coming from inland sources and items lost or discarded at sea by commercial shipping or fishing vessels. Single-use plastic items are a significant part of the problem, as shown by their prevalence in beach litter surveys.

To combat the problem of marine plastic pollution, the European Commission has proposed a target of “reducing marine litter by 30% by 2020 for the ten most common types of litter found on beaches, as well as for fishing gear found at sea”.³ The European Parliament, meanwhile, has put forward a more ambitious target of 50% by 2030.⁴

Plastic is made from carbon fuels (mainly crude oil) and its production generates greenhouse gas emissions. The process itself is also resource intensive: a 1 litre single-use plastic water bottle takes over 8 litres of water to produce. In view of the global challenges of resource scarcity and climate change, expending significant resources on single-use products represents unjustifiable waste. As Europe seeks to make better use of resources and reduce its climate change impact, it must address the high consumption rates of unnecessary single-use plastics.

If the production of plastic is costly, the same is true of its disposal. Collection of waste packaging, litter clean-up, and the treatment and disposal of plastic, all incur costs. Without adequate producer responsibility schemes, these costs fall to municipalities, and thus citizens through their taxes.

Although designed for consumer convenience, single-use on-the-go plastics come with too high an environmental price tag. They can, however, be effectively dealt with at source, making them a good focal point for action in the fight against marine plastic pollution. Seas at Risk therefore commissioned Eunomia to calculate the estimated European consumption of single-use on-the-go plastic items, and identify key leverage points for reducing their use.

Single-use plastic items are those designed to be used once and then thrown away.

On-the-go plastic items are those consumed while on the move in public spaces, rather than in the home or at cafes and restaurants.

The scale of consumption

Plastics production in Europe has increased exponentially since mass production began in the 1950s. At current levels, nearly 60 million tonnes are produced each year, around 40% of which is packaging.⁵ Although the graph below shows production levelling off following the economic crisis of 2007–2008, industry estimates project global production doubling by 2035 and quadrupling by 2050.⁶

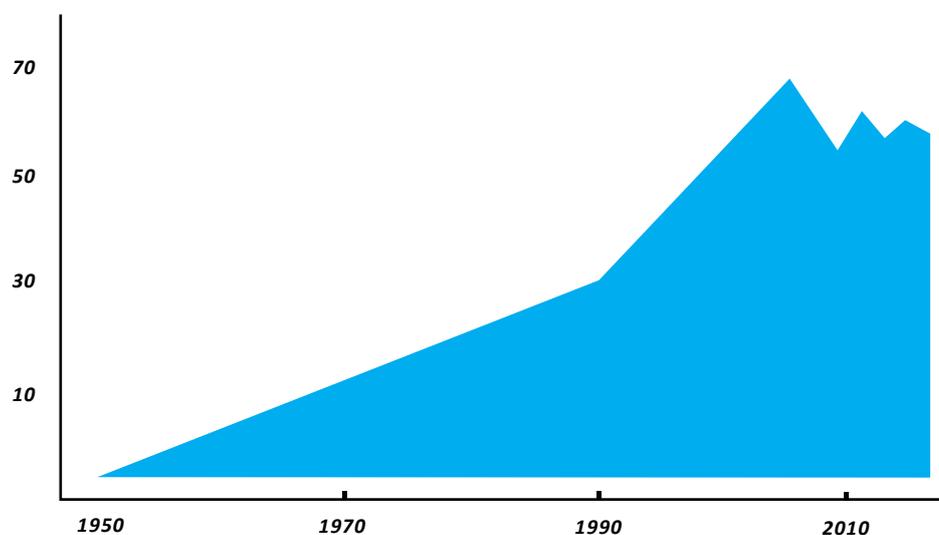
The scale of marine plastic pollution

All species of sea turtles, half of marine mammal species and one-fifth of all sea bird species have been entangled in, or have ingested, marine debris.

In the US, one-quarter of fish and one-third of shellfish for human consumption were found to contain human-derived debris, including plastic.

Plastics production in Europe has increased exponentially

How can we stop marine plastic from following this trend?



