



EXPERT PANEL ON ENVIRONMENTAL CHARGING AND OTHER MEASURES	19 June 2018
PAPER TITLE	Terms of Reference
ACTION REQUIRED	Members are asked to: <ul style="list-style-type: none">• Review and agree the draft Terms of Reference for the Panel• Discuss and agree whether the agendas and minutes of Panel meetings should be published
PAPER OWNER	Scottish Government Secretariat

EXPERT PANEL ON ENVIRONMENTAL CHARGING AND OTHER MEASURES

TERMS OF REFERENCE

Purpose

In the 2017 Programme for Government the First Minister announced her intention to take the circular economy to the next level by introducing a Deposit Return Scheme in Scotland and appointing an Expert Panel to provide advice on how Scotland can go further in its efforts to end the throw away culture.

In May 2018, the Cabinet Secretary for the Environment, Climate Change and Land Reform announced the membership of the group and indicated that it would consider the issues around plastic pollution, including a focus on disposable cups and plastic straws.

Membership

Dame Sue Bruce (Chair)	Electoral Commissioner
Professor Dame Theresa Marteau	Behavioural expert
Professor Liam Delaney	Economy expert
Professor Margret Bates	Waste expert
Professor Kate Sang	Disability expert
Professor Aileen McHarg	Legal expert
Mike Barry	Director of sustainable business at Marks and Spencer
Roger Kilburn	Biotech and chemical industry
Gemma Stenhouse	2050 Climate Group

Accountability

The Panel will prepare advice and recommendations for Scottish Ministers, particularly the Cabinet Secretary for the Environment, Climate Change and Land Reform.

The Panel may request additional information and advice from the Advisers to the Panel who will attend meetings, as well as seeking input from other experts to inform the work of the Panel as required.

The panel may choose to publish all or parts of papers that it has considered as part of its work, subject to considering the confidentiality of any information contained therein. Any material that the panel has not agreed to publish or not yet considered for publication should be held in confidence. Any announcements or recommendations which the Panel wish to make should be discussed and agreed in advance with Scottish Government.

Advisers

Terry A'Hearn
Iain Gulland
Don McGillivray

Chief Executive of SEPA
Chief Executive of Zero Waste Scotland
Head of Environmental Quality & Circular
Economy, Scottish Government

Logistics

The lifespan of the Panel is initially set for two years. The Panel is expected to meet three to four times per year, with additional discussion or meetings (for example to visit specific sites or businesses) as required. The panel is at the heart of the strategic, evidence based approach which the Scottish Government wishes to take to these issues and its work will be supported by a civil service secretariat. In addition to the expertise on the Panel members will be able to draw on technical specialists from Zero Waste Scotland and SEPA. A research budget is available to address evidence gaps the Panel identifies. Where it would be helpful to visit facilities, this can be arranged through the secretariat.

SG Secretariat

June 2018



EXPERT PANEL ON ENVIRONMENTAL CHARGING AND OTHER MEASURES	19 June 2018
PAPER TITLE	Waste and Circular Economy: Potential Priorities
ACTION REQUIRED	Members are asked to: <ul style="list-style-type: none">• Consider the policy position and areas of concern• Discuss and agree priority areas for Panel consideration
PAPER OWNER	Scottish Government Secretariat

Waste and Circular Economy Potential Priorities

Purpose

1. This paper outlines some of the key policy developments and work ongoing in this area, as well as setting out some of the key strategic challenges facing the circular economy. It is not intended to be a comprehensive outline, but rather gives an overview of Scottish Government policy.

The Economy

2. The Scottish Government is focused on the delivery of “sustainable and inclusive economic growth”. Our economic strategy recognises the importance of our natural environment in underpinning the economy’s ability to grow.

3. Communities across Scotland benefit from the goods and services that our natural environment provides, including food, renewable energy, water purification, flood mitigation and places for recreation, education and inspiration.

4. Protecting and enhancing this stock of natural capital, which includes our air, land, water, soil and biodiversity and geological resources is fundamental to a healthy and resilient economy. It also supports sectors such as agriculture, forestry, fisheries, tourism and renewables.

5. Sustainable economic growth also rests on a requirement to make the transition to a more resource efficient, lower carbon economy. Our ambitions in this area are underpinned by a number of key targets which we will use to monitor progress.

- Reduce emissions of greenhouse gases by 80% from 1990 levels by 2050 (parliament is currently legislating to raise this to 90%)
- Reduce total waste arising by 15% against 2011 levels by 2025 (currently c10%)
- Reduce food waste by 33% against 2013 levels by 2025
- Recycle 70% of remaining waste by 2025
- Landfill no more than 5% of remaining waste by 2025
- Match the EU ambition for all plastic packaging to be economically recyclable or reusable by 2030

6. These are challenging targets. They require a fundamental transition of all sectors of the economy and are at the heart of our long-term strategy for economic growth: reducing the cost to the Scottish economy of climate change, while maximising opportunities to export our technology innovations and knowledge as other economies make their own low carbon transition. Key to this transition is ensuring that we manage our natural resources and secondary materials sustainably.

7. Through Resource Efficient Scotland (A programme run by Zero Waste Scotland), we are supporting businesses, third sector and public sector organisations to boost productivity by using energy, materials and water more efficiently.

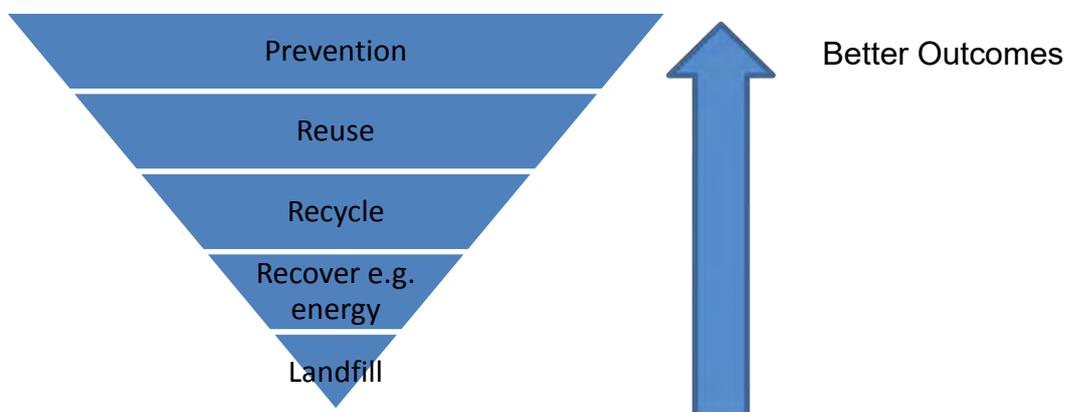
8. With our partners, such as Zero Waste Scotland, SEPA and the Enterprise Agencies, we are creating conditions for a more circular economy that helps companies embrace new business models and manufacturing processes, and which transforms used products into assets that support industries like remanufacturing, reuse, product disassembly and reprocessing. There are huge opportunities in these emerging sectors for Scotland but they will only be realised if the underpinning policy infrastructure is supportive and in particular if we deliver stable long term supplies of inputs to underpin investment.

9. Remanufacturing can transform how parts and products are produced. In doing so, it helps industries minimise their use of raw materials, while reducing energy and water use. Sectors as diverse as aerospace, energy, automotive, IT and medical equipment industries are already benefiting from this transformation. We are helping to stimulate remanufacturing networks and supply chains by funding the Scottish Institute of Remanufacture – one of only four international centres of excellence for remanufacturing, joining others in Singapore, New York and Beijing.

Making Things Last

10. In 2016, the Scottish Government published its Circular Economy Strategy: Making things Last that which set out priorities for moving towards a more circular economy – where products and materials are kept in high value use for as long as possible. It built on Scotland’s progress in the zero waste and resource efficiency agendas and also aimed to stimulate debate on a more comprehensive approach to producer responsibility, where products are designed for longer lifetimes, with their component parts able to be reused and ultimately recycled.

11. At the heart of our approach to the use of materials in Scotland is the waste hierarchy. This sets a priority order for managing materials, ranked in descending order of preference, based on the best environmental outcome across the lifecycle of the material.



12. In line with the waste hierarchy our ambition for waste prevention and using resources more efficiently is fundamental to achieving a more circular economy. The strategy identified four initial areas for prioritisation which we now want to build on. They are:

- **Food and drink, and the broader bio-economy:** food waste is a significant source of carbon emissions; and a more circular approach to the beer, whisky and fish sectors, for example, could lead to potential savings of half a billion pounds per year;
- **Remanufacture:** remanufacture is already contributing £1.1 billion per year to Scotland's economy with potential to grow by a further £620 million by 2020;
- **Construction and the built environment:** construction accounts for about 50% of all waste in Scotland and is a major influence on efficient use of resources;
- **Energy infrastructure:** there are considerable opportunities such as the reuse of equipment from wind turbines and decommissioned oil and gas platforms.

13. In the 2017 Programme for Government (PfG) the First Minister announced her intention to take the circular economy to the next level by introducing a Deposit Return Scheme in Scotland and appointing this expert panel to provide advice on how we can go further in our efforts to end the throw away culture.

Other Developments

14. Since these announcements were made public interest and appetite for action has increased markedly as awareness of the damage that inappropriate use and disposal of materials can have on the environment has become more widespread. In particular "The Blue Planet II" has highlighted the impact of careless disposal of material on the marine environment. Table 1 below shows the prevalence of common products and materials on Scottish beaches.

Table 1: Prevalence of common products and materials in beach clean-ups

Item	Number per 100m
Wet wipes	64.7
Small pieces of plastic / polystyrene	52.8
Glass	51.1
Large pieces of plastic / polystyrene	33.3
Cotton bud sticks	29.4
Packets, crisps, sweets, sandwiches	26.1
String	25.3
Plastic fragments	18.7
Plastic caps / lids	15.5
Cigarette stubs	14.7

15. Approximately 80% of marine litter originates on land and as well as representing a nuisance and hazard to the environment it represents a significant leakage of material out of our economy taking what should be an asset and turning it into a liability.

16. Historically a large amount of recycling from the developed world has taken place in China. The Chinese Government's "National Sword Initiative" has in effect closed this off as a route for the recycling of mixed paper, card and mixed plastics following the introduction of very low contamination thresholds.

17. In 2016 China was the world's largest importer of waste paper and plastics, accepting 28.5 and 7.3 million tonnes respectively. This equates to around 20.4 kg per head of Chinese population for paper and 5.3 kg per capita for plastics.

18. The UK has historically been the second highest exporter of waste paper in the world to China (after the US) and the fourth highest exporter of waste plastic (after Japan, US and Germany). While export data from Scotland is poor we have no reason to suspect that our position is different from the UK position.

19. The legal requirements around waste treatment make the supply of recyclate inelastic. As a result changes in the demand for material (such as the China ban) have a significant impact on prices. In this case turning them negative for some historically profitable recycling streams.

20. These developments create both challenges and opportunities for our circular economy. The potential to significantly improve the value of the raw material by sorting and processing it is viewed as a key area for development - analysis carried out for SEPA suggests that the value obtained for "mixed" plastic bottles can be increased over fourfold if they are sorted into different plastic types.

21. The Scottish Government wants to take an evidence led approach to the consideration of its action on different products and materials. While policy around the environment is devolved there can be interactions with areas of policy which were reserved under the Scotland Act. A brief overview of the key legislation is set out as annex A. A timeline of key developments is set out in annex B.

Materials in Scope

22. The Cabinet Secretary has indicated that she expects the expert panel to carry out its work over a period of 2 years. During that time it is expected to have 6-8 meetings. The remit for the group set by the Cabinet Secretary includes two specific products as starting points - plastic straws and disposable coffee cups. There is scope to select approximately a further 4 materials / products to focus on. Some initial materials are highlighted below.

Tyres

What's the Problem?

23. Tyres were banned from landfill in 2004 by the EU Landfill Directive. At the current time the main legal treatment of end of life tyres in Scotland is by burning them to recover energy in a cement kiln. This treatment option is near the bottom of the waste hierarchy and results in the loss of the raw material. Until recently, the Waste Management Licensing (Scotland) Regulations 2011 allowed operators to register an exemption to store up to 1,000 waste tyres (just under 10 tonnes) on a site at any one time.

24. In addition there are significant volumes of illegally dumped tyres around Scotland. These represent a significant hazard. The Scottish Government spent £400,000 clearing just one such site after it went on fire.

What's the opportunity?

24. Taking used tyres from garages etc is a lucrative business, however there are currently few outlets for end of life tyres. Modern car tyres contain significant amounts of potentially valuable materials and there are opportunities both to recycle this material at end of life and also to remanufacture the tyre.

Black Plastic

What's the Problem?

25. Black plastic (commonly PET) trays are a common outlet for recycled PET (rPET) made from mixed colour recyclables – it is dyed black due to the mix of colours that go into it. However, optical sorting systems in recycling plants cannot 'see' black plastic and it is commonly directed to incineration or other disposal even though it is technically recyclable.

26. Due to the nature of the products, this material is also often contaminated with food remnants, particularly with microwaveable ready meals.

What's the opportunity?

27. If it can be captured and cleaned, this material is readily recyclable, potentially for food grade uses. It therefore offers a high value resource stream.

Batteries

What's the Problem?

28. Batteries are required to be collected and treated under the Waste Batteries and Accumulators Regulations, however the treatment can be as simple as separating them into separate chemistries. Furthermore, companies often stockpile

batteries against future years' compliance requirements, meaning other obligated companies may struggle to meet target.

29. A wide range of battery chemistries exist. Where value can be extracted, for instance from nickel-cadmium or lithium ion batteries, the batteries are sent abroad for recycling. Other batteries, for instance alkaline batteries, have limited value. In the case of alkaline batteries, reprocessors may remove the outer shell for some resale value but are left with the central 'black mass' that currently has no authorised uses.

What's the opportunity?

30. Material that is either being stockpiled or exported represent a lost value for the Scottish economy – some of these materials are quite valuable, however no domestic recycling services exist for most of them. Other chemistry types have low value, leading to large stockpiles of material with no outlet.

Electrical Items

What's the Problem?

31. Waste electrical and electronic equipment (WEEE) often contain very valuable materials (precious and other metal, rare earths). Producers are required to fund collection of items, either through direct takeback on a like for like basis or through supporting a Designated Collection Facility (DCF). While this systems works well for larger WEEE (white goods etc) and business to business transactions, smaller WEEE items are often lost to landfill if a DCF is not readily accessible.

32. There is also an issue of built in redundancy or rapid replacement of items. Particularly with mobile devices, there is a rapid upgrade cycle which means some fully functional devices are being disposed of after less than a year of use. Devices are also not often designed for reparability or upgrade, due to customer demands for them being as slim line as possible.

What's the opportunity?

33. Repair, reuse and remanufacture of items happens to a certain extent, however it is not supported by current WEEE regulations or market conditions. A more mature reuse industry offers an economic opportunity.

34. Where items are being disposed of, a more effective collection system would allow valuable and increasingly scarce materials to be captured and recycled.#

Clothing and Textiles

What's the Problem?

35. This is a significant stream of materials. While there is a strong reuse market available for clothes in particular, rapid cycling of fashions, poor manufacture and wear can all lead to items being disposed of to landfill or incineration. Other materials may be too soiled or damaged for reuse. Natural fibres can be water intensive to make, particularly cotton, and manmade fibres are often derived from the petrochemical industry. There is also an issue with clothes being bought but not worn, leading to a loss of resources for the customer and in terms of material.

