



Llywodraeth Cymru  
Welsh Government

# ***The Environmental Protection (Single-use Plastic Products) (Wales) Bill***

Explanatory Memorandum  
incorporating the  
Regulatory Impact Assessment and  
Explanatory Notes

**September 2022**

# **The Environmental Protection (Single-use Plastic Products) (Wales) Bill**

## **Explanatory Memorandum to The Environmental Protection (Single-use Plastic Products) (Wales) Bill**

This Explanatory Memorandum has been prepared by Climate Change and Rural Affairs Group of the Welsh Government and is laid before Senedd Cymru.

### **Member's Declaration**

In my view the provisions of The Environmental Protection (Single-use Plastic Products) (Wales) Bill, introduced by me on 20 September 2022, would be within the legislative competence of Senedd Cymru.

### **Julie James MS**

Minister for Climate Change  
Member of the Senedd in charge of the Bill

20 September 2022

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## **PART 1 – EXPLANATORY MEMORANDUM**

### **1. Description**

The Environmental Protection (Single-use Plastic Products) (Wales) Bill (“the Bill”) will make it an offence for a person to supply or offer to supply (including for free), certain commonly littered and unnecessary single-use plastic (SUP) products listed in the schedule to the Bill, to a consumer in Wales.

The Bill includes a regulation-making power, to enable Welsh Ministers to add or remove a SUP product to the list of products in the Bill that are subject to the offence of supply (or offer of supply).

## **2. Legislative Competence**

Senedd Cymru ("the Senedd") has the legislative competence to make the provisions in The Environmental Protection (Single-use Plastic Products) (Wales) Bill ("the Bill") pursuant to Part 4 of the Government of Wales Act 2006 ("GoWA 2006") as amended by the Wales Act 2017.

### 3. Purpose and intended effect of the legislation

#### 3.1: Introduction

3.1.1: Tackling the negative impacts from plastic pollution on our environment, wildlife, health and wellbeing is a key priority for Welsh Ministers and a Programme for Government commitment.

3.1.2: The Environmental Protection (Single-use Plastic Products) (Wales) Bill (“the Bill”) proposes:

- To make it an offence for a person to supply or offer to supply (including for free), the following commonly littered and unnecessary disposable single-use plastic (SUP) products to a consumer in Wales:
  - plates
  - cutlery
  - drinks stirrers
  - drinking straws (including attached straws)
  - cups made of polystyrene
  - takeaway food containers made of polystyrene
  - cup and takeaway food container lids made of polystyrene
  - plastic-stemmed cotton buds
  - sticks for balloons
  - oxo-degradable products
  - plastic single-use carrier bags (SUCBs)
- That the above offence is a summary offence and so is triable in the Magistrates’ Court. If a person is found guilty of the offence, the Court may impose an unlimited fine.
- A regulation making power, to enable Welsh Ministers to add or remove a SUP product to the list of products in the Bill that are subject to the offence of supply (or offer of supply).
- A requirement on the Welsh Ministers to report under section 79(2) of the Government of Wales Act 2006 on the consideration they have given to whether to exercise the regulation making power:
  - to add further products to the list of prohibited single-use plastic products in Schedule 1 to the Bill that are subject to the offence of supply (or offer to supply).
  - to make any proposed amendment to the exemptions listed in Schedule 1 to the Bill.
- That a local authority or a person authorised by the local authority shall be responsible for enforcing offences under the Bill.

- To provide powers of entry, investigation and to make test purchases for authorised officers of a local authority. This will enable them to investigate whether an offence has been committed.
- To make it an offence to intentionally obstruct an authorised officer of a local authority who is exercising their enforcement functions under the Bill.
- A power to enable regulations, to be made by the Welsh Ministers provide for civil sanctions to be made in respect of criminal offences created by the Bill.

## 3.2: Background

### Single-use, disposable products

- 3.2.1: Plastic, when well designed and necessary, can play an important role in our economy and daily lives. However, its use has become so widespread people often place little or no value on it as a resource. Therefore, it is often disposed of after one use, is not recycled or simply littered. Research published by the [Organisation for Economic Cooperation and Development](#) reports almost two-thirds of plastic waste is from short-lived items.
- 3.2.2: Smaller SUP products are particularly problematic as they often cannot easily be picked up once littered. They can also enter our rivers and seas, washing onto our beaches. In 2018, the European Commission (EC) undertook [research](#) which found that 80 to 85% of marine litter, measured by beach litter surveys, is plastic, with SUP products representing 50% of the total marine litter.
- 3.2.3: Plastic litter can often be difficult to identify as it can break into smaller pieces in the riverine and marine environment. European Commission research found most littered items on European beaches were those associated with “on-the-go” food and drink. The [Hazardous Substances Advisory Committee's review](#) of oxo-degradable plastic highlighted the hazard these ‘microplastics’ presents to wildlife. It also referenced studies which suggested the additives in some plastics, such as bisphenol A and phthalates could convey toxicity when they fragment.
- 3.2.4: There has been extensive reporting on microplastics in the media, underlying their widespread presence and concern. Articles in The Guardian reported on the [presence of microplastics in a small number of human blood samples](#) and [animal derived food products](#). The BBC has reported on [microplastics which have been found in fresh Antarctic snow](#).
- 3.2.5: Studies in Wales have identified plastic litter has been prevalent in our local environment. In 2019, the Welsh Government published an [analysis of waste](#) found in litter bins and street sweepings and found plastic items made up 40% (by item count) of the total sample analysed. Annual Welsh beach and street cleanliness surveys have confirmed the presence of many of the products

found by the EC's research. The [Marine Conservation Society's Great British Clean in September 2021](#) found plastic and polystyrene accounted for 82% of all beach litter in Wales, with an average of 120 pieces per 100 metres. In their [2021-2022 Street Cleanliness Survey](#), Keep Wales Tidy found fast food drinks lids and polystyrene fast food containers on 6% and 2% of streets surveyed respectively.

- 3.2.6: Plastic-stemmed cotton buds are frequently disposed of by [flushing down toilets](#). They can then pass through sewage treatment works and reach the marine environment. Once there, they threaten the health of wildlife when whole and their fragmentation by ultra-violet light exposure extends their impact across the ecosystem. It is impossible to recover this fragmented plastic, it does not biodegrade and instead accumulates in the riverine and marine environment.
- 3.2.7: Once in the riverine or marine environment, plastic can be accidentally eaten by animals, causing harm as it builds up in their digestive systems. The presence of large amounts of plastic in the countryside, our rivers and along our coastlines can also be unsightly, which can deter tourists and affect our local communities and their economies.

### **Oxo-degradable plastic**

- 3.2.8: Oxo-degradable plastics are conventional plastics, such as high-density polyethylene, which include additives which are designed to promote the oxidation of the material to the point where it embrittles and fragments. This may then be followed by biodegradation by bacteria and fungi at varying rates depending upon the environment. Products made from this type of plastic on the market include shopping bags, refuse sacks, disposable cutlery, plastic cups, agricultural mulch films and certain plastic bottles.
- 3.2.9: The environmental impact of oxo-degradable plastics has been the subject of various scientific studies. Although these products have been marketed as a solution to plastic pollution, [evidence indicates that oxo-degradable plastics simply fragment into small pieces](#), including microplastics, presenting a high risk of [environmental harm](#).
- 3.2.10: In addition to causing microplastic pollution, oxo-degradable plastics are [not suitable for long term use \(due to their rapid degradation\), recycling or composting](#). Testing carried out on behalf of the [European Plastic Converters](#) on oxo-degradable plastic in the recycling process concluded that these materials conflict with the recycling of conventional plastic.
- 3.2.11: The main problem is that products such as carrier bags made from oxo-degradable plastic are not distinguishable from conventional plastic products and hence find their way into the recycling stream. Due to their short lifespan and rapid fragmentation triggered by UV light, these products are also unsuitable for multiple re-use.



## **Single-use plastic carrier bags**

- 3.2.12: Plastic carrier bags can present a significant environmental hazard, especially to aquatic life. For example, the [Marine Conservation Society](#) has reported how some marine life can mistake carrier bags for food, due to their resemblance to squid or jelly fish, the latter being the main food source of species such as the Leatherback turtle. They can also release harmful chemicals into the environment and never completely disappear. Even when they break down, this can take decades.
- 3.2.13: The lightness and mobility of carrier bags mean they can easily end up in litter; this is particularly relevant to thin “single-use” bags, according to [research](#) undertaken by the EC. The same research also highlighted that the overall life cycle of plastic carrier bags largely depended on their thickness and thicker re-usable bags are less likely to be littered. Nevertheless, there is no ideal version of a plastic carrier bag and re-use is key to reducing the environmental impact of any bag.
- 3.2.14: The production and disposal of plastic bags can also have a negative impact on the environment, through the oil used in their creation and incorrect disposal. Single-use bags are a waste of resources.

### **3.3: Proposal**

- 3.3.1: We propose to introduce legislation to ban or restrict the supply to consumers of several commonly littered and unnecessary SUP products in Wales.
- 3.3.2: Our legislation will help accelerate the shift in consumer behaviour away from single-use products towards greater re-use and will encourage businesses in Wales to lead the way in developing more sustainable alternatives. A communications plan has been developed to support the development and implementation of the Bill.

### **3.4: Objective**

- 3.4.1: This Bill will support action to tackle the climate and nature emergencies. It will also contribute to our long-term ambitions of phasing out unnecessary single-use products, especially plastic, and sending zero plastic to landfill. Whilst we recognise some uses of disposable plastic are essential, such as those used in medical settings, we want to see a greater shift to more sustainable reusable products. Where single-use products are needed, they should be designed in a way which minimises impacts on the environment.

### **3.5: Implementation**

- 3.5.1: We will work closely with businesses, manufacturers, public sector groups, communities and protected characteristic groups to develop comprehensive guidance to support the implementation and enforcement of the legislation. This will include communication material to help raise awareness of products no longer available and how to access alternatives.

- 3.5.2: Introducing this legislation is the first step in delivering our [Programme for Government](#) commitment, published June 2021, to abolish the use of more commonly littered SUP products in Wales. It also contributes to our wider vision of establishing a circular economy in Wales, as set out in our strategy [Beyond Recycling](#), and by implementing a number of actions including in our [Litter & Fly-tipping Prevention Plan](#) aimed at addressing single-use products in Wales.
- 3.5.3: By introducing this legislation we aim to maximise our contribution to the sustainable development principle of the [Well-being of Future Generations Act 2015 \(WFGA\)](#) to improve the economic, social, environmental and cultural well-being of Wales.
- 3.5.4: This legislation is firmly grounded in the seven wellbeing goals in the [WFGA](#). Banning commonly littered SUP products aims to reduce the harm these products cause to the environment, thereby enhancing biodiversity and the natural environment. All those who live in and visit Wales can benefit from less plastic pollution, no matter what their background or circumstances are. Tackling plastic pollution protects and enhances local areas, thereby improving health and wellbeing, especially where improvements coincide with deprived areas with high incidence of littered plastic (**a resilient Wales, a more equal Wales, and a Wales of cohesive communities**).
- 3.5.5: Littered plastic is often broken down into microplastics, which can enter the animal and human food chain. Reducing the amount of plastic in our environment, therefore, contributes to **a healthier Wales**. Wales is already a world leader on recycling and this legislation is a further step in addressing the global challenges of the climate and nature emergency (**a globally responsible Wales**). Supporting action to address the nature emergency through protecting natural ecosystems and biodiversity enhances the cultural capital of Wales and supports outdoor activities. As we develop and implement the legislation, we will ensure equal standards in both Welsh and English guidance (**a Wales of vibrant culture and thriving Welsh language**).
- 3.5.6: As Wales moves away from disposable, SUP products, opportunities arise for Welsh businesses to innovate and develop sustainable alternatives to the plastic products we use today (**a prosperous Wales**).

### **3.6: Rationale for Government Intervention**

- 3.6.1: In the twenty years since devolution, Wales has transformed from a nation which recycled less than 5% of its municipal waste, to an international leader that recycles [65%](#). In addition, we have led the way by becoming the first country in the UK to introduce a charge for SUCBs. We want to build on these successes by continuing to explore alternative and innovative approaches to phasing out SUPs.

- 3.6.2: We also want Wales to become a nation where resource efficiency is part of our culture, where we recognise the value of our resources and reduce the quantity of waste that arises. We published our Circular Economy Strategy, [Beyond Recycling](#), in 2021 and in this we have outlined how we aim to establish an economy which keeps resources in use for as long as possible and eliminates waste. This includes phasing out SUP and sending zero plastic waste to landfill.
- 3.6.3: We are introducing this bill in the wider context of the climate emergency. The Chief Medical Officer (CMO) for Wales' Annual Report, [Restoring our Health](#), published in June 2022 highlights that climate change is a pressing public health issue. It will increasingly dominate our lives as it adversely affects the most basic health requirements of clean air, safe water, sufficient food, and adequate shelter. It affects the environment around us, the places where we live, work, and play and can have a profound impact on our health and well-being.
- 3.6.4: The carbon emissions associated with producing SUP products contribute to the climate emergency. By reducing the opportunity to access SUP products, this Bill will encourage citizens to move to reusable alternatives, with a concomitant reduction in carbon emissions. [Research](#) showed that disposable polypropylene cups have seven times the global warming potential of reusable polypropylene cups (measured in kgCO<sub>2e</sub>) while disposable polystyrene takeaway food containers have twice the global warming potential of reusable polypropylene takeaway food containers.
- 3.6.5: Several of the SUP products included in our proposals are provided to consumers at low, or no cost, with an accompanying purchase of food or drink. Intelligence from expert colleagues working in the Circular Economy and Resource Efficiency Team in Welsh Government indicate these products are often small and are of low individual value, both to the end consumer and the retailer. The cost and effort of separating, cleaning and processing them for recycling is, therefore, deemed not to be worthwhile. Consequently, a high volume of these products is littered, or discarded into general waste, either by the end consumer or the retailer. There are, therefore, associated external costs in relation to these products which are not reflected in the price of the product to the consumer. This provides an economic rationale for government intervention to address this market failure.
- 3.6.6: We welcome the voluntary measures taken by communities and businesses to move away from unnecessary SUPs. However, it is clear more needs to be done and without an intervention to remove low cost, low value but highly damaging plastics from the market we will not effectively tackle the issue of litter and plastic pollution. We need to build on these initiatives with action to accelerate the shift away from such products.
- 3.6.7: While we have seen a significant reduction in the number of SUCBs in Wales, their use persists. Our [research in 2019](#) identified the reuse of bags outside of the food shopping setting, for example when visiting clothing shops, was limited. Respondents to the consumer survey quoted various reasons for this.

This included the perceived “hassle” of carrying around bags for non-food shopping, concern over food shopping bags “contaminating” new clothing items and fashion statements relating to product brands. The latter view was prevalent amongst respondents aged 18-34 who often wanted to be judged positively based on a branded bag to reflect their purchase; others wanted to avoid being judged negatively for using a food shopping bag.

3.6.8 Our consumer survey also found, in instances where people were continuing to purchase and use SUCBs, the bags were often disposed of quickly. Survey respondents either reported disposing of them immediately after one use as a carrier bag for shopping or, in some cases, finding a second (single) use for them – for example as a bin bag, food waste caddy liner, or to carry lunch in.

3.6.9: We believe by supporting reuse and shifting production away from unnecessary single-use fossil-fuel based products such as plastic, we will help contribute to our response to the climate and nature emergencies.

3.6.10: Our public consultation [Reducing Single Use Plastics](#) indicated widespread support for legislative action on commonly littered single-use plastics.

### **3.7: The risks if we did not legislate**

3.7.1: The United Nations Environment Programme, [A Global Assessment of Marine Litter and Plastic Pollution](#), which assesses the ongoing impacts of marine litter and plastic pollution, reports the amount of plastic litter in our soils, seas and rivers is growing, to the detriment of ecosystems, biodiversity and potentially human health, causing widespread concern. The plastics we are seeking to ban will take hundreds of years to degrade in the environment. During this time the plastics can break down into smaller microplastics, leach toxic chemicals, be ingested and injure or kill wildlife, disrupting ecosystem function.

3.7.2: SUP litter often takes a long time to breakdown in the environment and in turn this leads to it accumulating. This can impact our local economies, especially those reliant on tourism such as our coastal communities and areas of heritage. For example, litter on beaches is unsightly and can have a substantial negative impact on recreational experiences and overall beach enjoyment. Our [research in 2019](#) examined how these negative impacts can deter tourists and others from visiting them, which can cause a decline in coastal tourism and result in a corresponding loss of revenue.

### **3.8: The legislation will improve outcomes for all individuals, including those in protected characteristics groups**

3.8.1: Introducing this legislation will have a significant positive impact by reducing the amount of SUP products littered, and a long-term positive impact by preventing an increase in the amount of plastic in the environment. It will force a shift in behaviours amongst both retailers and consumers towards alternative materials or reusable products. Reducing litter will provide cleaner natural spaces like beaches, forests, parks and countryside for individuals to

enjoy walking, running, cycling, doing conservation work and playing. This has the potential benefit of improving mental and physical well-being as people enjoy their local environment more.

3.8.2: Prompt and effective action to halt and reverse the environmental harms we are observing, can bring about many benefits, not least to population health. Further, strengthening community resilience, introducing a circular economy to tackle climate change can also lead to health benefits by protecting vulnerable populations from outbreaks of disease and weather-related incidents. It can also reduce health costs and promote social equity.

3.8.3: We recognise that some access will still be required for certain SUP products for medical purposes or to allow people to eat and drink safely. The legislation, therefore, includes appropriate exemptions to support independent living, social inclusion and equal participation for people.

### **3.9: Approaches taken elsewhere in the UK**

#### **England**

3.9.1: Following a [consultation in October 2018](#) on proposals to ban the distribution and/or sale of plastic straws, plastic stemmed cotton buds and plastic drink stirrers in England, the UK Government introduced regulations [The Environmental Protection \(Plastic Straws, Cotton Buds and Stirrers\) \(England\) Regulations 2020](#) which came into force in April 2020.

3.9.2: In November 2021 the UK Government further [consulted](#) on proposals to introduce bans for SUP cutlery, plates, balloon sticks, expanded and extruded polystyrene cups, beverage containers and food containers. This is part of a wider commitment to prevent all avoidable plastic waste by the end of 2042.

3.9.3: During the same period a [call for evidence](#) was launched which sought views on how to move away from single-use products to reusable or refillable alternatives and specifically views to inform future policy decisions in relation to:

- wet wipes
- tobacco filters
- sachets
- single-use cups

#### **Scotland**

3.9.4: In October 2019, the Scottish Government introduced [The Environmental Protection \(Cotton Buds\) \(Scotland\) Regulations 2019](#) to ban the sale and manufacture of single-use cotton buds in Scotland.

3.9.5: Following their [consultation](#) on proposals to ban the supply and manufacture of SUP straws, stirrers, plates, cutlery, expanded polystyrene food and drinks containers, the Scottish Government introduced the [Environmental](#)

[Protection \(Single-use Plastic Products\) \(Scotland\) Regulations 2021](#) which came into force in June 2022.

## **Northern Ireland**

- 3.9.6: On 14 January 2022, the Department of Agriculture, Environment and Rural Affairs eight week [consultation](#) for the reduction of SUP beverage cups and food containers ended. The consultation, designed collaboratively with the [Waste and Resources Action Programme \(WRAP\)](#), requested responses on several policy proposals, on the most effective way to ensure a substantial reduction in the use of SUP beverage cups and food containers.
- 3.9.7: At the time of writing, progress was pending the formation of a government following the May 2022 elections.



## 4. Consultation

### 4.1: Reducing Single-Use Plastics Consultation 2020

4.1.1: A 12-week public [consultation](#) on our initial proposals for subordinate legislation was undertaken from 30 July 2020 to 22 October 2020. A bilingual consultation document was made available online, along with an “Easy Read” version. Respondents had the option of responding to questions online, by submitting responses electronically to a designated electronic mailbox or in hard copy via the postal system

4.1.2: Respondents were asked to respond to 10 questions relating to proposals to introduce bans to supply, or offer to supply, the following products:

- Single-use plastic plates (including bowls, trays and platters)
- Single-use plastic cutlery (forks, knives, spoons, sporks and chopsticks)
- Single-use plastic beverage stirrers
- Single-use plastic drinking straws (including attached straws)
- Beverage cups made of expanded and extruded polystyrene (with or without a lid)
- Food containers made of expanded and extruded polystyrene (with or without a cover), and
- Products made of oxo-degradable plastic

4.1.3: The consultation also asked four questions covering views on potential legislative action to address the environmental impact of wet wipes (including the introduction of a new Extended Producer Responsibility Scheme), a request for suggestions of additional SUP products that required further action and the impact on the Welsh language.

4.1.4: As the consultation was undertaken during a period of national restrictions due to the COVID-19 pandemic, face-to-face engagement sessions could not be held. Instead, several online meetings were undertaken with different groups, including representatives of the Youth Parliament, members of the Welsh Retail Consortium, a local constituency community group and an online workshop with academics and other experts hosted by Environment Platform Wales.

4.1.5: A total of 3,581 responses were received. This included responses from disabled people and their representatives, and several organised campaigns. This included those coordinated by environmental Non-Government Organisations (NGOs), those representing manufacturers/ producers, several staff and customers of Dŵr Cymru Welsh Water and a combined response from members of the Chartered Institution of Waste Management (CIWM). We also received responses by campaigners for specific issues, such as plastic-free periods.

## **4.2 Summary of Responses**

4.2.1: For a summary of responses to the consultation, please refer to <https://gov.wales/reducing-single-use-plastic-wales>

## **4.3: Targeted engagement in 2022**

4.3.1: Discussions with stakeholders continued with regards to the products consulted on in 2020 and the additional products respondents requested to be included in future bans. This included engaging with:

- Disability representatives and individuals
- Children and young people, including representative organisations
- Non-government environmental organisations.
- Representatives from the education sector
- Representative from the health sector (both primary and secondary)
- Representatives from the agriculture sector
- Manufacturing organisations
- Retailer organisations
- Trade associations

4.3.2: These discussions have helped inform our policy development and supported including thin, plastic SUCBs, and polystyrene lids for cups and food containers to our proposals, specifically assisting us in determining the scope and timings of bans for these items.

4.3.3: It also further assisted us in determining our proposal to include wet wipes could not be progressed at this time. It informed us that further evaluation of the social and economic impact of action on wet wipes, including understanding the potential environmental impact of alternative products, was required. Work is ongoing to gather evidence on those wipes marketed as “plastic free” or “biodegradable” to determine our next steps. We continue to work with water companies, manufacturers, academia, and retailers on this matter.

## **Single-use Carrier Bags**

4.3.4: In addition to the respondents to the 2020 consultation who suggested carrier bags for future action, feedback received during our targeted consultation showed support for our proposals to ban SUCBs, but we recognise this consultation was of limited scale. Through engagement and research, we have identified the economic impact on manufacturers, wholesalers and retailers may result in customers paying extra for an alternative bag. However, customers are already accustomed to paying more than 5p for a bag in supermarkets, which charge varying prices for different types of alternative bag. Consumers can avoid charges for bags by reusing existing bags to carry their shopping and encouraging this behaviour is the purpose of ban on SUCBs.



- 4.3.5: The Environment (Wales) Act 2016 includes a duty which requires retailers to donate their net proceeds from the sale of carrier bags to charitable purposes which relate to environmental protection or improvement and, which directly or indirectly benefit the whole or any part of Wales. There is an exception for those retailers who have existing arrangements where they are donating their proceeds to non-environmental related good causes if they give notice that they intend to continue with these arrangements. Although this duty has yet to be commenced, supermarkets have continued to donate the proceeds from the sale of alternative bags to charitable causes.
- 4.3.6: Following our targeted engagement, some concerns were raised by stakeholders over the potential impact of removing plastic SUCBs, for example in relation to food safety. To address this, a small number of exemptions included in the SUCB charge regulations have been retained.
- 4.3.7: A range of key partners have been involved in shaping and informing these proposals, including relevant Welsh Government departments and the Welsh Local Government Association, especially in relation to issues regarding equality and enforcement.
- 4.3.8: We are very grateful for the detailed valuable information provided by stakeholders which has been instrumental in enabling us to ensure our bans, when they are in place, will be effective and proportionate. We are committed to continuing to work with a range of stakeholders and the wider public as we produce our guidance to support the implementation of our bans.

### **Polystyrene lids for cups and takeaway food containers**

- 4.3.9: The initial focus of the 2020 consultation was to include lids for polystyrene cups, as proposed by the EU's SUP Directive. Following responses to the consultation and further policy development consideration of how best to reduce the environmental impacts from littered single-use polystyrene, the scope was extended to all cup and takeaway food container lids made of polystyrene.
- 4.3.10: To understand the implications of the revised policy, targeted engagement sessions were held with key stakeholders. These included several 'fast food' retailers, plastic lid manufacturers and trade associations representing the packaging, recycling and plastics industry.
- 4.3.11: It is estimated there are [3.2 billion units](#) of disposable cups sold per year in the UK, with approximately two thirds sold with lids. Whilst no robust data is available specifically for Wales, stakeholders have indicated the Welsh market equates to 5% of the UK and on this basis, it is estimated 106 million lids are sold annually. There is no data available to determine what proportion of these lids are polystyrene, however the Foodservice Packing Association suggested this could be as high as 90%. We have been unable to quantify the number of lids used for food containers used for sauces and other hot foods.

- 4.3.12: A review of the major fast food companies' online policy statements on recycling and packaging waste indicated most offer a recycling scheme for plastic lids (usually PET plastic) when collected instore. They also offer reusable / bring your own cup options. However, these recycling schemes are unlikely to capture takeaway products which may be disposed of or recycled by the consumer off the premises, this is estimated to be more than 90% of sales in some businesses.
- 4.3.13: Key areas of feedback from stakeholders in relation to single use cup lids included the need for consideration of measures at a UK wide level to ensure consistency in how companies responded to policy changes. Concerns were raised over the potential for higher costs to independent and smaller retail chains, particularly as they would not have the same procuring power of larger companies. A transition period of 18 - 24 months was also considered necessary by stakeholders to allow changes to production and the development of suitable alternatives.
- 4.3.14: Evidence was provided of some businesses already transitioning to non-polystyrene alternatives. This included the trialling of plant fibre, plastic free and recyclable lids, although further development work is needed before there is a full rollout to replace polystyrene lids. Reusable cup schemes and alternative cup designs (which do not require lids) are also being explored.

#### **4.4 Reasons for not consulting**

- 4.4.1: There has been no formal consultation on the draft Bill. The provisions included in the Bill align to the principles set out in the consultation published in July 2020. The specific proposals have subsequently been further refined, in particular the inclusion of polystyrene lids for cups (as opposed to just lids on polystyrene cups) and the addition of single use plastic carrier bags. These changes have been shared and expertise and input sought from relevant stakeholders and groups. Given the level of consultation responses and timescales for delivering this legislation, it was considered more appropriate and efficient to share and invite comment on the legislative proposals from key stakeholders rather than publish a draft Bill as part of a full consultation.

## **5. Power to make subordinate legislation**

5.1: The Bill contains provisions to make subordinate legislation as follows:

- A power to allow the Welsh Ministers to make regulations to amend the Schedule—
  - (a) to add or remove a prohibited single-use plastic product in column 1 of the Table in paragraph 1;
  - (b) to add, remove or amend an exemption in column 2 of the Table in paragraph 1;
  - (c) to add, remove or amend the definition of a product.
- A power for Welsh Ministers to make regulations providing the local authority as the enforcement authority with civil sanctions that can be used to in respect of criminal offences created by the Bill. This power corresponds to that in Part 3 of the Regulatory Enforcement and Sanctions Act 2008 (c.13) (“RESA”). Part 3 of RESA allows Ministers to make regulations to provide for alternative civil sanctioning powers for relevant criminal offences that relate to regulatory non-compliance. The civil sanctions available under RESA are fixed monetary penalties, discretionary requirements, stop notices and enforcement undertakings. They are an alternative to, rather than a replacement for, criminal conviction especially for minor breaches of regulatory requirements.

### **5.2: Improvements the subordinate legislation will make to the current situation**

- 5.2.1: Our ambition for The Environmental Protection (Single-use Plastic Products) (Wales) Bill is to tackle plastic pollution and the impact it is having on our environment, wildlife, health and well-being.
- 5.2.2: Welsh Ministers have emphasised their strong ambition to phase out a wide range of SUP products to tackle plastic pollution and support action to address the climate and nature emergencies.
- 5.2.3: A power has been included within the Bill to enable Welsh Ministers to make subordinate legislation to ban further SUP products, as and when evidence becomes available.

**Table 5.1: Summary of powers to make subordinate legislation in the provisions of The Environmental Protection (Single-Use Plastic Products) (Wales) Bill**

<b>Section</b>	<b>Power conferred on</b>	<b>Form</b>	<b>Appropriateness of delegated power</b>	<b>Procedure</b>	<b>Reason for procedure</b>
3	Welsh Ministers	Regulations	A power to allow the Welsh Ministers to make regulations to amend the Schedule— (a) to add or remove a prohibited single-use plastic product in column 1 of the Table in paragraph 1; (b) to add, remove or amend an exemption in column 2 of the Table in paragraph 1; (c) to add, remove or amend the definition of a product.	Affirmative	Due to the nature of such power to amend primary legislation
17	Welsh Ministers	Regulations	To allow Welsh Ministers to make regulations to introduce a Civil Sanctions regime to enforce the bans.	Affirmative	This is a relatively broad power, therefore, the affirmative procedure is appropriate.

## PART 2 – REGULATORY IMPACT ASSESSMENT

### 6. Regulatory Impact Assessment (RIA) summary

- 6.1. A Regulatory Impact Assessment has been completed for the Bill and it follows below.
- 6.2. There are no specific provisions in the Bill which charge expenditure on the Welsh Consolidated Fund.

#### Table A

- 6.3. The following table presents a summary of the costs and benefits for the Bill as a whole. The table has been designed to present the information required under Standing Order 26.6 (viii) and (ix).
- 6.4. The following table summarises the costs and benefits of the Bill as a whole. For more information on the assumptions used, and un-monetised costs and benefits please refer to the individual sections on these policy areas. Please note that the majority of costs and benefits here have been presented in Present Value (PV) i.e., discounted using a 3.5% discount rate as per HM Treasury Green Book guidance and are marginal to a 'do nothing' baseline. The below figures are also rounded to the nearest £10,000.

