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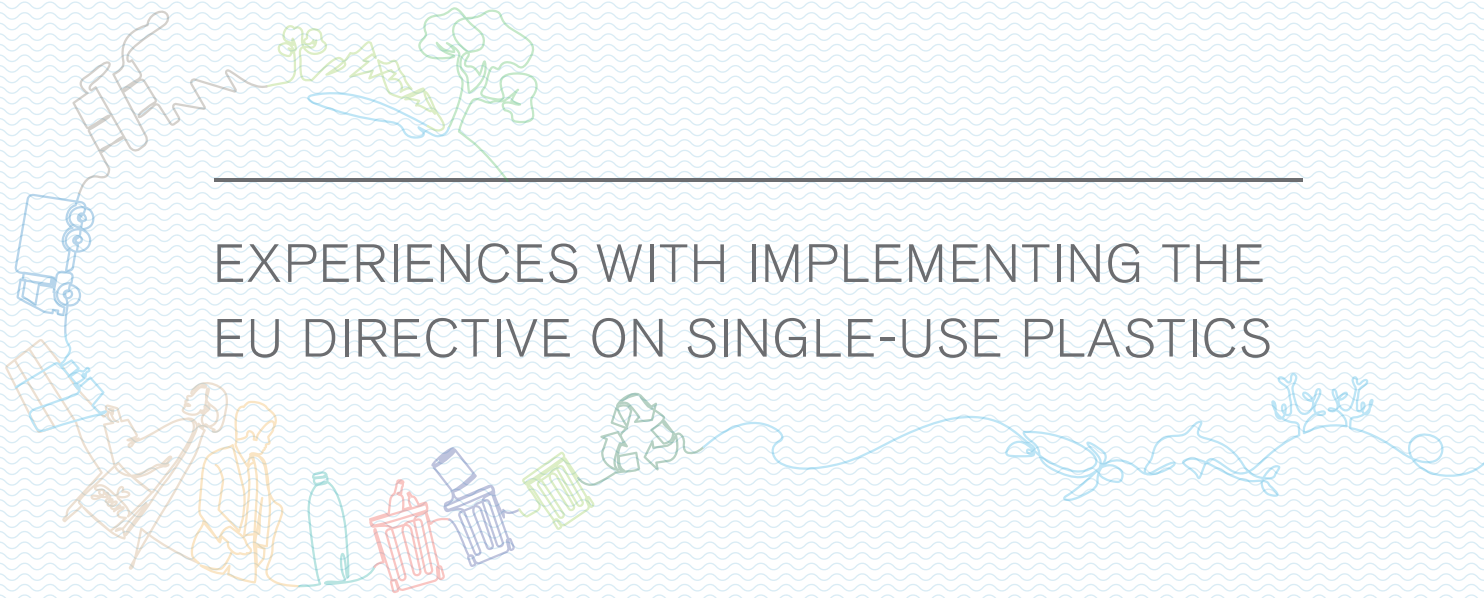
EXPERTISE FRANCE

Rethinking Plastics
Circular Economy Solutions to Marine Litter

Experiences with implementing the EU Directive on Single-Use Plastics



EXPERIENCES WITH IMPLEMENTING THE EU DIRECTIVE ON SINGLE-USE PLASTICS

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Project: Rethinking Plastics – Circular Economy Solutions to Marine Litter
➤ http://rethinkingplastics.eu/

Authors: Mathias Gustavsson and Linnea Steen

TABLE OF CONTENTS

ABBREVIATIONS

AADE	Independent Public Revenue Authority - Greece
ASF	Freiburger Abfallwirtschaft und Stadtreinigung
BMUV	German Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection
CCS	Carbon Capture and Storage
EPR	Extended Producer Responsibility
EPS	Expanded polystyrene
EU	European Union
EUR	Euro
FCM	Food contact materials
GDP	Gross domestic product
NGO	Non-governmental organisation
PET	Polyethylene terephthalate
SEK	Swedish Krona
SUP	Single-use plastics
SUP Directive	Single-Use Plastics Directive
WWF	World Wide Fund for Nature

SUMMARY

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The production and waste of single-use plastic (SUP) products are increasing worldwide, with production forecasted to more than double by 2040 and with 60–95 % of the global marine pollution stemming from SUPs in 2018. In order to tackle these issues in the European Union, a ➤ **European Strategy for Plastics in a Circular Economy** was set up, which led to the Single-Use Plastics Directive (SUP Directive) being put forward as new EU legislation in 2019.

The aim of the SUP Directive is to prevent and reduce the environmental impact of certain plastic products for the EU to transition to a circular economy.

Specifications on which SUPs to include in the directive was based upon impact assessments showing which SUPs that were most commonly found on European beaches as marine litter. As an EU directive, it is up to each member state to determine how the content of the SUP Directive is to be transposed into national laws. However, certain measures need to be taken by every member state. The SUP Directive in brief includes:

- Market restrictions/bans placed on specific SUPs
- Consumption reduction measures of SUPs
- Product requirements of caps and lids
- Targets for separate collection and recycled content of plastic bottles and other SUPs
- Label requirement on certain SUPs
- Measures to inform consumers into making responsible choices
- Extended producer responsibility schemes (EPR)

To learn from the experiences of implementing legislation on SUPs in the EU, information was gathered from official EU documents, such as the SUP Directive itself and impact assessments leading up to the Directive. Three countries were studied as case references to illustrate different types of transposition into national laws from three different country profiles: Greece, Germany and Sweden. Official action plans and legislative documents from these countries were used, and interviews were held with a policy officer from the German Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection (BMUV) and the NGO Seas At Risk to broaden the perspective.

Mandatory deposit
is planned for all one-way beverage bottles and drink cans from 2024 in Germany and from 2029 in Sweden

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Due to the nature of an EU Directive, the transposition into national legislation varies in the different case study countries. Other than mandatory requirements, Greece saw an early adoption of market restrictions on SUPs and implemented that catering establishments need to offer reusable plastic alternatives at point of sale and has planned for PET beverage bottles with a capacity of up to 3 litres needing to contain at least 35 % recycled plastic from 2030. Germany has implemented EPR schemes on packaging including transport and reusable packaging and that distributors need to offer alternative and not "more expensive" reusable packaging whilst planning for a mandatory deposit for all one-way beverage bottles and drink cans including dairy from 2024. Sweden has planned that restaurants and cafés need to offer reusable alternatives from 2024, a mandatory deposit for all one-way beverage bottles and drink cans including dairy and vegetable/fruit juices from 2029 and that plastic packages containing more than 50 % plastics need to contain at least 30 % recycled plastics from 2030.

When coming to terms with the SUP Directive itself there are some success factors found that made an impact on the implementation processes both on national and European levels. Member states of the EU had already started taking national action against SUPs by starting legal processes on banning straws etc. A realistion of the negative impacts of having different regulations on SUPs on an internal market and the complex value chains that plastic products exist of, was acknowledged. Having legislation already put in place also make countries more prone on applying other types of legislation to tackle plastic pollution, which made the SUP Directive easier to push for. In correlation to this, there are existing EU directives and regulations that are harmonised with the objectives of the SUP Directive, such as the Waste Framework Directive, EPR, the Directive on packaging and packing waste, the Plastic Bags Directive and the rules on food contact materials. Furthermore, the EU has a generally high recycling rate and recycling capacity of SUPs and other plastic products, which can be seen as a success factor when implementing the SUP Directive.

One of the main success factors lies in having a strong public opinion on the negative environmental impact that plastics, and specifically SUPs impose.

As much as 87 % of surveyed Europeans are concerned about the environment when it comes to everyday products made by plastic and 33 % see marine pollution as the most important environmental issue.

This factor played a large role on consumer behaviour and therefore had an impact when local authorities in Greece implemented SUP bans before the EU Directive came into place, and when local actors in Germany started voluntary reusable systems as alternatives to SUPs.

The concluding experiences that other actors, regions, and countries can learn from the implementation processes of the SUP Directive is to perform public consultations so that the civil society can play a part in pushing for legislation on the matter. Having legislation on plastics and waste management to begin with is a great starting point for implementing stricter policies of bans and restrictions on SUPs further down the road. Definitions of plastics and SUPs could preferably be inspired by the definitions set in the SUP Directive in order for negotiations and the legislative processes to go faster. Policies or regulations can furthermore be made across borders due to the complex value chains of plastics and the fact that SUPs as litter may end up on beaches elsewhere.

1 INTRODUCTION

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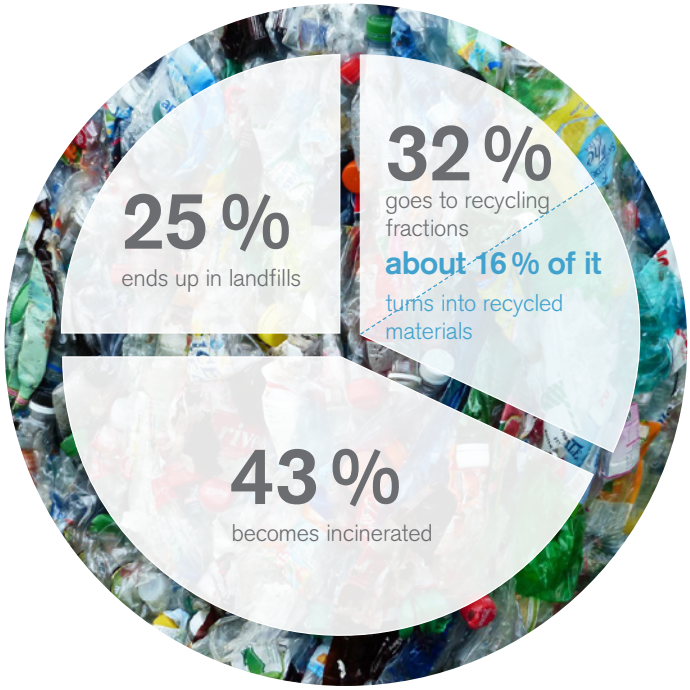
29.1 million tonnes

post-consumer plastic waste is being collected each year in the EU



Global plastic production is forecasted to more than double by 2040 and investments into new factories by the plastics industry has been made at around US$180 billion since 2010 (WWF 2022). Plastic waste is therefore a very large issue that is only set to increase if plastic production is not being regulated. The post-consumer plastic waste that, for example, is being collected each year in the European Union (EU) accounts for 29.1 million tonnes where only 32 % (9.4 million tonnes) goes to recycling fractions and about half (4.9 million tonnes) of which actually turns into recycled materials. As much as 43 % of the European plastic waste becomes incinerated and 25 % ends up in landfills. By combining the emissions from plastic production and its end-of-life treatment, plastic usage leads to 173 million tonnes of CO_2 emissions per year in the EU. A business-as-usual scenario could increase the CO_2 emissions by 50 % to 2050 (Deloitte 2021).