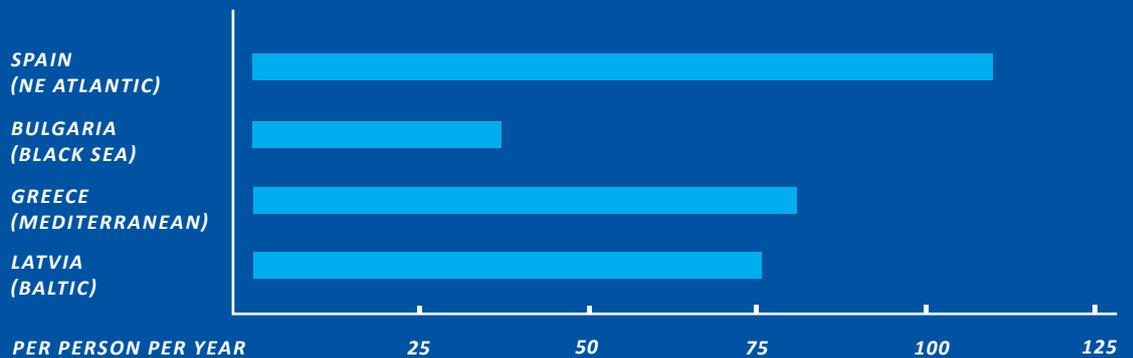
Billions of on-the-go single-use plastic items are consumed every year in the EU, as the table below shows. These estimates were obtained from a variety of data sources, including trade statistics and waste management, and scaled up where necessary to EU level using Gross Domestic Product Purchasing Power Parity (GDP PPP) (which takes into account spending power in different countries). The available data was scarce, and the estimates are on the conservative side.



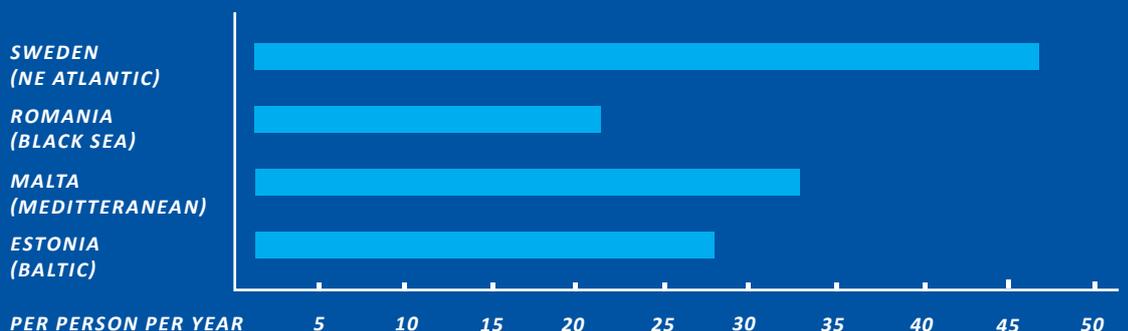
Annual drinking straw and coffee cup consumption per capita in sample countries from each of Europe’s regional seas areas is shown below. The countries shown represent the median average consumption in each area.