36. Separately, some man made fabrics have been identified as being a source of plastic fibres in the marine environment, coming out of garments during washing.

What's the opportunity?

37. Clothes and other textiles designed to last will offer more value for the people buying them or support the second hand clothing sector. When fabrics do wear out, recycling of the material will ensure that the resources are not lost.

Mattresses

What's the problem?

38. These are made from a combination of textiles and metals and are low value on disposal (particularly the textile element) and are often hard to disassemble for recycling.

39. Furthermore, they can be a frequently flytipped material and bulky in landfill.

What's the opportunity?

40. Mattresses designed for remanufacturing at end of life or ease of recycling could be beneficial for the economy.

Carpets

What's the problem?

41. Carpets are bulky items that are often combinant materials, including both organic and manmade fibres. These are hard to recycle, and due to the nature of use are heavily soiled and therefore not readily reused.

What's the opportunity?

42. Harder wearing carpets or one easily recycled or repaired could be valuable to the economy.

PET(Fizzy drink bottles) / HDPE (milk bottles)

What's the Problem?

43. While there is already a significant amount of this material collected for recycling it is generally mixed and suffers from contamination from other materials. The prices of mixed material are volatile and to date no major plant has been established in Scotland to treat this material.

What's the opportunity?

44. The introduction of a Deposit Return Scheme has the potential to transform the attractiveness of Scotland as a site for the reprocessing of PET / HDPE depending on the scope of the final scheme.

45. Integrated sites such as Binn farm have the potential to harvest maximum value from loads of mixed plastics by a mix of recycling, reprocessing and energy recovery.

Plasterboard

What's the Problem?

46. This is a problem material with high levels of use, illegal handling can lead to toxic by-products, and lack of provision of routes for disposal or reuse. Those routes that are available are low value and high odour.

What's the opportunity?

47. Limited – this is a highly used but low value material. There could be more value achieved from recycling it, however the primary issue is that it can be toxic when disposed of and the opportunity therefore exists in avoiding issues.

Zero Waste Policy

June 2018

Annex A. Legislation and powers

1. The current legislative framework around waste and the circular economy is diffuse and wide ranging. Significant pieces of legislation predate devolution in the shape of the Environmental Protection Act 1990 and the 1995 Environment Act.
2. The Scotland Act 1998 adopted the principle that power was devolved unless it was specifically reserved. As such environmental policy as it relates to waste and the circular economy is broadly devolved and within the legislative competence of the Scottish Parliament.
3. It is important to note that while environmental policy itself is devolved, implementing environmental policy can involve acting on or crossing over with reserved matters which are outwith the power of the Scottish Parliament and Scottish Ministers to legislate on. There are therefore potential interactions in the work of the group with areas which are reserved. Key amongst those are:
 - Taxation (except where explicitly devolved)
 - Product labelling
 - Technical standards in relation to products in pursuance of EU law
4. The expert group has the ability to recommend action across both devolved and reserved issues. However, it should be emphasised that the Scottish Government has much more direct powers to act in devolved areas and that action in reserved areas would be subject to securing the agreement of the UK Government.
5. It should also be stressed that legislation is only one route to influencing behaviour and outcomes and there are many areas of the group's work where non-legislative approaches could be considered.

Annex B. Timeline of key developments from September 2017

September

Scottish Government announced, in the Programme for Government, intention to rollout out a Deposit Return Scheme and form this panel.

November

- Blue Planet II episode showing the impact of plastics in oceans is aired. Media and public interest increases dramatically

December

- Legislation to ban microbead plastics is laid in Scottish Parliament.

January

- Scottish Government announces intention to ban on plastic-stemmed cotton buds. Public consultation due to close on 22 June
- EU plastics strategy is launched. This aims to:
 - Build a plastics industry where design is closely linked to the reuse and recyclability.
 - Create jobs through European investment to reduce our reliance on imported fossil fuels.
 - Facilitate more sustainable and safer consumption of plastics
- Scottish Government agrees with EU strategy to set target for all plastics to be recyclable by 2030
 - UK environment strategy is launched with ambition to “eradicate all avoidable plastic waste in the UK by 2042”
- Scottish Parliament debate ‘Stemming the plastic tide’ shows cross-party support for action on tackling plastic waste and ‘marine plastics’

March

- UK Government announce plans to rollout Deposit Return Scheme, outlining a consultation later in 2018. They also publish consultation on ‘A call for evidence on using the tax system or charges to address single-use plastic waste’ (closed in May 2018).

April

- WRAP launches UK Plastics Pact. This calls on industry to take steps, focusing on:
 - Designing out unnecessary packaging and designing for reuse and recyclability
 - Making more plastics from recycled content
 - Scottish Government is a founder signatory

May

- DEFRA confirm plans to reform Packaging Recovery Note system that is used for Packaging Extended Producer Responsibility
- Expert Panel membership is announced
- May 2018 Zero Waste Scotland host a Deposit Return Summit at Heriot Watt University, attended by the Cabinet Secretary, to hear perspectives on a Deposit Return Scheme for Scotland, the culmination of a programme of engagement with retailers, producers, councils and community groups ahead of the planned public consultation exercise

June

- Cabinet Secretary hosts a summit in Oban: Reducing plastic waste and marine litter: industry and community perspectives

EPECOM Paper 2.1 Single-Use Plastics

Purpose

1. This paper outlines the current landscape of policy initiatives related to the use and disposal of single-use plastics and outlines some of the opportunities for Scotland to take action to address this topic.

2. This paper has been prepared following the discussion at Expert Panel meeting 1 (June 2018), where the panel requested information to help with prioritisation and development of a work programme.

The scale of the issue

3. Plastic plays an important role in our daily lives and over the last 60-70 years has transformed the clothing, transport, food and consumer goods industries. However, nearly all the plastic ever created still exists in some form today and there is now clear evidence that overuse and general mismanagement is causing irreparable damage to our ecosystems.

4. The problem of global marine plastic pollution grows every year. At the same time, valuable material that could be brought back into the economy is being lost and the benefits of a more resource-efficient and circular approach are not realised. We need an economy where plastic materials or products never become waste or enter the ocean. We need a system that challenges when and how we use plastic and where we do, ensures it is reused and recycled at the end of life.

Policy Landscape

5. There is a lot of work being taken forward at European, UK and Scottish levels to tackle single use plastics in the context of marine pollution and developing a circular economy. Scotland aims to be at the forefront, able to influence international policy and take concrete action at home.

6. In Scotland, a ban on plastic microbeads¹ is in force and a Scottish Government consultation on banning plastic-stemmed cotton buds² has led to draft Regulations banning their manufacture and sale being published for comment. Furthermore, the Cabinet Secretary announcement her intention to tackle throwaway culture, and this includes receiving recommendations from this panel around plastic straws and disposable coffee cups. Work on a Deposit Return Scheme, which is likely to include plastic bottles, is underway with the public consultation on options for the Scheme due to close on 25 September.

7. In May 2018, the European Commission published a proposal for a directive on “the reduction of the impact of certain plastic products on the environment”³. This directive proposes action on the 10 single-use plastics that account for approximately 70% of marine litter items found on European beaches. The 10

¹ <https://www.gov.scot/Topics/marine/marine-environment/litter/Microplastics>

² <https://www.gov.scot/Publications/2018/07/1981/downloads>

³ https://ec.europa.eu/commission/news/single-use-plastics-2018-may-28_en

plastics are consistent with the Scottish data provided by Marine Conservation Society.

8. In its work, the Expert Panel will wish to take account of developments at UK level. The UK government has recently published the results of a consultation calling on the how changes to the tax system or charges could be used to tackle single-use plastics. They have committed to exploring the following in more depth, with announcements expected in the 2018 budget statement:

- using tax to shift demand towards recycled plastic inputs;
- using tax to encourage items to be designed in a way that is easier to recycle;
- taxes or charges on specific plastic items that are commonly used on-the-go and littered, in order to encourage a reduction in production and use; and
- using tax to ensure that the right incentives are in place to encourage greater recycling of waste that is currently incinerated.

9. There is a wide array of voluntary actions taking place on single-use plastics. Many companies have announced plans to stop providing plastics straws or making changes to the packaging formats to use less plastics. There is also community action with 'plastic-free' groups and events becoming more prevalent across Scotland.

A General Principles Approach

10. [redacted]

11. [redacted]

12. [redacted]

EU Draft Directive

13. The European Commission has gone part of the way towards this approach in their draft single-use plastics directive⁴ but has focussed on ten particular items rather than seeking to understand plastic products more generally. There may well be other products, existing and emerging, which could benefit from this thinking such as expanded polystyrene products, those made with laminated materials (not covered by the Packaging Regulations) and quick disposables such as coffee pods.

14. The European Commission has identified a number of possible interventions but not described the advantages or disadvantages of each, or the wider considerations to be taken into account. In working with the EU to develop this Directive, it is important for us to understand what would work best in a Scottish context.

15. The following sets of measures are proposed by the EU, corresponding to the characteristics of each single-use plastic item:

- **Plastic ban of certain products:** Where alternatives are readily available and affordable, single-use plastic products will be banned from the market. The ban will apply to plastic cotton buds, cutlery, plates, straws, drink stirrers and balloon sticks which will all have to be made exclusively from more sustainable materials instead. Single-use drinks containers made with plastic will only be allowed on the market if their caps and lids remain attached;
- **Consumption reduction targets:** Member States will have to reduce the use of plastic food containers and drinks cups. They can do so by setting national reduction targets, making alternative products available at the point of sale, or ensuring that single-use plastic products cannot be provided free of charge;
- **Obligations for producers:** Producers will help cover the costs of waste management and clean-up, as well as awareness raising measures for food containers, packets and wrappers (such as for crisps and sweets), drinks containers and cups, tobacco products with filters (such as cigarette butts), wet wipes, balloons, and lightweight plastic bags. The industry will also be given incentives to develop less polluting alternatives for these products;
- **Collection targets:** Member States will be obliged to collect 90% of single-use plastic drinks bottles by 2025, for example through deposit refund schemes;
- **Labelling Requirements:** Certain products will require a clear and standardised labelling which indicates how waste should be disposed, the negative environmental impact of the product, and the presence of plastics in the products. This will apply to sanitary towels, wet wipes and balloons;
- **Awareness-raising measures:** Member States will be obliged to raise consumers' awareness about the negative impact of littering of single-use

⁴ https://ec.europa.eu/commission/news/single-use-plastics-2018-may-28_en

plastics and fishing gear as well as about the available re-use systems and waste management options for all these products.

16. The EU Directive is expected to be adopted by the UK Government, as part of its commitment to adopt the Circular Economy Package, of which the Plastics Directive is a sub-set. The timeline for the EU Plastics Directive is not yet known but, if approved, the UK would have 2-years to bring in its own legislation relating to this.

17. **Table 1** shows the plastic categories from the EU proposal with the recommended measures against them.

Table 1

Single-use plastic items	Consumption reduction	Market restriction	Product design requirement	Marking requirements	Extended producer responsibility	Separate collection objective	Awareness raising measures
Food containers	X				X		X
Cups for beverages	X				X		X
Cotton bud sticks		X					
Cutlery, plates, stirrers, straws		X					
Sticks for balloons		X					
Balloons				X	X		X
Packets & wrappers					X		X
Beverage containers, their caps & lids			X		X		X
- Beverage bottles			X		X	X	X
Tobacco product filters					X		X
Sanitary items: - Wet wipes				X	X		X
- Sanitary towels				X			X
Lightweight plastic carrier bags					X		X
Fishing gear					X		X

18. Table 2 provides commentary on the options for Scottish action to be considered by the Expert Panel against the EU proposal.

Table 2

Single Use Plastic Category	EU proposal in directive	Commentary on options for Scotland
Cotton buds	Ban on single use cotton buds made with plastic, to be replaced on the market with sustainable alternatives.	No action necessary. Scotland has already introduced regulation to ban plastic-stemmed cotton buds.
Cutlery, plates, straws & stirrers	Ban on single use cutlery, plates, straws and stirrers made with plastics, to be replaced with more sustainable alternatives.	See separate paper.
Sticks for balloons and balloons	Plastic sticks for balloons to be banned and replaced with sustainable alternatives. On balloons, producers to contribute to awareness-raising, clean-up, collection, waste treatment and introduce new labelling on the environmental impact of the product and recycling options for consumers.	[redacted]
Food containers	Significant national consumption reduction of plastic food containers. Producers to contribute to awareness raising, clean-up, collection and waste treatment.	[redacted]

Cups for beverages	Significant national consumption reduction of plastic cups for beverages. Producers to contribute to awareness raising, clean-up, collection and waste treatment	See separate paper.
Beverage containers	Producers to contribute to awareness-raising, clean-up, collection and waste treatment of beverage containers; product design requirements to attach caps and lids to beverage containers; 90% separate collection target for plastic bottles.	The proposed scope of the Scottish Deposit Return Scheme includes 'beverage containers'. No further action is suggested.
Cigarette butts	Producers to contribute to awareness-raising, clean-up, collection and waste treatment of cigarette butts and other plastic tobacco product filters.	[redacted]
Bags	Producers to contribute to awareness-raising, clean-up, collection and waste treatment of lightweight plastic carrier bags, in addition to existing measures in the existing Plastic Bags Directive.	Scotland introduced a levy on plastic shopping bags in 2014. It is estimated that this has reduced the use of single-use carrier bags (paper, plastic and bio-based) by more than 80%.
Crisp packets/sweet wrappers	Producers to contribute to awareness-raising, clean-up, collection and waste treatment of plastic packets and wrappers.	[redacted]

⁵ <https://www.zerowastescotland.org.uk/sites/default/files/Scotland%27s%20Litter%20Problem%20-%20Full%20Final%20Report.pdf>

Wet wipes and sanitary items	New labelling requirements for sanitary towels and wet wipes to inform consumers on environmental impact of the product and how to dispose of it properly. Producers to contribute to awareness raising, clean-up, collection and waste treatment of wet wipes	[redacted]
Fishing gear	Producers of fishing gear containing plastics will be required to cover the costs of waste collection from port reception facilities and its transport and treatment. They will also cover the costs of awareness-raising measures.	[redacted]

[redacted]

19. **[redacted]**

20. **[redacted]**

21. **[redacted]**

[redacted]

EPECOM Paper 2.2 Straws, Cutlery & Plates – options for intervention

Purpose

1. This paper outlines the charging or other measures that could be applied to the product category of straws, cutlery and plates.

Background

2. The Cabinet Secretary for Environment, Climate Change and Land Reform outlined to Parliament on 8th March 2018 that the Expert Panel will advise on measures to tackle items such as disposable plastic straws, which would include a ban or other measures. As part of this, the panel will particularly need advice from its disability adviser and Zero Waste Scotland to establish robust data for the impact of plastic straw consumption and the implications of any intervention, as well as advice from Scottish Government legal advisers on action that could be taken within devolved competence.

3. This paper is supplementary to Item 2.1 on the agenda (Single-Use Plastics). The commitment to consider action on straws is now being considered alongside the wider EU definition for this product category, which includes cutlery and plates.