Whilst not only causing problems in terms of emissions, plastic usage and waste also lead to large problems of littering. Single-use plastic (SUP) products are defined as products that are made wholly or partly from plastic and that are not conceived, designed, or placed on the market to accomplish, within its life span, multiple trips or rotations by being returned to producers for refill or re-used for the same purposes for which they were conceived.[1] The world has seen an increase of SUPs, and in 2015, half of all plastic waste stemmed from packages and 60 – 95 % of global marine pollution was due to SUPs in 2018. Oceanic plastic pollution is forecasted to triple by 2040 in the world (WWF 2022) and in the EU, it has been shown by a study that SUPs (and fishing gear) are the most polluting marine litter found on European beaches (Seas At Risk 2021). The negative effects of plastic pollution are mainly entanglement, ingestion and smothering of animals and fishes living in or by the oceans. But there is also chemical pollution that may harm the marine environment and humans, especially due to endocrine disruptors and persistent organic pollutants found in plastic chemicals (WWF 2022).

SUPs are the most polluting marine litter
found on European beaches

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In March 2022, the Fifth United Nations Environmental Assembly (UNEA 5.2) agreed to draft an international legally binding resolution called ➤ "End plastic pollution", which will be signed in 2024. The agreement foresees a full lifecycle approach, including sustainable consumption and production of plastics, environmentally sound waste management and circular economy approaches, and will promote country-driven approaches such as national action plans, a multi-stakeholder action agenda, international cooperation and research, standardised reporting, awareness raising and education, as well as technical and financial assistance, among others.

1 Directive (EU) 2019/904 of the European Parliament and of the Council of 5 June 2019 on the reduction of the impact of certain plastic products on the environment.

1.1 Purpose and method

This report has been developed in the context of the ➤ "Rethinking Plastics – Circular Economy Solutions to Marine Litter" project that supports the transition towards a circular economy for plastics in seven countries in East and Southeast Asia with the objective to reduce plastic waste leakage into the sea. The project works, amongst others, in the areas of plastic waste management, sustainable consumption and production of plastics as well as the reduction of litter from sea-based sources. It aims at supporting the international aspects of the EU Plastics Strategy in East and Southeast Asia by strengthening EU cooperation with the countries in the region, supporting the transition to sustainable consumption and production of plastic and including EU approaches, policies and business models into the discussions.

In East and Southeast Asia, countries like China, Indonesia, Philippines, Thailand and Vietnam have also adopted policies, strategies, roadmaps and action plans to reduce certain single-use plastic products. Regional action plans on marine litter also contain intentions in this direction.

International exchange about the experiences with formulating and implementing policies to reduce certain single-use products can be of mutual benefit and contribute to the global effort to prevent marine litter. With this report, the project wants to share experiences and lessons learned from EU countries that transposed the EU Single-Use Plastics Directive (SUP Directive) into national law with the project's partners in the different project countries in East and Southeast Asia. Although the contexts are different in each state, this can give an opportunity to countries still looking for solutions against increasing plastic pollution to accelerate the process towards a suitable legislation and its successful implementation.

Countries like Thailand

have also adopted policies, strategies, roadmaps and action plans to reduce certain single-use plastic products

The report provides an overview of the EU SUP Directive and provides examples of the implementation in three countries namely Greece, Germany and Sweden.

These case studies have been used as reference for looking at the implementation processes and the success factors of these. They are selected to illustrate different types of implementation of the SUP Directive from three quite different country profiles and are not to be compared at any point.

The report has been performed by a desktop study of mainly analysing official EU documents, such as the SUP Directive and its different versions, and the impact assessments of the Directive. For the analysis on case study countries, official action plans and legislative documents have been used from the countries' government webpages. Success factors have been identified from impact assessments, interviews and lessons of experience in implementation of waste prevention and reduction activities. Due to the Covid-19 pandemic and a lack of time in the project, there were only two interviews conducted. One was performed with the policy officer Nina Tavakkoli from the German Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection (BMUV), who has been one of the key persons of the German Ministry to transpose the Directive into German legislation during the last two years; and the other with Frédérique Mongodin, a senior marine litter policy officer from the non-governmental organisation Seas At Risk, based in Brussels, who has partly written the report ➤ **Moving on from Single-Use Plastics: How is Europe doing?** A Greek first-hand experience is therefore missing in this report. When it comes to Swedish experiences, IVL has a long history of working close with Swedish Government offices and has thereby qualitatively been able to assess the information from Swedish official documents. Other sources have been used when extra information on certain objectives of the directive needed explanation or to put information into context.

2 THE EU SINGLE-USE PLASTICS DIRECTIVE AND ITS CONTEXTUAL SETTING

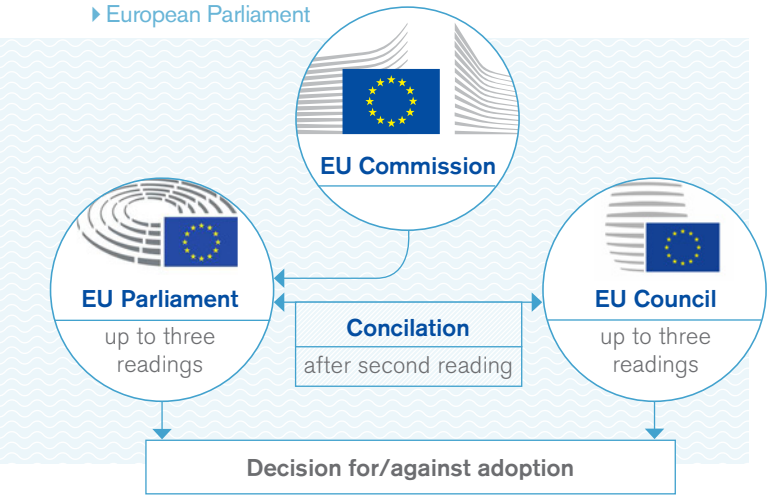
istock | 1272200353

In May 2018, as part of the European Strategy for Plastics in a Circular Economy, the EU SUP Directive was proposed and one year later the EU had reached an agreement on how to tackle SUPs. Initially, the SUP Directive aimed at tackling the SUPs (and fishing gear) that were most frequently found on beaches (Zero Waste Europe 2019). According to Zero Waste Europe, a network of local and national NGOs in Europe, reduced plastic usage with a focus on SUPs could have the potential of not only preserving the natural resources that Europe depends on, but could also be creating new markets, jobs and businesses, and stimulating new technologies (Zero Waste Europe 2019).

Ordinary legislative procedure

An EU directive is negotiated and adopted by the three institutions

▸ European Parliament



An EU directive is negotiated and adopted by the three EU institutions: the European Commission, the Council of the European Union and the European Parliament. When a directive is adopted, every member state needs to determine how to transpose its content and rules by their own national laws. They will then need to report to the European Commission, in which way they are taking these measures, on a set time of approximately two years after a directive has become

adopted at EU level. If a country does not follow the rules set out in the directive and does not transpose it into national law, the Commission can start an infringement procedure where they bring it to the Court of Justice of the EU. If still no enforcement of the directive follows, the country may be convicted to pay fines (EUR-Lex 2019).

2.1 Background to the initial proposal

The European Commission adopted their first Circular Economy Action Plan in December 2015 (the current one was adopted in March 2020), which included 54 actions and measures in order to stimulate the European transition towards a circular economy.[2] One of these actions was ***A European Strategy for Plastics in a Circular Economy***, also known as the EU plastics strategy, which was adopted in January 2018[3] and aimed at protecting the environment and reducing marine litter and greenhouse gas emissions whilst transforming the way plastic products were designed, produced, used and recycled in the EU. Some of the goals and visions set out in the plastics strategy included:

- All plastic packaging that is placed on the EU market is either reusable or can be recycled in a cost-effective manner by 2030
- More than half of plastics waste generated in the EU is recycled by 2030
- Sorting and recycling capacity has increased fourfold since 2015, by 2030
- Substances hampering recycling processes have been replaced or phased out, and demand for recycled plastics in the EU has grown fourfold.

The EU plastics strategy ultimately led to a Commission proposal for a directive on the reduction of the impact of certain plastic products in the environment, also known as the SUP Directive, which was adopted in June 2019.[4]

Impact assessments of the SUP Directive were made in the process of creating the proposal. A number of 276 beaches in 17 EU member states and 4 regional seas were assessed to create a database for marine litter, where items were observed and ranked by abundance. The research showed how the 10 most used

2 Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions – Closing the loop – An EU action plan for the Circular Economy. COM (2015) 614 final.

3 Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions – A European Strategy for Plastics in a Circular Economy. COM (2018) 28 final.