Straws per person per year

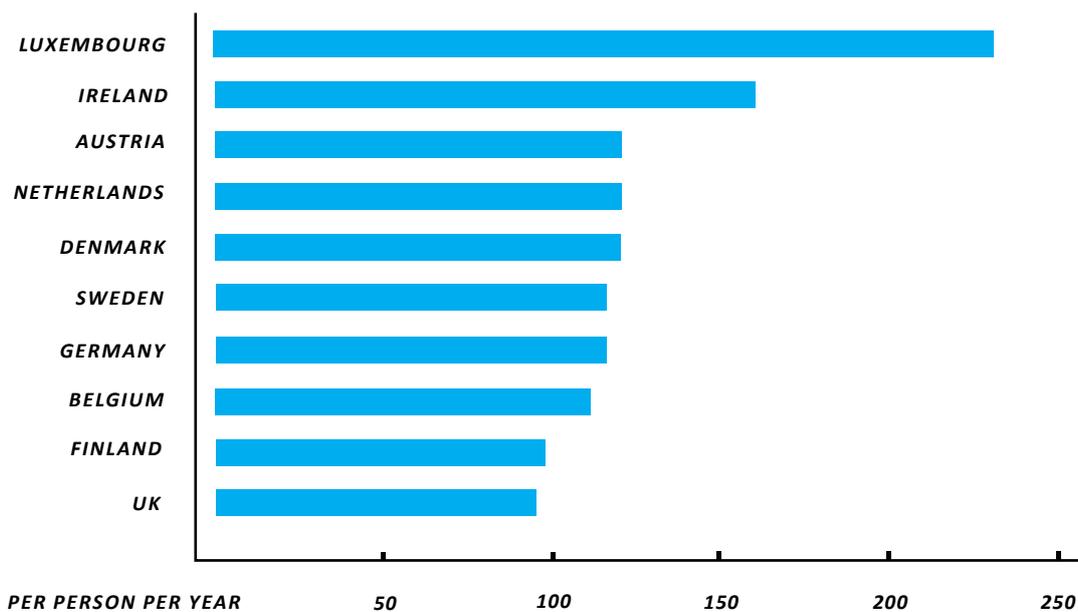


Coffee cups per person per year

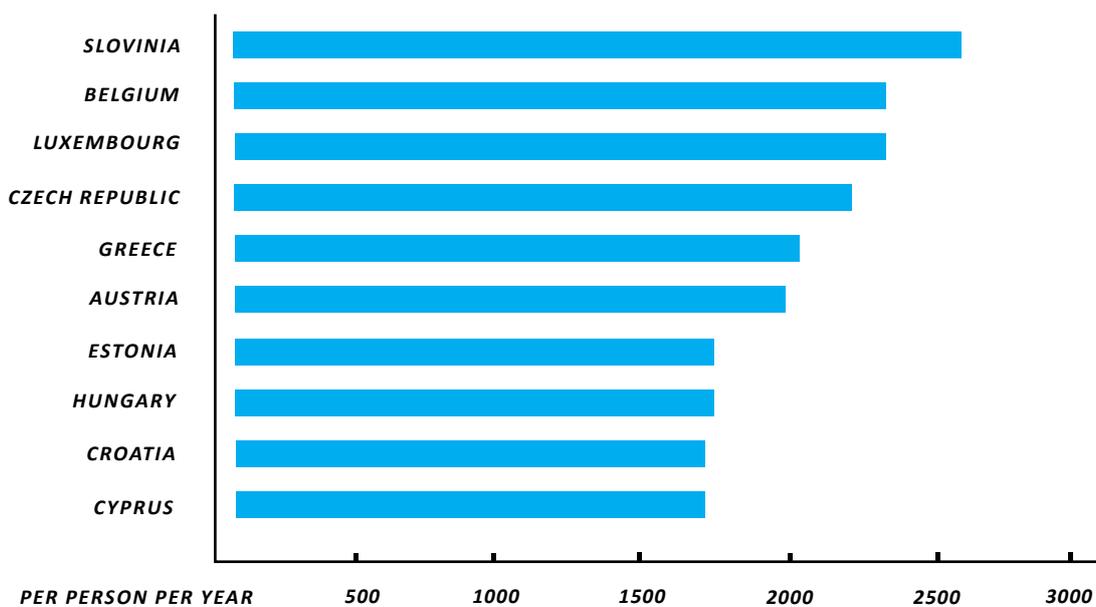


These charts show the 10 countries with the highest annual consumption of bottles and cigarettes, by total:

Bottle consumption per person



Cigarette consumption per person



Takeaway drinking straws given out by fast food restaurants in the EU in one year alone would stretch to the moon and back **10 TIMES**



Single-use plastics and marine pollution

The charts below show the percentages of single-use plastic items littering beaches in each of the four regional sea areas. Cigarette butts feature prominently across all four, reflecting high rates of both consumption and littering.