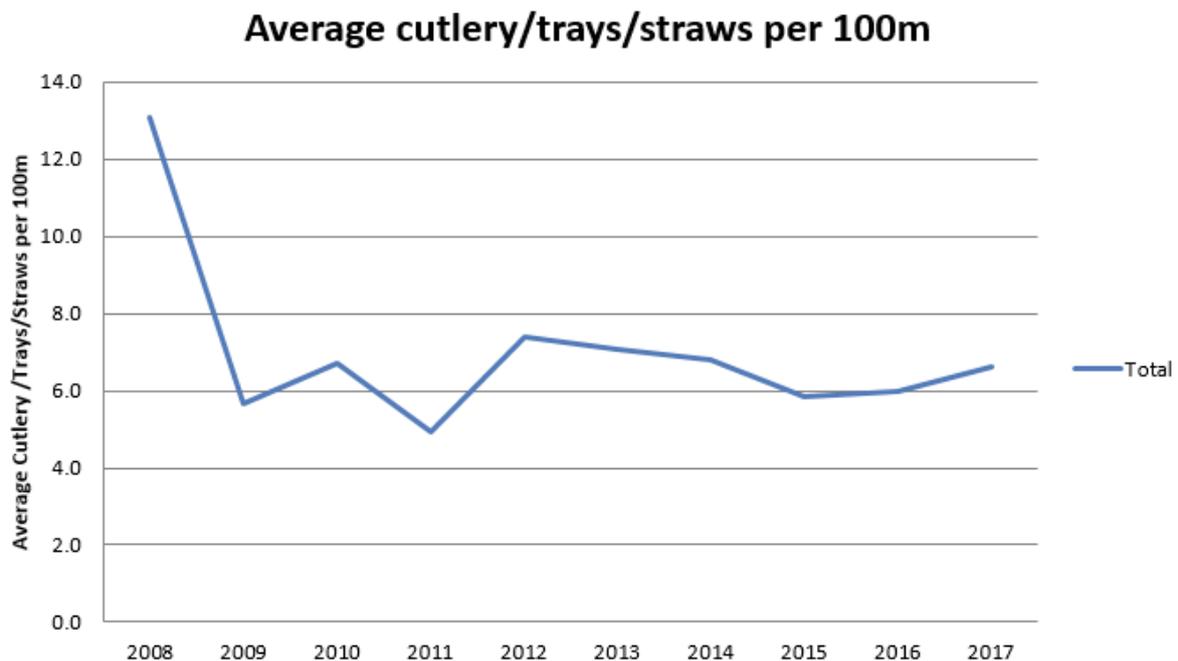
What do we know?

4. The European Commission has outlined in its proposed Directive on plastics that it will tackle the 10 most common plastic categories. This includes a category for straws, cutlery and plates.

5. The EC has recommended the following action for this plastics category: “A Ban on single use cutlery, plates, straws and stirrers made with plastics, to be replaced with more sustainable alternatives.”

6. Data from the Marine Conservation Society’s annual GB Beach Clean-up survey shows that in 2017 6.6 items of cutlery, straws and trays were observed every 100 metres in Scotland. Extrapolated to Scotland’s 16,500Km of coastline would take us to the conclusion that approximately 1 million such items are ending up on our beaches, albeit these won’t all be from Scotland. England had 20.6 and Wales 10.1 (per 100m) during the same survey period. This data over the period 2008-2017 is shown in **Figure 1**.

Figure 1



Marine Conservation Society via Marine Scotland (2018)

7. Waste composition analysis does not provide sufficient detail to understand the weight of straws, cutlery and plates ending up in the waste stream.

Estimated sales data

Straws

8. Overall straw sales in Scotland is estimated at **0.8 billion per year, or 150 straws per person per year**. This compares with a median average figure¹ for EU 28 of 72 straws per person per year. This figure is based on an incomplete dataset, with estimates severely limited by the lack of clarity of sales in the household and other markets. Zero Waste Scotland estimates the following for sectors where published information exists:

- In Scotland, the **Pubs, Restaurants and Hotels** segment is the single largest user of drinking straws with around **330 million** used each year (**42% of the market**).
- **Fast Food** outlets are the next biggest users mainly comprising 230 larger outlets, primarily McDonald's, Subway, Burger King & KFC where a single use cups/lids/straws model prevails. Cinemas, bowling alleys & larger leisure centres will, to a lesser degree, use the cup/lid/straw model (there are 70 outlets of this type in Scotland). The cup/lid/straw model is less common for other types of takeaway food e.g. Pizza, Indian, Chinese, Fish & Chips. Drinking straw use in this sector is estimated to be **175 million** straws per year which is **23% of the market**.
- The **Drinks Carton** segment comprises foil pouches and cartons that come with a small drinking straw attached to the package which typically contains 200 ml. The Soft Drinks Federation Association reports that in 2016, 1.6 billion

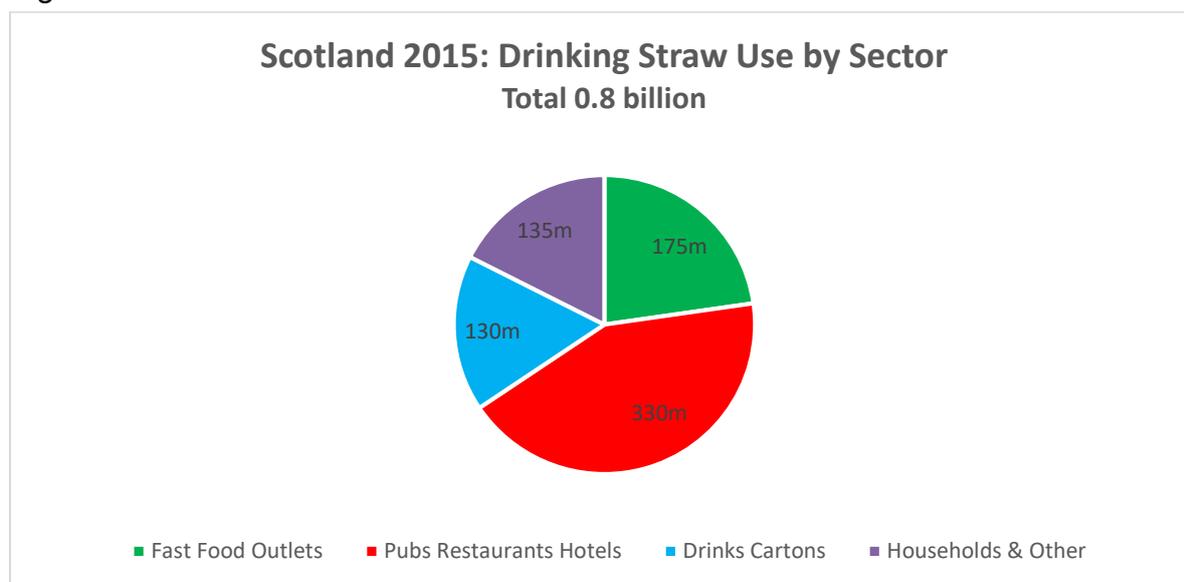
¹ <http://www.eunomia.co.uk/single-use-plastic-report-estimates-scale-of-eu-consumption/>

of these containers were sold in the UK. Proportionately, the Scottish market is estimated to be **130 million (17% of the market)**.

- Less is known about straw use in the **household and other markets** such as craft & hobby but use is estimated to be around **135 million** per year (**18% of the market**).
- **NHS Scotland** reports that it uses **3.8 million** drinking straws each year.

9. This information is summarised in **Figure 2**.

Figure 2



Cutlery & Plates

10. UK estimates² suggest that 16.5 billion plastic disposable cutlery items were sold in 2017, which would suggest that 1.36 billion items were consumed in Scotland. This equates to 250 items per person per year.

11. Plastic cutlery is a convenient option in quick-service catering as it is lightweight, easily distributed and does not require cleaning, thereby saving time. For these same reasons, plastic cutlery is also a popular option for home-delivery services, and catering at public events or private functions.

Alternatives to plastic

12. Plastic straws are typically made from polypropylene. Similarly, cutlery and plates are also commonly made from polypropylene. Polystyrene is also used very commonly for hot and cold food quick-service packaging. There are some alternatives to plastics for this product category. A summary of these is shown in **Table 1**.

Table 1

² https://www.wwf.org.uk/sites/default/files/2018-03/WWF_Plastics_Consumption_Report_Final.pdf

Material type	Product	Typical use	Notes
Paper	Straws, plates	Single-use	Paper straws and plates are heavier than plastic. Replacing plastics with paper, where the paper is not then recycled, will have a negative impact on carbon emissions comparatively. However, the impacts on marine pollution are likely to be reduced.
Metal	Straws, cutlery	Multi-use	Reusable and recyclable infinitely, although unlikely to be collected in many household systems. Requires cleaning, which limits the application in quick-service settings.
Glass	Straws	Multi-use	Reusable but probably not recyclable in household collections. The market is very small for these products.
Bamboo/Wood	Straws, cutlery, plates	Single-use, multi-use	Reusable and potentially compostable, in the right conditions, at the end of its life. Some companies are manufacturing from off-cuts from timber – creating new markets for this by-product. Significantly more expensive than plastic.
Compostable	Cutlery, plates	Single-use	Made from plant starch. Claims of compostability are still being tested with many typical composting and anaerobic digestion facilities not accepting these materials presently. Replacing plastics with compostable, where the compostable is not then recycled, will have a negative impact on carbon emissions comparatively.
Edible	Cutlery, plates	Single-use	Edible spoons have been made from natural ingredients, including wheat, rice, and sorghum. These items can safely be eaten after use, eliminating the need for disposal. If littered, these are likely to decompose although this is untested. The market is very small for these products.
Ceramic	Plates	Multi-use	Reusable and commonly used. Requires cleaning, which limits the application in quick-service settings.

Carbon & environmental impacts

13. Under 100% residual waste scenario, plastic straws are estimated to have lower lifecycle carbon impacts than paper straws owing to their lighter weight and lower landfill impacts (i.e. they don't produce methane gas). Under a 100%

recycle/compost scenario, the opposite is true. However, without significant change in how waste straws are handled, moving to paper straws would have a detrimental effect, albeit this would be negligible given the weight of straws involved. Also, it would be useful to talk to compost operators to see if paper straws cause any problems with their processing, given this would be the means of recycling in most instances.

14. The number of straws being incorrectly managed and therefore 'leaking' from our waste system could be low as a percentage of those that are sold. From the data from beach cleans as reported above this could be less than 1% of all straws sold. However, the impact these could be having on the marine environment and on animal-life is already considered unpalatable by many experts and the public, hence the recent interest and call to action.

15. The position for cutlery and plates is similar, in that a whole-scale move to non-plastics alternatives where these are being collected in residual waste collections, would be detrimental in terms of carbon emissions. Likewise, the scale of the 'leakage' issue is very small as a percentage of the cutlery and plates sold.

16. In the UK, it is reported that that single-use cutlery is only used for 3 minutes on average, before it is discarded³.

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20. The major fast food chains rely on the cup/lid/plastic straw model (i.e. polypropylene provides a more rigid and less absorptive straw than a paper alternative). The lid provides rigidity to the cup and combined with the straw allows it to be used on-the-go.

³ <https://www.theguardian.com/lifeandstyle/wordofmouth/2013/nov/11/byo-cutlery-carry-own-knife-fork-chopsticks>

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39. Since the broadcasting of BBC Blue Planet II in 2017, there has been a drastic increase in the number of companies announcing voluntary approaches to address single-use plastics. Some of these have addressed overall consumption (e.g. Weatherspoon's removing straws unless requested) and some have focussed on switching to alternatives (e.g. Iceland moving to paper-based packaging).

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Equalities impacts

47. An equality impact assessment of the options for intervention will be required should the Scottish government take forward action. Further study and engagement with impacted groups will be necessary, however at this stage the following groups are identified for consideration by the Expert Panel.

⁴[redacted]

Physical, mental or learning disability

48. Many people rely on straws to drink due to physical, mental or learning disability that makes drinking without a straw more challenging.

49. Reusable or material alternatives are not always suitable due to hygiene or other practical issues.

50. A campaign by One in Five⁵ has asked for a ban on plastic straws to be re-considered⁶.

Age

51. As with disability, it is possible that older and very young people require straws as the only means of drinking.

Religion

52. It is unknown at this stage, but there could be some religious beliefs that make the use of alternatives to single-use plastic straws, cutlery and plates impractical.

53. Less is known at this stage about the impacts from a ban on cutlery and plates, although it is likely to impact on people in prisons where alternative reusable (typically metal) cutlery may not be favourable.

Business impacts

54. A Business & Regulatory Impact assessment of the options for intervention will be required should the Scottish government take forward action. **[redacted]**

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58. **[redacted]**

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Zero Waste Scotland

September 2018

⁵ One in Five is a campaign to encourage, empower and increase political participation amongst disabled people in Scotland.

⁶ <https://www.bbc.co.uk/news/uk-scotland-43076495>

EPECOM Paper 2.3 Single-Use Coffee Cups

Purpose

1. This paper outlines the current landscape of policy initiatives related to the use and disposal of single-use coffee cups and outlines the charging or other measures that could be applied to this product category.

Background

2. Each year in the UK an estimated 2.5 billion disposable coffee cups (DCCs) enter the waste stream. Based on its portion of the population, this amounts to approximately 200 million DCCs in Scotland each year, and 4kt of DCC waste. Only 1 in 400 DCCs consumed in the UK are believed to be recycled, though this figure is probably lower in Scotland for reasons describe below. This is due both to the physical characteristics of the DCC, and the 'on-the-go' nature of its use.

3. The standard DCC is comprised of a plastic lid, a cardboard sleeve (which may be built into the cup itself), and a cup typically made of hard paper and a tightly bonded waterproof plastic lining. While lids and separable sleeves can be readily recycled, the cup itself, which comprises ~60-80% of the product weight, requires a specialised recycling plant to separate the plastic lining from the fibre. Only three such plants exist in the UK, and none are located in Scotland. The low economic value of DCC recyclate (essentially paper pulp), combined with the significant shortage in UK treatment capacity, means it is not economically viable to ship any significant volume of Scottish cups to existing UK recycling plants. At the same time, the diffuse nature of Scottish DCC waste arisings adds to the challenges with collecting these for recycling.

4. Beyond the technical recycling challenges, DCCs are also consumed and disposed of 'on-the-go'. To effectively capture them for recycling, consumers must have reasonable access to, and be inclined to use, suitable recycling facilities at the point their DCCs are ready for disposal. This is both an infrastructural and behavioural challenge. While the coffee retail sector is focused on expanding in-store recycling infrastructure, the fact is that DCCs are designed to be consumed and disposed of off-site. Providing comprehensive on-street recycle bins is expensive and impractical, as they are subject to high degrees of contamination which can render their contents effectively unrecyclable.

5. Following the wider trend in single-use packaging, coffee retailers are increasingly turning to so-called 'biodegradable' DCCs as an alternative to the convention plastic lined paper cup. While in principle, these are more easily recycled using existing infrastructure, in practice this is not the case. There are two overarching problems with biodegradable DCCs, and biodegradable packaging in general. First, there is an enormous amount of confusion about these products on the part of both businesses and consumers who generally assume 'biodegradable is better', while failing to realise they require a specific disposal pathway (composting) to be properly treated. Second, the existing waste system is not designed to collect and manage the compostable packaging which is flooding the waste system. As a result, nearly all biodegradable packaging is destined for landfill where it produces methane gas, a greenhouse gas 25 times more potent than carbon dioxide.