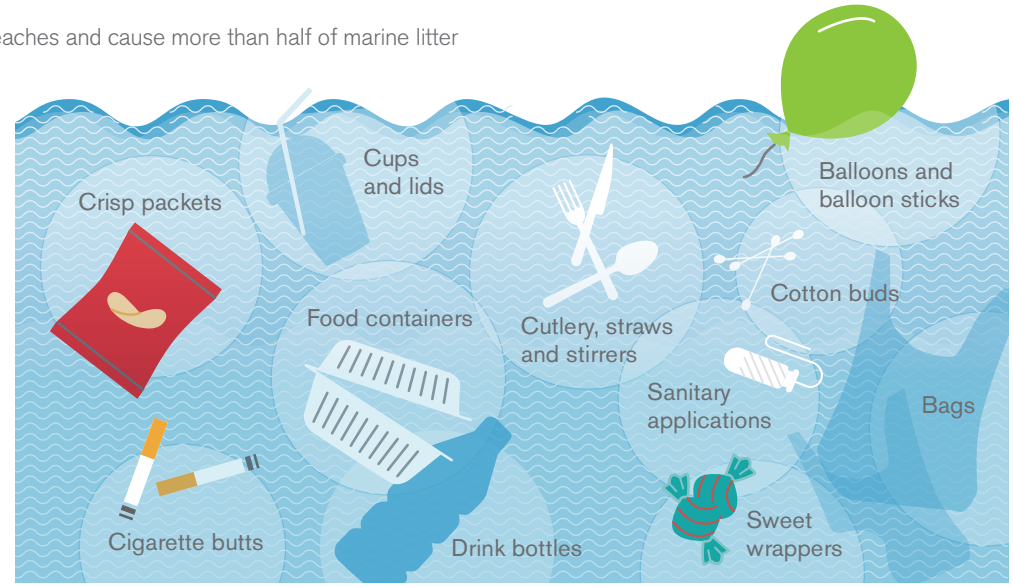
4 Directive (EU) 2019/904 of the European Parliament and of the Council of 5 June 2019 on the reduction of the impact of certain plastic products on the environment.

SUPs were found on European beaches to the extent of 86 % whilst also causing more than half of the marine litter. In order of appearance these SUPs consisted of:

1. Drink bottles, caps, and lids
2. Cigarette butts
3. Cotton bud sticks
4. Crisp packets/sweet wrappers
5. Sanitary applications
6. Plastic bags
7. Cutlery, straws, and stirrers
8. Drink cups and cup lids
9. Balloons and balloon sticks
10. Food containers including fast food packaging

The 10 most used SUPs

are found 86 % on European beaches and cause more than half of marine litter



Source: Joint Research Centre, Top Marine Beach Litter Items in Europe, 2017

The research also showed that the non-plastic litter found on European beaches often consisted of construction material or similar, and biodegradable litter such as paper and wood, which has a lower environmental impact than plastic litter (European Commission 2018).

2.2 Structure and content of the EU Single-Use Plastics Directive

The EU SUP Directive[5] aims to prevent and reduce the environmental impact of certain plastic products for the EU to transition to a circular economy.

The directive covers SUPs made by a wide range of plastics but does not take into account unmodified natural polymers. All plastic materials that have been modified, manufactured from bio-based, fossil or synthetic starting substances are not seen as natural polymers and are not naturally occurring, which means that these are all included in the directive.[6]

Market restrictions (bans) to place a number of SUP products have as a result of the SUP directive been implemented on the EU market. These restrictions presently include the following items:

- Cutlery (forks, knives, spoons, chopsticks)
- Plates
- Straws
- Cotton bud sticks
- Beverage stirrers
- Sticks to be attached to and support balloons
- Food containers made of expanded polystyrene (EPS)
- Beverage containers made of EPS, including their caps and lids
- Cups for beverages made of EPS, including their covers and lids
- Products made from oxo-degradable plastic[7]

EU member states are required to take measures for consumption reduction of certain SUPs that have no alternative, in the form of drinking cups with included covers and lids as well as food containers used for immediate consumption. They also have to monitor the consumption and the measures taken on SUPs by report-

5 Directive (EU) 2019/904 of the European Parliament and of the Council of 5 June 2019 on the reduction of the impact of certain plastic products on the environment.

6 More information on bio-based and not naturally occurring plastic materials can be found in Annex 1.

7 Oxo-degradable plastics are plastics that contain additives making it easily break apart. Oxo-degradable plastic does however not biologically dissolve yet contribute to microplastic pollution instead (Regeringskansliet 2022).

ing back to the European Commission, which is set at reaching an ambitious and sustained quantitative reduction in consumption of SUPs by 2026 (compared to 2022 baseline).

On SUPs with caps and lids made of plastic, there is a product requirement that their caps and lids need to be attached to the containers during the usage by 2024.

The SUP Directive includes targets for collection and recycled content:

- A collection target of 90 % recycling for plastic bottles by 2029
  - Interim target of 77 % by 2025
- Plastic polyethylene terephthalate (PET) bottles need to contain at least 25 % recycled plastic in manufacturing by 2025
- All plastic bottles need to contain at least 30 % recycled plastic in manufacturing by 2030
- Member states need to ensure separate collection for recycling of plastic bottles, with an amount of SUPs equal to 90 % of such SUPs placed on the market each year by weight, by 2029
  - Interim target of 77 % by 2025

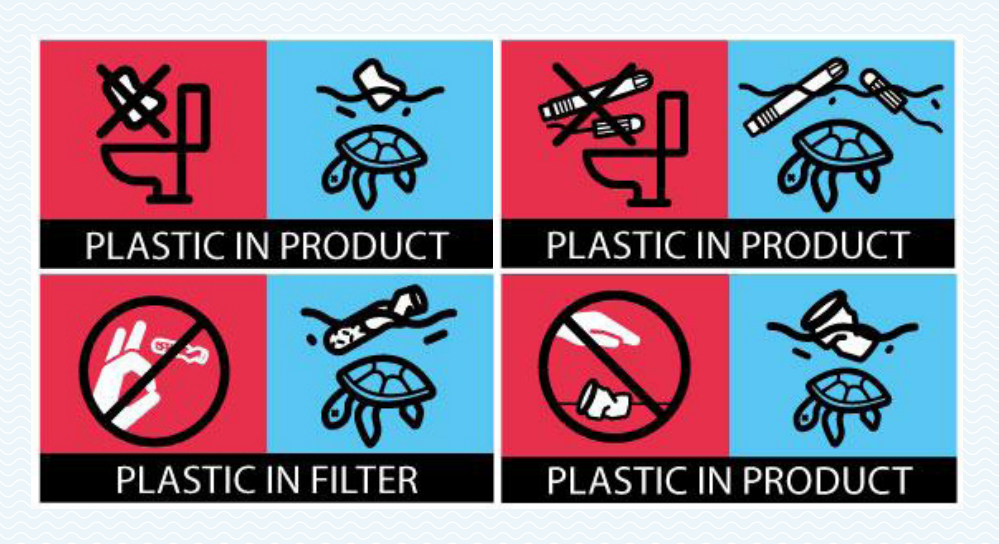
For sanitary items, wet wipes, tobacco products with filters, and drinking cups, there is a requirement of carrying a visible, clearly legible, and indelible marking put on the packaging or the product itself from July 2021. The required labels must include information of appropriate waste management options for the product or what kind of waste disposal that is to be avoided as well as information about the negative environmental impact from littering of the product containing plastic (➤ The four different labelling specifications).

The labelling/marking of products was very hard to initiate but became a success in the end, according to the NGO Seas at Risk. The European industries fought hard in trying to resist the labels since they saw it as shaming the products and the industries. NGOs on the other hand had stronger arguments that were in line with the direction of the proposal whilst the industry only voiced their concerns and issues.

Labelling products can contribute to making people more aware of the impact of plastics and the fact that plastic can be found in a large number of everyday products.[8]

8 Interview with Frédérique Mongodin, Seas At Risk, 22-03-08.

The four different labelling specifications
that shall be found on plastic containing products



Member states must take measures to inform consumers and encourage them in making responsible choices in order to reduce littering whilst also making consumers aware of alternative products that are reusable and the impact that disposal of SUPs has on sewage systems. This includes:

- Food and beverage containers
- Bottles
- Cups for beverages, including caps and lids
- Packets and wrappers
- Light-weight carrier bags
- Tobacco products with filters
- Wet wipes
- Balloons
- Lightweight plastic carrier bags
- Sanitary items

Extended producer responsibility (EPR) schemes for SUPs is an important tool for achieving the goals of reducing the SUP according to set targets in the directive. These EPR schemes should be established by member states mainly until 2024. EPR has the purpose of shifting the responsibility of waste management from local governments to producers. It is based upon the polluter pays principle where the producers become the ones responsible for the pollution, which in this case is the waste (Smart City Sweden 2022). In the SUP Directive, producers will

have to cover the costs that products, included in the information measures as seen above, lead to:

- Waste collection
- Waste/littering clean-up
- Data gathering and reporting
- Awareness raising

In order for the member states to achieve their objectives they may establish a deposit-refund scheme or establish separate collection targets for relevant EPR schemes.

2.2.1 Changes made from initial proposal to published Directive

The European Commission's proposal for a SUP Directive was submitted to the Council on 29 May 2018. But the first legislative text was put forward by the Austrian presidency on 5 September 2018[9]. As usual, negotiations between EU member states took place and the final draft in 2019 became a compromised text of what the directive should include according to a joint decision by member states.

Even if there had been compromises made from the initial proposal to the final legislative text, the NGO Seas at Risk finds compromises as not always negative. In EU legislation, a compromised text to begin with is a starting point for making revisions down the road.

Once the objectives are implemented and integrated in the national system of each member state, it will open up for possibilities of adding higher ambitions, targets and objectives in the future, step by step.

Before the directive, there was only a plastic strategy with no binding measures, so having an implemented directive on SUPs is a success on its own.[10]

9 Proposal for a Directive of the European Parliament and of the Council on the reduction of the impact of certain plastic products on the environment - Presidency compromise text. Nr. 11832/18. Interinstitutional File: 2018/0172(COD).

10 Interview with Frédérique Mongodin, Seas At Risk, 22-03-08

2.3 Current procedures and timeline

Below follows a short presentation of recent and future key milestones in the implementation of the SUP Directive.

2021

July

By 3 of July, the SUP Directive had to become a law in all EU member states. They had to prepare a description of adopted measures and integrate them into national plans and programmes. Measures may include national consumption reduction targets, ensuring availability of reusable alternatives to SUPs, economic instruments such as making sure that SUPs are not free of charge.