Single Use Plastics (Wales) Bill		
<b>Preferred option: Option 2:</b> Ban or restrict the supply to consumers in Wales of ten single use plastic products and products made from oxo-degradable plastic		
<b>Stage:</b> Introduction	<b>Appraisal period:</b> 2020/21 - 2029/2030	<b>Price base year:</b> 2018/19
<b>Total Cost</b> <b>Total:</b> £18.9m  <b>Present value:</b> £15.9m	<b>Total Benefits</b> <b>Total:</b> £ 14.7m <b>Present value:</b> £ 12.0m	<b>Net Present Value (NPV):</b> £-3.8m

## Administrative cost

**Costs:** There will be an initial implementation cost of £500,000 to the Welsh Government in developing bilingual guidance, developing communications to support the introduction of The Environmental Protection (Single-use Plastic Products) (Wales) Bill and staff costs associated with its implementation. It is also anticipated Welsh Government will incur an annual recurring cost of £100,000 in each year of the appraisal period for staff managing the implementation of the legislation and future policy development in this area.

<b>Transitional:</b> £0.5m	<b>Recurrent:</b> £1.0m	<b>Total:</b> £1.5m	<b>PV:</b> £1.31m
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### Cost-savings:

There are unlikely to be any cost-savings of significance. Members of the public and Third Sector organisations have lobbied the Welsh Government for a ban on the use of single use plastic products for a number of years. Correspondence on this subject might reduce when the supply of these products is banned in Wales, however we might also expect a commensurate increase in correspondence relating to implementing the bans or the next phase of work in this space. We have, therefore, assumed there are no administrative savings as a result of introducing the legislation.

<b>Transitional:</b> £ 0	<b>Recurrent:</b> £0	<b>Total:</b> £ 0	<b>PV:</b> £ 0
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**Net administrative cost: £1,500,000**

## Compliance costs

There will be a cost of £16.8m over the appraisal period (£14.1m PV) split between businesses and consumers. This reflects the price differential between SUP items and non-plastic alternatives. In addition, the research suggested that compliance costs of £0.3m (£0.2m PV) will fall to businesses to train staff, change suppliers and ensure compliance (Column c of table 9).

<b>Transitional:</b> £0.0m	<b>Recurrent:</b> £17.1m	<b>Total:</b> £ 17.1m	<b>PV:</b> £14.3m
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## Other costs

Our research has estimated a cost of £0.3m (£0.2m PV) in relation to waste treatment of the products.

<b>Transitional:</b> £0	<b>Recurrent:</b> £0.3m	<b>Total:</b> £0.3m	<b>PV:</b> £0.2m
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## Unquantified costs and disbenefits

Main unquantified, material costs relate to manufacturing and to an extent, other businesses, in switching production away from plastic items. This has not been quantified due to lack of data about number of manufacturers in Wales. However, given similar laws are being introduced in England, Scotland and throughout the EU, with moves from the United Nations to take steps to curb plastic production globally, businesses are likely to have incurred fully or be incurring these costs already, as they pivot their production to the requirements of these markets. Examples of this happening are on-carton straws, where a solution has already been developed by a major manufacturer.

## Benefits

Benefits to the environment, nature and human health by reducing the risk of ecosystem, climate and human health problems resulting from plastic pollution have not been estimated and are not known. The reduction of these risks is the prime reason for bringing in the bans. Business benefits from non-administration of the carrier bag charge are considered to be negligible, as this charge would still apply to some bags, such as paper bags. (Column c of table 9)

**£8.6m PV 2021-30** in revenues from manufacturing, if sector switches to non-plastic. Our analysis of this applies to UK manufacturing as a whole and has, therefore, not been included in the total benefits calculated above.

**£3.2m PV 2021-30** in benefits to the environment and society from reductions in traded and non-traded carbon and litter disamenity benefits

**£0.2m PV 2021-30** in reduced clean-up costs

**£0.1m PV 2021-30** in benefits to the fishing industry

<b>Total:</b> £14.7m	<b>PV:</b> £12.0m
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## Key evidence, assumptions and uncertainties

The proposal draws heavily on [analysis](#) undertaken to understand the implications of the EU SUP Directive on Wales, and to underpin the proposals in the 2020 public consultation to ban a range of single use plastic products. This means the economic analysis in this RIA is based on banning nine products, rather than the 11 included in the Bill. The additional items are thin plastic single-use carrier bags and polystyrene lids for cups. However, given the likely impact of bans on items A to H being brought in elsewhere since this analysis was done means the costs in table A are likely to be lower for those items, we have assumed the inclusion of items I to K will mean the expected headline costs of the Bill will fall within the estimates set out within it. The impact of banning the additional items has been discussed in terms of non-monetised or unquantified costs and benefits. The main finding of the sensitivity analysis was the variability of the costs of alternative products, which was estimated at 11%. The timing of the analysis, subsequent changes to consumer/producer behaviour, legislative changes elsewhere in the UK and global events/circumstances mean that there are a number of risks and uncertainties around the precise estimates.



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## 7. Options

7.1 The policy objective is to ban or restrict the supply of ten single-use plastic (SUP) products and products made from oxo-degradable plastic. The rationale for this is set out in the Explanatory Memorandum.

7.1.1 Two options have been considered:

- **Option 1:** Business as usual. Legislation would not be introduced to ban or restrict the supply of the following SUP products to consumers in Wales:
  - A. plates
  - B. cutlery
  - C. drinks stirrers
  - D. drinking straws (including attached straws)
  - E. polystyrene cups
  - F. polystyrene takeaway food containers
  - G. plastic-stemmed cotton buds
  - H. sticks for balloons
  - I. oxo-degradable products; and
  - J. polystyrene cup and takeaway food container lids
  - K. plastic single-use carrier bags (SUCBs).
- **Option 2:** Introduce legislation to ban or restrict the supply of the SUP products listed above to consumers in Wales. **(Preferred option).**

7.1.2 We believe the environmental and societal problems associated with unnecessary and disposable SUP requires bold and decisive action. As such, we believe removing these products from the market will help shift consumer behaviour away from single use items and towards reusable or more sustainable alternatives. All the SUP products included in our proposals have non-plastic alternatives readily available and for the majority, legislation to ban or restrict their supply has been or will be introduced in several other countries. Concerns among members of the public over the environmental impact of “plastic pollution” has meant a number of businesses have already voluntarily removed some of the products listed above from their supply chain. In previous discussions with retailers with respect to plastic carrier bags, they have made the case for a regulatory rather than a voluntary approach, to create a level playing field for all businesses. A ban on unnecessary single use plastic items sets out clearly what is expected of everyone living or working in Wales.

7.1.3 This Impact Assessment deals with a number of items, which, when littered in the environment, give rise to a range of impacts. It has not been possible to quantify or monetise all these impacts, and these non-monetised costs and benefits are described in the table above. The quality and robustness of the data and evidence underpinning the approach for each item also varies. For

the set of items included in the 2020 consultation (items A-I above), it has been possible to conduct more in-depth analysis of the costs, benefits and impacts. This has not been possible for the two further additions to the list of items to be banned as policy on these has been developed relatively recently. However, we have held a series of discussions with stakeholders and consumer groups to develop an understanding of the market and the potential impact of the legislation. These are detailed in this document.

- 7.1.4 Further factors which may affect the robustness of the data in this document are detailed in paragraphs 7.7.12 onwards and include:
- 7.1.5 Changes in the retail and manufacturing sector to move away from single use plastic products and towards more sustainable alternatives
- 7.1.6 Consumer demand for non-plastic alternatives and changing consumer behaviour towards reusable products
- 7.1.7 The impact of legislation elsewhere in the UK (Scotland and England have regulations to ban certain single use plastic items) and the EU (in line with the SUP Directive)
- 7.1.8 Conscious of the relative nascence of some of the policy proposals we plan to continue to work closely with affected sectors to ensure that the proposed legislation is implemented in a way which gives businesses absolute clarity on Welsh Ministers' ambitions and intentions to phase out unnecessary single use plastics, and which gives them time to use up existing stocks, adapt, and adopt more sustainable products or approaches.

## **7.2 Option assessment: overview of our approach**

### **Initial research: 2019-2020**

- 7.2.1 In June 2019 the European Union (EU) adopted [Directive 2019/904, on the reduction of the impact of certain plastic products on the environment](#) (the 'Single-Use Plastics Directive') which set out to address the environmental impacts associated with discarded SUP products and fishing gear. The Directive introduced a range of measures including Article 5 which required Member States to prohibit the placing on the market of nine SUP products (all of which are consumer products or packaging which have readily available non-plastic alternatives) and of products made from oxo-degradable plastic. This effectively meant a ban on the import and sale of those products.
- 7.2.2 While the UK had voted to leave the EU, the Welsh Government recognised the need to reduce plastic pollution and had begun developing a phased approach to tackling the problem. The first proposed step was to mirror the legislative action under Article 5 and introduce regulations to ban the products included in the EU Directive. To understand the impacts of a potential ban in Wales, research was undertaken by Resource Futures on behalf of the Welsh

Government. The research was modelled on the assumption regulations would be introduced in Wales by 2021.

### **Additional research: 2020-2022**

- 7.2.3 Following the completion of this research, the Welsh Government developed policy proposals to introduce regulations. However, this work was overtaken by the onset of the COVID-19 pandemic early in 2020. This caused significant disruption to the policy development process as resources were focused elsewhere. With the easing of restrictions during the summer of 2020, the Welsh Government published its proposed approach for public consultation between July and October 2020.
- 7.2.4 Over 3,500 responses were received to the consultation. Feedback signalled broad support for the proposed items, and a desire for Wales to go further and ban more items. The scope of the initial proposals has therefore been reconsidered and broadened and the proposed Bill includes items which were not considered in the 2019 research.
- 7.2.5 Consequently, this chapter of the Regulatory Impact Assessment (RIA) has been developed in two parts:
- **Part 1** presents the initial modelling and data gathered in 2019 for nine SUP products (items 'a' to 'i' in the list at paragraph 7.1.1) with additional narrative to reflect changes due to the COVID19 pandemic, legislation introduced elsewhere in GB and in the EU, and further evidence gathered through stakeholder engagement.
  - **Part 2** focuses on the additional items (items 'j' and 'k' in the list at paragraph 7.1.1): plastic single use carrier bags (SUCBs) and the extension of policy proposals to cover polystyrene lids for cups and takeaway food containers (as opposed to just lids for polystyrene cups and takeaway food containers). Assessment for these items is based on existing evidence, discussions with stakeholder and desk-based research.

### **Modelling policy options**

#### **Part 1: Items a to i (Cotton buds, plates, cutlery, stirrers, straws, balloon sticks, polystyrene cups, takeaway food containers, cup lids and oxo-degradable products)**

- 7.2.6 Initial research was undertaken by the Welsh Government between October 2019 and January 2020 ([2020 research](#)). This research covered products **a to i** listed above. Oxo-degradable products were also included in the scope of the project however, the researchers found limited information on these products. Additional work has been taken to supplement this evidence (see below). The overall research methods used for the 2019-2020 research were:

- a) Literature review

- b) Market mapping
- c) Stakeholder interviews
- d) Development of an impact model

## **a) Literature Review**

- 7.2.7 The evidence gathered built on three previous research studies undertaken by Resource Futures for the United Kingdom Government (UK Government). The first relates to the [economic impacts of a potential ban on plastic cutlery, plastic plates and plastic balloon sticks](#), the second considered the impact of a [ban on expanded polystyrene food and drinks containers](#) and the third report examined impacts from banning [single use drinking straws, cotton buds and drinks stirrers](#). Product prices were updated to reflect the current market at the time, using an average of current prices investigated at the time from three UK wholesalers. Product sales figures were updated to represent the Welsh market using a proportion of the previously identified sales figure estimates for England and the UK. Desk based research and discussions with stakeholders identified the most common non-plastic products that might replace SUPs in Wales by reviewing products sold by main brands and retailers.
- 7.2.8 Additional sources were sought to understand end of product life management and disposal pathways in Wales. These included Welsh terrestrial litter composition studies conducted by Keep Wales Tidy in their [Caru Cymru Street Cleanliness Survey](#) and in a report from [Resource Futures](#); and Welsh marine litter composition data provided by the Marine Conservation Society (MSC) from their [Great British Beach Clean](#) surveys. Other bodies of literature on [Welsh littering behaviours and policies](#) were analysed to provide a robust understanding of potential pathways for the products and the associated costs. This included a review of the [academic literature](#).

## **b) Market mapping**

- 7.2.9 A market mapping exercise was conducted to identify manufacturers in Wales for the SUP products and their non-plastic alternatives. Manufacturers were identified via desk-based research, the literature review, and interviews with stakeholders. Desk-based research and stakeholder engagement provided insight into companies in Wales relating to these products.
- 7.2.10 Finally, a body of literature was examined on the 'disamenity' impacts associated with terrestrial and marine litter and transferrable findings identified for use in the quantitative model. These impacts, along with greenhouse gas impacts per material, were compiled to indicate the relative production and end of life impacts of materials.

## **c) Stakeholder interviews**

- 7.2.11 Telephone interviews were conducted with manufacturers of paper and plastic products located in Wales who were already known to the Welsh Government as they had either requested or received business support. The Welsh

Government wrote to these companies bilingually to offer them the opportunity to participate in the study. Four manufacturers responded to the invitation and agreed to contribute to the research. It was unclear whether the other companies did not respond because they felt they would be unaffected by the ban, for example as they were not manufacturing or handling any of the products within the ban scope, or if they simply decided not to participate.

7.2.12 A further 45 stakeholder organisations were contacted bilingually and invited to participate in the work. These stakeholders were identified via desk-based research, from previous work by the researchers, and by other stakeholders during interviews. These organisations were chosen to participate in the research if they satisfied at least one of the following criteria:

- their organisation dealt directly with the products in question;
- their organisation dealt with plastic and/or substitute materials / products generally and had the potential to be affected by, or have pertinent views on, the ban or restriction in sale; or
- they might otherwise help inform the research, e.g., on the potential environmental, social, and economic impacts in Wales.

7.2.13 Organisations based in Wales were prioritised for stakeholder engagement. Organisations from elsewhere in the UK were invited to participate particularly when seeking to address a knowledge gap, or where few relevant organisations in Wales were identified for a specific area of the research, or they chose not to participate.

7.2.14 The stakeholders targeted represented the full supply chain, including trade associations, the food and drink sector, manufacturers, retail, packaging and plastics experts, environmental organisations, and social impact representatives. In total, 29 organisations contributed to the research via telephone interview or email correspondence, depending on their preference. All stakeholders contributed to the qualitative aspect of this research, except for the two statistics organisations, who provided quantitative data. Table 1 below provides details of the organisations who contributed to the 2019-2020 research.

Organisation Name	Type
Cywain	Food and drink
Food and Drink Federation	Food and drink
Food and Drink Industry Board	Food and drink
Foodservice Packaging Association	Food and drink
Jack & Amelie	Food and drink
Project Helix	Food and drink
The Nationwide Caterers Association	Food and drink
Chevler Ltd	Packaging
Huhtamaki	Packaging
(Individual) Packaging Technologist	Packaging
SGMA	Packaging
Transcend Packaging	Packaging
Symphony Environmental	Packaging
Dart	Packaging
Seoil UK Ltd	Packaging
Wells Plastics	Packaging
AB Group Packaging	Packaging
Vegware	Packaging
The Nationwide Caterers Association	Food and drink
ASDA	Retail
Association of Convenience Stores	Retail
British Plastics Federation	Plastics / materials
Bio-based and Biodegradable Industries Association	Plastics / materials
BioComposites Centre	Plastics / materials
RECOUP	Plastics / materials
Keep Wales Tidy	Environment
Marine Conservation Society	Environment
ONS	National statistics
Stats Wales	National statistics
DG Environment (via Europe Direct)	Government

**Table 1:** Organisations contributing to the 2019 research. Source: [Impacts of a ban or restriction in sale of items in the EU's single use plastic directive](#).

#### d) Development of impact model

7.2.15 A product demand impact model was developed to provide a preliminary indication of the quantitative impacts (financial, environmental and social costs and benefits) of two potential product use scenarios each having a time scale of 10 years.

7.2.16 In each scenario, the sales and market share of a 'typical' SUP product relative to the share of alternative non-plastic items was modelled. The two scenarios that were compared were:



- **No Ban:** under this scenario the Welsh Government would continue to support current voluntary market change towards readily available non-plastic alternatives and an overall reduction in use. Retailers, wholesalers and manufacturers could still produce and sell the nine SUP products if they wished to do so. Given the scope of the study and the intrinsic difficulties of forecasting future government policy and associated impacts, this 'do nothing' scenario did not consider the impact of other potential policy measures. For example, at the time of the research proposals were being developed to introduce legislation that would enable changes to the extended producer responsibility system for packaging. In short 'business as usual' is assumed unless there is clear evidence that a change in government policy will take place.
- **Ban:** under this scenario a legislative ban would be introduced. Retailers, wholesalers and manufacturers would meet demand for the products by using alternative materials.

7.2.17 Baseline demand for 2020 was represented and sales were forecast for both SUP and non-plastic alternatives over a 10-year period (from 2021). An array of different impacts was estimated and monetised in the modelling. The majority of impacts were estimated from the number and nature of each product and the resulting waste tonnage.

7.2.18 It should be noted the data used for impact modelling, does not account for the likely changes in the supply market following the introduction of the EU's Single Use Plastic Directive, regulations banning the supply of SUP straws, stirrers and cotton buds in England or the COVID-19 pandemic. As previously indicated this modelling also does not include plastic SUCBs or products made from oxo-degradable plastic. The data for plates would also have included bowls, trays and platters, which are not included in our final proposals. In addition, the proposals for lids are now wider than covered in this research, as outlined in paragraphs 7.8.18 to 7.8.34. The implications of this are considered separately in below.

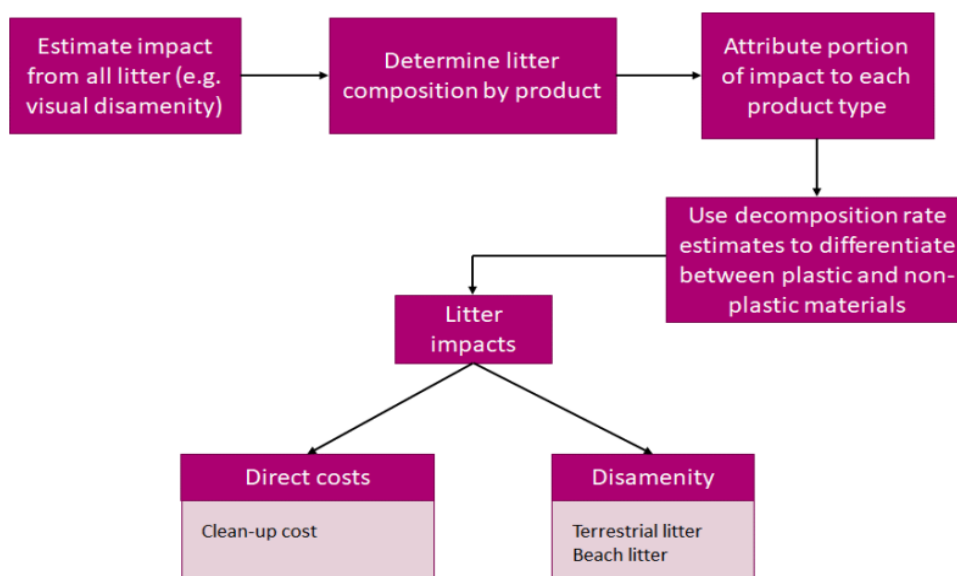
7.2.19 Impacts were discounted over the modelling period according to HM Treasury's [Green Book](#) i.e. costs were kept at constant prices applying the standard Treasury discount rate of 3.5%.

7.2.20 Transfers of resources between people (e.g., gifts, taxes, grants, subsidies or social security payments) were excluded from the analysis. These types of transfers pass purchasing power from one person to another and do not involve the consumption of resources or make society better or worse off as a whole, hence their exclusion. Since VAT collection and payments are entirely of a distributional nature, VAT was a key transfer excluded from the assessment. In the model the assumed headline product sale price is including VAT and VAT at 20% is removed to estimate the subsequent

impacts. Tariffs are received by HMRC for some imported products<sup>1</sup>. These tariffs are either absorbed by the manufacturer and/or paid for by UK consumers within the sales price of products. So, they are considered as a transfer and their redistribution was not separately estimated in this assessment.

7.2.21 A central estimate for the impacts of the Ban relative to the No Ban scenario was estimated using the impact model. Sensitivity analysis was also undertaken to investigate the significance of data uncertainties and assumptions, providing a range (lower and upper impact values) from the central estimate.

7.2.22 An allocation approach was taken in the research to estimating litter disamenity impacts, as illustrated in Figure 1. To estimate litter impacts, the total impact from all items of observed litter in the terrestrial and marine environments was estimated from the research. The best data for relative abundance of different products comes from litter surveys. The survey data was used to allocate a proportion of the total disamenity costs to the products in question.



**Figure 1:** Description of the calculated litter impacts. Source: [Impact Assessment report into Ban or Restrictions in Sale in Wales of Items in the EU's Single Use Plastics Directive](#)

<sup>1</sup> Duties vary between products and markets and will change following the UK's departure from the EU. A duty of 6.5% is presently applied to many of the products considered here which are imported from outside the EU (e.g. plastic sacks and bags, plastic bottles and lids, take-away cups, flasks etc).

## Terrestrial and beach litter modelling

- 7.2.23 The model assumptions around the composition of terrestrial and beach litter are based on the best available data for Wales, as detailed below. Not all products in the ban are counted and reported as separate categories in marine litter surveys and so some assumptions were used to disaggregate categories where necessary.
- 7.2.24 Several sources were identified to inform the model estimates. Litter surveys were used to estimate potential impacts on terrestrial litter. Terrestrial litter also relates to marine litter where SUP products are littered on land and then transferred to the marine environment e.g. by surface water drains.
- 7.2.25 Terrestrial litter composition was informed by [Keep Wales Tidy Street Cleanliness Survey 2019](#). This survey contained specific data on many of the SUP products, with data collected from all 22 Local Authorities in Wales between April and November 2019. The composition analysis of litter waste in Wales [study](#) also provided data. This analysed litter picked up manually from the ground and from litterbins, however, the latter was excluded from our analysis for this study. A total of 885kg of material was sorted from 37 samples of litter pick waste from four Welsh Local Authorities. The composition by item count was calculated using the count of items of each material divided by the total of all items.
- 7.2.26 Beach litter composition was informed by [analysis](#) of ten years of survey data from the Marine Conservation Society (MCS), data from the 2019 MCS beach survey (analysis of data specific to Welsh Beaches was provided by MCS for this study) and the [impact assessment](#) for the proposed European Union's SUP Directive.
- 7.2.27 The model assumes no change in public littering behaviour or in the proportion of item littered across the 10-year period. However, non-plastic products decompose at a much faster rate than plastic and so the observable beach litter impacts are reduced. This difference between the materials used is an important factor in estimating the beach litter impacts.
- 7.2.28 Table 2 below shows decomposition rate estimates for common types of marine debris. This data is widely used in the literature and popular articles on marine litter. However, we were unable to find the original source of the data, and so we cannot be certain it is originally derived from a study by the US EPA, as stated in the Ocean Conservancy and NOAA documents most commonly cited, nor can we check the methods used to estimate the decomposition rates. We cannot verify the accuracy of this data and, therefore, this may reduce the accuracy of the findings of this model. As noted in the footnote to the table, decomposition rates for plastics are estimates only. Complete decomposition cannot have been measured yet as the polymers used in these products have been used in manufacturing for less time than the hundreds of years shown.

## 7.2.29

Item	Decomposition rate
Paper Towel	2-4 Weeks
Newspaper	6 weeks
Wax carton <sup>2</sup>	3 months
Plywood	1 – 3 years
Plastic grocery bag	10-20 years
Styrofoam cup	50 years
Plastic beverage bottle	450 years
Fishing line	600 years
Apple core	2 months

**Table 2:** Decomposition rates for common types of marine debris. Source: [Impact Assessment report into Ban or Restrictions in Sale in Wales of Items in the EU's Single Use Plastics Directive](#)

7.2.30 Given the uncertainty in decomposition rates, particularly plastics, the research conservatively assumed that plastic decomposes 100 times slower than paper. This method recognises the distinction between degradability of different materials. The assumptions are used to estimate the relative decomposition of materials, e.g. to whatever degree the plastic products have degraded in that period, the non-plastic products made from paper, wood or bagasse will have degraded much more. Whilst fracturing and dispersal of plastic products is undesirable, for non-plastic products such as paperboard products this is likely to hasten decomposition and reduce disamenity impacts when products are no longer recognisable. Future work could look to incorporate more sophisticated decomposition rates when estimating impacts, e.g. recognising that the distinction between non-plastic and plastic is likely to be small at first but more significant in longer timeframes. Another area of interest concerns decomposition rates for other alternatives such as bagasse. The main NOAA data sources did not cover this type of packaging. An unverified data source indicates the decomposition rate for bagasse<sup>3</sup> could be of the order 30-60 days, similar in length to the paper-based materials described above.

## Limitations of the data and model estimates

7.2.31 Key limitations in the data and modelling when it was undertaken centred around:

- Market growth rates (or reductions) for the single-use products - as projections of any market are inherently uncertain.

<sup>2</sup> Wax carton<sup>2</sup> is thought to refer to a Tetra Pak-style container of card with laminates of plastic film and aluminium.

<sup>3</sup> Bagasse is the dry pulpy fibrous residue that remains after sugarcane or sorghum stalks are crushed to extract their juice. It is used as a biofuel for the production of heat, energy, and electricity, and in the manufacture of pulp and building materials.

- Sales units placed on market in Wales - as comprehensive and accurate market data was not available.
- Unit weight and price of products - particularly as regards future projects, as a variety of products are currently available on the market and the design and cost is likely to change as the market develops in the next 10 years.
- Speed of a shift (i.e. voluntary action) from SUP to non-plastic alternatives in the No Ban scenario - as projections of product choice are inherently difficult and particularly for products such as these that are the subject of public and media interest.
- Proportion of market served by imports into the UK – as comprehensive and accurate import/export data is not available for these products, and the trade balance may change in the next 10 years as UK manufacturing sector responds to any implemented legislation.
- Decomposition rates of SUPs and their non-plastic alternatives – due to a lack of accurate field-tested data on the composition rates of these products in the marine environment and as terrestrial litter.
- Visual disamenity value of terrestrial and beach litter in Wales – as a range of visual disamenity values were found in the literature
- The number of items littered found in terrestrial and beach surveys – due to a combination of factors, which are described in the following paragraphs.

7.2.32 Regarding litter impacts, there is insufficient evidence available on littering behaviours for these products to estimate with any accuracy what percentage of items are transferred to become terrestrial litter or beach litter, or indeed what the total tonnage may currently be lost each year through these various pathways. The picture is further complicated by the difference between the volume of items littered each year vs. the stock of items accumulating as litter, particularly in the marine environment and on beaches.

7.2.33 A proportion of litter items found on Welsh beaches is likely to have been transported from overseas on marine currents. This adds additional uncertainty when estimating the impacts of a ban or restriction in sale in Wales.

7.2.34 The data limitations were considered when producing the central estimates within the economic model, erring on the side of caution to produce conservative estimates of the potential benefits of switching from plastic to alternative materials. Sensitivity analysis was conducted to test the effect of data uncertainty upon the model impact estimate results, as described below.

7.2.35 When interpreting the model impact estimate results, it is also important to consider a number of methodological limitations:

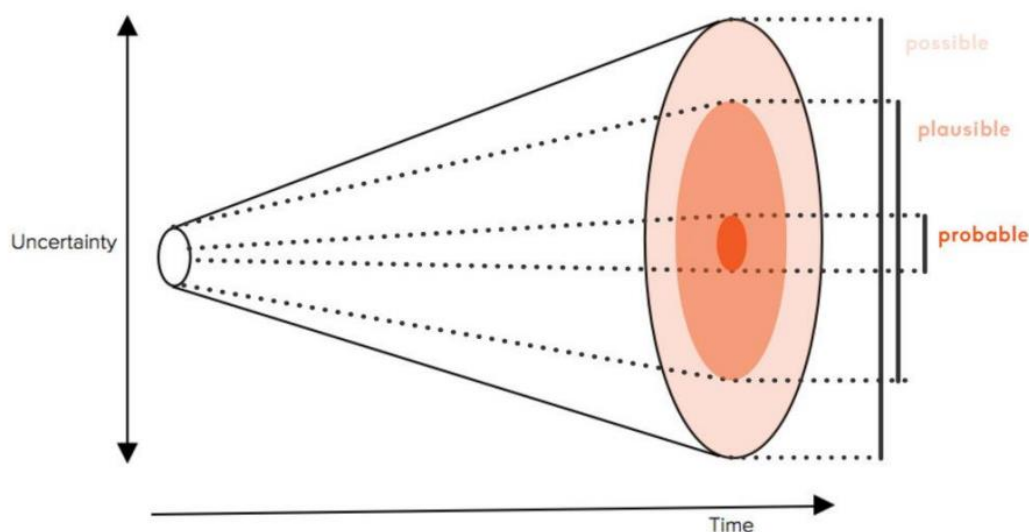
- Full investment and transition costs for businesses in Wales could not be estimated due to a lack of available data.
- The impacts on revenues to manufacturing are estimated for the UK, but the specific impacts in Wales could not be estimated due to a lack of data.
- The full impacts of marine litter are not yet understood and the visual disamenity cost estimate only represents part of the wider impacts.
- There is no standard method to estimate impacts associated with specific products based on visual disamenity for litter as a whole.

7.2.36 As previously noted, consideration also needs to be given to the fact the data used for modelling these products will not reflect the introduction of bans elsewhere or the COVID-19 pandemic. We have sought to account for these data limitations in our narrative in paragraphs 7.7.12 to 7.7.25.