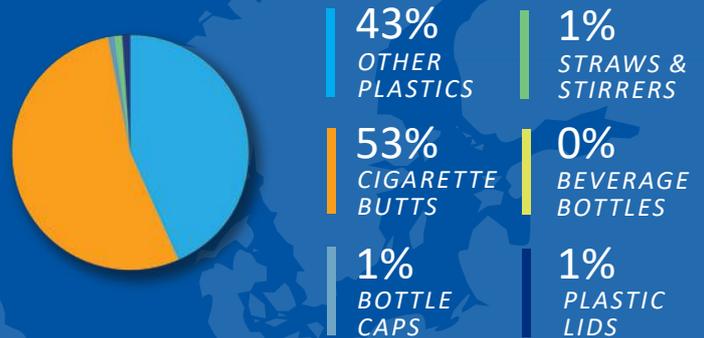
These kinds of single-use plastics account for 26-84% of the beach litter counted (on average 51%) and represent a considerable proportion of beach litter in every region. The 'Other' category is also primarily plastic, in the form of fragments, food packaging or nets and ropes.

Drastically reducing consumption of these key single-use plastic items would effectively eliminate a major source of marine pollution in all of Europe's seas.

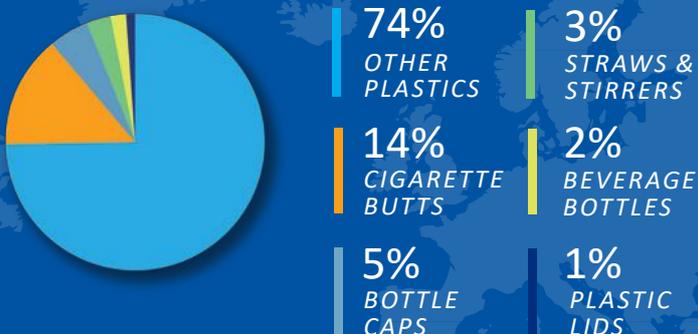
Mediterranean pollution



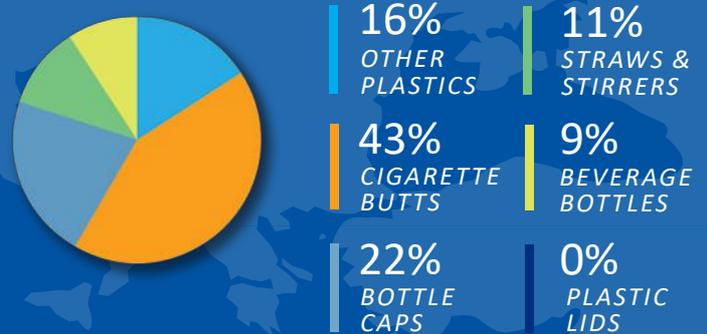
Baltic Sea pollution



North Atlantic pollution



Black Sea pollution



Successful reduction of single-use plastics: case studies

There are many exciting initiatives around the world to reduce the consumption of single-use plastics.



Copenhagen water fountains

- 60 drinking fountains installed across the city to encourage switching to reusable bottles.
- Daily quality controls ensure the water is safe and clean.

Bottled water has 900 times the CO² impact of mains tap water

<http://www.hofor.dk/english/free-drinking-water-in-copenhagen>



Freiburg cups

- Reusable cups replace disposable in cafes across Freiburg, Germany.
- Standardised cup that can be returned to any participating venue.
- Costs a 1 Euro deposit; cups are washed by the receiving establishments.

14,000 reusable cups in use

<http://www.abfallwirtschaft-freiburg.de/>



Norway deposit refund system

- Since 1999 Norway has used a deposit refund system for its beverage bottles and cans.
- Public can return them at reverse vending machines to receive the deposit back.

**Recovery rates over 95%
Carbon emission cut of 185,000 tonnes**

<http://infinitem.no/english/about-us>



ReThink Disposable

- Campaign group Clean Water Action works with restaurants across California to reduce disposable food ware items.
- Promotes economic benefits of reusable and eco-friendly options.