Specifics of the law by 3 July 2021:

- Market restrictions
- Requirement of product labelling

October

On the 1 October 2021, the Commission adopted and implemented a decision that laid down rules for the calculation, verification and reporting of data on the separate collection of waste SUP beverage bottles.

2022

February

On the 4 February 2022, the Commission adopted and implemented a decision that laid down rules for the calculation, verification and reporting of the consumption reduction of SUP food containers and beverage cups.

One aspect that is not part of the SUP Directive but can have an impact on the member state implementation is that, starting from 2022, all EU member states, as part of their EU fee, pay a tax based on non-recycled plastics. The contribution is calculated by the weight of non-recycled plastic packaging waste with a uniform rate of EUR 0.80 per kilogram. It is then up to each member state if they decide on paying it as a contribution from their national budgets or if they design their own tax legislation for the plastics tax (KPMG 2021).

Further on

July 2024

The following actions on EU level as part of the procedures to realise the SUP Directive in the different member states are foreseen:

- Product design requirements for caps and lids apply from 3 July 2024.
- EPR schemes must be applied until 31 Decem-ber 2024 at the latest.

July 2027

- In July 2027 there will be an evaluation carried out by the Commission.

2.4 Monitoring and reporting

The SUP Directive specifies that EU member states shall report to the European Commission each year on:

- Data on SUPs that have been placed on the market to demonstrate the consumption reduction
- Data on SUPs that have been separately collected to demonstrate the attainment of separate collection targets
- Information on recycled content in beverage bottles
- Data on the post-consumption waste of SUPs

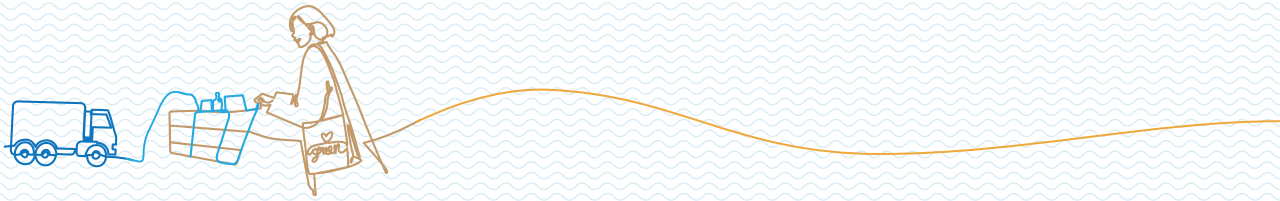
On consumption reduction,
member states can either calculate it based on the total weight of the plastic contained in the single-use plastic products placed on the market, or the number of such products placed on the market

Member states also need to continuously monitor properties and quantities of marine litter, including plastic marine litter. Member states then need to report the data according to rules set for calculation, verification and reporting by the commission. The commission will then publish the progress according to the set targets. How member states need to report on their progresses is clarified in calculation, verification and reporting rules when it comes to consumption reduction[11] of SUPs and on the separate collection of waste SUP beverage bottles.[12] On consumption reduction, member states can either calculate it based on the total weight of the plastic contained in the single-use plastic products placed on the market, or the number of such products placed on the market.

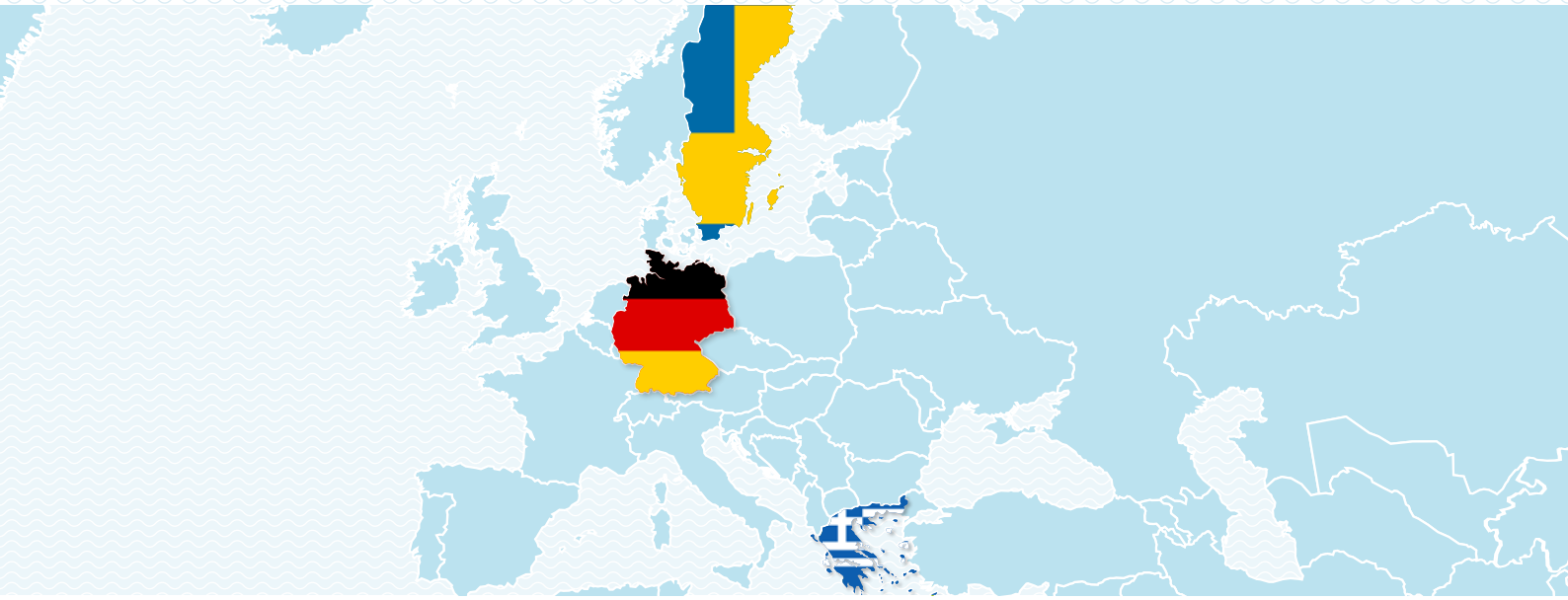
As stated, the Commission itself will furthermore carry out an evaluation on the progresses made, which will then serve as a basis for eventual revisions of the directive, including broadening the scope of SUPs or setting a Union-wide consumption reduction target for 2030.

11 Commission Implementing Decision (EU) 2022/162 of 4 February 2022 laying down rules for the application of Directive (EU) 2019/904 of the European Parliament and of the Council as regards the calculation, verification and reporting on the reduction in the consumption of certain single-use plastic products and the measures taken by Member States to achieve such reduction.

12 Commission Implementing Decision (EU) 2021/1752 of 1 October 2021 laying down rules for the application of Directive (EU) 2019/904 of the European Parliament and of the Council as regards the calculation, verification and reporting of data on the separate collection of waste single-use plastic beverage bottles.



3 COUNTRY EXAMPLES OF IMPLEMENTATION



This section covers the transposition of the EU SUP Directive in three case study countries: Greece, Germany, and Sweden. It includes all measures taken to implement the directive in these countries, which are then further discussed in chapter four.

Greece, or the Hellenic Republic, is a country consisting of 6,000 islands, with 227 inhabited islands. It has one of the longest coastlines in the world (Greek National Tourism Organisation 2022) and thereby has a close connection to the marine environment and plenty of beaches where SUPs can be found. Germany is the largest economy in the EU, with 25.1% of the entire EU's GDP and has the largest population size with over 83 million people (Eurostat 2021ab). These factors make it interesting to look closely at the ways that SUPs are being handled. In a report made by the Sustainable Development Solutions Network and IEEP (2021), Sweden was ranked as number two in a Sustainable Development Goals index, and the country is often ranked in the top of environmental performance in both the EU and in the world. They are however also at the top when it comes to total waste intensities per both gross domestic product (GDP) and capita (OECD 2022), which makes it interesting to learn more about their plans on transposing the EU SUP Directive.

Seas At Risk, who have been following the implementation processes of all EU member states says that about half of these have implemented the directive and the other half is in the process of doing so. There are only five countries who

are lagging, some of them due to a lack of motivation and some of them due to the consequences of the Covid-19 pandemic; but it is also an effect of not having previous waste legislation to rely on and thereby having a longer road of figuring things out. It does not have to be negative when walking slowly in legislative processes, yet it could mean that these countries are becoming better prepared for dealing with the objectives and are really trying to figure out how to do it in their best ways.[13]

The choice of policy instruments listed under each country case can be seen as apart of the mandatory requirements. It also shows an indication of whether the case study countries have implemented their choice of policy instruments before or after the supposed date of implementation, and whether they have gone beyond necessary measures, or if they decided to stay at the target levels of the directive.

3.1 Greece

The Greek General Government Bodies have set up consumption reduction targets on plastic cups for beverages and food containers, by at least 30 % by 2024 and 60 % by 2026 compared to the baseline of 2022.

In order to achieve this, they have transposed the SUP Directive into Greek legislation by the following measures (Greek Ministry of Environment and Energy 2021).

1 February 2021: Market restrictions were placed on SUPs four months before the rest of the EU had to apply it.

1 July 2021: Water access by public fountains was implemented in municipal sports facilities and municipal playgrounds. This is not included in the SUP Directive but is likely a measure taken to support SUP consumption reduction.

1 January 2022: An environmental protection levy was imposed per piece of SUP product. The contribution is reciprocal (a direct exchange of goods or services) and the revenues are public revenues, which are collected by the Independent

13 Interview with Frédérique Mongodin, Seas At Risk, 22-03-08.

Public Revenue Authority (AADE) and attributed to the Green Fund for actions exclusively related to the purposes of the Law.

Catering establishments became required to dispose reusable plastic alternatives to the consumer at the point of sale.

1 January 2025: PET beverage bottles with a capacity of up to 3 litres must contain at least 25 % recycled plastic. This is in line with the EU target.

1 January 2030: PET beverage bottles with a capacity of up to 3 litres must contain at least 35 % recycled plastic. This is 5 % more than the EU target in the directive.