### **Sensitivity analysis**

7.2.37 The sensitivity analysis tested upper and lower values for data that were identified as having the greatest uncertainty and that could have the greatest effect upon the model impact estimate results.

7.2.38 Figure 2 illustrates the cone of uncertainty, as applied in the impact modelling and forecasting. The values used in the sensitivity analysis test the range of plausible values in the model, and as impacts are forecast into a ten-year period the estimated results vary accordingly. In the sensitivity analysis a group of assumptions are varied together. However, it is unlikely all values will in reality be at the extremes of the values tested, and thus the sensitivity results represent the boundaries of plausible impacts.



**Figure 2:** Cone of uncertainty. Source: [Impacts of a ban or restrictions in sale of items in the EU's single use plastics directive](#).

7.2.39 The sensitivity analysis is presented in two stages. First, uncertainty around market growth estimates, particularly testing the potential effects of a ban or reduced consumption of single-use products regardless of their material composition. These sensitivity analysis values are presented in Table 3 below.

Scenario	Product types	Central value (%)	Lower value (%)	Upper value (%)
Ban	Plastic straws, cotton bud sticks, stirrers, plates, cutlery and balloon sticks	-2.0	-5.0	0.6
No ban	Plastic straws, cotton bud sticks, stirrers, plates, cutlery and balloon sticks	-1.0	-4.0	0.6
Ban	SME food and beverage containers and cups	3	-1.5	3
No ban	SME food and beverage containers and cups	3	-0.5	3

**Table 3:** Market growth rate uncertainty – sensitivity analysis values. Source: [Impacts of a ban or restrictions in sale of items in the EU's single use plastics directive](#).

7.2.40 For single-use straws, cotton bud sticks, stirrers, plates, cutlery and balloon sticks, the sensitivity analysis tests a further three percentage point reduction relative to the central scenario, or a very small market growth in the upper sensitivity. It was recognised there is a challenge to reduce consumption of SME food and beverage containers and cups and reusable systems are difficult to implement. Nevertheless, many companies are innovating in this

area and so sensitivity tests of a 1.5% annual market reduction are tested in the Ban scenario and a 0.5% annual reduction in the No Ban scenario.

7.2.41 Further model sensitivities were tested, varying values where there was the greatest uncertainty and which had the greatest effect on the overall results. The number of product units placed on the market each year is varied by +/- 25% to account for data uncertainty in the central estimates, as comprehensive and accurate market data was not available. The unit weight and price were varied for the non-plastic alternatives to explore variability in products and future developments as this market develops and new or improved products are introduced. Unit weight and price for SUP products were not varied as these products are well established and so less likely to change dramatically. In addition, it is the difference between the SUP and non-plastic alternative in weight and price that is a key driver in the impact estimates. Details of all sensitivity analysis values are presented in the tables below. Variables scaled relative to the central value are presented in Table 4. and other specific values used in the sensitivity analysis are presented in Table 5.

Model variable	Product types	Lower as % of central value	Upper as % central value
Sales units placed on market p.a.	All	75%	125%
Unit weight (g)	All non-plastic products	75%	125%
Unit price (£)	All non-plastic products	50%	200%
Speed of shift - No ban	Straws, cotton bud sticks, stirrers, plates, and cutlery	Same	33% faster
Items littered	All	50%	200%
Visual disamenity value - terrestrial and beach litter	All products - Range derived from Eunomia (2014, adjusted for Wales); Marine: Eftec (2002)		

**Table 4.** Plausible upper and lower range analysis around the central estimate. Source: [Impacts of a ban or restrictions in sale of items in the EU's single use plastics directive](#).



Model variable	Product types	Central est.	Central value (%)	Lower value (%)	Upper value (%)
Speed of shift - No ban	All EPS/XPS products	1 point drop in EPS/XPS % market share each year, e.g. 50% to 49% to 48%	1	1	10
% imports into UK	Plastic straws, cotton bud sticks, stirrers, plates, cutlery and balloon sticks	90% imports, 10% domestic production	90	80	100
% imports into UK	EPS/XPS food and beverage containers and cups	5% imports, 95% domestic production	5	5	50

**Table 5.** Further variables tested for plausible upper and lower range analysis. Source: [Impacts of a ban or restrictions in sale of items in the EU's single use plastics directive](#).

### 7.3 Research findings – the market for SUP products ‘A’ to ‘I’

7.3.1 Key findings from the 2019/20 research are presented below for each item, relating to:

- Product use and market prices,
- The market for plastic-free alternatives and reusables,
- Indications of waste and recycling behaviours,
- The presence of products in terrestrial and marine litter, and
- Sales estimates for SUPs and plastic-free alternatives

7.3.2 Comprehensive and accurate market data was not available to determine the quantity and price of each product placed on the market each year. Estimates have been made based on published data available, market research, stakeholder and industry information, and previous research. As previously noted this research was undertaken during 2019. These estimates were varied in model sensitivity analysis by +/-25% to account for data uncertainty, as described in earlier sections of this report.

#### A: Plates

7.3.3 Single use plates are made from a variety of materials. Plastic plates tend to be made from ‘food grade’ unexpanded polystyrene, acrylic or expanded (EPS) or extruded (XPS) polystyrene. Plastic plates have low levels of absorbency and insulating properties, making them hygienic and ideal for conserving hot food.

- 7.3.4 The main alternative to plastic is paper. ‘Paper’ plates may be made from compressed or layered card and are biodegradable and microwaveable. Uncoated paper can absorb grease and can collapse under the weight of heavier food. Paper plates can thus be laminated with a plastic or ‘biodegradable’ coating to decrease its absorbency; these types of laminated paper plates were also considered as SUP in the research. Other non-plastic materials include bagasse, bamboo, aluminium foil, and palm leaf. Thicker ceramic, metal, bamboo and plastic reusable plates are also readily available.
- 7.3.5 The [Impact Assessment](#) for the EU’s SUP Directive states the proportion of littered single use plates on beaches (by item count) is very low relative to other types of litter items at 0.02% of the total which is “not seen as significant at the EU level”. However, it is not known what proportion of plastic plates could be degraded into the smaller unspecified plastic fragment categories in beach litter counts.
- 7.3.6 Previous research undertaken by Resource Futures identified the main manufacturing base for plates is outside the UK (predominantly South-East Asia and North America), but comprehensive market data was not available. Based on previous research, 90% of SUP and plastic and paper plates made from other materials are assumed to be imported, of which 20% is from Europe. Most are bought business-to-business and supplied to caterers, takeaway businesses, restaurants, pubs, hotels and retailers. The items are sold to consumers via the foodservice sector and via supermarkets.
- 7.3.7 Online research revealed a range of prices for both plastic and paper-based alternative plates. For the modelling central estimate, a single unit price of £0.06 has been used to represent plastic and items and £0.07 for paper items.
- 7.3.8 Sales volumes estimates for plates were based on methodologies previously outlined in research undertaken by Resource Futures for Defra and scaled based on a ratio of Welsh to English population of 6%. For plates, 59 million units were estimated to be sold per year in Wales, 29 million plastic, and 29 million paper.<sup>4</sup> This equates to an average of 19 disposable plates per person per year, half of which are SUP.

## **B: Cutlery**

- 7.3.9 Single use plastic cutlery is normally supplied for free at the point of sale alongside a purchase of takeaway/café food, or alongside food-to-go meals. Most cutlery is therefore thought to be bought business-to-business and supplied to caterers, takeaway businesses, restaurants, pubs, hotels and retailers. A minority of items is sold direct to consumers at supermarkets.

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<sup>4</sup> The modelled split of SUP to paper plates remains the same as previous Defra research. Where numbers do not correlate with the total market sum it is due to rounding of figures to the nearest million for presentation.

Some businesses in the foodservice sector may charge (e.g. a 5 pence chip fork). Disposable cutlery can come in a variety of forms, including (according to [Webstaurant Store](#), an industry wholesaler, 2019):

- Standard-sized cutlery (occasionally individually wrapped, such as on aircraft) which may be consumed in the home, in workplaces, or 'on-the-go';
- 'Petite', e.g. mini tasting forks and spoons, such as those sold with ice-cream tubs or served with hors d'oeuvres catering; or
- 'Sporks', i.e. short, combined forks and spoons with lunchtime pasta/salads.

7.3.10 Single-use cutlery can be made from a variety of [materials](#), including: plastic (typically polystyrene or polypropylene), wood (commonly birch), polylactic acid, plant starch (often corn starch), bamboo, sugarcane/bagasse, and [paper](#). There has been some increase in consumer popularity for reusable cutlery sets, often made of bamboo and sold in foldable travel pouches, however this remains a niche market. Wooden cutlery was identified in the research as the typical non-plastic SUP alternative.

7.3.11 Resource Futures undertook a [study](#) for the Welsh Government (June 2019) that involved a detailed compositional analysis of the litter waste in Wales. The study found that dense plastic non-packaging items made up 3.6% of the total items, of these, plastic cutlery was most common and made up 1.3% of the total. 'Plastic/polystyrene cutlery/trays/straws' accounted for 1.7% of beach litter in Wales in the MCS Great British Beach Clean weekend, September 2019.

7.3.12 Disposable cutlery is sold in economy, midweight and heavy grades with the former two dominating the market. Sales volume estimates for cutlery were based on methodologies previously outlined in research undertaken by Resource Futures for Defra scaled based on a ratio of Welsh to English population of 6%. The market share of plastic and non-plastic has been updated to reflect a shift in the market away from SUPs. Market share estimates for all products have been triangulated from stakeholder consultation and pieces of market intelligence around major players that have shifted from SUP products, but as comprehensive and detailed market data is not available there is inherent uncertainty. For cutlery, 226 million units were estimated to be sold per year in Wales, 159 million plastic, and 68 million wooden<sup>5</sup>.

7.3.13 Online research revealed a range of prices for both plastic products and paper-based plastic-free alternatives. However, both plastic and wooden alternatives have similar unit prices, at about £0.04.

7.3.14 SUP cutlery is predominantly and increasingly imported from the Asia-Pacific region into [Europe](#). Based on previous research, modelling for this

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<sup>5</sup> Where numbers do not correlate with the total market sum it is due to rounding of figures to the nearest million for presentation

assessment assumes that 90% of cutlery is imported from outside the UK for both plastic and non-plastic products, of which 20% of plastics and 50% of wood is assumed to be imported from Europe.

## **C: Drinks Stirrers**

7.3.15 Drinks stirrers are used to mix or stir hot or cold drinks, e.g. to help dissolve sugar. Like straws, the predominant market for stirrers is the hospitality sector and wholesalers largely appear to import supplies from outside the UK. A small market exists for decorated party cocktail stirrers. These may be used in pubs, clubs and restaurants, or in the home and are heavier in weight and more reusable.

7.3.16 The most common alternative to plastic drink stirrers is wood. A few plastic-free, reusable alternatives for cocktail stirrers exist which tend to be made from glass.

7.3.17 Our assumption is that stirrers are disposed of as waste rather than being recycled due to the effort required to segregate and clean them. Only a fraction of stirrers are used outdoors, littered and not picked up. These stirrers are more likely to eventually become marine litter than those used indoors.

7.3.18 In terms of price, both plastic stirrers and the wooden alternative were found to have a negligible price difference in our online research. Plastic items have been modelled at £0.004 per unit, and paper items £0.003.

7.3.19 Sales volume estimates for plastic stirrers were based on methodologies previously outlined in research undertaken by Resource Futures for Defra, and scaled based on a ratio of Welsh to English population of 6%. For stirrers, 11 million units were estimated to be sold per year in Wales, 5.7 million plastic, and 5.7 million paper. This is the same split as for [preliminary impact assessment undertaken for Defra in 2018](#).

## **D: Straws**

7.3.20 Most straws are bought business-to-business and supplied to restaurants, pubs, hotels, retail and schools. A minor part of the straw market is business-to-consumer and online sales (for home use/parties). Straws are also used in medical settings to safely administer pre-dosed medicines. Flexible plastic straws are also used to assist/enable drinks and liquid food consumption in medical assistance situations.

7.3.21 Plastic-free single-use alternatives already exist in the market for some types of products. For example, paper-based straws are available for certain types of drinking straws, and these can be laminated to improve their strength or be made thicker and heavier weight paper. A developing market for single-use

bioplastic straws made of bio-based materials such as polylactic acid (PLA) is present and these items are primarily being sold to the catering sector. In addition to disposable drinking straws, reusable and durable straws are also sold (cocktail straws, refillable sports drink bottles, reusable non-plastic straws). Metal, glass, bamboo and silicone straws are also being offered to the market as reusable alternatives, primarily for use in the home. Alternatives to small plastic straws attached to beverage cartons/juice pouches are not readily available, as the straw needs to be rigid enough to pierce a film to access the drink, though some suppliers are innovating in this space.

7.3.22 A 2018 [Eunomia report](#) estimated 150 tonnes of straws are generated as waste (via municipal recycling, municipal residual, and litter) in Wales. 'Plastic/polystyrene cutlery/trays/straws' accounted for 1.7% of beach litter in Wales in the MCS Great British Beach Clean weekend, September 2019.

7.3.23 Online research revealed a range of prices for both plastic product and paper-based plastic-free alternatives. For the central estimate, using the methodology described in previously, a single unit price of £0.004 was estimated for plastic drinking straws, and £0.014 for paper drinking straws.

7.3.24 Sales volume estimates for straws were based on methodologies previously outlined in [research](#) undertaken by Resource Futures for Defra and scaled based on a ratio of Welsh to English population of 6%. The drinking straw market has shifted significantly in recent years away from SUP. While precise data is not available, we estimate around 40% of the large single-use drinking straws market is now served by non-plastic items. Beverage carton straws is a smaller market, and predominantly plastic. It is estimated around 95% of this market is SUP. For both types of straw, 256 million units were estimated to be sold per year in Wales, 173 million plastic, and 83 million paper.

#### **E: Beverage cups made of expanded (EXP) (or extruded (XPS)) polystyrene**

7.3.25 EPS/XPS cups are typically used (like other disposable catering products) to save on costs of washing reusable cups, e.g. at community fairs/events/conferences. They are particularly suited for hot drinks given EPS/XPS's insulation properties. They are also commonly used in in prisons, hospitals and care homes to avoid security risks associated with glass or other materials. They are normally supplied to the customer free of charge, although some foodservice establishments are now beginning to charge a small fee to customers when supplying disposable cups for beverages. The lids to cover the cups are made from non-expanded polystyrene and provide the necessary functional performance required for hot beverages on-the-go.

7.3.26 Single-use beverage cups can be made from a variety of materials. Other than EPS/XPS, this could be non-expanded plastic (such as PS, PET and PP), rigid paper (typically reinforced with either an air pocket insulation or with a polymer lining), PLA, and various other materials designed for re-use (such as aluminium, bamboo, and thicker plastic).

7.3.27 EPS/XPS and paper cups will likely be disposed in the same way described previously for EPS/XPS food containers. The same complications arise regarding its recyclability, in terms of contaminated EPS/XPS and the polymeric lining for paper products complicating its recyclability, resulting in most cups presently being disposed in general residual waste.

7.3.28 For the central estimate in the modelling, a single unit price of £0.03 was applied for the EPS/XPS item and £0.04 for the paper alternative, identified through online research and stakeholder engagement.

7.3.29 Sales volume estimates for EPS/XPS cups were based on methodologies previously outlined in our research for Defra and scaled based on a ratio of Welsh to English population of 6%. For cups, 33 million units were estimated to be sold per year in Wales, 26 million EPS/XPS, and 7 million paper.

#### **F: Food containers made of expanded (EPS) (or extruded (XPS)) polystyrene containers**

7.3.30 EPS/XPS food containers are predominantly used at takeaway premises (high street vendors, and street food vendors such as burger/chip shops and kebab shops). Some are used by the hospitality sector in hotels and pubs and in food takeaway delivery businesses. Some events also use EPS/XPS food containers, although these are increasingly moving toward alternative products. The items are sold to consumers via the foodservice sector and to businesses via foodservice wholesalers.

7.3.31 Many large high street foodservice businesses have already replaced EPS/XPS food containers with paper alternatives, since these can carry brand logos while meeting food hygiene standards. Another popular alternative, particularly among high-street businesses, are bagasse food containers. Bagasse is made from sugarcane, and thus many producers claim it is compostable, which is popular among consumers. Manufacturers claim that it looks and feels like its paper/board alternative, however it provides better insulation and strength, which makes it particularly suitable for heavy and greasy foods. However there are currently few facilities in Wales that can compost the containers, meaning that they may be more often sent to landfill.

7.3.32 Other alternatives include other food-grade plastic (such as PET), and reusables (using a variety of materials such as ceramic, aluminium, PET and bamboo). Paper/board (with and without a polymeric lining) was found to be the most common alternative on the market based on online research and stakeholder engagement. Paper/board food containers made of fibre pulp (without a polymeric lining) are the only known container that can be composted with other organic waste. However, uncoated paper can absorb grease and boxes can collapse under the weight of heavier food. Therefore,

plastic laminated paper, i.e. a paper food container with a PE or PLA lining, may be used to avoid the container absorbing grease, although material scientists are developing new non-plastic solutions to this issue. Once a polymeric lining is used, it is often not recycled due to the difficulty of separating the lining from the paper packaging.

7.3.33 While EPS/XPS is technically recyclable, this is often not practical to do for food containers given their propensity to be heavily contaminated with food leftovers. Nonetheless, Recoup (a charity providing expertise on the plastics recycling value chain) has demonstrated recycling is feasible in principle, by conducting an EPS recycling [trial at an event in Swansea](#), supported by Dart Europe, Klöckner Pentaplast, and Plastipak. The event attendees were given the possibility to separate their food waste from their EPS/XPS cups and trays. The food was sent for composting and the EPS/XPS was washed, then sent to Moulded Foams in Blackwood to be incorporated into thermal flooring blocks for the construction industry. As part of the 2019 research, Recoup was contacted about the trial and they indicated it (and other, similar trials conducted in Wales) was largely successful in demonstrating the recyclability of EPS/XPS. However, it was admitted that, practically, it is not cost-effective, due to:

- the need to wash the containers, and
- there was comparatively small output material, given that EPS/XPS is largely made up of air.

7.3.34 As EPS/XPS food containers vary greatly in size and shape, the sales price varies as well. For the modelling, a combined weighted average was used based on EPS/XPS food container's proportion of total sales figures, provided by a major producer claiming significant share of the market. An average price of £0.03 per unit was used for EPS/XPS containers and £0.08 for non-plastic alternatives.

7.3.35 Sales volumes for EPS/XPS food containers were estimated using methodologies previously outlined in research undertaken by Resource Futures for Defra, and scaling to Welsh population based on a ratio of Welsh to English population of 6%. For food containers, 47 million units were estimated to be sold per year in Wales, 38 million EPS/XPS, and 9 million paper.

## **G: Cotton buds**

7.3.36 Cotton buds are sold in packs of varying sizes; common pack sizes are 100, 200 and 300 units in each pack, although they may be as small as a pack of 5 sterile cotton buds, up to packs of 500 units. Prices therefore vary as well, ranging from £0.95 to £1.28. An average price per unit was estimated to cost £0.005, rounded up to £0.01. Plastic and paper-stemmed cotton buds were found to be comparable on price.



- 7.3.37 Cotton bud sticks accounted for 1.7% of beach litter in Wales in the MCS Great British Beach Clean weekend, September 2019 and were found on 4.2% of streets surveyed in the LEAMS Survey 2019 (Keep Wales Tidy - visual surveys of a 50m length of one side of a street).
- 7.3.38 A limited evidence base was available regarding how cotton buds are purchased, used and disposed of in the home. A UK-based study from 2017 reported in [Envirotec Magazine](#) said 6% flushed buds down the toilet in the last three years. A survey by Anglian water revealed cotton buds are 'commonly flushed items'. A [World Wildlife Fund \(WWF\) study](#) estimated UK litter rates for different types of terrestrial and marine litter (including cotton buds with a litter rate of 13.5%) although the ultimate source was not published at the time of the publication of the 2019 research.
- 7.3.39 Plastic-free alternatives already exist in the market. In 2016 Johnson & Johnson, the UK market leader, [announced](#) they would replace their plastic cotton bud stems with paper. The retailer Waitrose made the same commitment at the same time. Since then, other major UK retailers have also changed their sourcing and/or production to phase out plastic stems. This includes Sainsbury's [committing](#) to developing a plastic-free adhesive to attach the cotton bud to the stick.
- 7.3.40 The most common alternative to plastic cotton bud sticks is made of rolled paper. The paper alternative is readily available at most retail shops. Other readily available alternative materials are sticks made of bamboo. While these are more expensive (between £1.99 and £2.60 for a 200-pack, average of £0.011 per unit), some individuals prefer them for their supposed increased sturdiness compared to the paper stems.
- 7.3.41 Some reuse options exist for cotton buds. [LastSwab](#) claims to be the world's first reusable cotton swab; they offer a cotton swab that has a nylon stick, with the tips made from "TPE, a material often used for healthcare applications". While reusable options exist, they likely make up a niche market share compared to paper and plastic single-use alternatives.
- 7.3.42 A global market research [report](#) lists the top 10 global manufacturers of cotton buds as having their main manufacturing base outside Wales (predominantly located in South-East and Southern Asia). The UK retail market is overwhelmingly dominated by own brand products from the main retailers Tesco, Sainsbury, Asda and WM Morrison, with Johnson & Johnson the leading non-supermarket brand (<5% by value). Health and beauty retailers such as Boots and Superdrug also have significant market share.
- 7.3.43 No sales data for Wales was identified as part of the research. Sales volumes for all products were, therefore, based on methodologies previously used in [research](#) for Defra on the potential impacts of a ban in England, and scaled based on a ratio of Welsh to English population of 6%. However, as detailed above, much of the market has now switched from plastic to paper stemmed cotton buds and so the market share estimate was updated for this research.



One hundred million cotton bud sticks were estimated to be sold per year in Wales, 30 million plastic, and 70 million paper<sup>6</sup>.

## **H: Balloon sticks**

7.3.44 Balloon sticks are used to support air-filled balloons, so that they give the impression that they are floating without filling the balloon with helium. They are mainly used outdoors. Primary providers include restaurant chains, charities and the party sector. These products are largely sold business to business, rather than business to consumer, however the end users are often individuals, and mainly children.

7.3.45 As these products are mainly used outdoors and by children, it is anticipated that a proportion will be littered. However, it must be noted that litter studies often group balloons, strings and sticks together, so is difficult to isolate litter from balloon sticks.

7.3.46 Regarding the sales price of each product, a unit price of £0.07 was used for the plastic balloon stick, and £0.18 for the card alternative. Where they are sold, the specific cost of the stick is not visible and is included within the overall cost of the balloon.

7.3.47 Sales volume estimates for balloon sticks were based on methodologies previously outlined in [research](#) undertaken by Resource Futures for Defra and scaled based on a ratio of Welsh to English population of 6%. For plastic balloon sticks, 1 million units were estimated to be sold per year in Wales. Most balloon sticks were identified in the research to be made from plastic, typically polypropylene. There are a few examples of bio plastic and card alternatives, however they make up a niche proportion of the market.

## **I: Products made from oxo-degradable plastics**

7.3.48 Oxo-degradable plastic plastics are themselves promoted as alternatives to the conventional plastics and so no common 'alternative' to oxo-degradable plastic was identified as part of our research.

7.3.49 Our 2019 research found divergent views amongst some stakeholders regarding the current market for oxo-degradable plastics in Wales. Most stakeholders consulted were not aware of any oxo-degradable plastic products used in the market and one stakeholder close to the oxo-degradable plastics industry stated that few are sold in the UK. In contrast, a packaging manufacturer (note: not a manufacturer of oxo-degradable products) reported

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<sup>6</sup> Market split estimates were updated in light of major manufacturers and retailers who have since switched to non-plastic products, subsequent stakeholder comments and our understanding of the market, but as comprehensive and detailed market data is not available there is inherent uncertainty.

that oxo-degradable products are widespread and prevalent in the foodservice sector both in Wales and the UK, offering several examples of cutlery, straws, and cups using oxo-biodegradable technology, and this view was supported by another manufacturer. A [report for the European Commission](#) found that oxo-degradable plastic in the UK was (in 2016) restricted to plastic bags only, with all recovered post-consumer bags being sent outside the EU for reprocessing mostly in China. The researchers were unable to verify this claim in their research as stakeholders provided differing views on the use of oxo-degradable plastic in the UK.

7.3.50 The EU's SUP Directive specifically bans products made of this plastic noting that "type of plastic does not properly biodegrade and thus contributes to microplastic pollution in the environment, is not compostable, negatively affects the recycling of conventional plastic and fails to deliver a proven environmental benefit". However, members of the oxo-degradable industry dispute these claims and have criticised the European Commission's decision to include oxo-degradable plastics, arguing that it was done so hastily before scientific research into the potential harms had been completed. The oxo-degradable plastics industry believed including oxo-degradable plastic in the SUP Directive without considering ECHA's evidence was premature.

7.3.51 The oxo-degradable industry also raises the distinction between 'oxo-degradable' and 'oxo-biodegradable' technology, whereby oxo-biodegradable plastics break down into biodegradable materials over a much shorter timeframe. A 2019 article in [Bioplastics News](#) reported the industry is seeking clarification on the definition of oxo-degradable plastics in the SUP Directive and whether oxo-biodegradable plastics are subject to the ban. The UK manufacturer, Symphony Environmental, reports that if their oxo biodegradable material is littered it "will degrade and biodegrade in a continuous, irreversible and unstoppable process until there is nothing left" leaving "no toxic residues and no microplastics".

7.3.52 However, oxo-degradable plastics have come under criticism by other organisations. The Ellen MacArthur Foundation and [European Bioplastics](#) industry association have expressed the view that oxo-degradable plastics do not provide a solution to the littering problem, and indeed contribute to microplastic pollution. The [Ellen MacArthur Foundation](#) wrote in their [May 2019 Statement](#) "Oxo-degradable plastics are being produced and sold in many countries, with society being led to believe that they completely biodegrade in the environment within relatively short timescales. Yet compelling evidence suggests oxo-degradable plastics take longer than claimed to degrade and that they fragment into small pieces which contribute to microplastics pollution". [European Bioplastics](#) also stated that they are "falsely marketed as a solution to the plastic waste and littering problem".

7.3.53 The [Ellen MacArthur Foundation's May 2019 Statement](#) also says that oxo-degradable plastics are problematic in terms of reuse, recycling and composting. The report states they are not suitable for reuse, as they are designed to start fragmenting within a few months of use, and they negatively affect the quality and economic value of plastic recyclate. Also, they do not fulfil the requirements of relevant international standards for composting, as their biodegradation takes too long, and plastic fragments can remain in the compost.

7.3.54 One manufacturer interviewed stated their oxo-biodegradable technology will biodegrade in an industrial composting unit, does not cause problems if mixed into plastics recycling streams, and only needs a short exposure to UV light to biodegrade in the open environment (the timescales of biodegradation are subject to environmental factors).

## **7.4. Research findings – market mapping in Wales**

### **Manufacturers**

7.4.1 Since this category refers to a range of products made from oxo-degradable plastics, no unit price or market share is noted. An initial online research exercise identified the presence of manufacturers of both plastic and non-plastic products in Wales. This market mapping identified major manufactures of SUP products and their non-plastic alternatives. Of the market leaders identified, only one manufacturing facility was identified in Wales, however it was not clear whether this site manufactures products in scope of the ban or other items produced by the company.

7.4.2 A broader mapping of manufacturers in Wales, including SMEs, identified other companies that could be affected by a ban or restriction in sale. In total, 12 manufacturers producing plastic products within scope of the research and/or their non-plastic alternatives were identified in Wales and could be either directly or indirectly affected by a legislative ban (see Table 6). Specifically, these manufacturers produce SUPs in the form of PET-lined card trays, plastic food packaging products and single-use non-plastic products in the form of paper plates and cups, compostable food trays and containers, and paper straws. The manufacturers were invited to participate in the research and insights from those that responded are provided in the stakeholder consultation findings section in this report.

Company Name	Manufacturing type	Details	Area
Berry Global/ RPC	Plastic	Containers and cups	Port Talbot, Llantrisant, Aberdare, Merthyr Tydfil Wrexham
The Cup Folk	Plastic, PLA, Paper	Cups	
Klockner Pentaplast	EPS	Clam boxes and trays (Unconfirmed if manufactured at Newport site or elsewhere)	Newport
Beatus Cartons	Paper and plastic	Broad use in packaging	Porth
Chevler	Paper and plastic	Trays, food liners	Hengoed
Boardlink	Paper	Plates, PET lined card trays	Flintshire
Transcend	Paper	Straws	Caerphilly
Packaging Benders Paper Cups	Paper	Cups	Wrexham
Seda UK Limited	Paper	Paper cups, containers and plastic lids for hot and cold drinks and dairy products, as well as folding cartons	Blackwood
Biopaxium	Various pulp fibres	Food containers and trays	Wrexham
UPM Kymmene (UK) Ltd	Paper	Broad use in packaging	Wrexham
Glatfelter	Aluminium	Food containers	Caerphilly
Caerphilly Ltd			

**Table 6:** List of identified Welsh manufacturers during 2019-2020 research. Source: [Impacts of a ban or restrictions in sale of items in the EU's single use plastics directive](#).

Compiled via desk-based research and stakeholder engagement or provided by the Welsh Government. Note this is not an exhaustive list of all Welsh manufacturers within scope of this research.