6. From an environmental perspective, reducing use of DCCs through use of reusable cups is far superior to recycling or a shift to biodegradable alternatives, provided the reusable cup is used enough times. Increasing reusable cup use is primarily a behaviour change challenge, requiring innovative incentive and system design.

Policy Landscape

7. The Scottish Government has identified DCCs and a problematic single-use product of interest. In June 2018, it removed all DCCs from its estate catering services - a move which garnered international attention. Meanwhile, inclusion of DCCs within Scotland's forthcoming deposit return system is currently being considered as a means of increasing the DCC recycle rate. The inclusion of DCCs within a Deposit Return Scheme would be a world first for such a system.

8. Until recently, all major coffee retailers in the UK offered customers a 25p discount (or equivalent) on drinks when they use a reusable cup. There is growing body of evidence however, which shows such discounts are ineffective at increasing reuse¹. Based on available industry data, the reusable cup rate among major high street coffee chains offering such discounts is between 1-2%². Meanwhile, a growing number of studies have shown DCC charges, similar in nature to the Scottish Carrier Bag Charge, are far more effective than discounts at driving reusable cup usage, due to what is known as 'loss aversion theory'³.

9. The UK Government has not yet announced any firm plans for a DCC charge however, it did respond to the Environmental Audit Committee report⁴ earlier this year, indicating its preference for a voluntary approach. However, public and media interest in the topic remains high. Therefore, it is unclear at this stage whether the much-publicised 25p 'Latte levy' will be taken forward.

10. The EU position on 'beverage containers' is for "significant national consumption reduction of plastic cups for beverages. Producers to contribute to awareness-raising, clean-up, collection and waste treatment."

Emerging evidence

11. Zero Waste Scotland has undertaken two field trials to further develop evidence on the impact of DCC charges. These projects are summarised in **Table 1**.

Table 1

Project	Description	Status
NHS Scotland Trial	In partnership with the NHS, a 10p cost-neutral charge on DCCs has been implemented at Crosshouse	In progress – likely to have evidence available in November 2018

¹ [Poortinga, 2017](#); [Hubbub Foundation, 2018](#); Middlemass, 2018.

² [UK Parliament, 2018](#).

³ Loss aversions refers to the preference of people to avoid a loss over making an equivalent gain.

⁴ <https://publications.parliament.uk/pa/cm201719/cmselect/cmenvaud/867/867.pdf>

	<p>Hospital, Ayrshire. Paper DCCs and polystyrene soup cups have been replaced with 100% recyclable polypropylene DCCs. Meanwhile, the hospitals 5000 staff members have been provided with reusable and 100% recyclable PP cups which they can use to avoid the charge and obtain a stamp towards a free 10th drink. The purpose of this study is to determine the impact of these measures on reuse and recycle rates.</p>	
<p>Cup Charge Trial</p>	<p>Cost neutral DCC charges were put in place of existing reusable cup discounts at four public sector catering locations over a five-week period. Baseline sales and reuse data from the five weeks before the trial, as well as the five weeks corresponding with the trial in the previous year were compared against trial data. The study found both 5p and 10p charges significantly increased reuse rates without impacting drink sales.</p>	<p>Completed - results described in Middlemass (2018)</p>

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Zero Waste Scotland

September 2018

EPECOM Paper 2.4 A forward plan for action by the Expert Panel

Purpose

1. This paper outlines the wider opportunity for the expert panel to consider environmental charges and other measures for a range of products and materials.
2. This paper has been prepared following the discussion at Expert Panel meeting 1 (June), where the panel requested information to help with prioritisation and development of a work programme.

Background

3. The OECD (Organisation of Economic Cooperation and Development) define Extended Producer Responsibility (or EPR) as “an environmental policy approach in which a producer’s responsibility for a product is extended to the post-consumer stage of a product’s life cycle”, with the EU stating “In practice, EPR implies that producers take over the responsibility for collecting or taking back used goods and for sorting and treating for their eventual recycling or disposal.

4. Producer responsibility schemes can be designed to achieve a number of different goals. Some focus on waste management, and ensuring producers pay for the full costs of this. Others seek to drive product improvements so that items last longer, produce less waste, or are more sustainable in other ways. These goals are not mutually exclusive. Although the focus here is on waste and resource management benefits for a circular economy, producer responsibility can also achieve other environmental aims where appropriate.

5. The Expert Panel was established to consider environmental charges and other measures. A broad set of options exist for the Expert Panel to consider, with a toolbox including:

- Charges include: tax; levy; tradable permit; deposit return; advance recycling fee; bonus malus¹;
- Other measures include: bans; restrictions; product standards; product labelling requirements; takeback requirements

6. Making Things Last, Scotland’s Circular Economy strategy published in 2016 outlined an ambition to explore a new approach to Producer Responsibility, through a single framework for all product types that drives choices for reuse, repair and remanufacture, while more fully exposing and addressing the costs of recycling and disposal. The strategy highlighted priority products to be considered as tyres, furniture and mattresses. The strategy also outlined the intention to convene an international group of experts on producer responsibility to develop and model such a framework for debate and discussion.

7. These priority products resulted from a short-life working group that considered action on producer responsibility in 2015/16. The working group consisted of Scottish Government, SEPA and Zero Waste Scotland officers and was based on criteria that considered:

¹ The term **bonus-malus** ([Latin](#) for good-bad) is used for a number of business arrangements which alternately reward (bonus) or penalize (malus).

- Aim of producer responsibility regulation
- Current costs
- Product characteristics
- Extent of current regulation/legislation/best practice
- Potential approaches to producer responsibility for this product
- Potential benefits of improving producer responsibility
- Potential downsides of the proposed producer responsibility solution

8. The 2016 summary report from the short-life working group is provided in **Appendix A**.

9. The products that were considered in 2015/16 were: Tyres; Plasterboard; Furniture; Carpets; Mattresses; Clothing; Lightbulbs; Small WEEE; Large WEEE; Packaging; Junk Mail; Nappies and Healthcare waste; and Agricultural Plastics

10. At their first meeting, the secretariat presented to the Expert Panel 'materials in scope' for consideration. Discussion at that meeting suggested further analysis was required to give advice on the products that the Expert Panel should consider during its work. The products/materials that were presented were: Tyres; Black Plastics; Batteries; Electrical Items; Clothing and Textiles; Mattresses; Carpets; PET / HDPE; and Plasterboard

11. Feedback from the first meeting of the Expert Panel suggested a broader range of selection criteria should be used to test which products/materials could be prioritised. Although not discussed specifically, these selection criteria were identified as:

- Environmental impact.
- Economic impact – potential savings to the economy as well as opportunity for jobs and investment.
- Deliverability – how hard could such measures be? Is there an alternative material/product? Is there a technology which could fix the problem? Are stakeholders willing? Is there a model to copy?
- Public acceptability – would there be public support for intervention?
- Legal competence – has Scotland got the competence to act in this area?
- Policy Gap – looking ahead is there no forthcoming action in this area already planned?
- Voluntary action – is there something in place on which to base a scheme? Is industry already engaged on taking action?

12. Since the first meeting, officers from Zero Waste Scotland and SEPA have met to discuss the full list of products/materials against the identified selection criteria. A scoring matrix is shown in **Appendix B** with initial notes and observations captured. This exercise reached broadly the same conclusions as the 2016 short-life working group (Appendix A).

Results

13. Based on the work outlined in Appendices A and B, the products/materials recommended for Extended Producer Responsibility in Scotland, in priority order are:

- i. Tyres
- ii. Mattresses
- iii. Furniture
- iv. Carpets
- v. Plasterboard
- vi. Clothing & textiles

Relevant projects and previous work

14. It is worth noting that there is already some progress towards producer responsibility schemes or industry action for some of these products/materials. A summary of relevant projects or previous work is provided in **Table 1**.

Table 1

Product/material	Summary of existing or proposed work on this product/material
Tyres	<p>Zero Waste Scotland produced a draft report in March 2013 (The Optimat Report) which provides an overview of the waste tyres supply chain. Although much of the information is now out of date, key information could be extracted to inform Expert Panel consideration. SEPA is working with the National Tyres Distributors Association (representing manufacturers and retailers) and the Tyre Recovery Association (representing the waste tyre collectors and recyclers) on the delivery of SEPA's Tyre Sector Plan (due to be launched for consultation imminently). The TRA operators a Responsible Retailer Scheme for its members which it wishes to explore offering up to the whole sector (rather than its members) as an alternative or as an option for producer responsibility.</p> <p>Ireland introduced a producer responsibility scheme for tyres in 2017. A year of this operation has passed and there could be scope to investigate the success and opportunities relating to this scheme via the Expert Panel.</p>
Mattresses	<p>The National Bed Federation (NBF) has been working with its members to develop a voluntary scheme of producer responsibility, focussing on the hospitality sector. Zero Waste Scotland is commencing a project with the NBF in 2018/19 to design and develop a producer responsibility scheme. The results of this project will be reported to the Expert Panel to consider any recommendations for wider adoption of the scheme beyond NBF members. This material will be covered by the landfill ban on biodegradable municipal waste from 2021.</p>
Furniture	<p>Zero Waste Scotland is commencing a project 2018/19 to carry out furniture market research, synthesising existing research from 2012 to present day. Additional consumption data and a full listing of all furniture market participants will be captured, (including manufacturers, retailers, suppliers and membership bodies). This data review will be used to inform further engagement on product stewardship.</p>

	Community Resources Network Scotland (CRNS) has gathered evidence of existing producer responsibility schemes for furniture, most notably in France where a levy is applied.
Carpets	This material will be covered by the landfill ban on biodegradable municipal waste from 2021. The trade body Carpet Recycling UK estimates that 400,000 tonnes of carpet waste is generated in the UK each year ² . They estimate that 168,000 tonnes of carpets were diverted from landfill in 2017 but the majority of this (73%) was used in fuel or energy recovery, therefore not recycled ³ .
Plasterboard	<p>The Ashdown Agreement is a voluntary agreement with plasterboard manufacturers (mostly based in England) to:</p> <ul style="list-style-type: none"> • To engage with all stakeholders with a long term objective of zero plasterboard waste sent to landfill by 2025 • To reduce the amount of plasterboard waste being sent to landfill from UK plasterboard manufacturing operations to zero tonnes per year by 2015 • To increase the recycling of new construction plasterboard to 50% by 2015 <p>Most plasterboard in Scotland is likely being landfilled as a co-mingled construction waste, with very few examples of separation taking place. It is believed that the transport costs for separated plasterboard to recyclers in England is currently prohibitive.</p>
Clothing & textiles	The Sustainable Clothing Action Plan (SCAP) ⁴ , devised by WRAP, is a collaborative framework and voluntary commitment to deliver industry-led targets for reducing the use of resources in the clothing industry. So far over 80 organisations across the UK have made a pledge to hit industry-led targets through the SCAP 2020 Commitment. They have set targets for 15% carbon footprint reduction; 15% water footprint reduction; 15% waste to landfill reduction; 3.5% reduction in waste arising over the whole product life-cycle.

Forward plan

15. Clearly, the immediate focus of the Expert Panel is on plastics and single-use items (e.g. disposable coffee cups). However, the secretariat and the technical advisors (Zero Waste Scotland and SEPA) believe there is scope to consider a wider package of measures covering other products/materials in due course.

16. Taking action beyond plastic can focus on achieving lasting benefits for the environment and the economy. The priority products that have been highlighted are identified as the ones that could contribute most to environmental improvement and economic and/or social benefits.

² <http://www.carpetrecyclinguk.com/index.php>

³ http://www.carpetrecyclinguk.com/downloads/Developing_a_circular_economy_for_Carpets_Jane_Gardner_CRUK.pdf

⁴ <http://www.wrap.org.uk/sustainable-textiles/SCAP>

17. Considering the full extent of work that the Expert Panel might consider during its work, the secretariat proposes a forward plan for discussion. This is shown in **Table 2**.

Table 2

Expert panel meeting	Proposed discussion topic
Meeting 1	Held in June 2018. Introductions and initial discussion
Meeting 2	Single-use plastics – initial discussion with focus on disposable coffee cups and plastic straws, cutlery & plates. Discussion on forward plan.
Meeting 3	Follow up discussion on single-use plastics.
Meeting 4	Follow up discussion on single-use plastics, initial discussion on Tyres
Meeting 5	Initial discussion on mattresses and furniture
Meeting 6	Follow up discussion on single-use plastics and tyres
Meeting 7	Follow up discussion on mattresses and furniture
Meeting 8	Final discussion on all topics, outline areas for further work, including on those priority materials/products not covered (Carpets; Plasterboard; and Clothing & textiles)

Recommendations

18. The Expert Panel is recommended to consider the priority products/materials for them to consider during their work.

19. The Expert Panel is recommended to outline what further evidence it would require to consider these priority products/materials fully.

20. The Expert Panel is recommended to consider the proposed forward plan and make suggestions to the secretariat on any changes it would like.

Appendix A [redacted]

[redacted]

- SEPA – [redacted]
- Zero Waste Scotland – [redacted]
- Scottish Government – [redacted]

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Packaging: The UK “Packaging Recovery Note” scheme is unique in Europe. All organisations handling packaging (whether consumer packaging or supply chain packaging) above a certain tonnage and turnover threshold are in scope for the scheme. Obligations are split across supply chain firms, including importers and retailers. Obligated packaging producers within the scope, must obtain Packaging Recovery Notes (PRNs) proportional to the amount of material they have handled and a mandated recovery rate. PRNs are produced by reprocessors or recycle exporters. PRNs are tradable and the price fluctuates. Much of this market is handled by “compliance schemes” – firms pay them to manage their obligations. In principle sale of PRNs encourages reprocessing activity, and this income is supposed to be fed back into the development of the collection infrastructure for these materials. A small part of the compliance fee is dedicated to pro-recycling household communications. [redacted]

As a UK scheme, there is no unique Scottish data – so Scottish recycling performance cannot be identified separately.

End-of-Life Vehicles: Producers (vehicles manufacturers or importers of new vehicles) in the UK must register with DEFRA, declare how many vehicles they place on the market each year and set up systems for the collection of end of life vehicles. These systems must offer free take back to members of the public. 75% of last owners must have a collection point within 10 miles; if any last owner is more than 30 miles of an Authorised Treatment Facility (ATF) then a collection service must be provided. In practice, 2 networks or “National Service Providers” for ELV producers have been approved (Car Take Back and Autogreen). These service providers procure and organise the network of ELV infrastructure to ensure the requirements of the Directive are met and charge producers for these services. From 2015 the targets are at least 95% reuse and recovery (by weight); and at least 85% reuse and recycling. Producers must submit a Certificate of Compliance to DEFRA to certify they have discharged their obligations.