Greece: selected key points from the national implementation

- Early adoption of market restrictions on SUPs
- Catering establishments need to offer reusable plastic alternatives at point of sale
- PET beverage bottles with a capacity of up to 3 litres must contain at least 35 % recycled plastic from 2030

3.3.1 Experiences from implementing the EU SUP Directive

In 2018, Greece put forward their National Circular Economy Strategy, which was one of the first steps leading up to actions against SUPs. The strategy includes three pillars of developmental transformation: Sustainable Resource Management, Support of Circular Economy, and Circular Consumption. By 2030, the main goals of the strategy are to:

- Integrate the criteria for ecological design/planning and analysis of product life cycles;
- Effectively implement a prioritisation of waste management, promote the prevention of creating waste and encourage re-usage and recycling;
- Promote a rational consumption model, based on information transparency in regard to the features of goods and services, their life span and energy efficiency.

When the SUP Directive was proposed in 2019, Greece had therefore already made plans on objectives that would support the content of the directive.

Local organisations initiate activities

to raise awareness and reduce SUP pollution

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Due to the country's established connection with the marine environment, there has been several campaigns and projects concerning the impact of SUPs. The SeaChange Greek Islands project, by the ACLC Foundation, is one of those that started in 2018 in collaboration with local municipalities and civil society on ten Greek islands: Serifos, Sikinos, Amorgos, Folegandros, Kimolos, Anafi, Donousa, Schinousa, Irakleia and Koufonisia. The project works with coastal clean-ups, environmental education programmes, meetings with local bodies and supports local cultural events with the aim of raising awareness and reducing SUP pollution. Some of the measures taken due to the project includes that the island of Sikinos was the first Mediterranean island to ban plastic straws in 2018, and one beach at Serifos made a designated area for smokers in order to reduce cigarette butts in 2019. What was also achieved is that the island Donousa banned SUPs altogether in April 2019, which is more than two years before the rest of the EU did so (ACLC Foundation 2020).

Greece has one of the lowest municipal waste recycling rates in the EU, of only 20 % (2019) (EEA 2021). However, the rate is doubled when it comes to the recycling of plastic packaging. Out of 202,100 tonnes of produced plastic packaging waste, 80,420 tonnes are recycled which is 39.4 % (2018) (EOAN 2018). According to Plastics Recyclers Europe (2020), Greece has about 50-250 kilo tonnes of total installed plastic recycling capacity, compared to EUs total capacity of 8.5 million tonnes and therefore lies somewhere in the lower middle range out of EU countries. It is not clear which SUPs are being recycled at which rate, but speaking in general terms it seems that Greece has already reached a target of having enough recycled material to turn into new products, in line with their target of PET bottles containing at least 25 % recycled content by 2029.

At the moment, Greece is late in its implementation of the SUP objectives, and when speaking to representatives of the European Commission, they have not submitted their transposition plan, which was due in July 2021[14]. Greece was hit hard by the pandemic and this could be the reason why they are lagging. According to the non-governmental organisation (NGO) Seas At Risk, Greece has previously not been seen as one of the frontrunners when it comes to environmental

14 Mail correspondence with Julia Roettgerding at the Directorate-General for Environment, 22-03-08.

ambition, but when it comes to the SUP Directive, Seas At Risk believes that there is a great motivation to deliver as promised. The detailed plans are of good quality and there seems to exist capacity for delivering them. Seas At Risk also believes that Greece sees the directive as an opportunity for tackling plastic pollution on their islands, that comes from the tourism sector.[15]

3.2 Germany

In 2019, Germany implemented a new legislation named the Packaging Act and this legislation was amended on 20 January 2021 in order to transpose the SUP Directive and the EU Waste Framework Directive into the Packaging Act.

The legislation then came into force on 3 July 2021. The new amendments (excluding the general requirements) include the following (VerpackG 2021a).

3 July 2021: New producer obligations for packaging not previously considered (e.g. transport or reusable packaging) where e.g. records need to be kept on the fulfilment of takeback and recycling obligations and appropriate self-monitoring mechanisms need to be established. Producers also have to hold sufficient financial and organisational resources to fulfil these duties and set up appropriate self-regulatory mechanisms. Final distributors must advise end consumers about the return possibilities. A new rule that makes it easier for producers without branch or registered office in Germany to fulfil their obligations, by allowing them to delegate specific duties to an Authorised Representative.

1 January 2022: Extension of deposit and return obligations with mandatory deposit for all one-way beverage bottles and drink cans (exemption for one-way beverage bottles filled with dairy products).

Final distributors need to offer and indicate alternative and not "more expensive" reusable packaging in addition to SUP food packaging and SUP beverage cups. Small companies should advise customers that products can be filled in reusable containers brought by the end consumers as an alternative to SUPs.

15 Interview with Frédérique Mongodin, Seas At Risk, 22-03-08.

1 July 2022: Registration requirements of all packaging (e.g. transport and reusable packaging) with the Central Agency named ***Zentrale Stelle Verpackungsregister***.

1 January 2024: Extension of deposit and return obligations with mandatory deposit for all one-way beverage bottles and drink cans, including one-way beverage bottles filled with dairy products.

What is missing in the transposition is the awareness-raising measures that member states need to inform consumers and encourage them in making responsible choices. The sales ban on PET bottles less than the minimum required content of 25 % recycled content to 2025 and 30 % by 2030 is part of the new amendment. But, according to a report made by the Rethink Plastic Alliance and Break Free From Plastic Movement (2021), the German PET bottles already contain 25 % recycled plastics and therefore thus not aim at going beyond business as usual.

Germany: selected key points from the national implementation

- Extended Producer Responsibilities for packaging, incl. transport and reusable packaging
- Distributors required to offer alternative and not "more expensive" reusable packaging
- Mandatory deposit for all one-way beverage bottles and drink cans, incl. dairy from 2024

3.2.1 Experiences from implementing the EU SUP Directive

As stated previously, Germany put forward a new legislation named the ***Packaging Act*** in 2019. The previous one was from 1991, three years before the EU adopted the Packaging Directive in 1994 (Umwelt Bundesamt 2020a). Besides from amending it for transposing the SUP Directive into it, it included the establishment of a single national register authority ***(Zentrale Stelle)*** with the overall aim of increasing transparency of the system and actions taken. The authority also aimed at creating an overall system for the national packaging waste disposal that could combat free riders (producers benefiting from EPR schemes without paying fees to the system), eliminate competitive distortion and be more sustainable. Furthermore, the Packaging Act sets up recycling targets for packaging of different materials. Plastic packaging was supposed to achieve a 58,5 % recycling rate in 2019 and 63 % in 2022 (VerpackG 2021b). At this point, it is unsure whether they succeeded to reach the targets.

The latest statistics of recycling rates are from 2018 when Germany reached a recycling rate of plastic packaging of 47.1 % (Umwelt Bundesamt 2020b). However, Germany has the highest municipal waste recycling rate in Europe with 67 % in 2019 (European Environment Agency 2021). There are over 1,000 sorting facilities (BMUV 2021) and Germany has over 1.5 million tonnes of total installed plastic recycling capacity, which is also the largest capacity in the EU (Plastics Recyclers Europe 2020).

Deposit refund schemes in Germany
have been established since January 2003 for one-way drinks packaging

GIZ / Pascal Renaud

When it comes to achieving the objectives of the SUP Directive it is stated that member states can establish deposit refund schemes, which Germany has been doing since 1 January 2003. From the beginning it was compulsory for one-way drinks packaging for mineral water, beer and carbonated soft drinks. In May 2005, all non-ecologically advantageous one-way drinks packaging with a filling volume of 0.1 – 3 litres have been included in the deposit system. Packaging of fruit and vegetable juices, milk, wine and spirits (beverage cartons, polyethylene bags and stand-up bags) are considered ecologically advantageous and therefore not included. The deposit is at 0.25 Euro for all drinks packaging in the deposit-refund scheme (BMUV 2022).

Another type of deposit refund scheme is found amongst voluntary systems for reusable alternatives instead of SUPs. The impact assessment (➤ chapter 2) listed examples of good practice, where Germany was amongst the countries that had these in place. In Freiburg, there is a public-private partnership between Remondis, one of the world's largest recycling companies, and the City of Freiburg – Freiburger Abfallwirtschaft und Stadtreinigung (ASF). They have developed a strategy to reduce waste by making a so-called Freiburg Cup in cooperation with cafés that can be returned and washed for reuse at 60 businesses in the city. The City of Freiburg stands for the costs of launching the systems and ASF for coordinating it, whilst cafés do not get any extra costs. Hamburg also has their own reusable coffee cup system since 2016 where 11 cafés take part (European Commission 2018b).

3.3 Sweden

The Swedish government decided on how to transpose the SUP Directive a bit later than the two other countries, in November 2021. However, in February 2022 there was a large action plan on plastics that was decided upon instead.

Consumption reduction targets on plastic cups for beverages and food containers have been set at at least 50 % by 2026, and the number of reusable packaging put on the market should increase by 20 % compared to the baseline of 2022.

The Swedish transposition (excluding the general requirements) further includes the following (Regeringskansliet 2022):

1 January 2022: Individuals need to pay a fine of 800 SEK (~80 EUR) when littering of smaller SUPs such as cigarette butts, gums, and sweet wrappers.

30 April 2022: Bans on using plastic confetti outdoors.

1 January 2024: Market restrictions on SUP drinking cups that contains more than 15 % plastics. An actor who sells beverages or food in single-use cups or containers needs to offer consumers reusable alternatives whilst also informing consumers about the environmental advantages it imposes.

January 2023: PET bottles that contain beverages of vegetable, fruit or berry juices shall be included in the existing deposit-return scheme.

January 2029: PET bottles that contain dairy beverages shall be included in the deposit-return scheme.

2030: New plastic packages that contain more than 50 % plastics need to contain at least 30 % recycled plastics.

The littering of SUP packages should have decreased by 50 % compared to the baseline of 2023.

The littering of cigarette butts and ***snus*** (a Swedish oral tobacco product) pouch waste should have decreased by 50 % compared to the baseline of 2023.