## Rest of the supply chain

7.4.3 Other stakeholders potentially impacted by a legislative ban or restriction in sale on SUP products in Wales were also considered. This included Welsh businesses in the foodservice sector, as these provide much of the takeaway products that are within scope of a ban (namely food containers, plastic cutlery, plates and straws). According to 2019 data provided by the [ONS Business Register and Employment Survey](#) (UK Business Counts - local units by industry and employment size band), small and micro businesses account for 98% of the businesses engaged in the 'food and drink service' in Wales. Businesses in the 'food and drink service' sector shown in the data include

restaurants and mobile food service activities, event catering activities, beverage serving activities, and 'other' food service activities. Representative organisations for this sector were interviewed to inform this research

- 7.4.4 Welsh retailers will also be affected by a ban. Large retailers engaged in the research indicated they had already begun phasing out the SUPs in scope of this proposal. For this reason, as for the food and drink service sector, small and micro business in the retail sector will likely be most affected by a ban; these make up 94% of businesses in the retail sector. While retailers sell most of the plastic items within scope of this research directly to customers (for personal use in barbeques, parties, and other events), some retailers also provide items such as straws, cutlery, plates, and polystyrene cups to customers and employees in-house, such as in their cafés or canteens.
- 7.4.5 The research also noted the increasing market for takeaway/ deliveries, referencing a report by Just Eat in 2017 which suggest spending on takeaways in the UK had increased from £7.4 billion in 2009 to £9.9 billion in 2016. It was estimated in Wales alone this had brought in £400 million in revenue and employed over 11,000 people since 2014. The research commented that as an increasing number of restaurants open their services to the takeaway market, products such as food and beverage containers, cutlery and straws will need to be sourced in such a way as to accommodate this growing market while complying with a legislative ban on these products. While there are generally readily available alternatives on the market, this takeaway/delivery economy is another important market to consider when considering the impacts of ban on SUPs.

## **7.5 Research findings – stakeholder engagement**

- 7.5.1A summary of the main findings uncovered from the interviews and from other correspondence with stakeholders engaged in the research is provided below. Key findings on economic impacts, environmental impacts and social impacts are summarised in the costs and benefits sections.

### **Key findings**

- 7.5.2 Of the 21 stakeholders providing an opinion on whether their organisation would be likely to support a ban on the proposed products, 14 indicated they would generally be supportive of a ban. The main reasons cited was that it was "inevitable", as the SUP Directive was already agreed and passed, requiring all Member States to comply with the Directive by July 2021. Others supported a ban in the general sense because the products proposed did not pose major problems for them, as there are readily available alternatives on the market. Finally, stakeholders suggested a ban would level the playing field and support the industry for non-plastic alternatives, making them cheaper for all to use.

- 7.5.3 Three stakeholders supported the ban but provided some remarks to qualify their response. These remarks centred around doubts the full range of implications to business (and manufacturers particularly) had been considered, and these businesses need expert support when going through the process of changing product lines. These (and several other) stakeholders believed the alternatives have not been adequately and independently studied regarding the full life-cycle analysis in a way that is directly comparable to the plastic product. Stakeholders also agreed the proper treatment of the alternatives needs to be secured before banning the currently recyclable plastic product. For example, one stakeholder from the food and drink industry said their organisation and their members would generally agree to pay a premium for the alternative product, but they would want to ensure the product will be disposed of properly, and not end up in landfill. They added investment in industrial composting and other facilities needs to be made before paper (or other) products become mainstream.
- 7.5.4 Two stakeholders indicated they would not support a ban, on the grounds the products in question make up a small proportion of the quantities of plastic waste in the terrestrial and marine environment. They lamented the fact the ban would further “demonize” plastic, taking attention away from the fact the root cause of the problem is littering and using single-use items generally. Two stakeholders said they would not support a ban if it included oxo-biodegradable plastics.
- 7.5.5 Stakeholders provided some specific comments about individual products on the ban list. These views are summarised below:
- Spoons (within cutlery): There are several manufacturers in Wales that use plastic spoons for bespoke applications, such as single-portion ice-cream pots. Requiring these manufacturers to invest in new machinery to support wooden spoons could be very costly, particularly as this is not their primary product.
  - Plates: One stakeholder believed that plates should not be on the list, as these are not used or intended for takeaway purposes, and because the alternatives are not functionally suitable (e.g. paper plates not suitable for heavy food).
  - Straws: Stakeholders in favour of an exemption or grace period for beverage carton straws argued that plastic straws attached to carton beverage containers, such as juice boxes for children, have no readily available alternative. This situation requires more time and support to investigate alternatives, and whether these alternatives have a bigger environmental impact (e.g. changing beverage carton container to use plastic caps would use more plastic).

- Balloon sticks: One stakeholder in the environmental sector explained that balloon sticks are not a highly littered item; the paraphernalia surrounding the balloons (e.g. ribbon, plastic string, etc) are more commonly found littered items. Banning balloon sticks will not address the problem of balloon litter.
- EPS or XPS polystyrene food containers: Notwithstanding the inclusion (or not) of XPS under a ban, there is some debate as to which material is more common in the context of food containers. Some stakeholders were not aware of any XPS used in this context, and argued it is used mostly in the building and construction industries, while others maintain that XPS is widely used for food containers and preferred over EPS as it does not crumble as much when broken. Desk-based research found examples of both EPS and XPS food containers.
- Oxo-degradable plastics: Nine of the stakeholders interviewed offered views specifically relating to a ban on oxo-degradable plastics. As stated above, two stakeholders would not support a ban if it included oxo-biodegradable plastics. Seven stakeholders stated they would support a ban on oxo-degradable plastics, most of whom cited adverse environmental impacts and the technology is “highly uncommon”, stating that they are not aware of any oxo-degradable products used in the UK or Wales. Nonetheless, some stakeholders indicated their customer base did not know if this included biodegradable or compostable packaging and said that more clarity on this is needed. One oxo-biodegradable producer agreed with this sentiment of consumer confusion, further arguing that the confusion extends to the highest levels of EU government. They added, for example, their oxo-biodegradable (not to be confused with oxo-degradable) products do indeed biodegrade, and a ban will stifle the opportunity for development of this technology.

## 7.6 Findings – Model impact estimates

- 7.6.1 Following stakeholder discussions undertaken by the research contractors, they undertook further qualitative and quantitative analysis to understand the potential magnitude of the impacts of a ban. For EPS/XPS food containers and EPS/XPS cups, a specific proportion of the market was modelled to reflect activities of small and medium sized business and organisations, as the predominant uses of EPS/XPS products.
- 7.6.2 The model baseline described the estimated quantity of products placed on market each year and the % market share held by SUP products. Non-plastic alternatives are readily available for all products within the scope of the ban, and currently have differing proportions of the market share. For example, most cotton buds sold now use non-plastic sticks. For modelling purposes, we assume 30% of the market remains plastic. Similarly, a large proportion of the

market for drinking straws has now shifted to paper straws. On the other hand, EPS/XPS still dominates in parts of the small and medium-sized (SME) food container and cup market, e.g. for food vans and fast food outlets.

- 7.6.3 As previously noted, the research modelled was based on the assumption that a legislative ban would have been implemented and come into force by 3 July 2021. Consequently, it was assumed that by 2022 the market for these products will have shifted to non-plastic alternatives, with a very small proportion of the market still using SUP products under any exemptions and small-scale imports unaware or not adhering to the ban.
- 7.6.4 The No Ban scenario (Option 1) represents the anticipated change in markets in the absence of a policy intervention. In this scenario leading businesses and organisations continue to reduce avoidable product use and find non-plastic alternatives. The government would also continue to provide support measures – engagement with trade associations and bodies to promote the desired product and behavioural changes and innovation support could be provided to Welsh product suppliers and manufacturers to help them to innovate and invest where alternatives were not already present in the market. The rate at which the market voluntarily shifts away from SUP products and the depth of that shift is based on the accumulated research for each product. Any such forecast of behaviour change and market response carries a level of inherent uncertainty.
- 7.6.5 The projections calculated that without a ban (Option 1) usage of products would continue, resulting in the market share of SUP products steadily declining over time. In contrast a ban (Option 2) would result in an immediate end in market share, with consumption shifting dramatically to non-plastic products, as described above. The modelling also assumed a ban would affect the market growth rate, i.e. the total volume of single-use products sold in future years irrespective of whether they are plastic or not.
- 7.6.6 The markets for single-use straws, cotton bud sticks, stirrers, plates, cutlery and balloon sticks were assumed to be shrinking by 1% per annum, as public awareness around these products was already relatively high. In many markets, these products were not deemed ‘necessary’ by consumers. Whilst increasing the utility of an experience, such as drinking a soft drink, eating outside, or enjoying a celebration, increasingly consumers and businesses are looking to reduce consumption or find reusable solutions. In other instances, their use is habitual or involuntary, such as being provided a small straw with mixed alcoholic drinks, and increasingly cultural shifts and environmental considerations are reducing use. Under a ban this is assumed to shrink at 2% per annum, due to additional public and media attention.
- 7.6.7 The markets served by the EPS/XPS products in scope, SME food and beverage containers and cups, it was assumed would grow roughly in line with the takeaway market. In these markets, containers and cups are deemed



necessary and reusable systems are more difficult to implement, and so was assumed the single-use market was less likely to shrink for these products.

## **7.7 Post 2019-2020 evidence gathering and wider policy changes for items 'A' to 'I' (Cotton buds, plates, cutlery, stirrers, straws, balloon sticks, polystyrene cups, takeaway food containers and oxo-degradable products)**

7.7.1 This section provides an overview of wider evidence and views gathered as part of the policy development process used to supplement the research undertaken in 2019.

### **a) Views and evidence from public consultation from 30 July to 22 October 2020**

7.7.2 The consultation, [Reducing single use plastic in Wales](#) was provided in detailed and easy-read versions. In addition, there was a number of online meetings with different groups, including with representatives of the Youth Parliament, large businesses operating in Wales, a number of local community groups and an online workshop with academics and other experts hosted by Environment Platform Wales.

7.7.3 Whilst no quantitative data was submitted obtained to support or strengthen the 2019-2020 research, useful additional qualitative information was gathered. This has been used to “sense-check” and inform our Impact Assessment. The majority of respondents to the consultation also agreed with the assumptions made in our research.

7.7.4 When asked whether they believed the potential environmental and social benefits outlined in our proposals outweighed the potential impacts on people in Wales, 80% agreed. A number of respondents suggested any inconvenience resulting from the bans would be short lived and people would adapt quickly. The introduction of the single use carrier bag charge was frequently cited as an example of a policy that led to long-term environmental benefits despite short-term disruption for retailers and the public. Others felt the availability of alternatives meant any inconvenience would be minor and the regulations were necessary for the good of the planet.

7.7.5 A small number of respondents raised concerns over the potential negative impacts of a ban. A number of respondents - including those in the manufacturing sectors, academia, environmental non-governmental organisations and the government sector - highlighted the need to support such action with [life cycle analysis](#) (LCA) studies, to ensure any alternatives did not have a greater impact on the environment than plastic. Some noted plastic is more lightweight and cheaper than commonly available alternatives, which meant it was comparable with some alternative materials.

7.7.6 A small proportion of responses questioned whether Wales had a big enough share of the consumer market to shift global consumption and manufacture of

these products. Some also expressed concern Welsh consumers would ultimately pay more if manufacturers and retailers passed on any costs by increasing prices of the goods they sold. However, others felt the Welsh Government should be leading the way and Welsh businesses making reusable/ more sustainable products could benefit if other countries then followed with similar bans. This in turn would create jobs for people in Wales.

- 7.7.7 A number of responses from the manufacturing sector raised concerns over the potential environmental impacts of alternative materials if the appropriate lifecycle assessment (LCA) studies had not been undertaken. Reference was made to the difficulties in recycling paper cups lined with plastic (cited as a potential replacement of EPS cups) and alternative materials being heavier or more energy intensive than plastic (which can result in a higher carbon footprint). It was felt full Environmental Impact Assessments and LCAs were needed before alternatives could be recommended for wider production.
- 7.7.8 When asked whether respondents agreed with our assessment of the potential benefits and impacts our proposals will have on businesses, including manufacturing, in Wales, 75% of did so. Of those who responded positively, most believed such action offered Welsh businesses a potential to invest and manufacture alternatives to the products being banned. Some felt this could create local employment opportunities and help support wider economic growth in Wales.
- 7.7.9 A number of respondents, particularly those from the plastic and packaging manufacturing sectors, indicated developing new and innovative solutions was often costly, especially if significant investment was required to fund research and make changes to infrastructure. The production of drink cartons with attached straws was provided as an example of generating significant costs for businesses if alternative materials were required. Other respondents suggested such investments would require financial support from Government or additional regulatory action to prevent cheaper products being imported into Wales.
- 7.7.10 Whilst responses from businesses who had already made changes to how they operate in Wales were limited, one respondent (a local pub owner) suggested some additional costs had been incurred from changing from plastic to paper straws. However, these had been minimal and had not negatively impacted their business.
- 7.7.11 A common theme running throughout the responses was the belief businesses can adapt and innovate to the regulations provided they were clear, consistent and published in a reasonable timescale. The introduction of the single use carrier bag charge was again cited as an example to support this view.

**b) Consideration of impacts from the introduction of regulations/ legislation and voluntary action elsewhere**

7.7.12 As previously noted, the 2019-20 research utilised market data that was available at the time. Our subsequent research identified limitations with this data, including the difficulty in anticipating any changes as a result of wider market shifts due to voluntary action by businesses or regulatory action by government. Since the conclusion of our research, we are aware of the following developments which we anticipate may have impacted the current market for SUP products:

- The introduction of regulations in England banning or restricting the sale of SUP straws, cotton buds and drinks stirrers. The UK Government has also consulted on further bans on EPS cups and food containers, plates, balloon sticks and cutlery. It is understood these regulations will come into force during 2023.
- The implementation of the EU's SUP Directive by the majority of EU Member States.
- The introduction of regulations by the Scottish Government which cover an additional seven products (SUP straws, stirrers, EPS cups and food containers, plates, balloon sticks and cutlery).
- Global regulatory interventions being introduced or due to be introduced, for example Canada, Australia and several US states.
- Voluntary progress made under programmes such as WRAP's Plastic Pact and by smaller, more local businesses engaging with schemes such as the Surfer's Against Sewerage's "Plastic Free communities".
- Increasing consumer awareness of environmental issues has meant attitudes have continued to move away from SUP items and towards more environmentally friendly alternatives.

7.7.13 In addition to the above, the impact of the COVID-19 pandemic (see paragraph 7.7.20 to 7.7.25 below) and the current economic uncertainties created by increasing inflation, have meant elements of our initial assessment are likely to have changed. On this basis additional limitations have been identified:

7.7.14 An increase in the number of countries banning SUP products globally and regulatory action being undertaken elsewhere in the UK, has likely meant the availability and prevalence of non-SUP products has been understated and the cost of non-SUP items (and therefore the price differential between SUP and non-SUP items) overstated. This is because as market demand for alternative single use products rises, their prices are likely to fall owing to economies of scale, competition and product innovation. If the prices were to fall, the net costs calculated would become less negative.

- 7.7.15 Estimated economic impacts on manufacturers and businesses to transition their production to non-SUP alternatives. To a large extent, the manufacturing, wholesale and retail businesses affected by the Bill operate in a wider UK market and will have already responded to regulatory action undertaken elsewhere in the UK. As such, some of the business implementation costs such as those associated with sourcing alternative non-SUP items and switching production away from SUPs will have already been incurred. So, while it is anticipated some costs will still occur, significant progress in this area has already occurred with new and innovative solutions. A prime example is the development of non-plastic straws for drinks cartons and pouches. Concerns were raised in our consultation that research and develop of non-SUP alternatives would take years (estimated to be around three years by some stakeholders), however this change has now already occurred with, for example, market leaders such as [Ribena's use of paper straws](#).
- 7.7.16 Equally, calculations of environmental costs incurred while business and society transitioned from SUP to non-SUP alternatives may be overstated. However, as previously noted calculating these costs is difficult due to the lack of robust data and methodologies.
- 7.7.17 Since we believe markets have already responded to changing consumer attitudes and regulatory action taken elsewhere by moving away from SUPs, it follows that the many of the benefits identified in the research are already being realised and will not therefore accrue as a result of this Bill.
- 7.7.18 Changes in our policy position since conducting the 2019 research, for example the exclusion of SUP bowls, trays and platters, will not be accounted for in the market modelling. As previously noted, the modelling also did not account for additional products such as plastic SUCBs and polystyrene lids for cups and takeaway food containers.
- 7.7.19 In 2021, the [UK Government revised the methodology and values](#) to be used when assessing greenhouse gas emissions in economic appraisal. The value per tonne of carbon dioxide equivalent (£/tCO<sub>2</sub>e) is now higher than would have been used in the modelling.

**c) Consideration of implications COVID-19 pandemic on SUP product usage**

- 7.7.20 At the outset of the COVID-19 pandemic, there was limited evidence as to how the virus was being transmitted and a number of measures were introduced to reduce person-to-person contact, for example social distancing. As a result of this uncertainty, some businesses took additional steps to protect their employees, included limiting contact with potentially contaminated surfaces. An example of this was businesses [banning the use of reusable cups](#). Consequently, we witnessed an increase in single use, disposable products being used such as cups, plates and other products. We have been unable to ascertain the exact nature of this increase.

- 7.7.21 In addition, movement restrictions to reduce the spread of COVID-19 changed how individuals and families used SUP products. In some areas, use declined, such as buying drinks in polystyrene containers or plastic-wrapped food and snacks to [consume on the go](#). Anecdotal evidence provided by Costa Coffee indicates with an increased number of people now working from home despite the lifting of restrictions, the use of reusable coffee cups used by office workers, has declined (although they did not set this in the context of overall sales).
- 7.7.22 In other areas, however, their use has increased. For example, deliveries of groceries and takeaways to the home and increased online shopping. [One study](#), encompassing 41 countries, found that 58% of the respondents indicated that consumption of single use plastics as a whole had increased, with 50% of households increasing their use of food packaging, and 25% their use of single-use plastic bags. Another [study](#), encompassing 23 countries, found that over half of the sample (55%) indicated an increase in waste generation during the lockdown period. The highest increase was for plastic packaging (53%).
- 7.7.23 In the EU, increased online shopping is considered to have led to an estimated 11,400-17,600 tonnes of additional plastic packaging from March to September 2020. The environmental and climate impacts of additional single use plastic packaging for e-commerce include those from its production and transport (greenhouse gas and other emissions) as well as from handling the additional waste, mainly through [incineration](#).
- 7.7.24 One study showed that about 40% of the plastic waste associated with COVID-19 ended up in landfill, 25% was incinerated, 16% recycled and the remaining 19% was leaked into the [environment](#).
- 7.7.25 While we note the concerns of reversing the pre-COVID-19 progress away from SUP products, there is currently insufficient evidence to assess trends in single-use items during COVID-19, or to forecast future post-COVID-19 trends. On this basis, we acknowledge this is a limitation of the current data modelling.

**d) Additional engagement and evidence gathering to address initial limitations around oxo-degradable plastic in 2019-2020 research**

- 7.7.26 [Responses to our 2020 public consultation](#) indicated 70% of respondents were in favour of banning oxo-degradable products, however it was recognised the lack of market information included in the research hindered a full assessment of its impact. Consequently, some concerns were raised over this ambiguity, particularly when it came to the agriculture and horticulture sector. The National Farming Union for example, highlighted its use in agricultural mulch films and suggested cost-effective alternatives were needed before these products should be banned in Wales.
- 7.7.27 To help understand help the prevalence of oxo-degradable plastics, a focused evidence gathering exercise has been undertaken. This has included

discussions with the UK Government and Scottish Government, both of whom have conducted separate reviews (the outcomes of which were not published at the time of writing) and a small number of stakeholders, particularly those working with the agriculture sector.

- 7.7.28 The environmental impact of oxo-degradable plastic (ODPs) have been the subject of numerous scientific studies. Although these products are marketed as a solution to plastic pollution, evidence demonstrates oxo-degradable plastics simply fragment into small pieces, including microplastics, presenting a [high risk of environmental harm](#). The [Hazardous Substances Advisory Committee's review](#) of ODPs highlighted the hazard microplastics present to wildlife. As with conventional plastics, the negative impacts are not only due to plastic particles remaining in the environment, but also that the toxic substances released through the fragmentation process.

## **Market data**

- 7.7.29 Our research was able to identify evidence of ODP products on the UK market, however no evidence of Welsh manufacturers was found. Typical usage for ODP includes shopping bags, refuse sacks, disposable cutlery, plastic cups, agricultural mulch films, certain plastic bottles, stationery and use in the medical sector.
- 7.7.30 While it is difficult to distinguish these kinds of items from their conventional plastic equivalents, the impacts of any ban on shopping bags, cutlery and other items already proposed for inclusion in the bans will likely have been covered by our research in 2019. Due to their short lifespan and rapid degradation triggered by UV light, these items are unsuitable for multiple re-use. In terms of unit costs, conventional plastic alternatives are available for a similar cost to the OPD product. However, if the OPD product was to be replaced by a one made of bio-based and/or compostable plastic alternative, or a non-plastic alternative, these are slightly more expensive. The exact cost varies by product.

## **Agricultural usage**

- 7.7.31 According to [Farming Connect](#) data, an estimated 2-3 million tons of plastics are used in agriculture each year. One of the biggest uses of plastic in agriculture is for mulch films, which are typically made of oxo-degradable polyethylene. Plastic film mulching can play an important role in agriculture and horticulture owing to its ability to improve grain crop yields and water use efficiency by maintaining soil moisture, suppressing weeds and increasing soil [temperature](#). Anecdotal evidence suggest that mulching film is used by maize growers, potato growers and horticultural businesses in Wales. However, robust data is currently unavailable on the amount of ODP mulch film used in Wales.

- 7.7.32 Concerns have been raised over the environmental risks associated with plastic mulching film due to the microplastic residue and potentially toxic substances the product leaves behind. As well as negatively impacting both soil quality and ecosystems, micro plastics also have the potential to transfer through food chains and ultimately affect human health and [well-being](#).
- 7.7.33 Scientists, including Professor Davey L. Jones, Bangor University, participated in a [study](#) that considered the impact of long-term mulching on soil quality. The research described plastic mulching film as “a double-edged-sword agricultural technology, which greatly improves global agricultural production but can also cause severe plastic pollution of the environment.”
- 7.7.34 The study quantified the amount of macro- and micro-plastics accumulated after 32 years of continuous plastic mulch film use in an agricultural field. It concluded that long-term use of plastic mulch films caused considerable pollution of not only to surface, but also subsurface soil. Plastic mulch films contributed 33%–56% to the total microplastics at 0–100 cm depth. The total number of microplastics in the topsoil averaged at 8,885 particles/kg. In the deep subsoil (80–100 cm) the plastic concentration ranged between 2,268–3,529 particles/kg, with an average of 2,899 particles/kg.
- 7.7.35 It is believed that mulch film is widely used in the horticultural sector in Wales. [Data](#) from 2015 indicates the sector is still relatively small and only covers 0.08% of all the agricultural land in Wales, it is significant in terms of domestic food production. The [Business Wales website](#) describes horticulture as a vibrant sector which is “high on the Welsh Government's agenda for developing a sustainable agricultural industry as it delivers a range of environmental, social and economic benefits”.
- 7.7.36 [Transparency Market Research](#) estimated the value of the global mulch film market at US\$ 5 Bn in 2021. It also indicated the market is likely to rise at 5.9% from 2022 to 2026. Consumers' growing inclination toward eco-friendly options is likely to drive the global mulch films market, stated the research.

## Alternatives

- 7.7.37 Biopolymer Mulch Films are regarded as viable alternatives by some scientific [research](#). The category covers a variety of products in terms of composition, including starch, starch blended with polylactic acid, starch blended with polyhydroxyalkanoates, and [others](#). The [claim](#) is that these alternative materials can replicate the performance of ODP mulch film whilst naturally occurring micro-organisms in the soil can metabolise the film after it is ploughed into the field. However, [the article](#) states “the researchers themselves cautioned against unrealistic expectations for biodegrading plastics in the environment.” It is still far from clear how long this process



takes in real-world conditions and what happens to the plastic in the intervening time. It quotes one researcher as saying:

“Unfortunately, there is no reason to cheer as of yet: we’re still far from resolving the global environmental problem of plastic pollution.”

7.7.38 Hay, straw, and fresh-cut forage or cover crops are among the most versatile and [widely-used organic mulches](#). They can suppress weed germination and emergence when applied at reasonable rates and reduce evaporative losses of soil moisture while allowing rainfall to reach the soil. They are also relatively easy to apply and do not cause plastic pollution.

7.7.39 [Innovative Farmers](#), a network group of farmers and growers in the UK have explored alternatives such as biodegradable starch-based film, woodchip, grass cuttings, cardboard and woven polypropylene fabric. The farmer led research and field trials concluded that “there are range of viable alternatives to plastic - some local, some commercially sourced - that can reduce the need for weeding.” Grass clippings and woodchip were amongst the trials which performed well as weed control.

## **7.8 Part 2: Assessing the impacts of items ‘J’ and ‘K’ (single use carrier bags and polystyrene lids for cups and takeaway food containers)**

7.8.1 Since developing our original proposals and consultation in 2019-2020, we have considered potential additional SUP products to be included in our legislation. These are plastic SUCBs and polystyrene lids for cups and takeaway food containers. Separate engagement and assessment were undertaken to understand the impact of including these products. Consequently, these products are presented separately in the RIA and have a number of additional limitations in addition to those noted above.

### **J: Plastic Single Use Carrier Bags (SUCBs)**

7.8.2 The term plastic “single use carrier bag” generally refers to the conventional, lightweight, plastic carrier bags (made from polyethylene or biobased plastic alternative) offered to customers to carry shopping home from a store. The Welsh Government has been working proactively towards reducing reliance on SUCBs in Wales, regardless of material, and minimising their environmental impact. Wales was the first country in the UK to introduce a statutory SUCB charge in order to reduce consumption and the associated environmental impacts of SUCB production, use and disposal.

7.8.3 The [SUCB Charge \(Wales\) Regulations 2010 \(the 2010 Regulations\)](#) introduced a minimum charge of 5 pence for each new SUCB from October



2011<sup>7</sup>. The 2010 Regulations apply to all single use bags, irrespective of their composition, and affect a range of places where goods are sold, such as supermarkets, greengrocers, corner shops, clothing shops, market stalls, takeaway restaurants, etc. The law also applies to sales from places outside Wales if the goods are delivered in Wales. The requirement to charge is exempted for reusable bags.

## Evidence of use

- 7.8.4 In 2013 Cardiff University undertook a [behavioural study](#) on the use and re-use of carrier bags on behalf of the Welsh Government. This study included a telephone survey of 1012 Welsh households and 4,884 observations of Welsh consumer behaviour. The study highlighted the charge had a strong effect on the Welsh consumer, with more than half saying they took less SUCBs following its introduction. Reasons for this included avoiding the cost (57%) and environmental reasons (35%). Overall, the study concluded that:

“The 5p charge has had a significant impact on new SUCB [single-use carrier bag] use, particularly within food chains in which only 15.8% of Welsh shoppers were observed taking new SUCB”.

- 7.8.5 In 2014, work undertaken by [the Waste and Resources Action Programme \(WRAP\)](#) on carrier bag usage in supermarkets, reported that 77 million carrier bags were given out by participating major supermarkets in Wales, this represented a 7% decrease from figures gathered in 2010.
- 7.8.6 A [post-implementation review](#) published in 2016 assessed the success and impact of the 2010 Regulations. It stated the legislation had achieved a “significant shift in demand away from SUCBs and towards re-usable bag types”. It estimated a 57% reduction in use of all bags (including ‘bags for life’) and a 70% decline in use of SUCBs between 2011 and 2014. The findings also indicated the monetised environmental benefits were between £0.9 million and £1.3 million for the period of October 2011 to January 2015. This included wider benefits associated with the production and disposal of SUCBs, for example air pollution associated with their manufacture. However, the report stated it was likely these figures underestimated the environmental benefits, mainly due to the difficulty of consistently monetising environmental value.
- 7.8.7 [The report](#) also surveyed retailers, consumers and suppliers to gather their views on the charge. Of the retailers surveyed, 22% felt the SUCB charge had had a positive change on their business, 65% reported there had been a neutral impact and only 13% felt there had been a negative impact. The

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<sup>7</sup> Since October 2011 the charge has been levied at the point of sale, both in store and for distance selling methods, i.e. internet, telephone, mail order etc.

research estimated the total administrative cost of the SUCB charge to retailers in Wales was less than £180k per year, this was significantly lower than the anticipated cost of £900K prior to the charge being introduced. The report found evidence of strong support amongst consumers, with positive responses including a perceived reduction in littering in their areas. In contrast, suppliers reported a negative impact of the charge due to decline in sales and the need to expand their business in other directions.

- 7.8.8 As part of a review of barrier bag charging policy, in December 2019, the Welsh Government published a further [report which also estimated bag usage and again examined consumer and retailer attitudes to the charge](#). Between 2015-16 and 2017-18 there was an estimated 21% decrease in the number of SUCBs issued by retailers in Wales. The report's authors attributed this to supermarkets phasing out their use during this period. The report also assessed the approximate net benefit of the SUCB charge at between £27.9 million and £32.3 million for the same period, averaging around £8.8 million per annum. Again, it was stated this was a possible underestimate as customers were likely to reuse carrier bags.
- 7.8.9 The study also identified the reuse of bags outside of the food shopping setting, for example when visiting clothing shops, was limited. Respondents to the consumer survey quoted various reasons for this, including the perceived "hassle" of carrying around bags for non-food shopping, concern over food shopping bags "contaminating" new clothing items and fashion statements relating to product brands.

### **Alternatives to plastic SUCBs on the market**

- 7.8.10 A wide range of alternatives to plastic SUCB are available on the market. The type of alternative bag offered can depend on the type of shop.
- 7.8.11 Supermarkets and other large food retailers offer plastic 'Bags for Life' made of thicker film which are intended to be reused. Heavy duty alternatives are also available which are made from materials such as woven and non-woven polypropylene, jute, canvas or cotton. 'Degradable', compostable plastic or paper bags are also available as alternatives and offered in some stores. While most consumers claim to reuse their bags, sales of reusable bags have continued to increase and most households now have a stock of reusable bags to meet their shopping needs. Non-food retailers also offer a variety of alternative bags. These include paper, jute, cotton or canvas options.
- 7.8.12 Desk based research undertaken in 2022 revealed price depends on gauge, strength, size, design (such as the inclusion of a gusset, patch or loop handle design), colour or print design and volume purchased. Costs also vary depending on material, as bags made of varying amounts of recycled plastic are also available. For ease of comparison, the wholesale price of single

colour bags, have been compared for bags of a similar size or the nearest comparisons found for the most common types of bags offered by retailers.