El Mante restaurant switched to reusable items, saving 1600kg of disposable waste and \$9000 per year

<http://www.cleanwater.org/features/rethink-disposable-local-governments>

Public opinion



Deposit return schemes

Deposit return schemes charge a deposit on top of the price of a bottled beverage. This deposit is fully refunded when the empty bottle is returned.

A public poll found 60% would support a deposit return scheme in the UK.

Such schemes create high levels of recycling and recapture rates, and are usually well received.

In Germany, return and recycling rates for PET bottles are at 98.5%, compared to 43-54% from household recycling systems.

The quality of returned materials is high due to the low levels of non-target materials.

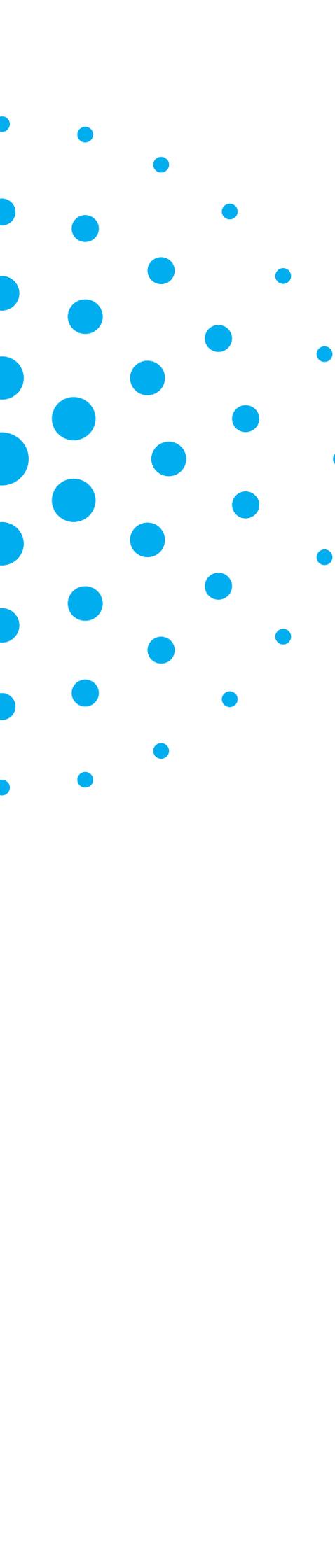


UK plastic bag charge

The UK was surveyed after the 2015 plastic bag charge came into effect. 1 in 4 used shop provided plastic bags one month before the charge, decreasing to 1 in 10 after six months of the charge.

Support for the bag and other waste charges increased by 10% six months after it began.

The public supports charges or bans, and support typically increases after they are put in place.



Legislative leverage

There are many opportunities at the legislative level to support the reduction in consumption of single-use plastics and thus significantly reduce marine plastic pollution.

Plastic bag legislation and targeting single-use plastics

The Plastic Bag Directive amends the Packaging Waste Directive (PWD) by requiring Member States to either:

- Adopt measures to ensure that annual consumption of lightweight plastic carrier bags does not exceed 90 bags per person by 31st December 2019 and 40 bags by 31st December 2025 (or equivalent targets set in weight); or
- Adopt instruments to ensure that by 31st December 2018 lightweight plastic carrier bags are charged at the point of sale of goods or products (unless equally effective instruments are implemented).

Under the Directive, once Member States have opted for one of these, they have the discretion to set national reduction targets, maintain or introduce economic instruments, and impose marketing restrictions (i.e. outright bans), where these are proportionate and non-discriminatory. This legislation stems from the high levels of littering associated with plastic carrier bags, as well as the inefficient use of resources they represent.

This reasoning is equally applicable to single-use on-the-go plastic items, suggesting that similar amendments containing targets for their reduction should also be tabled. Targeted economic instruments, such as charges to reduce consumption of single-use plastic items, could be mandated in such amendments.

The power of the current PWD rests on its ability to grant case-by-case exemptions to the free movement of goods requirement where there are demonstrable hazards to human health or the environment. Changing the legal basis of the PWD and/or future amendments to give a stronger environmental focus would make such legislative changes more straightforward.

Where products are not classed as packaging (e.g. cutlery, stirrers, straws), environmentally-driven amendments could be tabled to the Waste Framework Directive.