The littering from balloons and wet wipes shall be negligible.

Sweden: selected key points from the national implementation

- Restaurants and cafés need to offer reusable alternatives from 2024
- Mandatory deposit for all single-use beverage bottles and cans, incl. dairy and vegetable/fruit juices from 2029
- Plastic packages containing more than 50 % plastics need to contain at least 30 % recycled plastics from 2030

3.3.1 Experiences from implementing the EU SUP Directive

The Swedish government laid down a circular economy strategy in July 2020 with the vision of securing a society where resources are being used efficiently in non-toxic circular flows that can replace virgin plastic material. The strategy includes the following four focus areas:

- Circular economy by sustainable production and product design
- Circular economy by sustainable ways of consuming and using materials, products and services
- Circular economy by non-toxic and circular cycles
- Circular economy as incentive for businesses and other actors by actions that promote innovation and circular business models (Regeringskansliet 2020).

In February 2022, Sweden put forward a new action plan for plastics with 55 measures on how to reduce the environmental impact from plastics, which also include the transposition of the SUP Directive into national law. The action plan foresees an extended funding of 40 billion SEK (~4 billion EUR) to the Swedish Environmental Protection Agency for implementing and supervising the SUP Directive, and another 25 million SEK (~2.5 million EUR) each year between 2022–2024 to strengthen the work both nationally, within the EU and internationally. With the extra funding comes new governmental investigations for example in creating guidance's for reusable SUP alternatives and for public procurement (Regeringskansliet 2022).

Recycling rates of municipal waste is slightly lower in Sweden, around 45 %, compared to the average rate of 48 % in the EU-27 (2019) (EEA 2021). As much as 77 % of plastic waste becomes incinerated instead of recycled in Sweden (Regeringskansliet 2022). Specifically, there were 27,800 tonnes of PET bottles put on the market during 2020, of which 23,900 tonnes (86 %) became recycled

due to the deposit-return scheme, but when it comes to plastic packages in total there were 248,000 tonnes put on the market and only 84,500 tonnes (34 %) were recycled in 2020 (SCB 2021).

The deposit-return scheme on plastic PET bottles has been in place since 1994 in Sweden, and since 1984 on aluminium cans, when it comes to soft drinks and beers for example. Already in 2017, the company running the scheme, Returpack AB, opened up for businesses that wanted to voluntarily join the scheme with beverages of juice and cordial as well (Returpack 2022). Having these kinds of systems in place before coming to terms with the objectives of the SUP Directive could be seen as a success factor for creating legislation, together with the fact that the public has been used to deposit-return schemes for a very long time.

Why the recycling rates are on the lower hand in Sweden is partly due to Sweden's low number of installed plastic recycling capacity of 50 kt in total (Plastics Recyclers Europe 2020). This is something that Sweden plans on tackling by building the world's largest sorting facility for plastic recycling, named ***Site Zero*** in Motala. It will have the capacity of receiving 200,000 tonnes of plastic packages each year (PP, HDPE, LDPE, PET, EPS, PS, PVC), which covers almost the whole amount of plastic packaging put on the market each year. The facility will be climate neutral by using renewable energy and carbon capture and storage (CCS). It is an investment worth 1 billion SEK (~100 million EUR) and the first part of the facility is planned to be finalised in 2023 (Svensk Plaståtervinning 2022).

Waste collection for recycling in Stockholm

Sweden is building the world's largest sorting facility for plastic recycling, named *Site Zero* in Motala

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4 DISCUSSION ON SUCCESS FACTORS

This section covers a discussion on the success factors that made an impact when deciding about the directive, such as legislation that was already in place on both national and European levels, how public opinion played a role, and the capacity of dealing with recyclable content targets.

4.1 Coming to terms with the Directive

What the impact assessment leading up to the SUP Directive demonstrated can be seen as some of the success factors in why the directive reached an agreement in the three EU institutions in one year from its proposal. First and foremost, several member states had already started taking national action against SUPs. Up until 2018, France had banned plastic cups and plates, Italy and France were planning on banning plastic cotton buds, the United Kingdom and the Brussels region of Belgium wanted to ban straws, and both Ireland and Portugal were considering which regulations to make. The legal processes were put in place and the EU member states were aware of each other's intentions on SUPs. This led to discussions about the risks that regulations in certain countries would lead to in other countries concerning the EU internal market. A scattered approach of member states targeting specific products in different ways could lead to issues in the complex value chains that plastic products exist of, as well as issues for a harmonised production in the European market. Being aware of these value chains and how SUPs travel across borders was something that members states could acknowledge together quite quickly (European Commission 2018a).

When certain countries had been implementing similar legislation and, for example, had working deposit-return schemes, these countries had a separate collection system in place for these fractions. This allowed for broadening the scope of such legislation and could also make countries more prone on applying other types of legislation to tackle plastic pollution from several angles, when one of them had already been covered to begin with. For the Nordic region, this meant that they were among the countries that were able to push for legislation and for it to be implemented fully. Whilst, for a country such as Italy who had not previously been preparing for similar legislation, the road ahead was longer and was therefore not as positive about the directive.[16]

Another success factor is the SUP Directive's correlation to other existing directives and regulations. The SUP Directive is harmonised with the objectives of the Waste Framework Directive from 2009 and the waste hierarchy set out by the EU stating that waste prevention is prioritised, over for example energy recovery and landfill. What is also included is the EPR where member states need to ensure that producers who put a package on the market are also financially responsible for the waste that remains after a package has been used.

The Plastic Bags Directive
has led to significant consumption reduction as well as public acceptance

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Furthermore, the SUP Directive is harmonised with the Directive on Packaging and Packaging Waste that was revised in 2018 in order to include prevention on the production of packaging waste, and to promote reuse, recycling and other forms of recovering of packaging waste. One of the amendments to the Directive on Packaging and Packaging Waste is the Plastic Bags Directive that was adopted already in 2015 to regulate an unsustainable consumption and use of lightweight plastic carrier bags. This directive stated that member states had to, either or both, make sure that consumption levels of plastic bags did not exceed 90 per person by 2019 and 40 per person by 2025, and/or provide instruments that made sure that plastic bags were not given out for free at the sales point. The impact assessment done as part of the SUP Directive takes this into account and the Directive on Plastic Bags also shows that such measures can bring immediate results of significant consumption reductions as well as public acceptance (European Commission 2018a).

16 Interview with Frédérique Mongodin, Seas At Risk, 22-03-08.

Another harmonisation lies with the EU rules on food contact materials (FCM), which is not presently a part of the SUP Directive. Those rules include containers for transporting food or packaging materials that are intended to be brought into contact with food, are already in contact with food or can reasonably be brought into contact with food. In this context, FCM cannot release their constituents into food at levels harmful of human health and cannot change food composition, taste or odour in unacceptable ways (DG SANTE 2022). There is an ongoing EU initiative about revising the EU rules on food contact materials, and since it includes plastic packaging, it could have an effect on the SUP Directive. The revision is currently planned for a public consultation during 2022 and the Commission adoption is planned for the second quarter of 2023 (European Commission 2022a).

Public opinion on plastic, and specifically SUPs, is a success factor. Several surveys and documentaries, such as the Eurobarometer and A Plastic Ocean or BBC Blue Planet, showed that people are sensitive to the environmental impact of plastics.

Of EU citizens, 74 % are concerned about the impact on their health, and 87 % are concerned about the environment, when it comes to the everyday products made by plastic. Marine pollution was also identified as the most important environmental issue according to 33 % of Europeans. Between December 2017 and February 2018, there was a public consultation where over 1800 contributions from the public and stakeholders acknowledged the need for action on SUPs. As much as 98.5 % considered actions to tackle marine litter in the form of SUPs as "necessary", and 95 % considered it as "necessary and urgent". Manufacturers (70 %) and brands and recyclers (80 %) also considered action to be "necessary and urgent" (European Commission 2018a).

SUPs are visible in their impact and people understand the issue when they see pictures of animals strangled in the oceans

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According to the NGO Seas At Risk, SUPs are very visible in their impact and people understand that is an issue when they see SUPs on beaches or pictures of turtles strangled in the oceans. Having this in mind, it is easier for the public to form an opinion and to realise that there is need for a SUP Directive.[17] This is something that a representative from the German BMUV agreed on. Public opinion was impacted by the communication from national governments. Sweden, France and Germany, for example, were among the countries who communicated widely about the environmental impact of plastic pollution and their strategies to tackle these issues. The German

17 Interview with Frédérique Mongodin, Seas At Risk, 22-03-08.

ministry could see that the market restrictions were taken very well by the public and they get daily e-mails suggesting bans on other problematic products as well.[18]

What can also be said about the implementation process of the SUP Directive is that the EU in general already had existing recycling systems in place and capacity for recycling of SUPs and other plastic products. The recycling rate of packaging waste was at 66 %, whilst the overall municipal waste recycling rate was a bit lower at 48 %, in 2019 (European Environment Agency 2021). According to Plastics Europe (2020), there is 8.5 million tonnes of installed capacity for plastic recycling in Europe, with over 600 companies and 20.000 employees working in the plastic recycling industry.