- 7.8.13 The wholesale price of a plastic SUCB with recycled content of at least 30% of 32 x 47.5 x 57cm of 18 to 22 microns is between £32-45 per 1000 (£00.03 to £00.04 per unit). Going down to 10 microns reduces the unit price to £00.01 to £00.02 per bag, for a slightly smaller sized bag.
- 7.8.14 In comparison, an extra strong, patch pocket carrier bag 37.5 x 45 cm x 75 microns is £40-£50 per 500 (between £00.08 and £00.10 per unit). These are strong bags which can be reused a number of times.
- 7.8.15 Natural jute bags without any lamination and a soft handle cost an average per 200 have an average unit cost of £02.20 per unit. Bags with a padded handle, prices are a bit more at £02.50 to £03.00 per unit. They can be reused many times.
- 7.8.16 Non-gusseted, large cotton bags (38 x 42 cm) cost an average of £00.94 per unit, based on 200 units.
- 7.8.17 Sales figures broken down by bag type for all the alternative bags are difficult to collect. Retailers are only obliged to share data regarding SUCBs subject to the charge with the Welsh Government. For our [2019 carrier bag behaviours report](#), there were problems obtaining reliable data. However, the report estimated 94.1 million SUCBs were issued during the 2017 to 2018 financial year across the Welsh retail sector. During the same period, the report estimated the number of thicker film 'bags for life' issued by the 10 major supermarkets in Wales to be around 65.2 million. This type of reusable bag are only commonly issued by supermarkets, as the definition of a 'Bag for Life' in the existing [Welsh Carrier Bag charging regulations](#) means to be reusable, it must be replaced free of charge if returned to retailers.

## **K: Polystyrene lids for cups and takeaway food containers**

### **Product overview**

- 7.8.18 Plastic lids (typically made from non-expanded polystyrene (NEP), polyethylene Terephthalate (PET) or polypropylene) are usually sold attached to take away and fast food beverage containers made of paper, that contain hot or cold drinks. Lids are usually sold with beverage containers but can also be sold separately by manufacturers and range in pack sizes of 100 to 1000 units or upwards. There are several variations of plastic lids which include – sip lids which contain a small slit which you sip from (typically for hot drinks), slot lids (which contains a hole for a straw), usually for cold drinks) and smoothy lids (typically a raised convex shape with a large hole for a straw or spoon). With regards to takeaway food containers, lids are often placed on

cups or tubs to prevent the spillage of “side dishes” of hot liquid foods such as sauces or gravy or foods such as baked beans.

- 7.8.19 Beverage cups and lids can be used to consume products within a premises but more commonly are used to take a drink away from businesses ‘on the go’ on foot within cars or public transport. Discussions with one major fast-food retailer in the UK estimated that 80% of their beverages were consumed away from stores. This is likely to be higher where retailers do not offer a ‘dine in’ facility or where beverages are sold from vending machines. Lids help facilitate the safe and convenient transport of liquids in addition to helping to keep liquids hot or cold for longer periods than an uncovered beverage cup.
- 7.8.20 Rigid/ non expanded polystyrene is estimated to be used to make over 90% of beverage lids sold within the UK (based on manufacturer discussions). They are considered the best type of plastic for the purpose of both hot and cold drinks as they do not expand / contract or change shape when hot or cold or when exposed to steam or liquid, enabling them to provide secure lids. They are also often the cheapest form of plastic lids and are not typically recycled.
- 7.8.21 [Keep Wales Tidy annual litter street survey \(2021/22\)](#) recorded fast food drinks lids on 194 of the streets surveyed in Wales (6.1%). This was a drop from the previous year (6.7%). The [Marine Conservation Society’s - Great British Beach Clean](#) survey results for 2021 found that over 80% of items found on Welsh beaches were either macro or micro plastics (MCS, 2021). 19 Caps or lids were found every 100m of beach surveyed.
- 7.8.22 A significant proportion of single use cups are now collected (when disposed of in-store) by the [National Cup Recycling Scheme](#), which most large chains are signed up to although this does not include lids. The majority of lids (particularly polystyrene lids) are not recycled and, therefore, end up in landfill or are littered across Wales.

## **Market data/usage**

- 7.8.23 Estimating the number of plastic lids used in Wales is difficult as data is often gathered for the cups only. Therefore, for the purposes of our research, an assumption has been made that the data available for cup sales can be used to extrapolate figures for cup lids as they are typically served to the customer together. It should be noted market data on specific types of cup lids, whether this is polystyrene or other types of plastic, has not been identified as part of this research and has been based on figures obtained during discussions with packaging manufacturers.
- 7.8.24 Our estimate has also been calculated utilising data obtained from representatives of food and packing trade association in addition to research previously undertaken by [Valpak, WRAP and Defra 2021](#). The later estimated

that 3.2 billion cups are sold across the UK annually. Of these, around two thirds are sold with lids. When this figure is adjusted for Wales which makes up approximately 5% of sales (and including cups sold without lids) it can be estimated that approximately 106 million lids are sold annually. It is understood the vast majority of these will be made of polystyrene. We have been unable to identify similar data for polystyrene food container lids.

7.8.25 Prices vary and most are typically sold with the cup as part of a bundle so individual unit costs are difficult to disaggregate. However, where they are sold separately a typical unit cost is estimated to be approximately [£0.02p](#) per unit. This unit cost is likely to be significantly less for large retailers who will have contracts to purchase large volumes. The cost for takeaway food containers is broadly in the same price range of approximately [£0.05p](#).

7.8.26 Polystyrene lids are predominantly manufactured in and imported from the Asia – Pacific Region and in some European countries. There is at least one manufacturer of polystyrene lids in Wales Seda UK (Blackwood) who have manufactured lids, cups and folding cartons since 2005 and currently employ 370 people. There are other companies in Wales who manufacture cups and according to one manufacturer, some companies import polystyrene lids to sell with their cups.

## **Alternatives**

7.8.27 Arguably, the most sustainable alternative to polystyrene lids for cups is for consumers not to purchase single use beverage containers and instead to bring their own re-usable cup or to consume the drink in-situ. As noted previously, the impact of COVID-19 pandemic and the temporary ban on reusable cups amongst some chains may have “disrupted” previous reuse habits, although no robust evidence is available to support or challenge this assumption.

7.8.28 There are a number of lids made of alternative materials currently available on the market. These include:

- PLA /CPLA (Polylactic acid coated paper) – this consists of a paper lid which is lined with a corn starch or similar layer to improve its water resistance.
- Moulded Plant Fibre / Bagasse which consist of plant fibres moulded into various receptacles including lids. It is often produced from agricultural biproducts from sugar cane and wheat extract and can be combined with recycled paper and cardboard.
- Mineral Filled Polypropylene lids - These contain 50% less plastic than traditional plastic lids with a mineral additive makes up the rest.

- Other plastics – these are predominantly PET plastic which is used mostly for cold drinks or for where clear lids are required. PET is recyclable unlike polystyrene lids.

*(Information provided during stakeholder meetings including manufacturers and retailers)*

## **Stakeholder views**

7.8.29 Several ‘fast food’ companies who make up around 50% of sale of plastic lids on beverage and associated containers were approached to seek views and insights on our proposals. These discussions also sought to identify any potential challenges, the availability of alternatives and consideration of a shift away from single use products.

7.8.30 Evidence provided by sector has contributed to the development of our Impact Assessment and can be summarised as follows

- Any a ban introduced in Wales would need to be considered in conjunction with wider UK or global markets. It was felt this point was particularly relevant in terms of the availability of alternative materials required for lids and the innovation and design process that was being undertaken elsewhere to support industry changes. It was argued alternatives could be more developed more effectively if a UK wide approach was adopted given the costs of development, innovation and machinery.
- Concerns were raised over potential increases in cost for manufacturers and retailers (particularly independent /smaller retailers) and the public. It was felt a ban on polystyrene lids would likely result in non-plastic alternatives which can be 4/5 times more expensive (manufacturer estimates). Any additional costs in the current economic climate would be unwelcome.
- Two organisations referenced the ‘hurried’, ‘poorly thought out’ and ‘chaotic’ examples of the French Government’s experience of banning plastic cups which resulted in a lack of alternatives. To avoid a similar scenario in Wales it was suggested at least 18 months was needed to allow all stakeholders to transition. This would allow time for manufacturers to establish production lines and for the development or sourcing of non-plastic alternatives.
- Despite these concerns, they were generally supportive of a ban, if the above mitigations were put in place.

- 7.8.31 A number of trade representation bodies such as the Federation of Small Businesses, the Association of Convenience Stores, Welsh Retail Consortium and manufacturing representatives were also approached. Views expressed by this sector were broadly aligned to the fast-food industry i.e. the potential for price increases, the uncertainty around the availability of materials for alternatives and the requirement for a transition period.
- 7.8.32 There was also caution that for manufacturing and investment purposes government policy should be clear about the direction of travel i.e. it should be made clear from the outset if there is to be a complete ban on plastic lids, rather businesses purchasing bio-plastics or recyclable plastic alternatives now and then find they are to be banned at a later stage.
- 7.8.33 Additionally, it was indicated there may be potential issues with sourcing an adequate supply of alternative material lids. Food grade PET (polyester) supply for example (particularly recycled PET) does not always meet demand. It was suggested this particular issue would be felt most by smaller businesses that are often outcompeted by larger chains when supplies run low. If a ban on lids results in more expensive alternatives being used then this would likely be passed on to the consumer (especially for small businesses who are the majority of the sector but are less able to absorb rising costs).
- 7.8.34 On the whole, the stakeholders engaged for this research were supportive of the proposals, however it was felt larger companies and chains would be better able to manage the implications of any ban when to smaller or independent businesses. Those in the manufacturing sector also requested the development of a coherent long-term strategy from Government to provide some certainty which will allow business to invest in development and innovation required to develop new, “greener” products.

## 8. Costs and benefits

- 8.1.1 To gather information about the likely costs and benefits, discussions with a sample of stakeholders was undertaken during 2019/2020 for option 2, covering products A to I. This was part of the main research and analysis undertaken to support the proposed legislation and was used to inform a full, public consultation which took place during 2020. The costs for this section have been identified in the market mapping section (paragraphs 0 to 7.5.5) and fed into the model discussed in paragraph 7.2.15 to 7.2.36. The costs and benefits for products J and K were not part of the research and were only assessed qualitatively. The costs and benefits of banning these products are therefore not known. In addition, the limited market information found for product I (oxo-degradable products) meant quantitative modelling for these products was not able to be completed and the costs and benefits for item I are therefore not known.
- 8.1.2 The main effect of the ban is expected to be that consumption will shift dramatically to non-plastic products, as described above, with an associated benefit by reducing the environmental impact which littering the banned items currently has. We also assume that a ban will affect the market growth rate, i.e. the total volume of single-use products sold in future years irrespective of whether they are plastic or not. The markets for single-use straws, cotton bud sticks, stirrers, plates, cutlery and balloon sticks are assumed to be shrinking by 1% per annum, as public awareness around these products is already relatively high. In many markets, these products are not deemed 'necessary' by consumers. While increasing the utility of an experience, such as drinking a soft drink, eating outside, or enjoying a celebration, increasingly consumers and businesses are looking to reduce consumption or find reusable solutions. In other instances, their use is habitual or involuntary, such as being provided a small straw with mixed alcoholic drinks, and increasingly cultural shifts and environmental considerations are reducing use. Under a ban this is assumed to shrink at 2% per annum, due to additional public and media attention.
- 8.1.3 The markets served by the EPS/XPS products in scope, SME food and beverage containers and cups, is assumed to be growing roughly in line with the takeaway market (Just Eat, 2017). In these markets, containers and cups are deemed necessary and reusable systems are more difficult to implement, and so it is assumed the single-use market is less likely to shrink for these products.

### 8.2 Costs

#### Option 1 – Business as usual

- 8.2.1 This is the baseline option and as such there are no additional costs associated with this option.



- 8.2.2 Under this option, the Welsh Government would continue to support current voluntary market change towards readily available non-plastic alternatives and an overall reduction in use. Retailers, wholesalers and manufacturers could still produce and sell single use plastic products if they wished to do so. A 5p minimum charge would continue to apply to plastic SUCBs.

## **Option 2 – Introduce legislation to ban or restrict the following items:**

- A. plates
- B. cutlery
- C. drinks stirrers
- D. drinking straws (including attached straws)
- E. polystyrene cups and lids
- F. polystyrene takeaway food containers and their lids
- G. plastic-stemmed cotton buds
- H. sticks for balloons
- I. oxo-degradable products
- J. polystyrene cup lids
- K. single-use plastic carrier bags (SUCBs).

### **8.3 Environmental costs**

8.3.1 This section focuses on items A to H. As previously stated in paragraph 8.1.1, it has not been possible to estimate costs for items I to K. However, many of the assumptions in this section also apply to products I to K and we assume these costs would not be large in the context of the Bill as a whole.

8.3.2 During the stakeholder discussions, business stakeholders felt the environmental impacts of the bans would predominantly be self-explanatory and positive. However, some stakeholders argued that the negative consequences are more nuanced and multifaceted, yet no less important. For example, many stakeholders raised the issue that an increased reliance on fibre products will increase the use of paper and thus deforestation. For this reason, an LCA is needed to understand the full impact of alternatives to SUPs. This includes investigating treatment options; if the plastic-free alternatives can only be recycled in select locations, the logistics and fuel costs to transport this waste to these locations must be considered as well.

8.3.3 The topic and possibility of reusable products was also discussed. Two different types of reusable models were identified. The first is the classic model whereby an individual invests in reusable products (such as bamboo cutlery, metal straws, etc), retains ownership of the product and must plan to bring it with them when ordering food or drink. This model can be supported by financial incentives that reward a customer for using a reusable item instead of a single-use item, as is seen in many high street coffee shops with discounts for reusable coffee cups. Reuse can be facilitated by apps, such as 'Refill', which identifies businesses that will provide free water refills. These types of campaigns were said to be successful in decreasing the stigma around drinking tap water, which has also helped increase reuse. One major retailer shared that sales for these types of reusable products have increased 96% from last year in their stores. The growth and demand for these products has prompted the development of a major plan around reusable products in their stores, planned for 2020. One issue related to this model, however, relates to liability and health and safety. Notably, if a customer uses their own

container for food or drink and becomes sick, there is no way to prove whether this was from the contents or the packaging.

- 8.3.4 Other stakeholders thought it was not ideal or practical for consumers to carry numerous products throughout the day. Due to this limitation, a second reuse model involves a system whereby reusable products are part of a scheme managed by the retail or business, a model already extensively used in [South Korea](#). Reference was made to a trial by Deliveroo which would allow customers to ask for their containers to be picked up by Deliveroo workers so that restaurants involved in the trial can wash and reuse the containers for future use. While this would solve the issue of convenience, stakeholders raised various other issues, such as food safety on a wider scale, and requiring significant amounts of energy to wash the products.
- 8.3.5 The environmental impact of reusable products has been investigated further in the LCA section.
- 8.3.6 The impact of marine litter on the environment, the ecosystems it supports, and human health is the subject of ongoing scientific research, and the potential threat from microplastic pollution is a particular source for concern. As the full impact and costs are not known, many organisations adopt the precautionary principle in their approach to marine litter.
- 8.3.7 No additional environmental costs were found for the ban.

## **8.4 Economic and business costs**

- 8.4.1 During the stakeholder consultation, business stakeholders offered their views on the impacts. Most of the impacts discussed were anecdotal; none provided specific figures or estimates of costs to their business. The discussion of economic impacts centred around costs to manufacturers, particularly regarding replacing machinery to support the alternative products. Questions were raised regarding how the businesses would be able to finance this change, and what the consequences would be for end consumers.
- 8.4.2 Economic impacts in terms of human capital were also cited. These were raised both in terms of job losses, and job gains. Job losses would occur in factories that are unable to pay for the machinery costs cited above – one manufacturer anecdotally added that the closure of an EPS factory led to 400 job losses (the factory location was not provided).
- 8.4.3 One industry group referred to Defra's summary of responses to the consultation on plastic straws, cotton buds and drink stirrers, as this provides further information on financial impacts. The major financial impacts from this summary report were provided by Tetra Pak and the British Soft Drinks Association (BSDA). Tetra Pak indicated that in the UK there are

approximately 10 production facilities which produce drinks filled in cartons with straws on approximately 20 production lines. They estimated the capital equipment investment to produce alternatives to be tens of millions of pounds in the next five to seven years. The BSDA estimated that switching from a carton with on-pack straws to a plastic bottle with a cap would require investment of £250k to £1.5 million per production line, plus redesign costs. However, due to the ban having come into effect in England, including for attached straws, these companies have invested in developing alternatives (see previous example of paper straws) and as these companies operate on a UK wide basis, the legislative changes in Wales will not place additional costs on these companies.

- 8.4.4 Stakeholders indicated that smaller businesses may be disproportionately affected by a ban, as these operate in a highly competitive market and are very price conscious. They also pointed out they often have a lack space for washing facilities to support reusable products. Another stakeholder added that the third sector (e.g. community groups, churches, Scouts, etc.) would be disproportionately affected as well, as they have limited financial resources and many times must choose the cheapest option available. Despite this, on balance, they thought the overall impact would be low due to small unit price differences between plastic and non-plastic alternatives and therefore supported the bans. Similar assumptions have been made for products I to K.

## **Market Research**

- 8.4.5 Limited data was found relating to the quantity of products placed on the market for the items in scope of our research. Estimates for Wales were made by scaling previous estimates for England on a population pro-rata basis. Of these estimates, the products sold in the largest volumes were 226 million units of cutlery sold each year and 199 million drinking straws, and the smallest product markets were 11 million drinks stirrers and 1 million balloon sticks by volume.
- 8.4.6 Estimates of the current market split between plastic and non-plastic products were triangulated from previous research and stakeholder comments. A large number of cotton buds are now sold with non-plastic stems and drinking straws have also experienced a strong shift away from plastic due to recent public and media attention. Beverage carton straws also now have non-plastic alternatives which have been developed by some manufacturers.

8.4.7 Baseline estimated sales volumes for the products are included in the table below:

Product	Plastic	Non-Plastic	Total
Cotton bud sticks	30	70	100
Stirrer	6	6	11
Drinking straws	120	80	199
Beverage carton straws	54	3	57
Plates	29	29	59
Cutlery	159	68	226
Balloon sticks	1	0	1
SME food containers	38	9	47
SME takeaway cups	26	7	33

**Table 7:** Baseline assumption of volumes placed on market in Wales, millions of units. Source: [Impact Assessment report into Ban or Restrictions in Sale in Wales of Items in the EU's Single Use Plastics Directive](#)

8.4.8 Our research has identified the main economic cost of our legislation will be the increased cost to those purchasing the products, although as this cost is spread across a very large number of individuals and businesses the marginal impact on each is small. As with products A to H, we have assumed similar costs would apply for products I to K, although it is worth noting supermarkets, who were previously the largest issuers of SUCBs have already predominantly moved away from selling them. The increased cost of alternative bags has been passed onto the consumer, who can avoid this cost if they reuse existing bags.

8.4.9 A model was developed to estimate impacts of a ban or restriction in sale of single use plastic items. This presented, in monetary terms, net present value over a period from 2021 to 2030. The greatest economic impacts estimated were seen in the sales value. This increased by 11% (£14 million) across the single use plastic product group, driven by the price difference between plastic and non-plastic products. It is not clear the degree to which these increased costs would be absorbed by Welsh businesses and the degree to which they would be passed on to the consumer.

8.4.10 Companies in Wales will incur costs where investment is needed to transition from SUP to alternative products. According to work done by [Resource futures for Defra](#) in 2019, one major EPS manufacturer estimated a one-off capital investment would be needed to convert existing EPS packaging manufacturing capacity, or establish new packaging production capacity for EPS-free products in the UK. This manufacturer does not have any plants in Wales, but another company was identified manufacturing EPS food containers (clamshells and trays). In total the market mapping identified five manufacturers of SUP products that may be affected in Wales.

8.4.11 Our research was unable to estimate potential investment costs due to the uncertainties around the number and location of potential companies operating in Wales.

8.4.12 When assessed on a per-product basis, the economic impacts were predominantly negligible. This is shown in table 8 below.

	Ban (Column A)	No Ban (Column B)	Difference – Ban over No Ban (C=A-B)	Difference- % change from No Ban
<b>Sales value</b>				
Cutlery	52.6	55.3	-2.7	-5%
Plates	25.7	26.5	-0.9	-3%
Drinking straws	19.3	19.0	0.3	negligible
Food containers	30.8	16.0	14.7	+92%
Beverage ups	10.5	8.7	1.9	+21%
<b>Beach litter visual disamenity</b>				
Food containers	0.2	2.2	-2.1	-92%

**Table 8:** Key financial impact estimates of individual products, NPV 2021 to 2030 (£m).

Source: [Preliminary research report, 2019](#)

8.4.13 Table 9, below, provides a summary of the impact estimates of the ban, i.e., a sum of combined impacts for all products. The estimates are net present value (NPV) over a ten-year period from 2021 to 2030 and rounded to three significant figures. Due to rounding values differences between the scenarios may not sum exactly. All figures exclude VAT. The impact estimates relate to products placed on the market in Wales.

	Ban (Column A)	No Ban (Column B)	Difference – Ban over No Ban (C=A-B)	Difference- % change from No Ban
<b>Financial costs to the economy</b>				
Regulatory implementation cost	0.9	none	0.9	n/a
Business implementation cost	0.7	0.5	0.2	+43%
Water treatment cost	1.6	1.4	0.3	+19%
Clean-up cost	11.6	11.8	-0.2	negligible
Cost to fishing industry	negligible	0.1	-0.1	-91%
<b>Economic growth impacts</b>				
Sales value	144	130.0	14.1	+11%
Revenues to UK manufacturing	27.5	18.9	8.6	+46%
<b>Environmental and social impacts</b>				
UK – Value of traded CO <sub>2</sub> e	0.3	0.6	-0.3	-44%
UK – Value of non- traded CO <sub>2</sub> e	0.2	0.2	negligible	negligible
EU – Value of traded CO <sub>2</sub> e	0.1	0.2	negligible	negligible
EU – Value of non-traded CO <sub>2</sub> e	negligible	negligible	negligible	negligible
RoW – Value of CO <sub>2</sub> e	0.3	0.4	-0.1	-28%
Terrestrial litter visual disamenity	23.6	24.0	-0.1	negligible
Beach litter visual disamenity	0.2	2.6	-2.4	-91%

**Table 9:** All products, financial impact estimates, NPV 2021 to 2030 (£m). Source: [Impact Assessment report into Ban or Restrictions in Sale in Wales of Items in the EU's Single Use Plastics Directive](#)

8.4.14 The relative impact of the ban can be seen in column C, showing the difference of the Ban scenario over the No Ban scenario. This difference is primarily a product of the speed and depth of change that is modelled in the market for each scenario, and for some products a signalling effect from a ban reducing overall consumption of both plastic and non-plastic products.

8.4.15 As set out in paragraphs 7.1.7 and 7.7.12, changing consumer attitudes and regulatory action undertaken elsewhere mean markets are already likely to have moved further away from SUP items than assumed when the modelling was undertaken in 2019-20. As a result, the costs and benefits generated by this Bill are likely to be lower than that set out above. Nonetheless, these figures currently represent the maximal estimate of the cost of the Bill for items A to H.

### Cost of sourcing alternative items

- 8.4.16 Non-plastic alternatives were found for almost all products included in the EU's Single Use Plastics Directive for the Welsh market. During 2019, the only item with no alternative was beverage carton straws, which are used to pierce the seal on the drink. However, we understand this has now been developed. The most common alternatives for the other products are manufactured from paper, wood, and bagasse (sugarcane pulp). These materials decompose much faster than plastic in the marine environment, and so the marine litter impacts will be reduced if the market switches from plastic to non-plastic single-use items because of the ban.
- 8.4.17 Desk research found two life cycle analysis studies that compared the environmental impacts of single-use plastic and non-plastic products. Generally, these studies found the single-use non-plastic products analysed performed better or on the same level as single-use plastic products.
- 8.4.18 There is expected to be a small additional cost to business for each product, associated with transition costs on suppliers and retailers. This is represented in the business implementation costs in table 10.2. Transitional costs will be incurred during year 1 of the ban. During the public consultation, stakeholders had an opportunity to present detailed costs. However, most businesses did not identify detailed costs to them arising from our proposals. Although transitional costs were not estimated for products I to K, we have assumed a similarly small additional cost for each of the products and have assumed they would be relatively small for each product in the context of the Bill as a whole.
- 8.4.19 If demand for non-plastic products increases dramatically following the ban, then the sale price could reduce as manufacturers take advantage of economies of scale, and these increased cost impacts would reduce. As the price elasticity of these products is unknown, the estimates above assume that the product price for non-plastic products remains constant.
- 8.4.20 Companies in Wales will incur costs where investment is needed to transition from SUP to alternative products (see, section 8.2 above). During the research consultation exercise, one major expanded polystyrene (EPS) manufacturer estimated a one-off capital investment would be needed to convert existing EPS packaging manufacturing capacity or establish new packaging production capacity for EPS-free products in the UK. This manufacturer does not have any plants in Wales, but another company was identified manufacturing EPS food containers (clamshells and trays).
- 8.4.21 In total the market mapping identified five manufacturers of SUP products that may be affected in Wales. These companies and others engaged in the public consultation on the proposed bans. Although the net impact on revenue from sale of products is estimated, until further detail is provided, the investment costs are not estimated in Table 8. This cost is therefore unknown.



8.4.22 During the stakeholder consultation undertaken for this research, business stakeholders offered their views on the costs and benefits of specific items. Most of the impacts discussed were anecdotal; none provided specific figures. One of these was the higher cost to consumers (although preliminary market research for our research found many of the SUP and non-plastic products to be comparable prices at wholesale value), and higher transportation costs due to the alternatives being heavier. We have assumed the situation for products I to K to be similar.

8.4.23 Stakeholders consulted reported they would generally be supportive of a ban.

## **8.5 Social costs**

8.5.1 The main social cost identified was arising from the bans was identified as any higher costs for the alternatives to the banned products incurred by businesses being passed on to consumers. Although not quantified, we have assumed whatever cost could not be absorbed by businesses would be passed on to consumers in a similar way for products I to K. We anticipate this would be relatively small in the context of the Bill as a whole.

8.5.2 Also, while clean-up costs for litter were reduced overall, unlike for beach litter, the switch in materials is not anticipated to deliver significant benefits to terrestrial litter problems, as in most instances litter is cleaned up faster than paper and wood can biodegrade. Overall consumption reduction resulting from a ban may provide some small benefits, e.g., as consumer and businesses choose to use fewer single-use items, and the potential for reuse and product innovation.

## **8.6 Welsh Government and Local Authorities**

8.6.1 This proposal will introduce new legislation which will ban the supply to end users of single use plastic items listed above in Wales.

8.6.2 A new civil sanctions regime will need to be established to enforce the bans. This approach is intended to provide a flexible and proportionate approach to enforcement. These sanctions are set out in the Bill and also in secondary legislation and will enable the regulator to use enforcement notices and variable monetary penalties.

8.6.3 Given their experience enforcing broadly similar, existing requirements, for example the single use carrier bag charge and ban on plastic microbeads in wash off personal care products, Local Authorities will carry out this enforcement role.

8.6.4 Enforcement costs would be incurred by Local Authorities' enforcement teams (this includes Trading Standards, Environmental Health and Licensing

Officers), and other regulatory costs would include ongoing management costs for Government and one-off costs of communicating the ban and introducing the legislation.

- 8.6.5 To assist with our assessment, parallels can be drawn from previous legislation. A regulatory impact assessment (RIA) was conducted before measures on single-use carrier bags were introduced in Wales in 2010. The RIA considered a ban as one option and estimated one-off costs of £400,000 advertising the ban and £180,000 introducing the legislation, with ongoing annual costs for Government of £180,000 management costs and £500,000 enforcement costs.
- 8.6.6 A charge rather than a ban was implemented, and a post-implementation review reported £80,000 per annum staff costs (i.e., management). The Welsh Government took a light-touch approach to introducing the carrier bag charge. Local Authorities were not asked to actively seek infringements of the legislation, instead responding to public reports of non-conformance. Trading standards adopted an education and support role, working with companies to help them comply with the law. As a result, cases were resolved without prosecution and enforcement costs were kept low.
- 8.6.7 Regulatory implementation costs will depend on the approach taken. For the purposes of our modelling, we have assumed £100,000 one-off costs to introduce the ban, incurred in year one and £100,000 ongoing, annual management and enforcement costs from year 2 of the ban, based in part on the expected scale of markets and stakeholders affected and assuming a similar cost-efficient, light-touch approach is taken to enforcement. See column C of table 9. In addition, a further one-off implementation cost of £500,000 has been identified falling to the Welsh Government to cover research and communications costs. This has not been included in table 9, but is in table A on page 20/21. We do not anticipate any significant increase in these costs from items I to K.

### **Non-compliance costs to Local Authorities**

- 8.6.8 There may be legal costs in the cases of non-compliance. As noted above the legislation will provide the powers for Local Authorities to enforce SUP bans. The Local Authority Trading Standards Department (or equivalent) is responsible for enforcing over 100 pieces of primary legislation and many more Regulations and Orders.
- 8.6.9 They often respond to intelligence from other agencies, businesses or complaints from the public; therefore, their activity often directly relates to complaints made and intelligence received. Once non-compliance is identified, the trader will be provided advice in order to achieve compliance. Only when advice and information is ignored or repeated mistakes are made, that enforcement tools will be used.

8.6.10 Since the introduction of the SUCB charge in October 2011, information provided by the Welsh Local Government Association confirmed that 25 complaints had been received from consumers across Wales up to February 2013. All were investigated and 9 of these were deemed justified. Four complaints were received from businesses about other businesses; two were justified. One hundred and forty one requests for advice have been received from businesses regarding their obligations. Eleven requests for advice have been received from consumers regarding the regulations. The number of enforcement contacts made with businesses were 127. This includes proactive inspections, test purchases, reactive visits as a result of complaints received or letters of advice issued.

8.6.11 While these activities inflict compliance cost, it is believed once businesses become aware of the bans and have transitioned to alternative items, any non-compliance will be minimal. We have made a similar assumption for items I to K.