Batteries: Producers (manufacturers / importers of batteries or equipment containing batteries) placing more than one tonne of portable batteries on the market each year must register with a Battery Compliance Scheme (BCS) and finance the collection, treatment and recycling of waste batteries in proportion to their market share. Producers of < 1 tonne do not have these obligations, but must register with SEPA. BCS’s must collect at least **45%** of their members’ market share by September **2016**. Producers of industrial and automotive batteries have different obligations related to free take back of end of life batteries, registering with SEPA and DEFRA, and submitting data on batteries placed on the market. Industrial and automotive batteries are banned from landfill and incineration (effectively a 100% collection target). All waste batteries must be treated by an Approved Battery Treatment Operator (ABTO) or exported for treatment by an Approved Battery Exporter (ABE). ABTO’s and ABE’s can issue evidence of recycling of portable

batteries to BCS's to meet their producers' obligations. There is no evidence system for industrial or automotive batteries.

Waste Electrical and Electronic Equipment (WEEE): Although individual producer responsibility is mandated by EU directives the UK, along with most other member states, operates a collective system. The costs of managing separately collected WEEE are divided among all firms active in the market at the time these costs are incurred, with share of costs based on share of current sales. Compliance schemes and approved authorised treatment facilities (AATFs) document that firms are paying for the correct amounts, and that WEEE has genuinely been taken back. From a consumer perspective, WEEE can be returned to designated collection points, which may be via LA services or in store. Sellers of WEEE must support provision of take back facilities, but can do so via national schemes, as well as or instead of providing in-store takeback.

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EPECOM Paper 3.1 KEY DEVELOPMENTS

EU Directive – Single Use Plastics

The European Parliament has voted to support draft plans to introduce a complete ban on a range of single-use plastics across the union in a bid to stop pollution of the oceans. In October, MEPs backed a ban on plastic cutlery and plates, cotton buds, straws, drink-stirrers and balloon sticks. The proposal also calls for a reduction in single-use plastic for food and drink containers like plastic cups. "Where no alternative exists" for certain items, there will have to be a reduction by 25% in each country by 2025. Examples given include burger boxes and sandwich wrappers. Other plastics, such as beverage bottles, will have to be collected separately and recycled at a rate of 90% by 2025.

The introduction of the proposed Deposit Return Scheme in Scotland will be an important development in being able to meet the ambitious 90% target for beverage bottles.

UK Budget 29th October 2018

Environmental tax Single-use plastics

The UK Government has announced a new tax on the manufacture and import of plastic packaging that contains less than 30% recycled plastic to come into force in 2022 after a consultation process.

Plastics and waste innovation funding

The UK Government announced in the Budget it is providing £20 million to support measures in this Budget to tackle plastics and boost recycling – £10 million more for plastics R&D, and £10 million to pioneer innovative approaches to boosting recycling and reducing litter.

Coffee Cups

It was announced in the Budget that the UK Government had concluded that a levy on all cups would not at this time be effective in encouraging widespread reuse.

Deposit Return Consultation

The closing of our public consultation on 25th September brought us a step closer to achieving the delivery of the system. Over 3,000 people and organisations responded to the consultation. The consultation responses are now being analysed and the results will help shape the overall system design. Scottish Government and Zero Waste Scotland officials are also continuing to engage with key stakeholders to gather views. Further steps will be announced next year.

We are carefully considering the relationship between Extended Producer Responsibility, deposit return and any virgin material tax. A well-design producer responsibility system should reward use of recycled content and the introduction of our proposed deposit return scheme, in the next few years, should transform the availability of food grade plastic (PET) in Scotland and will ensure there is a higher quality and quantity of material available for producers.

Furthermore, it is likely that new producer responsibility obligations being introduced to comply with the requirements of the EU's Circular Economy Strategy will lead to significantly increased costs for packaging producers. Deposit return could offer a cost effective way to achieve producer responsibility obligations for drinks containers, reducing future potential burdens.

Single use items

The UK Government is currently consulting on proposals to ban the distribution and/or sale of plastic straws, plastic – stemmed cotton buds and plastic drink stirrers in England. The consultation is currently live and closes on 3rd December.

Plastics Pact (WRAP)

The 2018 UK Plastics Pact Summit, the first meeting of Pact members since the programme launched in April 2018, has taken place. New WRAP research and guidance were introduced which address key issues around plastic packaging, and with the collecting and processing of post-consumer plastics.

A new £1.4 million flagship projects competition was launched at the annual meeting. The competition, which is managed by WRAP working in partnership with UK Research and Innovation (UKRI), was one of several special announcements made at the Summit. This competition forms part of the £20 million Plastic Research and Innovation fund (PRIF) which was announced by the Chancellor during 2017. It will engage Britain's best scientists and innovators to help move the country towards more circular economic and sustainable approaches to plastics.

A draft of the forthcoming UK Plastics Pact Roadmap was shared ahead of publication at the summit. This sets out the key actions and intermediate milestones businesses, and other members, will need to achieve to deliver each target by 2025, as well as highlighting the challenges ahead. Once finalised, Pact members and supporters should embed the Roadmap milestones into their corporate and organisational targets. The Roadmap is due to be published later this year, and will also inform action by Governments, funders, investors, NGOs and businesses who are not members of The UK Plastics Pact.

EXPERT PANEL ON ENVIRONMENTAL CHARGES AND OTHER MEASURES GENERAL PRINCIPLES APPROACH

Purpose

This paper proposes high level, general principles that would:

- provide a reference point to guide and inform the Expert Panel's consideration of key issues and aid its assessment of potential options and recommendations
- underpin the Expert Panel's general way of working.

Background

At the second meeting of the Expert Panel on 10 September, the Panel considered a paper on single use plastics. It noted that whilst the Expert Panel has been tasked with focusing, in the first instance, on plastic straws and disposable coffee cups, moving past these products there is an opportunity to avoid a piecemeal product-by-product approach, which could and take up valuable time for the Expert Panel.

To that end, the Panel agreed that it would be useful to develop a general principles approach that can be applied when considering any plastic product; and asked Secretariat to draft outline principles for discussion at its third meeting on 20 November, taking account of other well-established frameworks or principles where appropriate. The Panel noted the diversity of single use items and recognised that a general principles approach, whilst helpful, could have limitations and would provide a reference point rather than a prescriptive or exhaustive framework.

Detail

A draft general principles approach has been developed by Zero Waste Scotland, Scottish Environmental Protection Agency and Scottish Government officials and is attached in Annex A. Whilst the general principles approach was initially suggested in the context of the Panel's work on single use plastics, Secretariat propose that the high level principles approach could underpin and inform the Panel's work on single use materials in general.

In line with suggestions made by Panel members on 10 September, the draft takes account of and has been informed by other established principles or frameworks, including Scotland Performs, Scotland's waste hierarchy, Better Regulation principles, UK Plastics Pact work and the previously circulated publication *Eliminating avoidable plastic by 2042: a use-phase approach to decision and policy making* (Resources Future 2018).

Action required

Expert Panel members are asked to:

- Consider the attached draft general principles
- Provide comments at its meeting on 20 November.

Expert Panel Secretariat, November 2018

ANNEX A - GENERAL PRINCIPLES APPROACH

Purpose

This aim of this framework is to provide a set of high level general principles that will

- underpin the Expert Panel's way of working
- provide a reference point to guide its consideration of key issues and options for future action

in order to ensure that the Panel's deliberations and any future recommendations are focused on delivering better outcomes for Scotland; are targeted on priority issues and measures and are proportionate; and that the work of the Panel enjoys a broad degree of public and stakeholder confidence.

Background

The general principles outlined below draw significantly on other well-established frameworks or principles, notably Scotland's National Performance Framework and waste hierarchy and Better Regulation principles; and seek to explicit how existing frameworks or principles apply in the context of the Expert Panel's consideration of environmental changes and other measures to address single use materials and tackle Scotland's throw away culture.

Whilst the general principles approach was initially suggested in the context of the Panel's work on single use plastics, Secretariat propose that the high level principles approach could underpin and inform the Panel's work on single use materials in general.

General principles approach

In summary, the Expert Panel's work will be guided and informed by the following general principles:

- **Outcomes focused and evidence informed**
- **Targeting**
- **Proportionality**
- **Transparency, integrity and accountability**
- **Consistency, coherence and context.**

The table overleaf provides additional information or narrative against each of the proposed Principles.

<p>Outcomes focused and evidence informed</p>	<ul style="list-style-type: none"> • The Expert Panel’s work will be aligned with Scotland’s National Performance Framework’s (NPF) overarching Purpose and the National Outcomes, with a specific focus on the Environment National Outcome “We value, enjoy, protect and enhance our environment” and the NPF’s link to the UN’s Sustainable Development Goals, particularly number 12 – responsible consumption and production. Although also recognising the interconnection with other Outcomes and SDGs, Further information on the NPF is provided in Annex A. • The Panel will take an outcomes based approach, and focus on the difference that issues or measures make to addressing single use materials and our throw-away society, not just the inputs or processes over which we have control. • Within that context, the Panel will consider best available evidence on key issues and the impact (and unintended consequences) of measures; and will have scope to commission new information or evidence or ‘tests of change’ to plug key knowledge gaps or enable innovation.
<p>Targeting</p>	<ul style="list-style-type: none"> • The Panel will focus primarily on those issues which give rise to the most serious risks to delivering improved outcomes within the Scottish context; and on measures that may deliver the best environmental outcome for the people of Scotland. • The Expert Panel’s considerations – and any subsequent recommendations – should be focused on key priorities, problems and opportunities, avoiding a scatter gun approach and minimising unintended consequences of any recommendations. • Whilst the Panel will consider priority items including, in the first instance, straws and disposable cups, the panel may also develop ideas for more systemic change which can support policy making longer term. • The Panel will consider well-established principles of waste hierarchy, lifecycle impact and producer/extended producer responsibility (as well as supporting guidance on these) when considering issues, potential actions or recommendations i.e. <ul style="list-style-type: none"> ○ the Panel should endeavour to first and foremost consider measures to <i>prevent</i> single use materials being used before considering steps that could be taken to prepare any waste from single use materials for <i>reuse</i> and support ‘high quality’ recycling before other <i>recycling</i> and <i>recovery</i> activities are considered. Further information on the waste hierarchy is set out in Annex A.

	<ul style="list-style-type: none"> ○ given the diversity of single use materials, the Panel will take into account the different lifecycle impacts of specific material and how long they are in use. Simply put, what is relevant for one single use item may not be relevant for another. ○ Advocating the polluter pays principle, it will consider the OECD Guidance¹ on Extended Producer Responsibility (EPR), which aims to make producers responsible for their products from design to the post-consumer phase of a product's lifecycle. ● The Panel will ensure that issues of equality and economic opportunity are firmly embedded throughout its work, alongside consideration of environmental issues; and consider any differential and/or cumulative impact that proposed measures may have on different groups, including those with disabilities and small/medium sized businesses.
Proportionality	<ul style="list-style-type: none"> ● The Panel should propose additional measures only when necessary. Remedies should be appropriate to the risk posed, and costs identified and minimised. ● Proposed solutions must be proportionate to the perceived problem or risk and justify any implementation or compliance costs imposed – i.e. don't use a sledge hammer to crack a nut. ● The Panel will consider all the options for achieving policy objectives – including educational measures, not just prescriptive actions.
Transparency, integrity and accountability	<ul style="list-style-type: none"> ● The Expert Panel should be open and publish summaries of its discussions following each meeting and at key junctures. ● Effective engagement and consultation should take place before the Panel develops any proposals or makes recommendations to Scottish Ministers, to ensure that stakeholders' views and expertise are taken into account. Where at all possible, stakeholders should be given at least 12 weeks, and sufficient information, to respond to any calls for evidence or consultation documents. Calls for evidence and any subsequent proposals should be clearly defined and effectively communicated to all interested parties. ● The Expert Panel must be able to explain clearly how and why positions or recommendations have been reached, and be open to public scrutiny.

¹ <http://www.oecd.org/development/extended-producer-responsibility-9789264256385-en.htm>

	<ul style="list-style-type: none"> • The Expert Panel will have a clear line of accountability to Scottish Ministers; and will regularly review and report on progress against it terms of reference.
Consistency, coherence and context	<ul style="list-style-type: none"> • The Panel will be mindful that any relevant current EC Directives should be transposed in Scotland but will have scope to consider how any such Directives can be delivered within the Scottish context; it will also be mindful of considerations that relate to reserved matters or wider issues of domestic, EU or international origin. • The Expert Panel will consider whether existing policy measures to address single use materials and Scotland's throwaway society work together in a joined-up way; and identify opportunities to strengthen co-ordination and coherence in order to maximise the impact of collective efforts. • Any proposals/recommendations should take account of other existing or proposed regulations, voluntary agreements and other relevant developments, whether of domestic, EU or international origin.

How might the general principles be used?

The Principles are proposed as a potential useful 'checklist' or toolkit for the Expert Panel to use when:

- setting the context for engagement and dialogue with key stakeholders
- considering key issues and the full range of alternatives for achieving policy objectives within the terms of its remit as they make recommendations to Scottish Government Ministers.

It may also provide a framework that could inform the Scottish position in discussions at EU and UK level regarding single use plastics and/or other single use materials; and making the case for Scottish specific action where outcomes for Scotland are not currently being achieved.

Limitations of general principles

The Expert Panel is aware of the diversity of single use materials and the complexity and interplay of issues contributing to Scotland's throwaway society. Therefore, it recognises that a general principles approach, whilst helpful, could have limitations and is clear that the general principles provide a reference point rather than a prescriptive or exhaustive list of principles to be considered.

Prepared by:

Zero Waste Scotland, SEPA & Scottish Government on behalf of Expert Panel Secretariat
November 2018

ANNEX B FURTHER INFORMATION

The draft general principles has been informed by the following frameworks and Expert Panel members may find the following additional information useful when considering the draft principles.

Scotland Performs – National Performance Framework

https://scotland.shinyapps.io/scotlandperforms_alpha/

[Under section 25(1) of FOISA, we do not have to give you information which is already reasonably accessible to you. If, however, you do not have internet access to obtain this information from the website listed, then please contact me again and I will send you a paper copy.]

UN's Sustainable Development Goals

<https://www.un.org/sustainabledevelopment/sustainable-consumption-production/>

	<p>Under section 25(1) of FOISA, we do not have to give you information which is already reasonably accessible to you. If, however, you do not have internet access to obtain this information from the website listed, then please contact me again and I will send you a paper copy.</p>
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Waste hierarchy principles

- The waste hierarchy ranks waste management options according to the best environmental outcome taking into consideration the lifecycle of the material. The lifecycle of a material is an environmental assessment of all the stages of a product's life from cradle-to-grave (i.e. from raw material extraction through materials processing, manufacture, distribution, use, repair and maintenance, and disposal or recycling).
- In its simplest form, the waste hierarchy gives top priority to preventing waste. When waste is created, it gives priority to preparing it for reuse, then recycling, then other recovery, and last of all disposal (i.e. landfill). With the exception of tyres, the waste hierarchy ranking applies, almost universally, as described in Figure 1 below.



- In some circumstances there is justification to deviate from the waste hierarchy based on life cycle thinking. The approach taken compares the environmental impacts of managing the wastes according to different options in the waste hierarchy.