4.2 Remaining barriers in the legislation

When looking at the initial proposal and what then made it to the legislative text, the ambition on necessary measures to ensure separate collection for recycling was lowered during negotiations. In a discussion with Seas At Risk, their idea on the biggest failure with the SUP Directive is that there are no specific number on national targets for consumption reductions. It merely states that member states need to reach an ambitious and sustained quantitative reduction in consumption of SUPs by 2026. The NGO believes that it would not have mattered so much of what kind of number that the directive set out, but simply that there was a quantitative target that member states needed to reach. Otherwise, countries can state that 10 % consumption reduction is a sustained decrease according to their measures. The next step is therefore to make sure that all EU countries set up their own national targets for consumption reduction.[19]

Another thing that Seas At Risk mentioned is to make sure that the scope of the directive is being implemented fully. There are countries, such as Italy, who want to make exemptions to the rules on a national level. They have managed to get their own definition of oxo-degradable plastic and plastic linings in order to benefit national interests. How this will be dealt with by the European Commission is still yet to be seen, but NGOs are fighting to make sure that it will not be possible to make exemptions like these.[20]

18 Interview with Nina Tavakkoli, German Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection, 22-03-09.

19 Interview with Frédérique Mongodin, Seas At Risk, 22-03-08.

20 Interview with Frédérique Mongodin, Seas At Risk, 22-03-08.

5 CONCLUDING REMARKS

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Main success factors in the implementation process of the SUP Directive lie in having a strong public opinion, a willpower to do change from local authorities and actors, and that both the EU and certain countries had a waste legislation framework with specific targets on waste and recycling set up before the SUP Directive was proposed. The impact assessments leading up to the proposal showed that 98.5 % of surveyed Europeans saw it as necessary to tackle marine litter in the form of SUPs whilst campaigns in all case study countries have seen a positive effect on engagement of civil society. Having an engaged public matter in policymaking, especially when it comes to products such as SUPs that are dependent on consumer behaviour and demand. This is something that local municipalities in Greece took advantage of when they implemented SUP bans long before the Directive came into place, due to public demand, or in Germany when local actors started voluntary reusable systems as alternatives for SUPs. Finally, a working waste legislation with collection schemes, recycling capabilities and high ambition when it comes to decreasing waste generation makes it easier to implement further regulations for a circular economy.

Lessons learned from the SUP Directive may firstly include performing public consultations, to understand the public will and whether they are ready for putting market restrictions on SUPs or not. It can also be used to gain support from local actors and businesses on the subject if they feel that their voices are being heard. This can be done by surveys and campaigns, but the labelling of products is also a way of making the public more aware of plastic content and that plastics

"are everywhere", which would increase the acceptance. Understanding the market and where eventual loopholes can be found is of importance in policymaking and became evident in the example case of exemptions by Italy.[21]

When it comes to the legislative process, it could be preferable to somewhat "test the waters" and start off with creating targets for consumption reduction and littering prevention to make actors prepared and getting used to policies put on SUPs. As shown in the report, it is easier to revise legislation once in place than it is to get a joint decision on ambitious legislation to begin with. A quantitative target as precondition, no matter the actual number, is important to calculate the changes made. According to a representative of the German BMUV, municipalities and local authorities can be one way of starting off on a smaller scale, where inspiration can be drawn from the Greek islands.

It is valuable to be aware of the complex value chains of plastics that travel across borders and end up in beaches elsewhere and countries can thereby benefit from a regional cooperation on legislation.[22]

Both the NGO Seas At Risk and a representative of the German BMUV stated that there were large negotiations made on the definitions of plastics and SUPs. Both witness of having to fight for what should be included in the definitions and there were several industry position papers made each week. This is something they both believe could have been proposed by the European Commission to begin with instead of taking time from negotiations. Recommendations for implementing similar legislation in other regions could include having a set definition when going into negotiations, where the definition on plastics and SUPs in the SUP Directive could serve as examples for these.[23] [24]

21 Interview with Nina Tavakkoli, German Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection, 22-03-09.

22 Interview with Nina Tavakkoli, German Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection, 22-03-09.

23 Interview with Nina Tavakkoli, German Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection, 22-03-09.

24 Interview with Frédérique Mongodin, Seas At Risk, 22-03-08.

6 REFERENCES

ACLC Foundation (2020). *Seachange Greek Islands.* A.C. Laskaridis Charitable Foundation. Available 2022-03-09 at: https://www.aclcf.org/sea/seachange-greek-islands-2/

BMUV (2021). *Number of selected waste management facilities.* Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection. Available 2022-03-04 at: https://www.bmuv.de/en/topics/water-resources-waste/circular-economy/statistics-on-the-different-areas-of-waste-management/general-statistics-on-waste-management/number-of-selected-waste-management-facilities

BMUV (2022). *Packaging waste – Drinks packaging.* Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection. Available 2022-03-07 at: https://www.bmuv.de/en/topics/water-resources-waste/circular-economy/types-of-waste-waste-flows/packaging-waste

Deloitte (2021). *Pathways towards circular plastics – Point of view.* Deloitte Belgium. Available 2022-02-14 at: https://www2.deloitte.com/be/en/pages/energy-and-resources/articles/pathways-towards-circular-plastics.html

DG SANTE (2022). *Food Contact Materials.* Directorate-General for Health and Food Safety, European Commission. Available 2022-03-09 at: https://ec.europa.eu/food/safety/chemical-safety/food-contact-materials_en

EEA (2021). *Waste recycling in Europe.* European Environment Agency. Available 2022-03-03 at: https://www.eea.europa.eu/ims/waste-recycling-in-europe

EOAN (2018). *Packaging & Packaging waste – Statistics.* EOAN, The Hellenic Recycling Organization. Available 2022-03-04 at: https://www.eoan.gr/

EUR-Lex (2019). *European Union Directives.* EUR-Lex, Access to European Union Law. Available 2022-02-21 at: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=legissum:l14527

European Commission (2018a). *Commission Staff Working Document: Impact Assessment. Reduce Marine Litter: action on single use plastics and fishing gear.* Part 1/3. SWD(2018) 254 final. Available 2022-02-21 at: https://ec.europa.eu/environment/pdf/circular-economy/single-use_plastics_impact_assessment.pdf

European Commission (2018b). *Commission Staff Working Document: Impact Assessment. Reduce Marine Litter: action on single use plastics and fishing gear.* Part 2/3. SWD(2018) 254 final. Available 2022-03-04 at: https://ec.europa.eu/environment/pdf/circular-economy/single-use_plastics_impact_assessment2.pdf

European Commission (2022a). *Revision of EU rules on food contact materials.* Available 2022-03-09 at: https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12497-Revision-of-EU-rules-on-food-contact-materials_en

European Commission (2022b). *Single-use plastics.* Available 2022-02-14 at: https://ec.europa.eu/environment/topics/plastics/single-use-plastics_en

European Commission (2022c). *Policy framework on biobased, biodegradable and compostable plastics.* Available 2022-03-31 at: https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/13138-Policy-framework-on-biobased-biodegradable-and-compostable-plastics_en

European Environment Agency (2021). *Waste recycling in Europe.* Available 2022-02-15 at: https://www.eea.europa.eu/ims/waste-recycling-in-europe

Eurostat (2021a). *Which EU countries had the highest GDP in 2020?* Available 2022-03-09 at: https://ec.europa.eu/eurostat/web/products-eurostat-news/-/ddn-20211220-1

Eurostat (2021b). *Population on 1 January.* Available 2022-03-10 at: https://ec.europa.eu/eurostat/databrowser/view/TPS00001/bookmark/table?lang=en&bookmarkId=c0aa2b16-607c-4429-abb3-a4c8d74f7d1e

Greek Ministry of Environment and Energy (2021). *Press releases: Disposable plastic products.* Available 2022-03-03 at: https://ypen.gov.gr/plastika-proionta-mias-chrisis/Greek National Tourism Organisation (2022). Islands. Available 2022-03-09 at: https://www.visitgreece.gr/islands/

KPMG (2021). *Plastic Tax.* Available 2022-02-15 at: https://home.kpmg/xx/en/home/insights/2021/09/plastic-tax.html

Ministère de la Transition Écologique et Solidaire (2020). *The Anti-waste Law in the daily lives of the French people, what does that mean in practice?* Available 2022-03-31 at: https://circulareconomy.europa.eu/platform/sites/default/files/anti-waste_law_in_the_daily_lives_of_french_people.pdf

OECD (2022). *Circular economy – waste and materials.* Available 2022-03-10 at: https://www.oecd-ilibrary.org/sites/f5670a8d-en/index.html?itemId=/content/component/f5670a8d-en

Plastics Recyclers Europe (2020). *Report on plastic recycling statistics 2020.* Available 2022-02-15 at: https://743c8380-22c6-4457-9895-11872f2a708a.filesusr.com/ugd/dda42a_8cd33e6da4a749dda4a0f40573e61b85.pdf

Regeringskansliet (2020). *Cirkulär ekonomi – strategi för omställningen i Sverige (in English: Circular economu – a strategy for the transition in Sweden).* Available 2022-03-07 (in Swedish) at: https://www.regeringen.se/4a3baa/contentassets/619d1bb3588446deb6dac198f2fe4120/200814_ce_webb.pdf

Regeringskansliet (2022). *Sveriges handlingsplan för plast (in English: Swedish action plan on plastic).* Available 2022-03-07 (in Swedish) at: https://www.regeringen.se/rapporter/2022/02/sveriges-handlingsplan-for-plast/

Rethink Plastic Alliance and Break Free From Plastic Movement (2021). *Moving on from Single-use Plastics: How is Europe doing?* Available 2022-03-04 at: https://rethinkplasticalliance.eu/wp-content/uploads/2021/06/SUP-Assessment-Design-final.pdf

Returpack (2022). *Vår verksamhet (in English: Our business).* Available 2022-03-07 (in Swedish) at: https://pantamera.nu/sv/om-oss/var-verksamhet/

SCB (2021). *Återvinning av förpackningar i Sverige (in English: Recycling of packages in Sweden).* Statistiska Centralbyrån, SCB. Available 2022-03-07 (in Swedish) at: https://www.scb.se/hitta-statistik/sverige-i-siffror/miljo/atervinning-av-forpackningar-i-sverige/

Seas At Risk (2021). *Best practices to reduce and phase out single-use plastics in Europe.* Seas at Risk and #breakfreefromplastic. Available 2022-02-14 at: https://seas-at-risk.org/publications/best-practices-to-reduce-and-phase-out-single-use-plastics-in-europe/

Smart City Sweden (2022). *Extended Producer Responsibility in Sweden: Towards better waste management.* Available 2022-04-19 at: https://smartcitysweden.com/best-practice/337/extended-producer-responsibility-in-sweden-towards-better-waste-management/

Sustainable Development Solutions Network & Institute for European Environment Policy (IEEP) (2021). *Europe Sustainable Development Report 2021.* Available 2022-03-10 at: https://s3.amazonaws.com/sustainabledevelopment.report/2021/Europe+Sustainable+Development+Report+2021.pdf