8.6.12 Additional costs may be incurred with any future bans being introduced under the provisions in the Bill to add other products to the schedule. These would be estimated at the time.

### **Local Authority training costs**

8.6.13 Local Authorities may incur some small set-up costs for staff training and developing a suitable form of enforcement notice. We assume all 22 Local Authorities in Wales will incur a one-off administration familiarisation cost to familiarise themselves with the new powers. We have used data from the “Work Region Occupation” dataset from the Office of National Statistics to calculate wage rates in Wales (ASHE figure). For local government administrative occupations, the average hourly wage is estimated to be £11.60 for 2018-19. This figure has been uprated by 30% to reflect non-wage labour costs. Using a central assumption of 90 minutes per local authority the proposed changes could involve a one-off transitional cost of £500 in the first year of the bans. This is the baseline option and as such there are no additional benefits associated with this option.

## **8.7 Benefits**

### **Option 1 – Business as usual**

8.7.1 Under this option, the Welsh Government would continue to support current voluntary market change towards readily available non-plastic alternatives and an overall reduction in use. Retailers, wholesalers and manufacturers could still produce and sell single use plastic products if they wished to do so, thereby avoiding costs of sourcing alternative plastic-free items.

## Option 2 – Introduce legislation to ban or restrict the items as listed above

### Environment

8.7.2 This section focuses on items A to H. As previously stated in paragraph 8.1.1, it has not been possible to estimate benefits for items I to K. We have assumed the assumptions which have been made in this section be similar for items I to K.

8.7.3 The environmental benefits of the bans are the most difficult to estimate. While the benefits of reduced littering are estimated in terms of litter dis-amenity (see paragraph 8.7.12 to 8.7.15), the research considered the benefits to nature and wildlife resulting from a reduction in plastic in the natural environment to be unquantifiable. The benefit of this is therefore not known. Nevertheless, reducing the impact of litter in the environment is the most compelling reason for action on the basis of a precautionary approach to protecting climate, ecosystem and human health.

8.7.4 There is increasing recognition of the threat of plastic. In 2021, the United Nations published a report, [From Pollution to Solution: a global assessment of marine litter and plastic pollution](#) highlighting risks from marine plastics, especially microplastics. The report [identified 10 key findings in the synthesis report](#). Among them, this stated:

“Microplastics can enter the human body through inhalation and absorption via the skin and accumulate in organs, including the placenta. Human uptake of microplastics via seafood is likely to pose serious threats to coastal and indigenous communities where marine species are the main source of food. The links between exposure to chemicals associated with plastics in the marine environment and human health are unclear. However, some of these chemicals are associated with serious health impacts, especially in women.

“Marine plastics have a widespread effect on society and human well-being. They may deter people from visiting beaches and shorelines and enjoying the benefits of physical activity, social interaction, and general improvement of both physical and mental health. Mental health may be affected by the knowledge that charismatic marine animals such as sea turtles, whales, dolphins and many seabirds are at risk. These animals have cultural importance for some communities. Images and descriptions of whales and seabirds with their stomachs full of plastic fragments, which are prevalent in mainstream media, can provoke strong emotional impacts.”

The report also talked about plastic being a threat multiplier:

“The multiple and cascading risks posed by marine litter and plastics make them threat multipliers. They can act together with other stressors, such as climate change and overexploitation of marine resources, to cause far greater damage than if they occurred in isolation. Habitat alterations in key coastal ecosystems caused by the direct impacts of marine litter and plastics affect local food production and damage coastal structures, leading to wide-reaching and unpredictable consequences including loss of resilience to extreme events and climate change in coastal communities. The risks of marine litter and plastics therefore need to be assessed across the wider cumulative risks.”

- 8.7.5 These key risks are not costed in the report. However, management of these risks are key drivers for the action in the Bill to reduce our reliance on unnecessary single use plastics.
- 8.7.6 Of the benefits which were quantified, discussions with stakeholders and online research, we have identified three major benefits that legislative bans can have which benefit the environment. Firstly, announcing a ban raises the profile of the items considered for a ban, leading to higher coverage in the media of their negative effects (e.g. on the environment) and can subsequently reduce demand for these products, as reported by the BBC with regard to the response to David Attenborough’s Blue Planet. Secondly, it serves as a signalling effect to business to invest in other products that will not be under the scope of a ban (see paragraph 8.7.20 below). Thirdly, it spurs innovation of more environmentally friendly products to design and develop alternative products and materials that can replace the banned item (see paragraph 8.7.20 below).
- 8.7.7 These effects are already happening for many of the SUPs in scope of this research. For example, in the past year alone, the market for plastic straws has experienced some significant changes. According to the [BBC](#), McDonalds UK began switching its plastic straws to a paper alternative in September 2018. In the same article, the fast-food chain was reported this makes up approximately 15% of the total market for large drinking straws in the hospitality sector, meaning that at least 15% of that market has already shifted to using alternative materials. The same [BBC article](#) reported that other high-street retailers have also started to take action, including Waitrose, Costa Coffee, Wagamama, JD Wetherspoon pubs, and Pizza Express, as well as more than 60 independent British festivals. These changes have occurred even before the legislative ban has gone into effect, which demonstrates the signalling effect a ban can have on businesses.
- 8.7.8 Legislative bans also can spur technological innovation. For example, SGMA, based in the UK, is in the process of bringing to market a coating solution that can be applied to paper products to make them 100% water impermeable (and 60% oil impermeable) without impacting the container’s ability to be

recycled. This coating technology could have major impacts to the food packaging industry. The company is already actively engaged in a programme to help Starbucks, McDonald's, Coca-Cola, Yum! Brands and the Worldwide Fund for Nature. A ban on EPS/XPS food and beverage containers may bring this technology, and others like it, to market quicker as demand increases for alternative products. Other innovations, such as the [Green Goblet](#) reusable beverage cup rental service specifically targeting event and festival locations, are being developed as well.

## **On-the-go products**

8.7.9 Litter is a form of pollution and reflects failures both to manage resources and waste responsibly and to limit end of life impacts. In economic terms, litter creates an external cost known as a 'negative externality'. A negative externality exists when the activity of one agent (such as the producer and/or end user of a product) cause a loss of welfare to another agent, which is not compensated. In these circumstances, because of the negative externalities associated with the product, the marginal societal costs of producing the product exceed the private costs faced only by the producer/supplier of the product, and a 'market failure' is said to have occurred. Without government intervention the goods or service will be under-priced, or over-produced, or both, and the negative externalities will not be taken into account. Overall, there is a loss of economic welfare.

8.7.10 The products in scope of the legislation are commonly used, highly visible, ubiquitous items. They are frequently flushed, discarded and/or littered, with a direct pathway to the marine environment through surface water drains and sewage systems. For instance, street litter is often washed into surface water drains, which typically discharge directly into waterways, and many items pass through the simple screens. This is especially so for small items (such as straws) and materials that are easily crumbled or fragment into small pieces, such as expanded polystyrene (EPS). During rainstorms, sewers can be also overwhelmed and discharge directly into rivers and the sea, bypassing sewage treatment plants.

8.7.11 The impact of plastic litter on marine wildlife and ecosystems is not yet fully understood. However, there is growing evidence on the impacts of marine plastic related to marine natural capital (i.e., the worlds' stock of natural assets). On a global scale, it has been estimated by [Constanza et al in Changes in the global value of ecosystem services](#), that for 2011, marine ecosystem services provided benefits to society approximating £38 trillion in 2011. In 2019, [Beaumont et al](#) postulated that on a global level, marine plastics could cause up to a 5% reduction in marine ecosystem service delivery in 2011, which equates to an annual loss of £380 - £1,900 billion in the value of benefits derived from marine ecosystem services. There are numerous other negative economic impacts of litter, such as negative impacts

on consumer confidence in fish and seafood, reduced property investment due to the presence of street litter, use of finite resources, etc.

### **Benefits of reduced littering**

- 8.7.12 The most significant environmental and social impact shown relates to the visual disamenity cost of beach litter. The terrestrial visual disamenity costs were highest (£24 million) but the impact of the ban was relatively small (£0.4 million reduction in costs) because most terrestrial litter is cleaned up quicker than the decomposition time of the non-plastic materials. Beach litter visual disamenity costs are smaller (£2.6 million) but a ban could reduce this by 91% (£2.4 million reduction in costs).
- 8.7.13 Switching from plastic to materials that degrade quicker in the marine environment will reduce the amount of litter accumulating over time and therefore reduce these impacts. Any overall reduction in consumption of the products (irrespective of whether plastic or non-plastic) will also contribute to this benefit as fewer items will be littered in general. However, there is a large degree of uncertainty in the litter costs and benefits, not least because litter survey data does not provide granular detail on most of the individual products in question, and these are counted and reported in broader categories as well as the many pieces of plastic and EPS/XPS found that cannot be identified as coming from a specific product. Similarly, as estimates for the timescales oxo-degradable products take to fragment under real world conditions are vary depending on conditions, we have assumed banning them would not have a significant impact on the costs for visual disamenity. A sensitivity range is explored in the report section below due to the uncertainty around this estimate.
- 8.7.14 The visual disamenity is one element of litter that can be estimated in economic terms. However, it does not necessarily reflect the full impact of plastic pollution on the marine environment, wildlife and ecosystems, which is not yet fully understood. The precise threat of microplastic pollution, as plastic litter breaks down into smaller and smaller pieces, is a current knowledge gap that needs to be filled. The fragmenting of plastic litter is illustrated in the marine litter survey data, which consistently counts unidentified plastic pieces as the most common type of litter. Although costs arising for these cannot be quantified, a precautionary approach is preferred.
- 8.7.15 In 2017, a [UK Parliament paper](#) estimated clean-up costs are based on an estimate of £70m per annum for all litter in Wales. [Stat Wales reports](#) a net cost of £53m, which encompasses sweeping and removal of litter from land, litterbins etc., but excludes highways, countryside, schools and other services, and so the £70m estimate is considered more representative of the total clean-up cost. A proportion of the total clean-up cost is attributed to the products in the ban on the basis of terrestrial litter surveys. However, any small reduction in litter volumes is unlikely to translate to cost savings as

street cleansing efforts are likely to require the same resources to maintain the frequency of clean-up activities.

## **Carbon emissions**

8.7.16 In 2019, a [report by the Centre for International Environmental Law](#) referred to plastic use as a “significant and growing threat to the Earth’s climate”. The report estimates that by 2050, the greenhouse gas emissions from plastic could reach over 56 gigatons—10-13 % of the entire remaining carbon budget, if current trends of production and usage continue. However, this relates to the entire plastics market and the proposed legislation aims to tackle frequently littered items in Wales. Carbon emission impact estimates modelled were overall minimal, with a small reduction in traded CO<sub>2</sub>e emissions in the UK as the result of a ban, and an even smaller reduction in global emissions outside of the EU. However, this is dependent on the extent to which consumers switch to reusable alternatives compared with alternative single-use products, with greater benefits to be realised if overall volume of consumption reduces, regardless of the type of material.

## **Local authorities and Court Services**

8.7.17 The overall purpose of the bans is to help reduce litter and the impact of plastic on environments, both natural and built. Although the benefit of moving to non-plastic products is thought not to benefit terrestrial, built environments as much as the marine environment, Local Authorities will benefit indirectly from the bans in terms of there being an overall reduction in litter. This could be enhanced by communications to help people switch to reusable alternative which are less likely to be littered.

8.7.18 Living and working in a less littered environment results in better mental and physical health, which in turn should help reduce the use of local services provided by local authorities. This benefit has not been estimated.

## **Business**

8.7.19 During the stakeholder consultation, business stakeholders gave their views as to the costs and benefits of the proposed bans. The evidence was anecdotal. Their views were that job gains would potentially occur in terms of more resources (i.e. dedicated personnel) spent internally to investigate alternative technologies and products. One retailer added that their entire sustainability team was only created in January 2019. Further jobs would be created if manufacturing in Wales responded to the anticipated increase in demand for non-plastic alternatives. An example is Transcend Packaging, a manufacturer of paper straws in Wales, who had created 170 new jobs by 2019, including highly skilled and technical jobs with high salaries, and expected to continue to grow at a fast rate.



8.7.20 Business stakeholders thought the cost of the bans may impact smaller businesses more than larger businesses. Nonetheless, many stakeholders believed that the overall impact (to these disproportionately affected groups and to larger companies alike) will be negligible, as the price differential between the plastic product and the alternative is relatively small or non-existent in many cases. They furthered that as the market for alternative products becomes more competitive (driven, perhaps, by a ban on the plastic products), more businesses will enter this space, driving down the price and thereby financial impact to retailers and other businesses.

8.7.21 The economic value generated by SUP products is expected to shift from the supply chain of the plastic products to those producing non-plastic alternatives, with a net increase in revenue for UK manufacturing. This value, and the wider European market for non-plastic products, represents an opportunity for growth within the Welsh economy. However, with the advent of Brexit, this may be less than modelled.

8.7.22 As noted above, it is anticipated manufacturers of the single use plastic products included in our legislation, and others in the supply chain, will bear the greatest financial impacts. Conversely, manufacturers of non-plastic alternatives will benefit from an expected increase in demand. The net effect is estimated by our modelling indicates a potential 46% increase in revenues to UK manufacturing, reflecting the relative strength of domestic manufacturing industries for non-plastic products whereas many SUP products are imported from abroad. What proportion of this revenue will be captured by the Welsh economy will depend on how businesses respond to the opportunity presented.

8.7.23 The greatest economic benefits are seen in the increased sales value which increased by 11% (£14 million) across the product group as a whole, driven by the price difference between plastic and non-plastic products. It is not clear the degree to which the increased costs will be absorbed by Welsh businesses and the degree to which it will be passed on to the consumer; nor indeed the price elasticity of demand for the products (have assumed that consumers will be willing to pay more for higher priced alternatives where necessary). However, it must be born in mind that the products in the ban are often served as part of food and drink service and would constitute a small portion of the total cost irrespective of whether plastic or non-plastic products are used. If demand for non-plastic products increases dramatically following the ban then the sale price could reduce as manufacturers take advantage of economies of scale, and these increased cost impacts would reduce. As the price elasticity of these products is unknown the estimates above assume that the product price for non-plastic products remains constant.

8.7.24 The revenue to UK manufacturers is the second most significant economic impact, being closely related to the sales value, which increases by 46% (£9 million). This revenue could be retained in the Welsh economy if Welsh manufacturers respond to the demand for non-plastic products. Indeed, as these products are also to be banned across the EU there are significant opportunities for an export market. Whilst the majority of the items included in our legislation are imported from overseas, there are some companies operating in Wales who will be impacted. These manufacturers of plastic products will lose revenue and these losses are accounted for in the estimated impacts in Table 9.

## 8.8 Welsh tourist industry

8.8.1 Coastal tourism is particularly strong in Wales, which, according to, [research by Kantar in 2017](#), has a higher percentage of coastal visits than other UK countries. Seventeen million people visited the Welsh coastline in 2017 on day visits alone, spending £615 million. Marine litter has potentially significant economic impacts on tourism in coastal areas, making them less attractive to visitors, and therefore has a disproportionate economic and tourism impact in Wales.

8.8.2 According to a [2017 report by the ISWA Marine Taskforce](#), plastic items are thought to represent 50-80% of shoreline debris (ISWA, 2017). The [MCS Great British Beach Clean](#), conducted 437 beach cleans and litter surveys over one weekend in September 2019. The league table of items found on UK beaches by their prevalence per 100 meters of shoreline shows that plastic/polystyrene pieces are the most common items found in beach litter across the UK.

## **8.9 Sensitivity analysis**

- 8.9.1 Two rounds of sensitivity analysis were conducted to test upper and lower values for data identified as having the greatest uncertainty and that could have the greatest effect upon the model impact estimate results. The data limitations and the approach to sensitivity analysis is described in paragraphs 8.2.1 to 8.8.2 above, Costs and Benefits.
- 8.9.2 The sensitivity analysis tested uncertainty in the market growth rate assumptions. The sensitivity analysis values used are presented Table 3 (see page 38). The results of this sensitivity analysis are presented in Table 10 and Table 11 below.

	Central-Ban (£m) (Column A)	Central – No Ban (£m) (Column B)	Central-Difference-Ban over No Ban (C=A-B)	Lower – Ban (£m) (Column D)	Lower - No Ban (£m) (Column E)	Lower-Difference-Ban over No Ban (F=D-E)	Lower Difference – % change from Central Difference (C and F)
<b>Financial costs to the economy</b>							
Regulatory implementation cost	0.9	none	0.9	0.9	none	0.9	none
Business implementation cost	0.7	0.5	0.2	0.7	0.4	0.3	+22%
Water treatment cost	1.6	1.4	0.3	1.3	1.1	0.2	-43%
Clean-up cost	11.6	11.8	-0.2	9.4	9.9	-0.5	-162%
Cost to fishing industry	negligible	0.1	-0.1	negligible	negligible	negligible	+27%
<b>Economic growth impacts</b>							
Sales value	144.0	130.0	14.1	117.0	110.0	7.0	-50%
Revenues to UK manufacturing	27.5	18.8	8.6	21.1	15.8	5.3	-39%
<b>Environmental and social impacts</b>							
UK – Value of traded CO2e	0.3	0.6	-0.3	0.3	0.5	-0.2	+13%
UK – value of non-traded CO2e	0.2	0.2	negligible	0.2	0.2	negligible	-16%
EU – Value of traded CO2e	0.1	0.2	negligible	0.1	0.1	negligible	Negligible
EU – Value of non-traded CO2e	negligible	negligible	negligible	negligible	negligible	negligible	-44%
RoW – Value of CO2e	0.3	0.4	-0.1	0.2	0.3	-0.1	Negligible
Terrestrial litter visual Disamenity values and percentage	23.6	24.0	-0.4	19.2	20.2	-1.0	-162%
Beach litter visual disamenity	0.2	2.6	-2.4	0.5	2.2	-1.7	+27%

**Table 10** - market growth rate uncertainty – lower sensitivity results, all products, NPV 2021 to 2030 (£m). Source: [Impact Assessment report](#)

	Central – Ban (£m) (Column A)	Central – No Ban (£m) (Column B)	Central – Difference – Ban over (C = A – B )	Upper – Ban (£m) (Column D)	Upper – No Ban (£m) ( Column E)	Upper – Difference – Ban over No Ban (F= D – E )	Upper Difference – % change from Central Difference ( C and F )
<b>Financial costs to the Economy</b>							
Regulatory implementation cost	0.9	none	0.9	0.9	none	0.9	none
Business implementation cost	0.7	0.5	0.2	0.7	0.4	0.3	+22%
Waste treatment cost	1.6	1.4	0.3	1.7	1.4	0.3	negligible
Clean-up cost	11.6	11.8	-0.2	12.1	12.1	none	+100%
Cost to fishing industry	negligible	0.1	-0.1	negligible	0.1	negligible	+12%
<b>Economic growth impacts</b>							
Sales value	144.0	130.0	14.1	154.0	138.0	16.1	+14%
Revenues to UK manufacturing	27.5	18.8	8.6	27.1	19.3	7.8	-9%
<b>Environment and social impacts</b>							
UK – Value of traded CO2e	0.3	0.6	-0.3	0.4	0.6	-0.3	negligible
UK – Value of non- traded CO2e	0.2	0.2	negligible	0.2	0.2	negligible	+32%
EU – Value of traded CO2e	0.1	0.2	negligible	0.1	0.2	negligible	+4%
EU – Value of non- traded CO2e	negligible	negligible	negligible	negligible	negligible	negligible	negligible
RoW – Value of CO2e	0.3	0.4	-0.1	0.3	0.4	-0.1	-10%
Terrestrial litter visual disamenity	23.6	24.0	-0.4	24.6	24.6	none	+100%
Beach litter visual disamenity	0.2	2.6	-2.4	0.5	2.6	-2.1	+12%

**Table 11:** market growth rate uncertainty – upper sensitivity results, all products, NPV 2021 to 2030 (£m) *Source:* [Impact Assessment report](#)

- 8.9.3 The market growth sensitivity analysis highlights the impact that the signalling effect of a ban could have, i.e. if overall consumption of these single-use products is reduced. In relative terms, the most pronounced effect is on terrestrial litter impacts such as clean-up costs and visual disamenity (estimated benefits increase by 162%). In absolute terms, the greatest impact is on sales value (reduced by £7.1 million) and revenues to UK manufacturing (reduced by £3.3 million) as the size of the single-use market for these products is affected.
- 8.9.4 The second sensitivity analysis tested other areas identified as having the data limitations that could significantly impact upon the overall results. This sensitivity analysis varies assumptions around the volume of sales units placed on market, unit weights and prices, the speed at which the market will shift voluntarily without a ban, the proportion of the market served by imports into the UK, and the litter impacts associated with these products. The sensitivity values tested are presented in Table 4 and Table 5 (page 39-40). The results of this sensitivity analysis is presented in Tables 12 and Table 13 below. The results reflect the combined effect of sensitivity values tested, which do not act in the same direction for all impact areas.

	Central – Ban (£m) (Column A)	Central-No Ban (£m) (Column B)	Central – Difference – Ban over No ban (C = A – B)	Lower – Ban (£m) (Column D)	Lower – No Ban (£m) (Column E)	Lower – Differen ce Ban over No Ban (F= D-E)	Lower Difference % change from Central Difference (C and F)
<b>Financial costs to the economy</b>							
Regulatory implementation cost	0.9	none	0.9	0.9	none	0.9	none
Business implementation cost	0.7	0.5	0.2	0.7	0.4	0.3	+22%
Waste treatment cost	1.6	1.4	0.3	0.9	0.8	0.1	-73%
Clean-up cost	11.6	11.8	-0.2	5.8	5.9	-0.1	+47%
Cost to fishing industry	negligible	0.1	-0.1	negligible	negligible	negligible	+56%
<b>Economic growth impacts</b>							
Sales value	144.0	130.0	14.1	58.4	63.7	-5.4	-138%
Revenues to UK manufacturing	27.5	18.8	8.6	13.0	13.1	-0.1	-101%
<b>Environmental and social impacts</b>							
UK – Value of traded CO2e	0.3	0.6	-0.3	0.2	0.5	-0.2	6%
UK – Value of non-traded CO2e	0.1	0.2	negligible	0.1	0.1	negligible	49%
EU – Value of traded CO2e	0.1	0.2	negligible	0.1	0.1	negligible	+12%
EU – Value of non-traded CO2e	negligible	negligible	negligible	negligible	negligible	negligible	-72%
RoW – Value of CO2e	0.3	0.4	-0.1	0.2	0.2	-0.1	+19%
Terrestrial litter visual disamenity	23.6	24.0	-0.4	3.2	3.3	-0.1	+86%
Beach litter visual disamenity	0.2	0.6	-2.4	0.2	0.9	-0.7	+69%

**Table 12:** Other uncertainties around the central estimate - lower sensitivity results, all products, NPV 2021 to 2030 (£m). Source: [Impact Assessment report](#)

Table notes: Cumulative range impact estimates for all products combined; absolute values in ban and no ban for central and upper estimates, and comparison of difference between ban and no ban – calculated values and percentage change from the central estimate. Note that high percentage change figures may not be significant where absolute values are low.

	Central – Ban (£m) (Column A)	Central-No Ban (£m) (Column B)	Central – Difference – Ban over No ban (C = A – B)	Upper – Ban (£m) (Column D)	Upper– No Ban (£m) (Column E)	Upper Difference - Ban over No Ban (F= D-E)	Upper Difference - % change from Central Difference (C and F)
<b>Financial costs to the economy</b>							
Regulatory implementation cost	0.9	none	0.9	0.9	none	0.9	none
Business implementation cost	0.7	0.5	0.2	0.7	0.6	0.1	-38%
Waste treatment cost	1.6	1.4	0.3	2.4	2.3	0.1	-64%
Clean-up cost	11.6	11.8	-0.2	23.1	23.4	-0.4	-114%
<b>Economic growth impacts</b>							
Sales value	144.0	130.0	14.1	327.0	313.0	14.6	+4%
Revenues to UK manufacturing	27.5	18.8	8.6	27.3	24.1	3.2	-63%
<b>Environmental and social impacts</b>							
UK – Value of traded CO2e	0.3	0.6	-0.3	0.2	0.3	-0.1	+52%
UK – Value of non-traded CO2e	0.2	0.2	negligible	0.3	0.5	-0.2	-572%
EU – Value of traded CO2e	0.1	0.2	negligible	0.3	0.3	negligible	+74%
EU – Value of non-traded CO2e	negligible	negligible	negligible	negligible	negligible	negligible	-69%
RoW – Value of CO2e	0.3	0.4	-0.1	0.6	0.7	-0.1	+17%
Terrestrial litter visual disamenity	23.6	24.0	-0.4	81.2	82.6	-1.4	-270%
Beach litter visual disamenity	0.2	2.6	-2.4	1.3	2.9	-1.7	+31%

**Table 13:** Other uncertainties around the central estimate – upper sensitivity results, all products, NPV 2021 2030 (£m). Source: [Impact Assessment report](#)

Table notes: Cumulative range impact estimates for all products combined; absolute values in ban and no ban for central and upper estimates, and comparison of difference between ban and no ban – calculated values and percentage change from the central estimate. Note that high percentage change figures may not be significant where absolute values are low.



- 8.9.5 The main effect of this sensitivity analysis is upon sales value and revenues to UK manufacturing. For sales value, a key driver is the product unit prices. The preliminary market research presented earlier found non-plastic products are not much more expensive than SUPs for many of the products. In the sensitivity analysis the modelled prices of non-plastic products were halved (e.g. through future market growth, economies of scale and increased competition), or doubled (e.g. if non-plastic alternatives are at least double the price of SUP products and continue to be so for the next 10 years). This represents a very broad range of possible price points. In the lower sensitivity implementing a ban creates a cost saving to consumers and businesses purchasing these products. In the upper sensitivity, the overall market value increases but the impact of the ban is not significantly altered.
- 8.9.6 The sensitivity also covered uncertainty in litter data (halving / doubling the proportion of litter made up of these products) and visual disamenity estimates (testing the upper and lower bounds derived from willingness to pay studies). The most profound impact of this is seen in the upper sensitivity results where terrestrial litter visual disamenity costs are increased and the ban creates a greater benefit (270% increase resulting in £1.4 million cost saving).

## 9. Summary of the preferred option

9.1.1 The preferred option is **Option 2**.

9.1.2 The rationale for this option is set out in this Impact Assessment and preceding Explanatory Memorandum. In balancing the costs to the environment of inaction, and the costs to businesses and consumers to transition away from single use plastic items, our judgment is that urgent action is necessary. The economy is already moving towards providing reusable alternatives. Consumer demand for non-plastic items, and services which allow reusable alternatives to be used, is growing. The businesses which contributed to our research acknowledged, and many supported, the direction of travel, commenting that legislating in this space would create certainty and a level playing field across the economy. Sending a clear signal on our intent to phase out unnecessary single use plastics also creates an opportunity for businesses to innovate and find novel solutions to the problems caused by unnecessary single use plastics.

9.1.3 Our proposal fully supports the five ways of working set out under the sustainable development principle in the Well-being of Future Generations Act 2015: a prosperous Wales; a resilient Wales; a healthier Wales; a more equal Wales; and a Wales of cohesive communities.

9.1.4 This legislation is the first step in our programme of work to remove unnecessary single use plastics from the market, underpinning our ambition to see Wales move to a circular economy, where reducing and reusing are core behaviours for consumers across the country.

## **10. Research Findings - Life cycle thinking and life cycle analysis**

### **10.1 Life cycle impacts and risks**

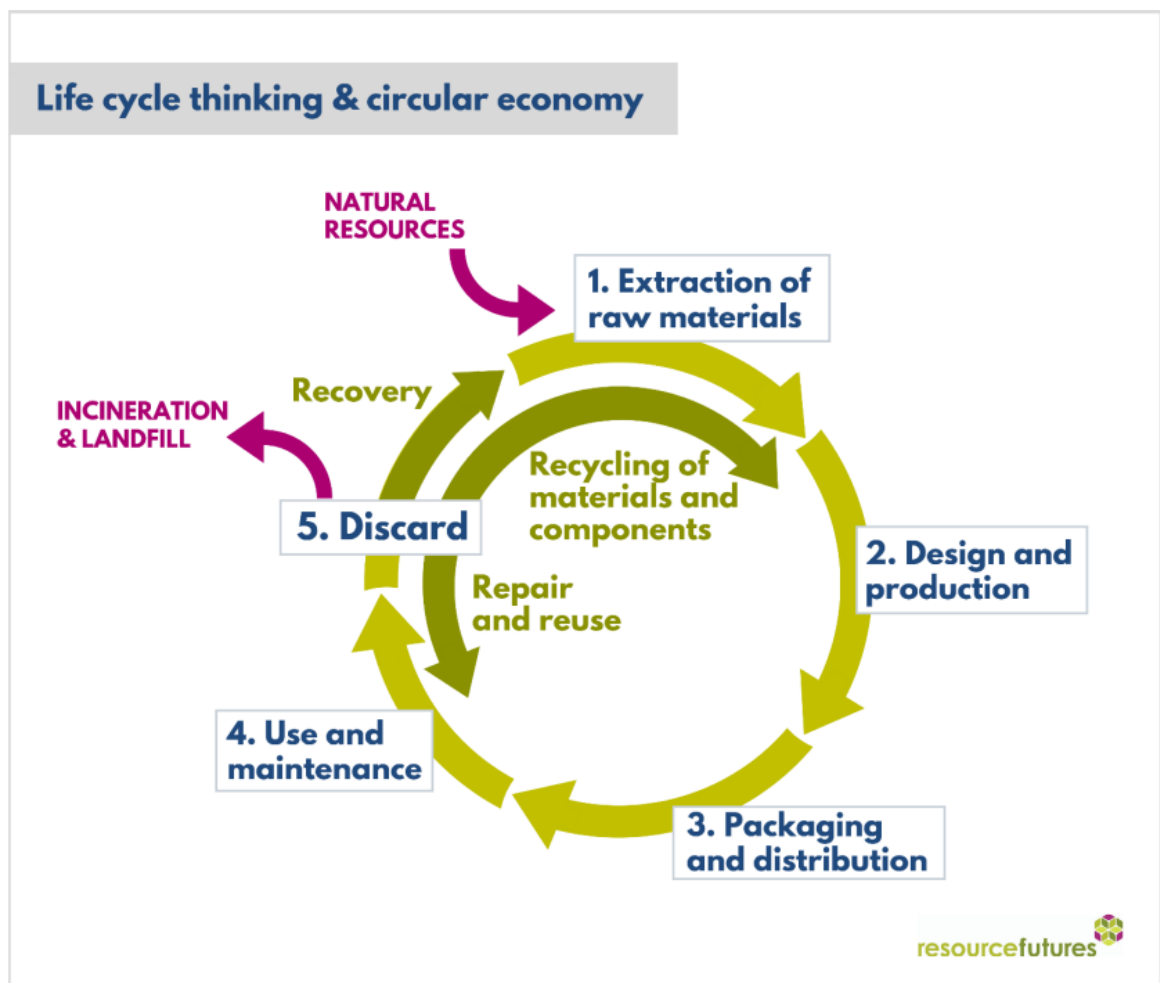
10.1.1 Unintended consequences could result from the ban or restriction in sale if, in switching away from plastic products, alternative materials and behaviours themselves cause an effect of greater magnitude elsewhere at a different life cycle stage. The risk of unintended consequences must be carefully considered, and the text of a ban carefully drafted to mitigate or minimise any such risk.