Source: *Applying the Waste Hierarchy: Guidance.* (Scottish Government, Nov 2017)

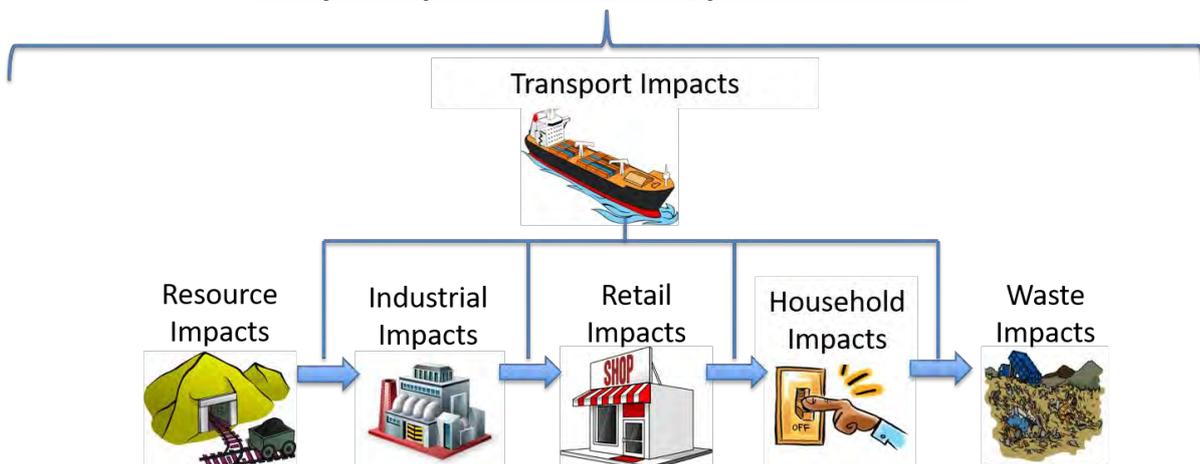
Lifecycle Assessment

- Lifecycle assessment (LCA) is a method of quantifying the whole-life impacts of a material, product or service. Typically, a lifecycle assessment will consider climate change impacts, but may also consider a range of other environmental impacts (e.g. eutrophication, ozone depletion, deforestation, air pollution etc.).



Source: Phases considered in an LCA. ([Hydro-Quebec, accessed 08/11/2018](#))

Lifecycle Impacts of a material, product or service



Source: Phases considered in an LCA. (Zero Waste Scotland, 2017)

- Lifecycle assessment is a useful tool because it:
 - allows impact comparison between different materials, products or services
 - identifies high-impact phases within a lifecycle for targeted intervention
 - supports a holistic approach to environmental impact mitigation.

Use-phase categorisation approach

CIWM published a report in June 2018 ‘Eliminating avoidable plastic waste by 2042: a use-based approach to decision and policy making’². This report introduced a new framework – Use-phase categorisation. The use phase of a product represents the functional lifetime of that product. A set of products with a similar use phase typically has a similar lifecycle and, as a result, similar impacts associated with different phases of the lifecycle. For plastics that remain in use for a short period of time (‘single use’ or ‘disposables’), the relative impact of production and end-of-life (more likely to be littered) is more significant. Furthermore, an intervention that is relevant for a single or short use product is likely to be different to one which is appropriate for products which are in use for longer periods. Consequently, there is benefit in considering the use phase as a framework for assessing the relative impacts of different products and defining the range of potential interventions. An excerpt from his report showing Use-phase Plastics categorisation is shown in the image below:

A new approach - use phase categorisation

Recognising that plastics are not alike is the first step, and this research has done this by developing a new system of categorisation based on the length of time plastics are used. The five ‘use phase categories’ used in this research (see Table ES 1) provide a new approach to framing the discussion into resource efficiency by focussing attention on the dominant lifecycle impacts of different materials.

Table ES 1: Summary of use-phase categories used in this research (Further detail provided in Section 3.3 and detailed analysis is provided in Section 4.

Cat.	Description	Examples	Dominant lifecycle impact / Action required
1	Very short use phase (<1 day) small format	Cotton buds, coffee stirrers, straws, confectionery wrappers, medical, sanitary products, wet wipes, clothing tags, coffee pods	End-of-life. Terrestrial litter and marine debris is increasingly recognised as being harmful but difficult to quantify and compare to other environmental factors such as global warming Action: Eliminate or substitute use of plastics Research potential for biodegradable alternatives Education on ‘non-flushable’ products
2	Very short use phase (<1 day) medium format	Disposable plastic cups, plates, takeaway containers, plastic bags, plastic cutlery	Production / end-of-life. Production dominates the lifecycle from a carbon perspective as the use phase provides few functional benefits. As with cat. 1 contribute to terrestrial litter and marine debris. Action: Replace specific single use items with reuse alternatives More research into compostable alternatives and how to manage within the existing system Eco design standards
3	Short use phase (>1 day <2 years)	Food and drink containers, cosmetics, agricultural film, bags for life	Use. The use phase is usually most dominant as plastics are often used to protect goods which have far greater burdens from spoiling Action: Eco design standards including recycled content Increased sorting and separation technology Deposit return schemes Education to increase life of product being protected
4	Medium use phase (>2 <12 years)	Car parts, plastics in electronics, reusable distribution crates, toys, fishing	Use. The functional benefits provided during use usually outweigh the impacts of production and end-of-life Action: Design for improved durability, compatibility & modularity Improved data on current recycling rates Extended producer responsibility schemes Increased sorting and separation technology
5	Long use phase (>12 years)	Window frames, electrical, plumbing, insulating board, wall panels, roof tiles, carpet, soffits	Use. The functional benefits provided by plastics usually outweigh the impacts of production and end-of-life with a few exceptions such as water piping in construction which is dominated by production Action: Data on reuse and recycling rates required Improved on site separation operations Sorting and separation technology capacity Design for improved durability, compatibility & modularity Improved product information systems

² <https://ciwm-journal.co.uk/wordpress/wp-content/uploads/2018/06/Eliminating-avoidable-plastic-waste-by-2042-a-use-based-approach-to-decision-and-policy-making.pdf>

Relevant frameworks and principles

The draft general principles has been informed by the following frameworks and Expert Panel members may find the following publications useful when considering the draft principles:

Applying the Waste Hierarchy: Guidance (Scottish Government, Nov 2017)

<https://beta.gov.scot/publications/guidance-applying-waste-hierarchy/>

[OECD - Extended Producer Responsibility Guidance](#)

[Better Regulation - Principles of Good Regulation](#)

[UNDP - Sustainable Development Goals](#)

[Resourcing the Futures Conference 2018](#)

<http://nationalperformance.gov.scot/>

https://scotland.shinyapps.io/scotlandperforms_alpha/?page=Environment

KNOWLEDGE ACCOUNTS – CONSIDERATION OF GENERAL APPROACH & UPDATE ON PROGRESS IN RELATION TO DISPOSABLE CUPS AND SINGLE USE PLASTICS

Purpose

1. To update the Expert Panel on progress in collating available evidence on single-use plastics and disposable coffee cups; and to invite views on the approach adopted to date.

Background

2. At its second meeting in September 2018, the Expert Panel agreed that calls for evidence should be issued with careful consideration and only once the Panel is clearer about what evidence already exists and what our knowledge or evidence gaps are, in general and in relation to specific items. The Panel noted that the evidence base regarding some single-use items (disposable coffee cups for example) is clearer or more comprehensive than for other items and agreed that future call(s) for evidence will need to reflect this varying knowledge base. The Panel asked the Secretariat to consider options for collation of evidence accounts, and to complete an evidence account on disposable coffee cups by the next meeting in November.

Detail

3. Zero Waste Scotland and Scottish Government colleagues have considered options for collation of evidence accounts. There is no single or correct way of presenting the evidence base. Knowledge accounts on a range of environmental themes (including air quality, business resource efficiency, ecosystems and wildlife, household resource efficiency, natural capital, quality greenspace, value the environment and access to nature) were prepared by analysts in the Scottish Government's Rural and Environment Science and Analytical Services, and published alongside the "Developing an Environment Strategy for Scotland: Discussion paper"¹.

4. The knowledge account on single use plastics is in progress (interim summary provided in Paper 3.4) and we have completed an evidence account on disposable coffee cups (Paper 3.5).

5. The aim of these initial knowledge accounts was to present key evidence in a helpful, user-friendly way. We believe these to be helpful in understanding: what we know about current trends, factors influencing these trends, where we want to be and what factors will influence how we get there, and the effectiveness of our policy interventions. A rapid review of all the available evidence was undertaken by analysts in Zero Waste Scotland and SG and we have attempted to capture all relevant and known information (both published and unpublished) to provide a detailed account. They are intended to be a living document which will be updated in the future as the Panel's work progresses and to reflect key developments or

¹ <https://www2.gov.scot/Publications/2018/06/4147/downloads>.

emergent evidence. The accounts identify a number of key evidence gaps which should help inform future research.

6. Given that this work was done at pace we would welcome comments on both the approach and the evidence considered.

7. The knowledge accounts are intended to inform Panel members' considerations and do not preclude commissioning of additional research or analysis.

Action required

Expert Panel members are asked to:

- Note progress in exploring options for collation of available evidence;
- Provide views on the knowledge account approach that has been adopted and whether this approach should be taken for other single use items that the Panel will consider during its work programme;
- Note progress in developing an initial knowledge account on single use plastics and consider suggested actions/next steps (Paper 3.4).

Expert Panel Secretariat
November 2018

KNOWLEDGE ACCOUNTS: SINGLE-USE PLASTICS

Purpose

1. To provide Panel members with an update on progress in preparing a single-use plastics knowledge account to provide a high-level initial overview of:
 - the baseline evidence available;
 - the current landscape in relation to drivers of change, trends, policy interventions and their overall impacts on the use and disposal of single-use plastics;
 - the future research areas for consideration in the form key gaps in the evidence based which need to be addressed.

Background

2. This knowledge account has been prepared in advance of the upcoming third Expert Panel meeting on 20 November, and in response to the consideration of a paper on single-use plastics and actions agreed at the second Expert Panel meeting on 10 September. It remains work in progress.

Detail

3. The knowledge account on single-use plastics has been developed by Zero Waste Scotland and Scottish Government Rural and Environment Science and Analytical Services (RESAS) officials. It has been developed to highlight:
 - the baseline evidence available;
 - the current landscape in relation to drivers of change, trends, policy interventions and their overall impacts on the use and disposal of single-use plastics;
 - the future research areas for consideration in the form key gaps in the evidence base which need to be addressed.
4. The knowledge account is designed to support the panel's consideration of key issues and is also intended to stimulate the development and prioritisation of potential options and recommendations. The single-use plastics knowledge account is to be taken into consideration in tandem with the general principles approach.
5. In recognition of the scale and pace of change in the area of single-use plastics, this knowledge account remains in draft format and will be updated over the course of the Panel's work to reflect ongoing developments and emerging evidence. A draft summary visual is attached in order to provide the Panel with an initial sense of emerging findings.
6. **[redacted]**
7. **[redacted]**
- [redacted]**
8. **[redacted]**

Expert Panel Secretariat
November 2018

Single-use Plastics

Past drivers

Growing dependency on single-use plastics. The current plastic economy has evolved as a result of the low cost, high availability and durability of plastic. The “blue planet” effect has raised awareness amongst consumers and led to growing pressure on the industry and government to take action.

Future drivers

Scottish Government’s National Performance Framework. UK Plastics Packaging Tax (2022). The European Strategy for Plastics in a Circular Economy (2018). EU Parliament Directive - Reduction of the impact of certain plastic products on the environment (2018).

Where are we now?

- Global manufacture of plastics has increased twentyfold since the 1960s, and it is expected to double again over the next 20 years
- Around 25.8 million tonnes of plastic waste are generated in Europe annually with less than 30% of such waste being recycled.
- The impacts of single-use plastics in the marine environment are uncertain. However, in Scotland alone estimates are at least £16.8 million per annum.
- The continual loop of replacing single-use items with other single-use items evidences the extent of the problem and the complexity of the whole lifecycle of single-use plastics.

Where do we want to be?

[redacted]

Key evidence gaps

[redacted]

Current initiatives

UK Plastics Pact
Ellen MacArthur Foundation’s New Plastics Economy Global Commitment
Scottish Deposit Return Scheme (in development)
Scottish legislation banning microbeads and plastic-stemmed cotton buds
Scottish Carrier Bag Charge (2014)
Scottish Litter Strategy (2014)
Expert Panel on Environmental Charges and Other Measures (EPECOM)

Disposable Coffee Cups

Past drivers

Increasing use of single-use packaging to facilitate 'on-the-go' sales models
 Increase in coffee consumption and proliferation of coffee shops
 Disposable Coffee Cups (DCCs) a symbol of consumer convenience
 BBC's *Hugh's War on Waste: The Battle Continues* revealed scale of DCC waste
 The "blue planet" effect has raised awareness amongst consumers and led to growing pressure on industry and government to take action on single-use items

Future drivers

Scottish Government's National Performance Framework
 The European Strategy for Plastics in a Circular Economy (2018)
 UK Plastics Pact
 DCCs currently considered for inclusion in Scottish Deposit Return Scheme
 Potential inclusion in future Extended Producer Responsibility scheme



Where are we now?

- UK consumes an estimated 2.5 billion DCCs/year (~200 million in Scotland)
- DCCs are predicted to increase to 310 million per annum in Scotland by 2025
- Ubiquitous 'on-the-go' service models and 'throwaway culture'
- Less than 1 in 400 DCCs are recycled (0.25%); likely less in Scotland
- DCCs generate ~4,000 tonnes waste/year in Scotland (assuming avg. DCC is 20g)
- DCCs production and waste generates ~5,900 tonnes of CO₂e/year in Scotland
- Around 40,000 DCCs littered in Scotland annually
- Typical plastic-lined paper DCCs are technically recyclable, but;
 - Only 3 plants capable of processing DCCs exist in UK (none in Scotland)
 - 'On-the-go' consumption prevents source separated collection



Where do we want to be?

[redacted]



Key evidence gaps

[redacted]

Current initiatives

Reusable cup discounts are offered by most retailers but are ineffective
 Localised field trials of disposable cup charges have proven more effective
 Local and national reusable cup schemes operating in Germany
 Scottish Carrier Bag Charge (2014)
 Scottish Litter Strategy (2014)
 Expert Panel on Environmental Charges and Other Measures (EPECOM)

Knowledge Account – Disposable Coffee Cups

A Introduction

1. In recent years there has been a significant increase in the use of disposable cups for consuming tea, coffee and other hot beverages, following common usage we refer to these hot drinks cups as disposable coffee cups (DCCs). Estimates indicate that the UK uses 2.5 billion DCCs per annum, however this figure may be as high as 5 billion¹. Using the lower bound and Scotland's share of the UK population, this equates to around **200 million DCCs consumed per annum in Scotland**.
2. DCCs consist of the cup, as well as a lid and heat sleeve, and environmental impacts result from each of these components. Assuming an average unit weight of 20g (inclusive of cup, lid and heat sleeve), an estimated 4,000 tonnes of DCC waste is generated each year in Scotland². The CO₂e emissions associated with producing and disposing of a DCC are approximately 1.5 times the weight of the cup itself, with more than half of this coming from the plastic lid. DCCs in Scotland therefore produce an estimated 5,900 tonnes of CO₂e per year.
3. Within the UK, only 1 in 400 DCCs (0.25%) are believed to be recycled¹, and this number is likely lower in Scotland due to lack of reprocessing capacity. The conventional DCC features a paper structure fused to an internal plastic lining which means that it cannot be recycled in the standard paper waste stream, and instead must be collected separately and sent to a specialised processing plant, of which there are only three in the UK, and none in Scotland.
4. Beyond the technical recycling challenges, DCCs are also consumed and disposed of 'on-the-go'. To effectively capture them for recycling, consumers must have reasonable access to, and be inclined to use, suitable recycling facilities at the point their DCCs are ready for disposal. Providing specialised on-street DCC recycle bins is expensive and impractical while high degrees of contamination can render their contents effectively unrecyclable. DCCs which are not recycled are most likely to go to landfill where they produce methane, a greenhouse gas 25 times more potent than CO₂.
5. An estimated 500,000 DCCs are littered in the UK each day (est. 40,000/day in Scotland) making them one of the most littered items. As DCCs are relatively large, these act as 'beacons of litter' attracting disproportionately more littering³ while contributing to litter-related disamenities and overall plastic pollution.
6. Measures to address DCCs should be prioritised according to the Waste Hierarchy and lifecycle analysis⁴, starting with prevention, then reuse, recycling, and finally residual disposal. **Reduction in the number of DCCs used is therefore the optimal outcome** followed by increased recycling.