Svensk Plaståtervinning (2022). *Vi bygger Site Zero (in English: We are building Site Zero).* Available 2022-03-07 (in Swedish) at: https://www.svenskplastatervinning.se/site-zero/

Umwelt Bundesamt (2020a). *Packaging.* Available 2022-03-07 at: https://www.umweltbundesamt.de/en/topics/waste-resources/product-stewardship-waste-management/packaging#packaging-in-germany-

Umwelt Bundesamt (2020b). *Further increase in packaging consumption in 2018 in Germany – Systems for reusables and recycling need to be expanded*. Available 2022-03-04 at: https://www.umweltbundesamt.de/en/press/pressinformation/further-increase-in-packaging-consumption-in-2018

VerpackG (2021a). *German Packaging Act – Amendment 2021. Important Modifications.* Available 2022-03-04 at: https://verpackungsgesetz-info.de/en/ https://verpackungsgesetz-info.de/wp-content/uploads/2021/07/twopager-packaging-amendment.pdf

VerpackG (2021b). *Information Platform for the Manufacturers and Distributors regarding the Packaging Act.* Available 2022-03-04 at: https://verpackungsgesetz-info.de/en/

WWF (2022). *Impacts of plastic pollution in the oceans on marine species, biodiversity and ecosystems.* Alfred Wegener Institute Helmholtz Centre for Polar and Marine Research and WWF. Available 2022-02-14 at: https://wwf.panda.org/wwf_news/press_releases/?4959466/Ocean-plastic-pollution-to-quadruple-by-2050-pushing-more-areas-to-exceed-ecologically-dangerous-threshold-of-microplastic-concentration

Zero Waste Europe (2019). *Unfolding the Single-Use Plastics Directive – Policy briefing.* Available 2022-02-14 at: https://zerowasteeurope.eu/wp-content/uploads/2019/05/zero_waste_europe_policy_briefing_unfolding-the-sup-directive_en.pdf

ANNEX 1. BIO-BASED PLASTICS, MODIFIED NATURAL POLYMERS AND OTHER TYPES OF POLYMERIC MATERIALS

This annex provides some basic introduction to different plastics and their qualities. The Single-use Plastics Directive (SUP Directive)[25] stems from the plastic strategy ***A European Strategy for Plastics in a Circular Economy*** from 2018[26], which is where much of the background information to the directive was collected. In the plastics strategy there are discussions on different types of polymeric materials and the roles of these. The SUP Directive does not consider switching from one type of plastic to another type of plastic as a solution to the SUP challenge and objective of the SUP Directive. The information here is to a great extent drawn from ***A European Strategy for Plastics in a Circular Economy*** and provides some information on different plastics and their potential function in a circular economy.

The biodegradation process of plastics is explained as the following:

> In a biodegradation process, plastics are bio-transformed and decomposed by microorganisms into water, naturally occurring gases like carbon dioxide (CO_2) and methane (CH_4) and biomass (e.g. new microbial cellular constituents). Biodegradability depends strongly on the environmental conditions: temperature, presence of microorganisms, presence of oxygen and water. Both the biodegradability and the biodegradation rate of a plastic may be different depending on the environment, e.g. in the soil, on the soil, in humid or dry climate, on the surface water, in marine ecosystems or in human-made systems like home composting, industrial composting or anaerobic digestion.
>
> A distinction needs to be made between industrial and home composting. Industrial composting conditions require elevated temperature (55 – 60° C) combined with high relative humidity and the presence of oxygen. Industrial composting takes place under given and predictable conditions. Home-composting is characterised by typically uncontrolled conditions and takes

25 Directive (EU) 2019/904 of the European Parliament and of the Council of 5 June 2019 on the reduction of the impact of certain plastic products on the environment.

26 Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions – A European Strategy for Plastics in a Circular Economy. COM(2018) 28 final.

> much longer compared to industrial composting as the temperature in home-compost heaps is generally lower and other necessary conditions vary greatly between Member States, depending to a great extent on the geographical and climatological situation as well on individual actions taken by households.

Bio-based plastics are defined as:

> Plastics that are wholly or partly derived from materials of biological origin and have the same properties as conventional plastics. Hence, one should keep in mind that although they can, not all bio-based plastics are biodegradable and not all biodegradable/compostable plastics are bio-based.

Presently, there is no recognised European method that can test biodegradation processes of plastics in the extremely varied conditions of marine and coastal environments, meaning that a biodegradable plastic labelled as such cannot be guaranteed to biodegrade in the "end of waste" conditions they may end up in (European Commission 2018a). This is why France, for example, has included a prohibition on biodegradable claims on products and packaging in their Anti-waste law from 2017. The prohibition states that such claims mislead consumers into thinking that the products will not affect natural environments, which can lead to disposals of the products in the environment (Ministère de la Transition Écologique et Solidaire 2020).

Standards for composting plastics (in an industrial setting) exist on an international level (ISO standard 17088:2012 defining specifications for compostable plastics) and on an EU level (harmonized standard EN 14995 defining requirements for plastics recoverable through composting and biodegradation and harmonized standard EN 13432 defining requirements for packaging recoverable through composting and biodegradation under industrial composting conditions).[27] Due to the lack of standards on environmental and marine biodegradation, the EU is currently working on the initiative ***Policy framework on biobased, biodegradable and compostable plastics.*** It states that a clear policy framework is needed on the use of biobased, biodegradable, and compostable plastics, which would increase harmonisation and environmental protection, reduce consumer confusion, and create new market possibilities for further innovation. A commission adoption on this initiative is planned for summer 2022 (European Commission 2022c).

The relation between source of the raw material for the plastics and the characteristic of the final material to decompose or not are illustrated in the following graphic.

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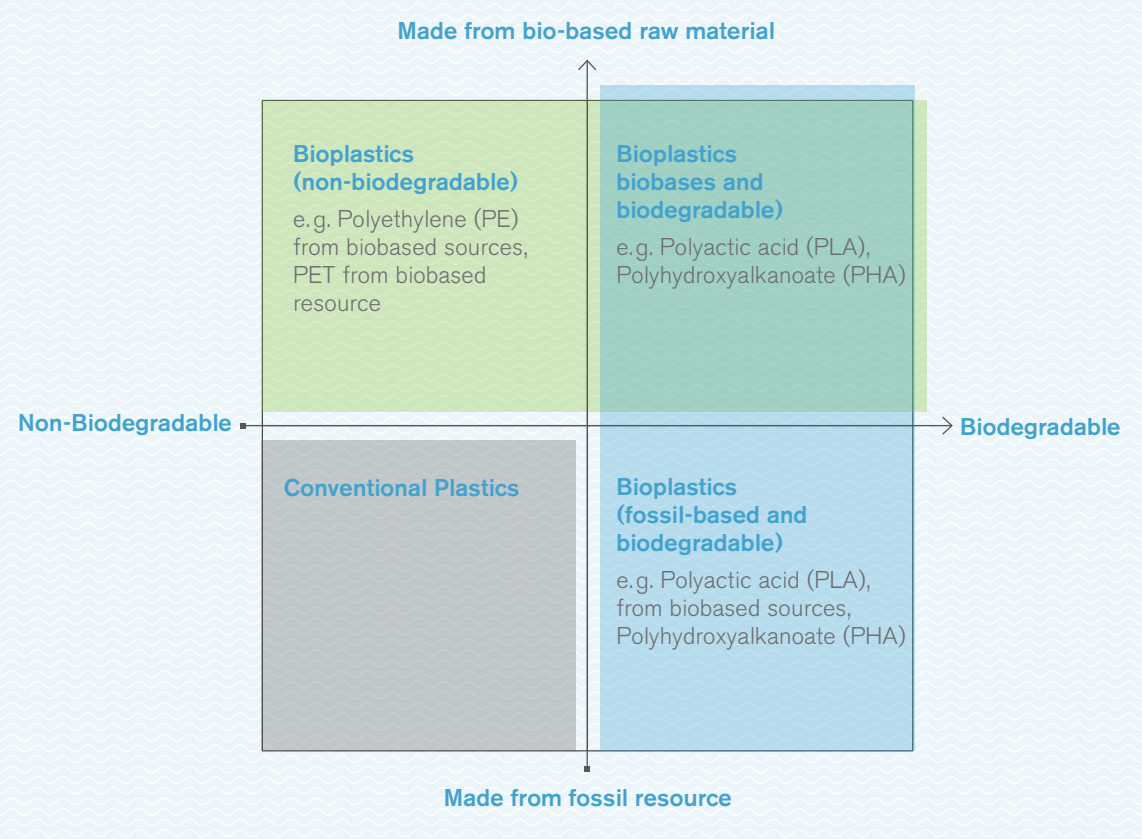
27 Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions – A European Strategy for Plastics in a Circular Economy. COM(2018) 28 final.

Classification of plastics

based on their characteristics on biodegradability and source of raw material



Based on ETC/WMGE und EEA

The figure above illustrates how plastics today can have different characteristics and impact in terms of resource use. The different categories provide new opportunities for any producer to choose plastics that are more in line with the use of the material. However, this variation will also affect the need to control recycling stage much more. Recycling processes are preferred in a circular economy due to keeping plastic materials in a loop that can decrease the use of natural resources. There is need to have very good control of what plastic types are used in what recycling loops. Certain mixes where for example biodegradable material becomes part of non-biodegradable can negatively affect the quality of recycled plastic.

In the SUP Directive, definitions of unmodified natural polymers vs. modified natural polymers are distinguished. Unmodified natural polymers are polymeric materials with no chemically modified substances and thereby naturally occurring polymers. Modified natural polymers, by chemical substances, or plastics manufactured of bio-based, fossil or synthetic starting substances fall under the category of not naturally occurring.

Conclusively, the SUP Directive states that all plastic materials and polymer-based rubber items that are manufactured by bio-based, fossil or synthetic starting substances and regardless of being biodegradable, and thus not naturally occurring polymers, should be included in the directive.

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