10.1.2 Life Cycle Thinking can be used to assess some of these risks and inform decision making to reduce the overall risk to the environment. In assessing risks across the entire life cycle of a product it can help prevent potential 'burden-shifting' from one impact area to another, e.g. reducing marine litter but increasing greenhouse gas emissions or shifting impacts from end of life to the production or use phases.

10.1.3 Life Cycle Thinking may be applied qualitatively to identify and better appreciate the risks of product substitution resulting from a product ban. Life Cycle Assessment studies (LCAs) can provide detailed quantitative analysis to estimate the scale and severity of the impacts of different product alternatives at each life cycle stage cradle to cradle and show their effects on different types of environmental pollution impact. Figure 3 below summarises the main life cycle stages involved in supplying a product such as packaging. It shows the relationship between life cycle thinking and LCA and circular flow of resources in a circular economy.

10.1.4 Life Cycle Thinking may be applied qualitatively to identify and better appreciate the risks of product substitution resulting from a product ban. Life Cycle Assessment studies (LCAs) can provide detailed quantitative analysis to estimate the scale and severity of the impacts of different product alternatives at each life cycle stage cradle to cradle and show their effects on different types of environmental pollution impact. Figure 3 summarises the main life cycle stages involved in supplying a product such as packaging. It shows the relationship between life cycle thinking and LCA and circular flow of resources in a circular economy.

10.1.5 An important question when considering impacts across the full life cycle, is to compare the functional performance of SUP products and their non-plastic alternatives i.e. are the products comparable in terms of strength/ durability/ application during its intended use? Is it functionality equivalent? Or is it adequate/ fit for purpose? Many of the products in the ban have multiple uses and markets and each must be carefully considered to avoid unintended consequences.



**Figure 3:** Relationship between life cycle thinking and circular economy, adapted from the [Genselective webpage](#) by [Resource Futures](#). Source: [Impact Assessment report](#)

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10.1.7 An important question when considering impacts across the full life cycle, is to compare the functional performance of SUP products and their non-plastic alternatives i.e. are the products comparable in terms of strength/ durability/ application during its intended use? Is it functionality equivalent? Or is it adequate/ fit for purpose? Many of the products in the ban have multiple uses and markets and each must be carefully considered to avoid unintended consequence.

- 10.1.8 A follow-on question in life cycle thinking regards the number of products or weight of material that is needed to fulfil the same function. There is a risk that non-plastic alternatives will not perform as well or more material is needed to match the performance of plastic resulting in increased environmental impacts. For example, stakeholder consultation previously indicated that EPS/XPS exhibits particular properties which are difficult to match ([Resource Futures](#), 2019a). It is lightweight and has high insulation benefits, being 93% air, is impermeable and retains its shape and strength. Non-plastic fibre-based cups and trays are typically double walled or thick to match functionality of EPS/XPS. Whilst the fibre-based products might be more environmentally benign from a marine litter perspective, they are heavier and manufacturing and distribution impacts in the supply chain will be different.
- 10.1.9 A follow-on question in life cycle thinking regards the number of products or weight of material that is needed to fulfil the same function. There is a risk that non-plastic alternatives will not perform as well or more material is needed to match the performance of plastic resulting in increased environmental impacts. For example, stakeholder consultation previously indicated that EPS/XPS exhibits particular properties which are difficult to match ([Resource Futures](#), 2019a). It is lightweight and has high insulation benefits, being 93% air, is impermeable and retains its shape and strength. Non-plastic fibre-based cups and trays are typically double walled or thick to match functionality of EPS/XPS. Whilst the fibre-based products might be more environmentally benign from a marine litter perspective, they are heavier and manufacturing and distribution impacts in the supply chain will be different.
- 10.1.10 A follow-on question in life cycle thinking regards the number of products or weight of material that is needed to fulfil the same function. There is a risk that non-plastic alternatives will not perform as well or more material is needed to match the performance of plastic resulting in increased environmental impacts. For example, stakeholder consultation previously indicated that EPS/XPS exhibits particular properties which are difficult to match ([Resource Futures](#), 2019a). It is lightweight and has high insulation benefits, being 93% air, is impermeable and retains its shape and strength. Non-plastic fibre-based cups and trays are typically double walled or thick to match functionality of EPS/XPS. Whilst the fibre-based products might be more environmentally benign from a marine litter perspective, they are heavier and manufacturing and distribution impacts in the supply chain will be different.
- 10.1.11 Furthermore, consumer groups have raised concerns over alternative materials containing substances potentially harmful to human health, particularly for food-contact packaging, e.g. reports that aromatic amines (carcinogens) have been found in paperboard-based food packaging ([BEUC](#), 2019), Polyfluoroalkyl 77 substances (PFAS) have been found in bagasse packaging ([CEH](#), 2018), and formaldehyde resin used in bamboo packaging ([Wessling](#), 2019).

10.1.12 A very basic life cycle comparison of the impact associated with the different product weights was undertaken in the modelling for this research based on product weight and disposal impact using UK Government Greenhouse Gas (GHG) Conversion Factors for Company Reporting. The modelling shows that the GHG impacts of SUP products and their alternatives are small as the products are comparatively lightweight and the total tonnage of material placed on market is relatively small. The analysis did not account for the effect of weight differences on transport impacts in the supply chain. However, the risk of contributing significant and adverse global warming impact is low - and very low compared with other societal choices.

## **10.2 Life cycle thinking**

### **Life cycle analysis studies**

10.2.1 LCA studies assess a wide range of environmental impacts and can assist in a holistic comparison of two competing products or systems. They do not measure the impacts for reducing litter or reducing consumption, but when policies have been assessed against these aims an LCA can be used to highlight other impact areas and avoid transferring risk to other areas of the environment.

10.2.2 There is often a compromise or trade-off between products, with one performing better against one impact area (e.g. global warming potential) and worse in others (e.g. NO<sub>x</sub> air pollutants). LCA results must be interpreted in terms of which impact areas are a priority. Climate change is a political and scientific priority, and LCA allows us to balance this impact against other environmental concerns, such as air quality, water and land-use. It is important not to prioritise one environmental concern at the cost of all others, as the petrol vs. diesel debate illustrated in recent years. The findings from two key LCA studies are discussed below.

10.2.3 In 2018, a [LCA study for the European Commission](#) assessed some of the SUP products proposed for a ban. The single-use non-plastic products assessed were paper cotton bud sticks, wooden cutlery, paper straws, wooden stirrers, and paperboard/wax containers. Multi-use items were assumed to have between 500 to several thousand uses, and so the impact of manufacturing and raw materials is very small per use. The impacts of washing multi-use items was also included in the LCA and dominates the results.

10.2.4 The study found that the single-use non-plastic alternatives are comparable in many of the impacts assessed, outperforming SUPs in some areas and having greater impacts in others.

10.2.5 Typically, fossil CO<sub>2</sub> and methane emissions are reduced by avoiding plastic, whereas non-fossil CO<sub>2</sub> is increased. The multi-use products are assessed in

best- and worst-case scenarios. Best-case is comparable to impacts of single-use for many of the products, whereas worst-case shows significantly increased impacts. The exception to this is a food container, which present much lower impacts in multi-use in both the best- and worst-case scenarios than the SUP item (a polystyrene clamshell).

10.2.6 The European Commission LCA suggests that washing systems for reusable products need to be carefully considered and performance improvements sought where possible. Further decarbonisation of the electricity grid will also reduce these negative impacts. The [Impact Assessment for the EU SUP Directive](#) comments that the main parameters in the LCA “show a decrease in impacts, though for some options, there might be a minor increase in land use due to a switch to paper and wood”.

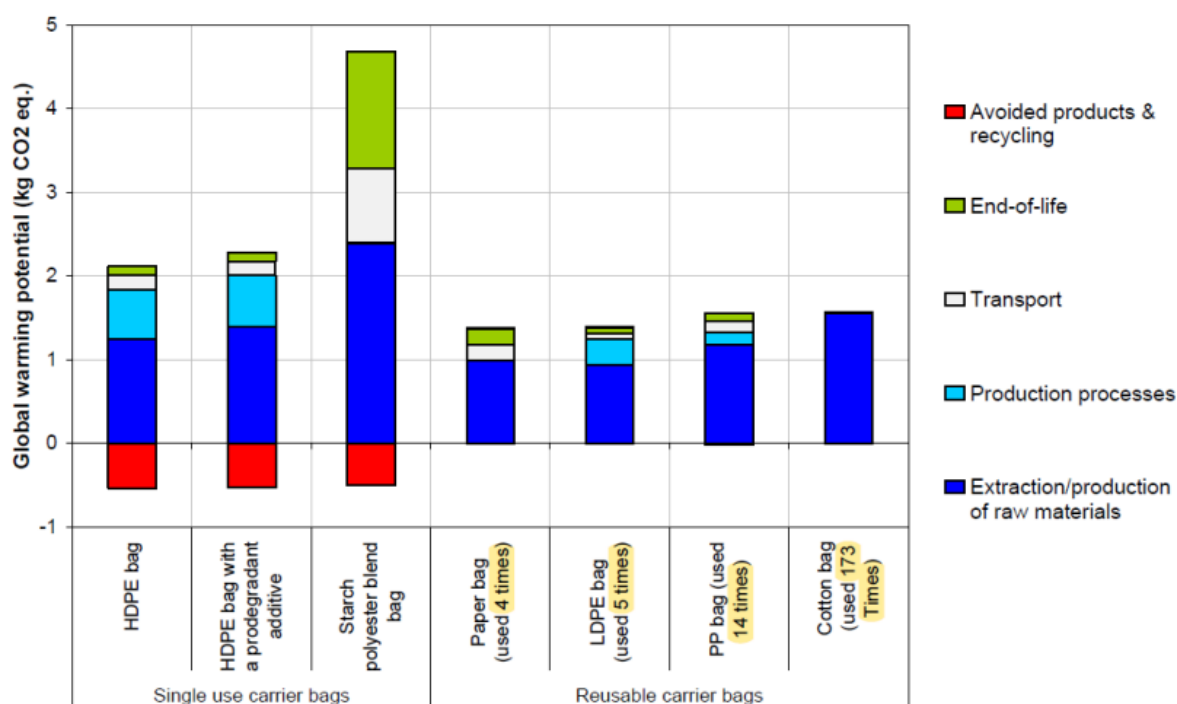
10.2.7 Following the publication of the EU SUP Directive, the Danish EPA published an [LCA study focussing on SUPs and single-use non-plastic alternatives](#). The products assessed were cotton buds, cutlery, plates, food containers, straws and stirrers. The study assumed a global production supply chain and waste management in Denmark, with paper and wood products incinerated at end-of-life. Climate change, particulate matter, fossil resource depletion and element resource depletion were identified as the categories with the largest potential impacts.

10.2.8 In the [Danish LCA study](#), single-use non-plastic products performed better or on the same level as SUPs, on the whole. In sensitivity analysis which considered indirect land use changes from paper and wood production the benefit of non-plastic alternatives was reduced, although this typically depended on the weight of the non-plastic product as to whether it outperformed SUP or not. This highlights the need to optimise and lightweight non-plastic products wherever possible whilst maintaining the functional performance of the product. The authors further add “it is important to keep in mind, that using biomass as raw material for the single-use non-plastic products can also have environmental impacts, due to the indirect land use changes that their procurement can include. This stresses the fact that non-plastic options can be problematic as well”.

10.2.9 A 2016 [American LCA study on EPS](#) was inconclusive as to which material was preferential: EPS, Paperboard or PLA. Modelling undertaken by Biopack indicated that bagasse has roughly half the manufacturing carbon footprint of EPS, [but a full LCA study is recommended](#) by work undertaken by Resource Futures on behalf of Defra to account for impacts across the entire supply chain.

10.2.10 Carrier bags are one of the current applications for oxo-degradable plastics. [An Environment Agency LCA](#) published in 2011 compared carrier bags available in UK supermarkets in 2006 in terms of disposable HDPE bags,

disposable oxo-degradable HDPE bags (termed a pro-degradant additive), disposable biopolymer (starch-polyester blend) bags, and reusable bags. Overall, the oxo-degradable bag was found to have very similar impacts to the conventional HDPE bag. The results for global warming potential are considered, with results for reusable bags shown for the number of times they must be reused in order to outperform a conventional HDPE bag.



**Figure 4:** The global warming potential impacts of each type of carrier bag assuming each is reused to outperform a conventional HDPE bag with no reuse. Source: [An Environment Agency LCA](#)

10.2.11 If the disposable HDPE bag is reused once as a bin liner or multiple times, e.g. to carry shopping, then the impacts per use are reduced. A summary of the main findings is presented in Table 14 below comparing reusable paper, plastic and cotton bags to a disposable HDPE bag used once or up to 3 times. The global warming potential impacts of the disposable oxo-degradable HDPE bag were very similar to the conventional HDPE bag and so it is assumed that the results also broadly serve as a comparison to this type of bag.



Type of carrier	HDPE bag (no secondary use)	HDPE bag (40.3% reused as bin liners)	HDPE bag (100% reused as bin liners)	HDPE bag (used three times)
Paper bag	3	4	7	9
LDPE bag	4	5	9	12
Non-woven PP bag	11	14	26	33
Cotton bag	131	173	327	393

**Table 14:** The number of times bags need to be used to result in the same CO<sub>2</sub>e emissions as single-use HDPE, from the [Environment Agency's Lifecycle assessment of supermarket carrier bags](#)

10.2.12 Overall, in the case of carrier bags, the results suggest that switching from oxo-degradable HDPE to conventional HDPE reduces the GHG emissions slightly, but 'reusable' products must be reused many times to achieve similar performance. Paper bags, which are often perceived to be more environmentally friendly, need to be used three to nine times before they outperform disposable HDPE bags. Cotton bags must be used several hundreds of times to overcome the benefit of using a lightweight HDPE disposable bag.

10.2.13 LCA studies typically consider a simple material-product substitution and so results must be considered in the light of behaviour change aspects that may result from a ban. As already discussed, switching materials in single-use products can result in changes in functionality, such as the strength and durability. Conversely, consumers may choose to use fewer products once the environmental impacts are highlighted, and so a ban may reduce overall consumption. Future behaviour change is difficult to predict and was not included in the scope of the research study.

10.2.14 As discussed, LCA studies assess impacts across a large number of environmental areas. Results should be interpreted according to of which impact areas are considered a priority, and priorities may vary by location and stakeholder group. On the whole, the LCA studies discussed above suggest that the SUPs they assessed generally have a similar scale of environmental impacts to single-use non-plastic alternatives. Overall, these studies did not show that significant impacts have been shifted to another impact area or part of the value chain.

## 11. Competition Assessment

- 11.1 In most cases, the proposed ban on single-use plastic (SUP) items is not expected to impact on competition in Wales or the competitiveness of Welsh businesses.

### **Plastic drinking straws, stirrers, cotton buds, cutlery, plates and polystyrene cups and food containers**

- 11.1.1 Three parts of the supply chain have been considered as part of the competition assessment.

- Manufacturers;
- Distributors, including wholesalers and retailers;
- Businesses which use one or more of the in scope single use plastic items.

### **11.2 Manufacturers**

- 11.2.1 As set out in paragraph 7.3.3 to 7.4.5, a mapping exercise identified 12 businesses with sites in Wales which may be directly or indirectly impacted by the legislation, this includes businesses manufacturing plastic products within scope of the proposed ban and others producing non-plastic alternatives.

- 11.2.2 An analysis [Resource Futures](#) determined that 90-95% of the relevant SUP products are imported into the UK, mainly from Asia. The exception to this is EPS food and beverage containers, where 95% of the containers are produced in the UK and only 5% imported. Included in the 12 businesses referred to in the paragraph above is one which produces EPS boxes and trays; however, it is unclear whether the boxes and trays are manufactured at the Welsh plant or at one of the company's other locations.

- 11.2.3 Those businesses currently producing SUP products within scope of the ban may incur costs through a reduction in revenue, the need to seek alternative markets and/or the need to invest to enable them to produce non-plastic alternatives and maintain market share. It is not possible to estimate these costs with the available information. However, given that legislation has already been passed in Scotland and England banning at least some of the same SUP products, and the intention to ban these products in Wales is well known, it seems likely that at least some of the costs will have already been incurred.

- 11.2.4 The legislation may provide those businesses producing non-plastic alternatives with an opportunity to increase revenues through an increase in demand for their products. As with the costs, there is evidence some of these benefits will have already accrued as businesses have already started to shift

away from SUP products in advance of them being banned and in response to [changing consumer attitudes](#).

### **11.3. Distributors**

11.3.1 There are a number of wholesalers across Wales that currently supply SUP products within scope of the legislation to the food and hospitality sectors and who may be affected by a ban. However, any impact is expected to be limited.

11.3.2 A review of company websites suggests the products which will be banned under the legislation represent just a fraction of what each wholesaler supplies. Furthermore, given shifting public attitudes, many wholesalers have already started to stock alternatives, and some have already stopped selling the relevant SUP products. For these reasons, banning the supply of the SUP products is not expected to have a significant impact on wholesaler revenues or result in any business ceasing to operate.

11.3.3 On the retail side, most sales of the relevant items have tended to be through supermarkets, high street chemists (cotton buds) and businesses specialising in selling party supplies.

11.3.4 As with the wholesale sector, there is already evidence of retailers moving away from the supply of in-scope SUP products, with most offering the choice of an alternative and some no longer stocking the relevant SUP products. This shift is likely to be a response to changing consumer preferences (due to an increased awareness of the damage caused by plastic waste) but also the bans implemented and/or announced in Scotland and England.

11.3.5 Besides, the sale of in scope SUP products in Wales is likely to represent a small or very small part of most retailers' revenue stream and, as a result, the legislation is not expected to have a significant impact on retailers.

### **11.4 Businesses using single use plastic items**

11.4.1 Given the SUP products under consideration, the main impact of the legislation is likely to fall on businesses in the food and hospitality sector. Table 15 below shows that, based on VAT and PAYE registrations, there are approximately 7,500 businesses in this sector in Wales.

11.4.2 It is important to note that not all business included in the table below will be affected by the legislation. For example, the largest category - 'Restaurants and mobile food service activities' – will include cafés and restaurants where food is consumed on the premises (and where little use will be made of SUP items) as well as takeaways. The COVID-19 pandemic increased the number of hospitality businesses which offered a takeaway service, however, in many cases, services are expected to return to the pre-pandemic norm now the

trading restrictions placed on businesses in the hospitality sector have been removed.

11.4.3 The majority of the business covered by the table 15 below are small or micro businesses which employ fewer than ten people.

**Table 15:** Number of businesses registered for VAT and/or PAYE in the food and hospitality sector in Wales, 2021

<b>SIC2007 Code</b>	<b>Business activity</b>	<b>Number of businesses</b>
5610	Restaurants and mobile food service activities	4,565
5621	Event catering activities	695
5629	Other food service activities	85
5630	Beverage serving activities	2,240
	<b>Total</b>	<b>7,585</b>

Source: ONS Inter Departmental Business Register, March 2021

11.4.4 The legislation will restrict the ability of businesses in the food and hospitality sector to choose how they provide their product. As such, businesses in the food and hospitality sector are likely to incur transitional costs associated with familiarising themselves with the new legislation and potentially sourcing new products.

11.4.5 As outlined above, for most of the products which are to be banned, there are alternative items available with equivalent functionality and at a similar cost. Following the ban, and as the alternative products become more widely used, economies of scale are expected to result in the unit cost of those alternative items falling.

11.4.6 There is a risk that smaller businesses may be disproportionately affected if they are unable to secure new supplies at the lowest cost and less able to absorb any cost increase. Any impact will depend on the extent to which the business is able to pass any cost increase onto their customers.

11.4.7 In most cases, the cost of packaging is a variable cost which is hidden in the overall cost of the item being purchased and research undertaken by [Defra](#) suggests takeaway food is relatively price inelastic. As a result, it is felt businesses may be able to pass any increase in costs onto their customers without a significant reduction in demand.

11.4.8 Overall, given the ban is going to be applied uniformly across Wales (and elsewhere in Great Britain), it is not expected to create significant market distortions or result in large numbers of consumers switching between food and hospitality businesses.

## **11.5 Single Use Carrier Bags (SUCB)**

11.5.1 Analysis undertaken prior to the SUCB charge being introduced determined the majority of plastic SUCBs were imported into the UK and the impact on domestic manufacturers would therefore be limited. There is no evidence to suggest the position has changed during the intervening period.

11.5.1 Most supermarket chains and large retailers have already stopped providing thinner, plastic SUCBs and now only sell bags for life. The greatest impact of a ban on SUCBs is therefore expected to be felt by smaller retailers. Those retailers who still provide plastic SUCBs will need to source alternative bags and would be expected to incur a greater cost than at present. However, consumers in Wales are used to paying more for a bag for life and so retailers would be expected to be able to pass any additional cost on to customers.

## **11.6 ODP mulch in the agricultural sector**

11.6.1 As outlined above, ODP mulches are widely used in the horticultural and cereal sectors. These sectors are relatively small in Wales, with the value of Welsh output in the [cereal](#) and [horticultural](#) sectors representing 0.8% and 1.3% of the UK totals in 2021 respectively. This scale of activity would suggest the impact of a ban on manufacturers and distributors of ODP mulches would be limited and unlikely to generate major market changes.

11.6.2 If a ban or restriction on supply of ODP mulches is unilaterally applied in Wales, then there is a risk Welsh agricultural businesses will be placed at a competitive disadvantage relative to their counterparts elsewhere in the UK. While there are alternative mulches available, there are concerns about their cost-effectiveness and so Welsh businesses potentially face either higher costs and/or a reduction in crop yield/quality.

## 12. Impact Assessment Summary

12.1 Specific impact assessments have also been undertaken, which cover the whole of the Bill. A summary of the impacts are included below. Impact assessments will be published, as appropriate. Specific impact assessments have been undertaken on the following topics:

- Children's Rights
- Equality
- Rural Proofing
- Data
- Welsh Language
- Biodiversity
- The Socio-economic Duty
- Justice Impact Assessment

### 12.2 Children's Rights

12.2.1 Ministers are required to have due regard to the United Nations Convention on the Rights of the Child when exercising any of their functions. The Children's Rights impact assessment has identified there are positive and negative impacts to children and young people associated with the introduction of our proposals.

12.2.2 Our consultation in 2020 and targeted engagement in 2022 obtained views from a range of representatives, including members of the Youth Parliament, a number of protected characteristic groups, children and young people, including representative organisations, and a youth Climate Change Special Interest Group. This engagement has assisted us in identifying the positive and potential negative impacts of our proposals on children and young people as well as measures to mitigate these impacts.

#### Positive impacts

12.2.3 Children and young people are playing a prominent role in driving the transition to a net zero Wales. By involving children and young people in decisions on issues such as plastic pollution and climate change, we can empower them to champion positive environmental change. Campaigns to fight plastic waste, such as the [Welsh Youth Parliament's report](#) on littering and plastic waste is an excellent basis on which our proposals aim to build.

12.2.4 [Natural Super Kids reports](#) that tackling plastic pollution will also positively affect children's health. Children's bodies – their gut, immune system, brain

and reproductive systems – are still under construction. This makes them more prone to the negative impacts of plastic exposure.

12.2.5 Also, these proposals will meet the requirement [in The United Nations Convention on the Rights of the Child](#), specifically Article 31 and Article 24, by reducing air pollution and providing cleaner green and natural spaces like beaches, forests, parks and the countryside for walking, learning, running, cycling, and playing.

12.2.6 Climate change has been identified as one of the biggest threats facing our future generations; implementing these proposals will have a direct positive impact on protecting our environment, health and well-being in the short term and for future generations.

### **Negative Impacts**

12.2.7 Suitable non plastic alternative products are already on the market for most of the products in our proposals, such as paper or cardboard cotton buds, plates and balloon sticks, and wooden cutlery and drink stirrers, as well as are paper /cardboard or other types of plastic cups, cup lids and food containers.

12.2.8 However, alternative straws do not provide the same flexibility/functionality as plastic straws in all circumstances. For example, they are unlikely to be a suitable alternative product for people who are bedbound, those that cannot reposition themselves to drink from cups or tilt their head back, those with dexterity problems or painful conditions. This could impact children and young people, especially those that are disabled, who require SUP straws to eat and drink safely and independently. Also, this would impact children and young people who are carers for others.

12.2.9 Therefore, we have included exemptions to ensure SUP straws remain available to those individuals who rely on them to eat and drink safely and independently; and for medical purposes (this means straws will remain for the purposes of preventative medicine, medical diagnosis, medical research and the provision of medical care and treatment by a health professional or under the direction of a health professional).

12.2.10 Our consultation did not identify any negative impacts for children and young people relating to other products in our proposals. It was considered that suitable alternative non plastic or non-single use products were readily available on the market.



## 12.3 Equality

12.3.1 The Equalities Act 2010 places a General Equality Duty on Welsh public authorities to have due regard to the need to eliminate unlawful discrimination, harassment and victimisation, as well as to advance equality of opportunity and to foster good relations between people who share a protected characteristic and those who do not.

12.3.2 An Equality Impact Assessment has been completed which indicates there are positive and negative impacts on people with protected characteristics.

12.3.3 Through evidence received in our full public consultation [Reducing single use plastics](#) in 2020 and continued targeted engagement in 2022, we have identified the following groups will be impacted by our proposals:

- Children and young people
- Older people
- Disabled people (and their carers)
- Pregnancy and maternity
- Race
- People on low income

### Positive impacts

12.3.4 The detrimental impacts of pollution and climate change on the environment and human health have been well documented. A [Public Health Wales](#) report highlights the importance of the impact of climate change on health and well-being, specifically the negative impacts on more vulnerable and disadvantaged groups which could be disproportionately affected, including **children and young people; older adults; disabled people and individuals with long-term health conditions, and people living on a low income.**

**12.3.5 Pregnancy and maternity** – a growing body of [research](#) shows that plastic is not only filling our aquatic and terrestrial environments, but also invading our bodies through the air we breathe, the water we drink and the food we consume. A new study has shown that microplastics — tiny plastic particles smaller than 5mm but bigger than 1 micron — are even present inside human placentas, posing a potential risk to foetal health and development. Our proposals will reduce the negative impact littering, plastic pollution and climate change have on our environment and our health and well-being and will provide the most basic health requirements: clean air and safe water.

### Households in deprived areas

12.3.6 The Chief Medical Officer for Wales Annual Report, [Restoring our Health](#) (June 2022) highlights that climate change is a pressing public health issue which will increasingly dominate our lives as it adversely affects the most



basic health requirements: clean air, safe water, sufficient food, and adequate shelter. It affects the environment around us – the places where we live, work, learn and play – can have a profound impact on our health and well-being.

- 12.3.7 Our proposals will have a significant positive impact on this issue by reducing the amount of SUP products littered and a long-term positive impact of reducing the amount of plastic polluting the environment, contributing to climate change. Our proposals will also provide cleaner green and natural spaces like beaches, forests, parks and countryside which has the potential benefit of [improving mental](#) and [physical well-being](#) as people enjoy their local environment more, which can also lead to greater social cohesion as people socialise and interact more with others in their community.

### **Negative impact**

- 12.3.8 The proposed bans will apply to all individuals who use these products, except for those individuals in protected characteristic groups, such **as children and young people/older or disabled people and their carers**, who rely on these products to eat and drink safely and independently. Providing single-use plastic straws, in line with exemptions for medical/healthcare needs, will support independent living, social inclusion and equal participation for people who need these products to eat or drink safely and independently, or if the straws are required for medical purposes.
- 12.3.9 The [Relative income poverty: April 2019 to March 2020 report](#) relates to relative income poverty in Wales. Living with a disabled person makes relative income poverty more likely for children and working-age people.
- 12.3.10 The report has identified that adults or children living in a household with a disabled person are already likely to be financially disadvantaged. Ensuring low-cost plastic straws remain available for those who rely on them will mitigate the impact of our proposals.
- 12.3.11 Including exemptions to the scope of the bans will ensure the proposals are not discriminatory or otherwise unlawful under the Equality Act and it is unlikely the policy will have a discriminatory effect. Nevertheless, the Welsh Government will monitor the delivery of the proposals and remain alert to new evidence suggesting that discrimination or other prohibited conduct is, or could be, occurring and take appropriate action to prevent this happening.

## **12.4 Rural Proofing**

12.4.1 Through our [preliminary impact assessment research](#) (PIA) in 2019, public consultation and targeted engagement process, we did not identify any significant impact our proposals would have on rural communities. The limited positive and negative impacts are outlined below.