¹ [House of Commons Environmental Audit Committee \(2018\) Disposable Packaging: Coffee cups. Second Report of Session 2017–19](#)

² Calculations conducted by Zero Waste Scotland

³ [Keep Britain Tidy \(2017\) Written evidence to the House of Commons Environmental Audit Committee](#) (Accessed 02/11/2018)

⁴ [Scottish Government \(2017\) Guidance on applying the waste hierarchy](#)

The Waste Hierarchy⁵



7. From an environmental perspective, reusable cups (RCs) are preferred to DCCs. RCs, however, are typically heavier than DCCs, requiring more material and energy to produce and as a result need to be used multiple times before the environmental 'break-even point' is reached, after which the RC is environmentally superior.
8. Overall, replacing DCC usage with the use of reusable cups will act as a waste prevention technique. This would support more sustainable consumption, improved waste management systems, and reduced littering, however, **this will require a major shift in existing 'on-the-go' service models and the way consumers behave and make choices.**

B Recent trends

9. The issue of plastic waste has recently grown in public and policy consciousness following the broadcast of television documentaries *Blue Planet II*, which highlighted plastic pollution in the marine environment, and *Hugh's War on Waste: The Battle Continues* which revealed the scale of DCC consumption and waste in the UK.
10. In Scotland, a number of groups and organisations are taking initiatives to reduce usage of DCCs and other disposable plastics. For example, the *No Single Use Plastics – Shetland*⁶ campaign is aiming to completely cut out single-use plastics such as straws and cups by the end of 2018 with local businesses pledging to remove these items. The Scottish Parliament and Glasgow City Council have banned plastic straws from their premises.

⁵ [Scottish Government \(2017\) Guidance on applying the waste hierarchy](#)

⁶ <https://www.facebook.com/shetlandagainstsingluseplastics/> (Accessed 02/11/2018)

11. Globally, national and municipal authorities are taking actions to reduce disposable plastics⁷. Santa Monica now prohibits all single-use plastics in the delivery of prepared foods, this includes straws, lids, utensils, plates, bowls, trays, containers, stirrers, cups, and lid plugs⁸. In France, starting in 2020, most plastic cups, plates and cutlery will be totally banned⁹. The EU has announced draft plans that would, if progressed, see single-use cutlery, cotton buds, straws and stirrers banned from 2021¹⁰.
12. In response to growing public concern about the environmental impacts of plastic more generally and DCCs in particular, café retailers and catering companies have undertaken a range of efforts to increase recyclability, and recycling outcomes of DCCs. These include better recycling provision, biodegradable cups, removing DCCs, and offering discounts to customers with reusable cups.
13. In summer 2018, the Scottish Government removed all DCCs from its estates, requiring all customers to use their own RC or one of the ceramic mugs provided. While in June 2018, the English high street coffee chain Boston Tea Party stopped providing DCCs, requiring customers to sit in, bring their own RC or pay a deposit to use the company's "loan cup scheme"¹¹¹². The supermarket Waitrose also stopped providing DCCs in 2018¹³.
14. In order to encourage customers' usage of reusable cups, a number of coffee retailers, including Costa, Starbucks and Pret a Manger, have offered discounts to customers bringing their own reusable cup. These discounts, typically £0.25-£0.50, are given to customers who take their beverage in their own reusable cup. In July 2018, Starbucks introduced a charge of £0.05 for paper cups, supplementing their £0.25 reusable cup discount, and in doing so became the first major coffee chain to charge customers for DCCs¹⁴.
15. Many businesses have replaced plastic-lined paper DCCs with 'biodegradable' alternatives, however, these products are in fact, 'compostable' and therefore do not break down during anaerobic digestion or in the natural environment. There are two overarching problems with compostable DCCs, and compostable packaging in general. First, businesses and consumers generally assume 'biodegradable is better', failing to realise that this is only true if items are appropriately disposed of; some studies suggest 'biodegradable' products are littered more often as they are perceived as less harmful to the environment¹⁵. Second, the existing waste system is

⁷ [United Nations Environment Programme \(2018\) Single-use plastics: A Roadmap for Sustainability](#)

⁸ <https://www.santamonica.gov/press/2018/08/15/santa-monica-city-council-approves-expanded-ban-on-single-use-plastics> (Accessed 02/11/2018)

⁹ <https://www.independent.co.uk/news/world/europe/france-bans-plastic-cups-plates-cutlery-energy-transition-for-green-growth-a7313076.html> (Accessed 02/11/2018)

¹⁰ <http://www.europarl.europa.eu/news/en/press-room/20181009IPR15501/plastic-oceans-meps-back-eu-ban-on-polluting-throwaway-plastics-by-2021> (Accessed 02/11/2018)

¹¹ <http://bostonteparty.co.uk/blog/post.php?s=2018-04-23-boston-tea-party-bans-single-use-coffee-cups> (Accessed 02/11/2018)

¹² <http://www.bbc.co.uk/news/uk-43879019> (Accessed 02/11/2018)

¹³ <https://www.bbc.co.uk/news/business-43709656> (Accessed 02/11/2018)

¹⁴ <https://www.starbucks.co.uk/promo/5pcup> (Accessed 02/11/2018)

¹⁵ [House of Commons Environmental Audit Committee \(2018\) Disposable Packaging: Coffee cups. Second Report of Session 2017-19](#)

not designed to collect and manage compostable packaging which is often indistinguishable from non-compostable products. As a result, nearly all biodegradable packaging is sent to landfill where it too produces methane gas.

16. Some café retailers have introduced in-store DCC recycle bins to capture source separated materials and have procured dedicated DCC recycling services from waste management companies. However, these bins are only effective if customers consume their drinks in store (in which case a DCC is unnecessary) or return to store to dispose of their DCC after-use. In-store recycling is therefore unsuited to 'on-the-go' coffee consumption. Other initiatives have involved introducing dedicated on-street DCC bins¹⁶. A study has shown however, that on-street DCC bins do not collect high volumes of cups and are prone to contamination¹⁷. The Glasgow Cup Movement, a collaborative project between Keep Scotland Beautiful, waste companies, quick service restaurants and packaging interest groups, aims to improve recycling and reprocessing rates for single-use cups across the Glasgow region
17. To be affordable and recyclable in practice, **DCCs should not require a separate collection and recycling system** but rather, be made of materials already compatible with existing on-street recycling infrastructure and collection systems.
18. An emerging trend among fast food and café retail chains is the 'zero waste to landfill' concept. Companies can achieve zero waste to landfill by ensuring that all waste produced is either reused, recycled, composted, or sent to energy recovery¹⁸. Energy recovery through incineration in the UK is typically cheaper than landfill, so this makes good business sense however, it is less preferable in the waste hierarchy than waste prevention. 'Zero waste to landfill' is different from 'zero waste' which involves eliminating waste from all business activities and fundamentally challenges the *take-make-waste* paradigm that existing business models are built around. There is also a view that 'zero waste to landfill' claims capitalise on low public awareness of waste incineration as a residual treatment option, allowing the public to infer that all waste is being recycled, and may limit further action towards waste prevention at the top of the waste hierarchy.

C Past drivers of change

19. Over the last two decades, consumer demand for coffee in the UK has grown dramatically, surpassing tea as the drink of choice¹⁹. Growing demand for coffee has led to the proliferation of coffee shops across the UK from 5,000 sites in the year 2000, to an estimated 20,000 in 2018.

¹⁶ <https://www.hubbub.org.uk/Event/recycle-your-coffee-cup-with-the-squaremilechallenge> (Accessed 02/11/2018)

¹⁷ Hubbub (2017). #1 Moreshot Coffee Cup Recycling Project: Final Project Report.

¹⁸ <https://www.carbontrust.com/news/2017/03/what-is-zero-waste-to-landfill/> (Accessed 02/11/2018)

¹⁹ <https://www.independent.co.uk/life-style/uk-coffee-week-2018-british-people-drinking-millions-cups-day-consumption-rise-a8307206.html> (Accessed: 02/11/2018)

Today, 1 in 5 people in the UK are believed to visit a coffee shop every day, and approximately one half of all hot drinks are sold in disposable cups.

20. Single-use items have become a defining feature of our economy and consumer culture, transforming the way products and services are provided, and systems operate. In health and personal care, single-use items have become the go-to solution for ensuring hygiene and cleanliness. In the food system, single-use packaging dominates our supermarket shelves and dictates how products are produced, stored, transported and sold. In the hospitality sector, single use packaging, cutlery, straws, napkins, and sauce pouches have given rise to 'on-the-go' service models. **The growing dependence on single use packaging such as DCCs which complement the 'on the go' and 'throwaway' culture has increased the volume of waste generated every day.**
21. A major obstacle preventing greater recycling of single-use items has been the pace at which new products, materials and composites are placed on the market by manufacturers, without prior consultation with the waste management sector which is forced to react to new materials after they've already entered the waste stream. Reorienting to process these materials takes time and significant investment, assuming a market for the processed output even exists. The result is companies deploying new products and materials externalise the costs required to ensure they are properly recycled at end of life, which artificially lowers the cost of 'innovation'. It is widely recognised that the sheer number of different materials, particularly plastics, within the waste stream acts as a barrier to higher recycling rates. Were manufacturers and producers required to finance the infrastructure required to recycle their new products and materials, it is likely there would be a shift towards fewer materials and 'innovations', and an improvement in recycle rates.
22. Recent successful efforts to raise awareness of the detrimental effects of marine plastics have resulted in a series of high profile industry announcements; from supermarket Iceland pledging to be plastic free from 2023 and the UK Plastics Pact signed by 42 large UK retailers and food companies which aims to eliminate "unnecessary single-use plastic packaging" amongst other similar pledges by 2025²⁰. This flurry of announcements can be attributed to the unprecedented level of public engagement and concern about the adverse effects from waste products and may present a welcome environment for further policy developments on this topic.

D Future drivers

23. Consumer demand for coffee will continue to rise. Estimates suggest that the number of coffee shops will also increase with the number of sites rising from 20,000 at present, to more than 30,000 by 2025, along with a concurrent increase in the numbers of DCCs²¹. Using the lower estimate of current DCC usage in the UK (2.5 billion), this would imply an annual usage of 3.75 billion across the UK, or 310 million in Scotland. Efforts to reduce DCC usage now will accrue significant benefits over this timeframe.

²⁰ <http://www.bbc.co.uk/news/business-43901328> (Accessed: 02/11/2018)

²¹ [House of Commons Environmental Audit Committee \(2018\) Disposable Packaging: Coffee cups. Second Report of Session 2017–19](#)

24. In the Programme for Government 2017, the Scottish Government announced the intention to form an Expert Panel to provide advice to the government on a range of problematic waste materials. DCCs were specifically mentioned as a focus²². At the same time the Scottish Government made a commitment to introduce a deposit return scheme for recyclable waste materials such as single-use drinks containers. Consultation to inform the design of this scheme and the materials to be included took place during summer 2018 with results expected in 2019.
25. Inclusion of DCCs in the Scottish deposit return scheme was an option considered in this consultation. This would encourage consumers to return DCCs to participating locations to reclaim their deposit. Currently, no jurisdiction is operating a deposit return scheme which includes DCCs and it is unclear whether this will be taken forward in Scotland. If DCCs were included in the deposit return scheme it is likely new DCC reprocessing capacity would be required.
26. **[redacted]**
27. Several surveys have found high public support for DCC charges. A 2017 YouGov survey commissioned by the Marine Conservation Society found 74% of UK respondents (72% of Scottish respondents) would support a DCC charge²³. Two surveys conducted by Zero Waste Scotland as part of field trials found a similar level of support among customers exposed to a DCC charge²⁴.

E Current interventions and their impact

28. **Changes in consumer behaviour are required if a reduction in DCC usage is to be realised**. To date a number of interventions have been implemented aimed at disrupting existing behaviours and nudging consumers to use reusable cups. These interventions are focussed around RC discounts, DCC charges and environmental messaging. Interventions which separate the price into two components, the drink and the cup, make consumers aware that they are purchasing two items and have been shown to be effective at encouraging RC usage.

Reusable cup discounts

29. Most major UK coffee retailers have offered a £0.25 discount (or equivalent) to customers bringing their own reusable cup, however, evidence and testimony from retailers themselves indicates that these discounts are ineffective at driving reuse behaviour, with reuse rates among major retailers consistently around just 1-2% of sales²⁵. In 2015, Starbucks doubled its discount to £0.50 but six

²² [Scottish Government \(2017\) A nation with ambition: the Government's Programme for Scotland 2017-2018.](#)

²³ [Marine Conservation Society \(2017\).](#) (Accessed: 02/11/2018)

²⁴ Middlemass (2018); Zero Waste Scotland (2018) publication pending.

²⁵ [House of Commons Environmental Audit Committee report \(2018\) Disposable Packaging: Coffee cups. Second Report of Session 2017-19](#)

months later retracted it stating that it had no impact on reuse rates. In 2018, Pret a Manger increased its discount to £0.50²⁶.

30. The difficulty in increasing RC use has been underestimated by major retailers, as evidenced by the experience of Starbucks. In 2008, Starbucks set a goal to sell 25% of drinks in reusable cups by 2015. To support this objective, the company sold a selection of reusable cups in store, and offered customers a £0.25 discount, however, by 2011, the reuse rate remained at less than 2%. In response, the company revised its 2015 target to a reuse rate of just 5% and introduced additional measures including the sale of a £1 RC, and a £0.50 reusable cup discount. In 2015 the reuse rate remained less than 2%.