Extended Producer Responsibility (EPR)

Extended Producer Responsibility (EPR) is the environmental policy whereby a producer's responsibility for a product extends to the whole of that product's life cycle, including its disposal. EPR should be implemented so as to maximise incentives to prevent waste and reduce litter, including, at a minimum:

- Coverage of the entire cost of waste management of the product, including litter clean-up and prevention.
- Fees scaled to reward action and penalise inaction, thereby providing a financial incentive for companies to do more to prevent waste and
- reduce litter.
- Independently verified data gathering and reporting.

Under the *Circular Economy Package*, the Waste Framework Directive and the Packaging Waste Directive (PWD) are to be amended. Amendments should include:

- *Strengthened requirements for EPR, including the minimums outlined above.*
- *Inclusion of litter in the definition of municipal waste, thus ensuring its inclusion in EPR.*
- *Responsibility for applying the waste hierarchy imposed on manufacturers, waste producers and handlers rather than legislators or waste handlers alone.*
- *Requirement to monitor litter and demonstrate progress.*
- *Targets on marine litter, including the requirement to set operational targets for land-based litter.*
- *Requirement to include litter in national waste management plans.*

European Union Green Public Procurement (EU GPP) and Environmental Management and Auditing Scheme (EMAS)

Public authorities in the EU spend around 13% of annual GDP on works, goods and services. The European Union Green Public Procurement (EU GPP) is a voluntary instrument which provides guidelines for these types of procurement with a reduced environmental impact throughout their life cycle. At present, the EU GPP is a missed opportunity for environmental reform, as it makes little mention of plastic reduction, nor does it make any reference to resource efficiency, the circular economy and the waste hierarchy.

Reduced use of single-use plastics should be included as a criterion for GPP where relevant (e.g. in the Food and Catering GPP guidelines) and the waste hierarchy given priority. The guidelines should then be mandated at EU or Member State level, as appropriate.

The European Commission's Environmental Management and Audit Scheme is a tool for organisations to evaluate, report and improve their environmental performance. Sectoral Reference Documents (SRDs) and Best Environmental Management Practice (BEMP) Reports have been developed, or are in development, to guide different sectors on good environmental practice. Although participation is voluntary, organisations can certify as registered users of the scheme.

The preferred order of priority for actions according to the waste hierarchy should be more clearly identified as best practice. EMAS' SRD and BEMP documents could include more explicit recommendations on single-use items. Specific SRDs and BEMPs should be developed for the food service sector. Targets or incentives could be put in place to encourage businesses to adopt EMAS.

Licensing laws

A number of European cities such as Vienna, Munich, Freiburg, Nürnberg and Kiel have imposed obligations on event organisers to use reusable items at their events.

This demonstrates the value of municipalities in creating laws that significantly reduce plastic waste.

Plastics Strategy

The European Commission is developing a Plastic Strategy to focus on resource efficiency and the circular economy for plastics.

This strategy should support the implementation of EPR, together with the measures outlined above to reduce the consumption of single-use plastics.

Conclusion

Plastic pollution threatens the marine environment and aquatic ecosystems, and should be a global priority. This report has outlined the scale of single-use plastic consumption in Europe and the degree to which it exacerbates marine litter. The success of many plastic reduction schemes highlights the ease with which public behavioural change can be effected.

This report also presents a number of policy actions that, if taken, could significantly reduce pollution from single-use plastic items. As a global leader in environmental policy, the EU has the opportunity to show leadership on this issue. Precedents already exist in legislation and where actions have been taken at national or local level (e.g. plastic carrier bag charges and reusable coffee cups), they have proved effective and been met with public support and enthusiasm.

Policy makers should now turn their attention to the single-use plastic items described here. To do so would not only help to protect Europe's seas from damaging plastic pollution, but would improve resource efficiency (with the associated greenhouse gas savings) and reduce the cost of waste management.

There is considerable potential for the roll-out of plastic reduction measures across Europe. Coordinated action from the European Commission together with national and local governments would ensure maximum protection for Europe's oceans.

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