### **Positive impact**

12.4.2 Littering from vehicles is certainly more noticeable and prevalent in rural areas, principally involving "food-on-the-go" packaging, cups etc. Removal of this litter would be a positive impact on rural communities. Also, impacts from littering at festivals such as Green Man, Royal Welsh Agricultural Show, Eisteddfodau, predominantly occur in rural or semi-rural environments

12.4.3 Our proposals will therefore have a positive impact on this issue by immediately reducing the amount of SUP products littered and a long-term positive impact of reducing the amount of plastic polluting the environment, contributing to climate change. Our proposals will also provide cleaner green and natural spaces like beaches, forests, parks and countryside which has the potential benefit of improving mental and physical well-being as people enjoy their local environment more, which can also lead to greater social cohesion as people socialise and interact more with others in their community.

### **Negative impact**

12.4.4 Our research identified that half (49.5%) of small and medium sized (SME) employers in Wales are based in rural locations. This proportion is lower (29.4%) for medium sized businesses. Whilst this may result in some costs being incurred by rural based SMEs as they make the initial switch to alternative products, we anticipate these costs will decrease as the use and availability of these products becomes more widespread. Our research also notes that the overall impact will be negligible, as the price differential between the plastic product and the alternative is relatively small or non-existent in many cases.

### **Oxo-degradable products**

12.4.5 The economic impact of banning oxo-degradable plastic in rural Wales is expected to be minimal. Research has not identified any major user groups, apart from the agricultural and horticultural sectors where mulching film may be used for weed-control and for managing soil moisture content.

12.4.6 However, the limited available data suggests that use of such products in Wales is highly limited, hence the impact on business is expected to be negligible.

12.4.7 There is the likelihood of a small positive impacts on river and water quality, due to the reduced level of microplastics being leached from soil into watercourses. This is also likely to be of positive benefit to the angling and

freshwater fishing industry as microplastic pollution has been reported in both water and animal studies.

## **Welsh language in rural communities**

12.4.8 The overwhelming majority of responses to our consultation were unable to identify any adverse impacts on the Welsh language from our proposals. Several respondents offered broader views on the potential for the proposals to have an indirect benefit on the language, for example by providing an opportunity for greater bilingualism on packaging of alternative products made in or produced for Wales.

## **12.5 Data**

12.5.1 Data protection impact assessment screening was completed to identify any impact our proposals had on the use, and changes to the use, of personal data.

12.5.2 Based on information provided in the data protection impact assessment screening, it was determined that, as no personal data will be processed by the Welsh Government for this proposal, a Data Protection Impact Assessment (DPIA) would not be required and no UK General Data Protection Regulation (UK GDPR) compliance advice is needed.

12.5.3 The Data protection impact assessment screening form was assessed and cleared by the Information Rights Unit, which confirmed a full Privacy Impact Assessment was not required.

## **12.6 Welsh Language**

12.6.1 Cymraeg 2050 is Wales' national strategy for increasing the number of Welsh speakers to a million by 2050. The Welsh Government is fully committed to the target of a million Welsh speakers included in the Taking Wales Forward programme for government, and the Programme for Government 2021-2026. A thriving Welsh language is also part of one of the seven well-being goals set out in the WFG Act, as explained above.

12.6.2 The Welsh Government also has a statutory obligation to fully consider the effects of its work on the Welsh language. Considering the impacts, both positive and negative, of its work on the Welsh language, and Welsh speaking people and communities is an essential part of the policy development and delivery process.

12.6.3 Although our proposals do not directly link with the Welsh Government's strategy for the Welsh language, all correspondence and publicity relating to the introduction and implementation of these proposals will comply with the Welsh Language Act.

12.6.4 Public consultations on our proposals did not result in any consultee outlining a way these proposals could harm the Welsh language. The proposals will not affect the sustainability of Welsh speaking communities or Welsh medium education and Welsh learners of any ages.

12.6.5 A full Welsh Language Impact Assessment was completed and cleared by the Welsh Language Standards Team.

## **12.7 Biodiversity**

12.7.1 To demonstrate compliance with Section 6 of the Environment (Wales) Act 2016, a Biodiversity Impact Assessment has been completed. The [Nature Recovery Action Plan for Wales](#) identifies six objectives that will contribute to reversing the decline of biodiversity in Wales, one of which is about tackling key pressures on species and habitats. The production and disposal of plastic contributes to these pressures.

12.7.2 Extracting fossil fuels causes damage by destroying habitat; the process for producing plastic emits greenhouse gasses; and disposing of plastic in landfill sites can lead to it leaking into the terrestrial and marine environments. Therefore, banning certain SUP products will benefit biodiversity by reducing the damaging inputs into the natural environment that may result from plastic production, use and disposal.

## **12.8 The Socio-economic Duty**

12.8.1 The socio-economic duty requires relevant public bodies, including Welsh Ministers to have due regard to the need to reduce inequality of outcome that results from socio-economic disadvantage. The Socio-economic Duty applies to the Welsh Government and therefore Ministers are required to give due regard to the Duty when strategic decisions are taken forward.

12.8.2 Initial [research](#) undertaken by the Welsh Government between October 2019 and January 2020 (2020 research) considered the economic, social and environmental impacts of our proposals. It noted there would likely be an increased cost to individuals as a result of purchasing alternative products, although as this cost is spread across a very large number of individuals and businesses, it considered the marginal impact on each is small.

12.8.3 Our 2020 consultation, [Reducing Single Use Plastics](#), there was overwhelming agreement (98% of those who answered the question) that the potential environmental and social benefits of our proposals outweighed the potential impacts on people in Wales.

12.8.4 To mitigate any potential negative impacts, our proposals include exemptions for medical/healthcare needs, which will support independent living, social inclusion and equal participation for people who need these products to eat or drink safely and independently, or if the straws are required for medical purposes.

## **12.9 Justice Impact Assessment**

12.9.1 All new primary legislation requires a Justice System Impact Identification (JSII) assessment to be completed where proposals would create, remove or amend an offence, or could result in any other impact on the justice system e.g. through increased litigation, need for legal aid, or appeal against a decision of a public body.

12.9.2 For the reasons set out below we anticipate the number of cases requiring enforcement action will be minimal; accordingly, the Welsh Government submitted a completed JSII to the Ministry of Justice on 2 August 2022, which identified a potential low impact on the justice system following the introduction of the Bill.

- overwhelming support to our proposals
- concerns over the environmental impacts of littering and plastic pollution,
- businesses are already voluntarily shifting to alternatives materials.
- the legislation will be accompanied by awareness raising campaigns and the publication of guidance to help support businesses and regulatory bodies in preparing for its implementation.
- enforcement Officers will engage with businesses before taking formal enforcement action. Only when this approach fails, or a breach of the legislation is judged to be deliberate or significant in scale, will civil sanctions such as compliance notices, stop notices and variable monetary penalties be used.
- a Welsh Government review of civil sanctions for environmental offences in 2015 reported the use of civil sanctions deterred non-compliance, provided an effective and fair way of enforcement, reducing risks of environmental harm and prevent harm from occurring or continuing.

## 13. Post Implementation Review

- 13.1 The policy objective is to reduce the use of commonly littered and unnecessary SUP products to prevent the negative impacts from plastic pollution on our environment, wildlife, health and wellbeing. Our policy will also contribute to our response to the climate and nature emergency. We are delivering this by banning or restricting the use of certain SUP products through primary legislation in the first instance, which includes a regulation-making power to ban further items in future.
- 13.2 We are developing communications and guidance for and in collaboration with relevant organisations on the SUP products being banned or restricted, the associated exemptions, and timescales for phasing out the products. We are in the process of developing an oversight project board and advisory panel for SUP products. The groups will regularly review progress of our policy and legislative proposals, through monitoring product-specific projects. We will establish ambitious milestones to ensure rapid progress, enable accountability, delivery and evaluation. We will establish appropriate mechanisms to collaborate with and involve stakeholders in developing and delivering our proposals. The Bill also places a duty on Welsh Ministers to report on considerations to ban further items or make changes to exemptions included in the current Bill.
- 13.3 The Welsh Government will also conduct a post implementation review of the legislation no later than five years after it has come into force. It is envisaged the review will assess the effectiveness of the policy in achieving its objectives of supporting action to tackle the climate and nature emergency, reducing the littering of SUP products, the wasteful use of resources and adapting consumer behaviour to more sustainable alternatives. Whilst details of the review are to be determined, we anticipate this would include:
- Identifying and evaluating the impact the legislation has had on the use of SUP products and the associated behaviour of consumers in Wales;
  - Identifying and evaluating what impacts the legislation has had on businesses in Wales.
  - Identifying and evaluating the extent to which the legislation has succeeded in encouraging a shift to reusable products.
  - Identifying, where possible, and evaluating, the extent the legislation has had on reducing littering of SUPs following its implementation

These notes refer to The Environmental Protection (Single-use Plastic Products) (Wales) Bill which was introduced to the Assembly on 20 September 2022.

## **Annex 1 Explanatory Note**

### **The Environmental Protection (Single-use Plastic Products) (Wales) Bill**

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## **EXPLANATORY NOTES**

### **INTRODUCTION**

1. These Explanatory Notes are for The Environmental Protection (Single-use Plastic Products) (Wales) Bill, which was introduced into the Senedd Cymru on 20 September 2022. They have been prepared by the Climate Change and Rural Affairs Group of the Welsh Government in order to assist the reader of the Bill. The Explanatory Notes should be read in conjunction with the Bill but are not part of it. Where a provision of the Act does not seem to require any explanation or comment, none is given.

### **SUMMARY AND BACKGROUND**

2. The aim of the Bill is to address the Welsh Government's concerns around the environmental impact of disposable, unnecessary and commonly littered single use-plastic products.
3. This Bill has been developed following publication of the consultation paper 'Reducing single use plastics' in 2020, which included proposals to ban eight commonly littered single use plastic products and products made of oxo-degradable plastic in Wales. Further engagement work was undertaken in 2022 with stakeholders on two other single use plastic products.
4. The Bill makes it an offence for a person to supply or offer to supply (including for free), ten single-use plastic products and products made of oxo-degradable plastic to a consumer in Wales and establishes a local authority led enforcement regime.
5. The Bill is comprised of 23 sections and a Schedule.

### **COMMENTARY ON SECTIONS**

#### **Section 1 – Key concepts: “single-use”, “plastic product” and “plastic”**

6. This section provides definitions for the key concepts under the Bill: 'single-use', 'plastic product', 'plastic' and, 'polymer'.
7. This section also clarifies that it is only carrier bags made from plastic film that is no greater than 49 microns in thickness that are considered to be single use carrier bags for the purpose of the Bill.

## **Section 2 – Prohibited single-use plastic products**

8. This section establishes the concept of a ‘Prohibited single-use plastic product’ under the Bill.
9. This section also introduces the table in the Schedule to the Bill which lists those products that are prohibited single-use plastic products for the purpose of the Bill.
10. A person supplying or offering to supply a prohibited single-use plastic product listed in column 1 of the table in the Schedule to a consumer in Wales would be committing the offence under section 5, unless a corresponding exemption is listed in respect of that product in column 2 of the Table.

## **Section 3 – Prohibited single-use plastic products: power to amend**

11. This section provides the Welsh Ministers with a regulation making power to amend the Schedule by:
  - adding or removing a product in column 1 of the Table in the Schedule;
  - adding or removing an exemption relating to a product in column 2 of the Table in the Schedule; and
  - making other amendments in accordance with this section.

## **Section 4 – Power to amend: duties relating to sustainable development and reporting**

12. This section provides that when considering the exercise of powers in section 3 to amend the Schedule, the Welsh Ministers must consider their duty to promote sustainable development under section 79(1) of the Government of Wales Act 2006 (c. 32) (‘GOWA’) and to carry out sustainable development under the Well-being of Future Generations (Wales) Act 2015 (anaw 2).
13. In the report they are required to publish under section 79(2) of GOWA, the Welsh Ministers must explain their consideration of any plans to exercise the powers in section 3 to add further single-use plastic products to column 1 of the Table in the Schedule. This includes, but is not limited to trays, platters and wet wipes.
14. In the report required under section 79(2) of GOWA, the Welsh Ministers must also explain any consideration they have given to exercise the powers under section 3 to remove exemptions from column 2 of the Table in the Schedule.

## **Offence**

### **Section 5 – Offence of supplying prohibited single-use plastic products**

15. This section makes it an offence for a person to supply or offer to supply a prohibited single-use plastic product to a consumer in Wales.



16. Subsection (1) provides that the offence can only be committed by the following persons ("P"):
- a body corporate (including a body exercising any function of a public nature);
  - a partnership;
  - an unincorporated association other than a partnership;
  - or a person acting as a sole trader.
17. Subsection (2) provides that for the purposes of the offence, P supplies a prohibited single-use plastic product if P, or any person accountable to P –
- sells the product,
  - provides the product free of charge, or
  - offers to sell the product or provide it free of charge.
18. Subsection (3) provides that a person is "accountable to P" if that person:
- is an employee of P,
  - has a contract for services with P,
  - is an agent of P, or
  - is otherwise subject to the management, control or oversight of P,
- and that person is –
- acting in the course of P's business, trade or profession,
  - acting in relation to the exercise by P of P's functions,
  - acting in relation to P's objects or purposes, or
  - otherwise acting under the management, control or oversight of P.
19. Subsection (4) provides a defence for a person charged with the offence to show they exercised due diligence and took all reasonable precautions to avoid committing it. If the defence is relied on, subsection (5) clarifies where the burden of proof lies. If sufficient evidence is raised, the burden of disproving the defence beyond reasonable doubt rests with the prosecution.
20. Subsection (6) sets out that in proceedings for an offence under subsection (1), an allegation that a product was a prohibited single-use plastic product will be accepted as proved in the absence of evidence to the contrary.
21. Subsection (7) clarifies that for the purpose of the offence, where a product is delivered to the consumer by post or any other means, the supply of the product by P occurs at the time –
- it is delivered to the address in Wales provided by the consumer, or
  - if no such delivery takes place, at the time it is received by the consumer in Wales.
22. Subsection (8) provides that for the purposes of the Bill 'consumer' means individual acting for purposes that are wholly or mainly outside that individual's trade, business or profession (whether or not the individual purchased the

product). For example, an individual purchasing single-use plastic plates for use in their home would be considered a consumer for the purposes of the Bill, while an individual purchasing single-use plastic plates from a wholesaler on behalf of a restaurant at which they work would not. However, the onward supply by that restaurant of such a plate to a consumer in Wales would constitute an offence .

## **Section 6 - Offence: mode of trial and penalty**

23. This section provides that the offence under section 5 is a summary offence and so is triable in the Magistrates' Court. If a person is found guilty of the offence, the Court may impose an unlimited fine.

## **Enforcement**

### **Section 7 - Enforcement action by local authorities**

24. Subsection (1) provides that a local authority. may investigate complaints in respect of alleged offences under section 5 of the Bill in its area, may bring prosecutions in respect of offences under section 5 of the Bill in its area and may take other steps with a view to reducing the incidence of such offences in its area.
25. Subsection (2) explains that any reference in the Bill to an authorised officer of a local authority is to any person authorised by the local authority.

### **Section 8 - Power to make test purchases**

26. This section enables an authorised officer to make purchases and arrangements, and secure the provision of services if the officer considers it necessary for the purpose of the local authority's functions under this Bill. This permits test purchases for example, to take place.

### **Section 9 - Power of entry**

27. This section enables an authorised officer to enter, at any reasonable time, premises (excluding premises used wholly or mainly as a dwelling) if the officer has reasonable grounds to believe that an offence under section 5 has been committed in the area of the local authority, and the officer considers it necessary to enter the premises for the purpose of finding out whether such an offence has been committed. This power to enter premises does not enable the authorised officer to enter by force. If required, an authorised officer must, before entering the premises, show evidence of their authorisation.

### **Section 10 - Power of entry: dwellings**

28. This section provides that a justice of the peace may issue a warrant to enable an authorised officer to enter a premises used wholly or mainly as a dwelling in certain circumstances.

29. A warrant may be issued only where the justice of the peace is satisfied on sworn information in writing that there are reasonable grounds to believe that an offence under section 5 has been committed in the area of the local authority, and that it is necessary to enter the premises for the purpose of establishing whether such an offence has been committed. Entry may be obtained by force if need be.
30. Any such warrant will be in force for the period of 28 days beginning with the date it was issued.

### **Section 11 – Power of entry: other circumstances requiring warrant**

31. If access to premises that are not used wholly or mainly as a dwelling (dealt with under section 10) is required because there are reasonable grounds to believe that an offence under section 5 has been committed, and entry is necessary to ascertain whether or not such an offence has taken place, this section enables a justice of the peace to issue a warrant authorising an authorised officer to enter such premises, if needs be by force. The premises to which entry is being sought under this section must be used for business purposes, or for both business and as a dwelling.
32. In order for a warrant to be issued, one or more of the requirements set out in subsections (3) to (4) must be met. The requirements include that a request to enter the premises has been, or is likely to be, refused and notice of intention to apply for a warrant has been given; and that requesting to enter, or giving notice of an intention to apply for a warrant, is likely to defeat the purpose of the entry.
33. Any such warrant will be in force for the period of 28 days beginning with the date it was issued.

### **Section 12 – Powers of entry: supplementary**

34. Subsection (1) enables an authorised officer who has entered premises under the powers set out in sections 9, 10 or 11 to take with them any other persons and equipment as they consider appropriate.
35. Subsection (2) sets out that the powers of entry under section 9, 10, or 11 also apply to vehicles.
36. Subsection (3) sets out that if an authorised officer executes a warrant issued under sections 10 or 11 of the Bill when the occupier is present, they must inform the occupier of their name, provide documentary evidence of their authority and supply the occupier with a copy of the warrant.
37. Subsection (4) also requires that if the premises are unoccupied or the occupier is temporarily absent, the authorised officer must leave them as effectively secured against unauthorised entry as the officer found them.

### **Section 13 – Power of inspection**

- 38. This section confers powers on authorised officers entering premises under sections 9, 10 or 11 to do various things so as to find out whether an offence under section 5 has been committed. Officers may carry out inspections and examinations of premises. Officers may also request items, inspect them, take samples from them and/or take the item(s) and/or samples from the premises. For example, officers may wish to review CCTV footage of the premises, or likewise take documents or copies of documents.
- 39. The officer may also require information and help from any person, but that person is not required to answer any questions or produce any document which they would be entitled to refuse to answer or produce in the course of court proceedings in England and Wales.
- 40. The authorised officer must leave on the premises a statement detailing any items that have been taken and identifying the person to whom a request for the return of property may be made.
- 41. This section also applies to a vehicle as if it were premises.

### **Section 14 – Offence of obstruction etc. of officers**

- 42. Subsection (1) provides that a person commits an offence if they intentionally obstruct an authorised officer from exercising their functions under sections 9 to 13.
- 43. Subsection (2) provides that a person commits an offence if, without reasonable cause, they fail to provide an authorised officer with facilities that are reasonably required under section 13(1) or they fail to comply with a requirement under section 13(1)(b), (d) or (4)(b) such as providing information relating to matters within that person's control.
- 44. Subsection (3) sets out that a person found guilty of an offence under this section is liable on summary conviction to a fine not exceeding level 3 on the standard scale. The levels on the standard scale are set out in section 122 of the Sentencing Act 2020 (c. 17).
- 45. Subsection (4) provides that refusal to answer questions or provide documents that the person would be entitled to refuse to answer or produce in a court in Wales or England does not constitute an offence under this section.

### **Section 15 – Retained property: appeals**

- 46. This section enables a person with an interest in anything taken away from the premises by an authorised officer under section 13(1)(c) to apply to a magistrates' court for an order requesting the release of the property. Depending

on the court's consideration of an application, it may make an order requiring the release of the retained property.

## **Section 16 – Appropriated property: compensation**

47. This section provides a right for a person with an interest in anything which has been taken possession of under section 13(1)(c) to apply to a magistrates' court for compensation. Where the circumstances set out in subsection (2) are satisfied, the court may order the local authority to pay compensation to the applicant. The circumstances are that property has been taken; that it was not necessary to take the property to discover whether an offence under section 5 had been committed; that the applicant has suffered loss or damage as a result; and that the loss or damage was not due to the applicant's own neglect or default.

## **Section 17 – Civil sanctions**

48. This section enables regulations providing for civil sanctions to be made in respect of criminal offences created under section 5 of the Bill. This power corresponds to that in Part 3 of the Regulatory Enforcement and Sanctions Act 2008 (c.13) ("RESA").
49. Part 3 of RESA allows the Welsh Ministers to make regulations to provide for alternative civil sanctioning powers for relevant criminal offences that relate to regulatory non-compliance. The civil sanctions available under RESA are: fixed monetary penalties, discretionary requirements, stop notices and enforcement undertakings. They are an alternative to, rather than a replacement for, criminal conviction especially for minor breaches of regulatory requirements.
50. Subsection (3) applies section 63 to 69 of RESA to regulations made under this section as they would apply to an order made under Part 3 of RESA. The effect of subsection (3) is set out in the following paragraphs.
51. Where the Welsh Ministers confer power on a local authority to impose a civil sanction in relation to an offence, the Welsh Ministers must also ensure the following results (see section 63 of RESA) –
- that the authority publishes guidance about its use of the sanction;
  - that guidance contains specified information, depending on the type of sanction - such as the circumstances in which a monetary penalty or stop notice is likely to be imposed, the circumstances in which it cannot be imposed; the amount of any monetary penalty; how to discharge penalties and rights of appeal and similar;
  - that the guidance is revised where appropriate;
  - that the authority consults persons specified in the Welsh Ministers' regulations before publishing any guidance;
  - that the authority has regard to the guidance in exercising functions.

52. Where power is conferred on a local authority to impose a civil sanction in relation to an offence the authority must also –
- prepare and publish guidance about how the offence is to be enforced (see section 64 RESA);
  - publish reports about the cases in which the civil sanction has been imposed (see section 65 RESA).
53. The Welsh Ministers may not make provision enabling a local authority to impose a civil sanction in relation to an offence unless the Welsh Ministers are satisfied that the authority will act in accordance with the following principles (referred to in RESA as “the regulatory principles”) in exercising that power –
- that regulatory activities should be carried out in a way which is transparent, accountable, proportionate and consistent; and
  - that regulatory activities should be targeted only at cases in which action is needed.
54. Where the Welsh Ministers have conferred a power to impose civil sanctions, they must review how that power is being operated (see section 67 of RESA) and may suspend the power of a local authority to impose such sanctions (see section 68 of RESA).
55. Receipts from civil sanctions – e.g. from the payment of monetary penalties – must be paid into the Welsh Consolidated Fund where the local authority has functions only in relation to Wales, and into the UK Consolidated Fund where the enforcement authority has functions in relation to Wales and another part of the UK (see section 69 of RESA).
56. Subsection (4) applies section 59 and 60(1) and (2) of RESA to regulations made under this section as they would apply to an order made under Part 3 of RESA.
57. Regulations making provision enabled by this section must be made under the affirmative procedure.

## **Section 18 - Offences committed by partnerships and other unincorporated associations**

58. This section provides that proceedings for offences under the Act alleged to have been committed by a partnership or unincorporated association other than a partnership are to be brought in the name of the partnership or association and not in the name of any of its members. Any fines on conviction for an offence under the Act are to be paid out of the assets of the partnership or the funds of the association.

## **Section 19 – Criminal liability of senior officers etc.**

59. Where an offence under the Act is committed by a body corporate, partnership or an unincorporated association other than a partnership this section makes it

possible, in the circumstances described in subsection (2), for individuals holding positions of responsibility within the relevant body, partnership or association (the “senior officers” defined by the section) to also be criminally liable for an offence.

## **General**

### **Section 20 – Interpretation**

60. This section provides definitions and signposting to definitions for the following terms used in the Bill: ‘authorised officer of a local authority’, ‘carrier bag’, ‘consumer’, ‘local authority’, ‘partnership’, ‘plastic’, ‘plastic product’, ‘prohibited single-use product’, ‘single-use’.

### **Section 21 – Regulations**

61. This section explains how powers to make regulations under this Bill are to be exercised and sets out the applicable procedure to be followed in making those regulations.

### **Section 22 – Coming into Force**

62. This section sets out the provisions of the Bill that will come into effect on the day after the date of Royal Assent (sections 3, 4, 17, 21, 22, 23); and those that will come into force in accordance with a commencement order made by the Welsh Ministers (being the remainder).

## **Schedule**

63. The Schedule is introduced by section 2 and includes a table that sets out the prohibited single-use plastic products under the Bill. The prohibited single-use plastic products listed in column 1 of the table are as follows:
- Cups
  - Cutlery
  - Drink-stirrers
  - Lids for cups or takeaway food containers
  - Straws
  - Plates
  - Takeaway food containers
  - Balloon sticks
  - Carrier bags
  - Cotton buds
  - Any product made of oxo-degradable plastic
64. In the main, a product is listed in Column 1 irrespective of the type of plastic it is made from. The only exception to this principle is products made of oxo-degradable plastic. These products are prohibited on account

of the type of plastic they are made from rather than because of the product itself. Supply of oxo-degradable products is prohibited in all cases whether or not the product is also listed elsewhere in the table and might be subject to exemptions in that capacity. For example, supply of a single-use plastic carrier bag that is subject to an exemption would not in fact be exempted if the bag is made of oxo-degradable plastic.

65. Column 2 of the table provides for exemptions that apply in respect of a particular type of product or the purpose for which the product is supplied. For example, an exemption may apply to certain products supplied for medical use. Any person supplying the products in accordance with such exemptions will not be committing an offence under section 5.
66. Column 2 contains exemptions for any cup or takeaway food container that is not made from expanded or foamed extruded polystyrene. The Welsh Ministers have the power under section 3 to make regulations to amend this exemption in the future; for example, to prohibit cups or takeaway food containers made of other types of plastic. Similarly, there is an exemption for lids that are not made from polystyrene which may be amended by regulations.
67. In respect of other products there are exemptions relating to the purpose for which the product is supplied. For example, an exemption applies to supply of a single-use plastic straw to a person who requires it for health or disability reasons and a single-use plastic carrier bag may be provided for the purpose of carrying unpackaged meat products. The Schedule also provides for the definitions for the prohibited single-use plastic products listed in the table.

## **Section 23 – Short Title**

68. The short title of this Act is The Environmental Protection (Single-use Plastic Products) (Wales) Act 2023.



## Annex 2 Index of Standing Order requirements

Standing order		Section	pages/ paragraphs
26.6(i)	Statement the provisions of the Bill would be within the legislative competence of the Senedd	Member's declaration	p1
26.6(ii)	Set out the policy objectives of the Bill	Chapter 3 - Purpose and intended effect of the legislation	p5 - 13
26.6(iii)	Set out whether alternative ways of achieving the policy objectives were considered and, if so, why the approach taken in the Bill was adopted	Part 2 – Regulatory Impact Assessment	pp26-70 p97
26.6(iv)	<p>Set out the consultation, if any, which was undertaken on:</p> <ul style="list-style-type: none"> <li>(a) the policy objectives of the Bill and the ways of meeting them;</li> <li>(b) the detail of the Bill, and</li> <li>(c) a draft Bill, either in full or in part (and if in part, which parts)</li> </ul>	<p>Chapter 4 – Consultation</p> <p>Note: the initial consultation was for regulations.</p>	pp14-17

Standing order		Section	pages/ paragraphs
26.6(v)	Set out a summary of the outcome of that consultation, including how and why any draft Bill has been amended	Chapter 4 – Consultation	pp14-17
26.6(vi)	If the bill, or part of the Bill, was not previously published as a draft, state the reasons for that decision	Chapter 4 – Consultation  Note: the 2020 consultation was for regulations. The 2022 consultation was for the proposed Bill.	pp17 para 4.4.1
26.6(vii)	Summarise objectively what each of the provisions of the Bill is intended to do (to the extent that it requires explanation or comment) and give other information necessary to explain the effect of the Bill	Annex 1 – Explanatory Notes	pp118 - 127
26.6(viii)	Set out the best estimates of:  (a) the gross administrative, compliance and other costs to which the provisions of the Bill would give rise;  (b) the administrative savings arising from the Bill;  (c) net administrative costs of the Bill's provisions;	Part 2 – Regulatory Impact Assessment	pp21 pp80 - 82

Standing order		Section	pages/ paragraphs
	<p>(d) the timescales over which such costs and savings would be expected to arise; and</p> <p>(e) on whom the costs would fall</p>		
26.6(ix)	Any environmental and social benefits and dis-benefits arising from the Bill that cannot be quantified financially	Part 2 – Regulatory Impact Assessment	p22 p80 pp82 - 87
26.6(x)	<p>Where the Bill contains any provision conferring power to make subordinate legislation, set out, in relation to each such provision:</p> <p>(a) the person upon whom, or the body upon which, the power is conferred and the form in which the power is to be exercised;</p> <p>(b) why it is considered appropriate to delegate the power; and</p>	Chapter 5 - Power to make subordinate legislation	pp18 - 19

Standing order		Section	pages/ paragraphs
	(c) the Senedd procedure (if any) to which the subordinate legislation made or to be made in the exercise of the power is to be subject, and why it was considered appropriate to make it subject to that procedure (and not to make it subject to any other procedure);		
26.6(xi)	Where the Bill contains any provision charging expenditure on the Welsh Consolidated Fund, incorporate a report of the Auditor General setting out his or her views on whether the charge is appropriate	The requirement of Standing Order 26.6(xi) does not apply to this Bill	
26.6(xii)	Set out the potential impact (if any) on the justice system in England and Wales of the provisions of the Bill (a “justice impact assessment”), in accordance with section 110A of the Act.	Part 2 – Regulatory Impact Assessment	p116 Subsection 12.9
26.6B	Where provisions of the Bill are derived from existing primary		

Standing order		Section	pages/ paragraphs
	legislation, whether for the purposes of amendment or consolidation, the Explanatory Memorandum must be accompanied by a table of derivations that explain clearly how the Bill relates to the existing legal framework.	The requirement in Standing Order 26.6B for a Table of Derivations is not applicable to this Bill as the Bill is a standalone piece of legislation and does not derive from existing primary legislation for the purposes of amendment or consolidation.	
26.6C	Where the Bill proposes to significantly amend existing primary legislation, the Explanatory Memorandum must be accompanied by a schedule setting out the wording of existing legislation amended by the Bill, and setting out clearly how that wording is amended by the Bill.	The requirement is Standing Order 26.6C for a Schedule of Amendments is not applicable to this Bill as the Bill does not propose to significantly amend existing primary legislation.	