Disposable cup charges

31. The Scottish carrier bag charge is a good illustration of how application of a (minimal) charge can drive behavioural change and a reduction in single-use items. Like DCCs, single use carrier bags were seen as both convenient for the consumer and an environmental problem. In Scotland, a £0.05 charge on all carrier bags was implemented in 2014 and drove an 80% decrease in use in the first year of implementation, equivalent to 650 million fewer bags in circulation²⁷. An important difference between carrier bags and DCCs however, is the convenience of their reusable alternatives.
32. A number of studies have shown that a **DCC charge**, similar to the plastic bag charge, whereby disposable cups are sold separately from the beverage itself, **is more effective at driving reusable cup usage than a reusable cup discount**. This is attributed to 'loss aversion' or prospect theory which finds people will do more to avoid a perceived loss than to obtain a perceived gain of equal value²⁸. These studies are summarised below:
- a. A field trial in Cardiff applied a range of measures aimed at increasing RC usage across university and business café sites over a 5-week period. A £0.25 DCC charge was applied to a single site alongside other measures while RC discounts were applied to multiple sites. The study found reusable cup discounts had no effect on RC use, while the DCC charge significantly increased the reuse rate, with no impact on sales. The study also found offering financial incentives (+3.4%), reusable alternatives (+4.3%), and clear messaging (+2.3%) all positively affected reuse rates, with a combined net increase of (+12.3%)²⁹.
 - b. Winchester University³⁰ implemented a £0.25 DCC charge across 3 café sites and issued free reusable cups to new and returning students at the start of term. This increased RC

²⁶ <https://www.theguardian.com/environment/2018/jan/02/pret-a-manger-doubles-discount-for-bringing-reusable-coffee-cups> (Accessed: 02/11/2018)

²⁷ [Zero Waste Scotland \(2015\). Carrier Bag Charge 'One Year On'](#). (Accessed: 02/11/2018)

²⁸ Barberis, N. C. (2013) Thirty Years of Prospect Theory in Economics: A Review and Assessment, *Journal of Economic Perspectives*, 27 (1), 173-196.

²⁹ Poortinga, W. and Whittaker, L (2018) Promoting the Use of Reusable Coffee Cups through Environmental Messaging, the Provision of Alternatives and Financial Incentives, *Sustainability*, 10 (3), 873.

³⁰ [Chew Fancy a Brew? Presentation. University of Winchester \(2018\)](#) (Accessed: 02/11/2018)

use from 21% to 33% (a net increase of 55%), saving 65,000 DCCs in the first year of implementation, with no reduction in sales.

- c. In a 2018 trial with the Hubbub Foundation, Starbucks applied a £0.05 DCC charge across 35 stores in London selected to represent 'typical' demographics. Reuse rates more than doubled from 2.2% to 5.8% (a net increase of 164%)³¹ which is notable given the charge was just 20% of the value of the pre-existing reusable cup discount (£0.25). The study found that transient customers such as tourists and shoppers are more difficult to affect (2.7%), whilst regular customers such as office workers (3.8%) and residents (3.7%) were most likely to change to reusable cups. Following the trial, Starbucks announced it would be expanding the charge to all 950 UK stores³².
- d. Numerous other organisations are known to have applied DCC charging. The University of California (Berkeley) implemented a \$0.15 charge and reported a six-fold increase in RC use³³. Tufts University applied a \$0.25 charge, and the reusable cup use rate increased from 3% to 8%, an increase of 163%³⁴. Other organisations, including the University of Edinburgh, have implemented DCC charges in the last year (2018) though published data is not yet available.
- e. Zero Waste Scotland has undertaken two full field trials in which 'cost-neutral' DCC charges were applied such that there was no net change in the cost of a beverage served in a DCC, the original price simply being split between beverage and cup. For example, under a cost-neutral charge, a coffee previously sold in a DCC for £2.00 would only cost £1.75, with an additional £0.25 charge for the DCC. These studies found simply splitting the cost of a cup of coffee between the beverage and the DCC resulted in a significant increase in RC use without negatively impacting sales or raising costs for consumers. They also found strong customer support for cost-neutral charging³⁵.
- f. In one of these two field trials, cost-neutral DCC charges were put in place of existing reusable cup discounts at four public sector catering locations over a five-week period. Baseline sales and reuse data from the five weeks before the trial, as well as the five weeks corresponding with the trial in the previous year were compared against trial data. The study found both £0.05 and £0.10 charges significantly increased reuse rates (average increase of 185% across the four sites) without impacting drink sales. Customer survey data found strong support for the charge and a desire to see DCC charging applied more widely. Many respondents stated the charge encouraged them to buy a RC.

³¹ https://issuu.com/hubbubuk/docs/hubbub_starbucks_coffee_cup_charge (Accessed: 02/11/2018)

³² <https://www.starbucks.co.uk/promo/5pcup> (Accessed 02/11/2018)

³³ https://serc.berkeley.edu/paying-the-price-of-disposable-cups-at-caffe-strada/#_ftn3 (Accessed: 02/11/2018)

³⁴ Fisher, L.E. (2008) [Signalling change: Studying the effect of price signals on disposable hot beverage cup consumption, Thesis. Tufts University](#). (Accessed: 02/11/2018)

³⁵ Middlemass (2018); Zero Waste Scotland (2018) publication pending.

- g. In the other study, Zero Waste Scotland and NHS Scotland partnered to implement a £0.10 DCC charge at University Crosshouse Hospital in Ayrshire, reducing the price of hot drinks by £0.10 to ensure cost neutrality. In addition, plastic-lined paper DCCs and polystyrene soup cups were replaced with 100% polypropylene DCCs which could be recycled within the existing waste system, and Crosshouse staff were provided with free, reusable and 100% recyclable cups. In addition to paying £0.10 less for their drinks, staff using any reusable cup also obtained a stamp towards a free 10th drink. RC use increased from 1% pre-trial to 43% during the trial, while the recycle rate increased from 0% (the previous cups being unrecyclable) to 75%. Staff survey results showed strong support for making trial conditions permanent across NHS Scotland sites and for more retailers implementing DCC charges.
- h. A 2016 Zero Waste Scotland study³⁶ explored the importance of convenience in consumer decisions to use a RC, comparing reuse rates at 5 workplace cafés with the average 1-2% reuse rates among major café retailers. The study found the average reuse rate (31%) was significantly higher at the workplace cafes, irrespective of the RC incentives offered. A likely explanation is the increased convenience, since employees can store their RCs on site (in their desk or locker) and avoid the inconvenience of carrying them around, except to and from the café. Workplace culture may also play a role.
33. While charging for DCCs reduces their consumption, it does not address the inconvenience of RCs which is a key barrier to their wider use. Unlike reusable carrier bags which can be easily carried in a pocket or purse, RCs tend to be bulky, require cleaning between uses and come with the risk of leakage and mess. As a result, they are a less convenient solution than reusable bags. **To increase RC use, as well as making DCCs less desirable, the accessibility and convenience of RCs must also be improved.**
34. If measures are not taken to improve the convenience and accessibility of RCs, financial incentives need to be high enough to compensate for the perceived inconvenience. A YouGov study commissioned by Keep Britain Tidy found incentives \geq £0.50 would be required to cause a significant behavioural shift towards reuse. Future research to understand the shadow price of convenience in consumer decisions around RC use would help inform future policy.
35. The evidence shows that requiring DCCs to be sold separately to their hot drink contents is an effective way of changing consumer behaviour. **More research is needed, however, to better understand the barriers and drivers that lead consumers to change their behaviour**, or not, in the face of DCC charges and other interventions. Studies examining the impacts of carrier bag charges suggest that pre-existing intrinsic environmental motivations³⁷ and socio-economic background³⁸ are important drivers in reusable bag behaviour change. Studies of plastic bag

³⁶ Zero Waste Scotland (2016). Unpublished.

³⁷ Jakovcevic, A., Steg, L., Mazzeo, N., Caballero, R., Franco, P., Putrino, N. & Favara, J. (2014) Charges for plastic bags: Motivational and behavioral effects, *Journal of Environmental Psychology*, 372-380.

³⁸ Rivers, N., Shenstone-Harris, S., & Young, N. (2017) Using nudges to reduce waste? The case of Toronto's plastic bag levy, *Journal of Environmental Management*, 188, 153-162.

charges also suggest that whilst the policy has been effective at increasing reusable bag usage, it has had limited 'spillover' to encouraging other pro-environmental behaviours³⁹.

Reusable cup schemes

36. Another mechanism for increasing reusable cup usage is a deposit return system. Under such systems, café customers pay a deposit for a reusable cup which they can choose to keep or return to any participating retailer in exchange for their deposit. The returned RC is then washed and reintegrated into the deposit return system. This system provides consumers with most of the convenience of a DCC, while maximising the environmental benefits of RCs by reducing the total number required (through resource sharing) and maximising their reuse. They could also offer environmental benefits over customers bringing their own cup by ensuring that cups are washed in efficient industrial dishwashers. RC deposit return systems are common at German Christmas markets throughout the UK, and are increasingly prevalent in Germany's café retail sector and have recently been introduced in cities in Australia.
37. The City of Freiberg, Germany (pop. 250,000) signed up 105 cafés (60-70% total) to a scheme whereby cafés receive reusable cups issued by the city, then provide these to customers in exchange for a €1.00 deposit. Customers can keep the cup or return it to any participating cafe for washing to re-enter circulation upon which they receive back their deposit. Notably, vendors were reluctant to impose parallel charge on DCCs to encourage customers to use the reusable cup⁴⁰.
38. RECUP is a Germany-wide deposit system for coffee-to-go reusable cups. Users register with an app which shows participating retailers, who pay €1.00/day to be part of the system. Consumers pay a €1.00 deposit to obtain their beverage in a RECUP and can then return the cup to any participating retailer in exchange for their deposit. RECUPs are made of 100% recyclable polypropylene can be washed and reused up to 500 times. The RECUP scheme has been highly successful and is now operating across Germany, enabling rail passengers to purchase a coffee in Munich and return the cup in Berlin. RECUP also sells collapsible silicon based lids which customers can carry with them and fit to any RECUP⁴¹.

F Outstanding Evidence Gaps

- Consumer behaviour:
 - What are the drivers behind increasing consumption of 'on-the-go' coffee?
 - What are the barriers to increased consumer usage of reusable cups?
 - How can consumer habits around acceptable cup behaviour best be disrupted?

³⁹ Thomas, G.O., Poortinga, W. and Sautkina, E. (2016) The Welsh Single-Use Carrier Bag Charge and behavioural spillover, *Journal of Environmental Psychology*, 47, 126-135.

⁴⁰ <https://www.sbs.com.au/food/article/2018/01/24/germany-citys-answer-disposable-coffee-cups-genius> (Accessed: 02/11/2018)

⁴¹ <https://recup.de> (Accessed: 14/11/2018)

- DCC Charges: Evidence suggests that DCC charges affect increased use of RCs however, a number of key evidence gaps are outstanding:
 - Would a charge for DCCs be effective at reducing DCC waste?
 - Will a DCC charge be as effective on a national level as on a localised level?
 - Are reuse rates observed during DCC charge field trials sustained long-term?
 - Does a DCC charge have positive spillover effects on other consumer behaviours?
 - Is there an optimal DCC charge value? From a behavioural perspective, and in terms of business (both national retail franchises and small independent businesses), what is the best cost-benefit ratio?
 - What other policies are needed alongside a charge to maximise cup reuse?

If a DCC charge is implemented at a national scale in Scotland:

 - Should a specific charge value be imposed, or left to retailers to decide?
 - Should it be a tax, or simply an obligation to sell DCCs separately?
 - If a tax, how would it be regulated, managed and revenue spent?
 - What would be the equalities implications of a DCC charge?
- Improving the accessibility and convenience of RCs:
 - What is the shadow price of convenience with respect to DCC and RC use?
 - What are the optimal environments and conditions for RC deposit return systems (e.g. airports, rail networks, shopping malls etc)?
 - What are the combined impacts of integrated DCC charging and RC deposit return systems?
 - How to minimise the transaction costs for both customers and retailers under an RC deposit return system (e.g. reverse vending and washing machines)?

EXPERT PANEL ON ENVIRONMENTAL CHARGES AND OTHER MEASURES KNOWLEDGE ACCOUNT: DISPOSABLE COFFEE CUPS

Purpose

1. This paper provides a summary of evidence on disposable hot drink cups, referred to as disposable coffee cups (DCCs). The purpose of this knowledge account is to provide a reference point to guide and inform the Expert Panel's consideration of the issue and aid its assessment of potential options and recommendations

Background

2. The Scottish Government has asked the Expert Panel to recommend actions to reduce the environmental impacts associated with DCCs, with a focus on preventative measures. To help the Panel in this task it requested a summary of existing research in this area.

Detail

3. The knowledge account on disposable coffee cups has been developed by Zero Waste Scotland and Scottish Government researchers. It outlines the scale of DCC consumption and waste in Scotland, past and future drivers of this activity, the best available evidence on DCC prevention measures, and outstanding research gaps.
4. **[redacted]**
5. **[redacted]**

6. [redacted]

[redacted]

7. [redacted]

Expert Panel Secretariat
November 2018

COMMUNICATION AND ENGAGEMENT STRATEGY

Purpose

1. This paper highlights the intention to develop a high level communications and engagement strategy to support the Panel's work; and proposes initial engagement objectives, key messages and priority activity.

Background

2. The successful delivery of the Expert Panel's remit will rely in part on the contribution and engagement of a wide range of stakeholders. Timely, high quality and purposeful communications and engagement are key to ensuring that the Panel focuses on relevant issues, delivers its objectives as successfully as possible and is seen to do so.

Detail

3. Annex A summarises the rationale for a communication and engagement strategy and provides initial suggestions on its purpose, scope and approach. In summary, proposed communication/engagement objectives are to:

- increase awareness, understanding and support for the Expert Panel's work
- encourage participation by key stakeholders to inform the Panel's considerations
- identify, learn from and foster connections between the Panel and other relevant projects and key stakeholders from a range of sectors across Scotland
- manage stakeholder expectations throughout the duration of the Expert Panel
- in due course, ensure key stakeholders are aware of the Panel's recommendations.

4. Broadly, activity will comprise the following two dimensions:

- **raising awareness (informing)** – to inform people of the Panel's work and, in due course, its key findings and recommendations; and
- **engaging (listening)** – to hear views on key issues and potential future measures.

5. The focus and phasing of communications/engagement activity will be refined as the Panel's work programme progresses. Initial priorities will be to raise awareness of the Panel's initial deliberations and outputs (e.g. publishing overarching principles and knowledge accounts, if agreed) and support further engagement on disposable cups and straws in early 2019. Further work will be undertaken to map key stakeholders, key messages and the various channels available.

6. In line with the recommendations flowing from the initial review of evidence on single use plastics and disposable coffee cups, the Panel may wish to commission targeted engagement activity to explore drivers and barriers to retailer and consumer behaviour change around single use items as part of overall engagement strategy.

7. The Cabinet Secretary has also encouraged policy makers and practitioners to actively engage with young people on key issues. Secretariat proposes to approach Young Scot to consider how the views and voices of young people can be embedded within the Panel's considerations.

Action required

8. Expert Panel members are asked to:

- note that a communication and engagement strategy and detailed implementation plans will be developed to support the Panel's work
- comment on proposed engagement objectives, initial key messages and priority activity at the meeting on 20 November 2018.

Expert Panel Secretariat
November 2018

ANNEX A: Expert Panel on Environmental Charges and Other Measures Communication & Engagement Strategy - Introductory paper

1 Introduction

1.1 The successful delivery of the Expert Panel's remit will rely in part on the contribution and engagement of a wide range of stakeholders. Timely, high quality and purposeful communications and engagement are key to ensuring the Panel focuses on relevant issues, delivers its objectives as successfully as possible and is seen to do so.

1.2 Communications and stakeholder engagement are not an end in themselves, but a means to establishing and developing relationships with relevant stakeholders. Successfully engaging with them will contribute to the delivery of the Panel's work programme and formulation of appropriate recommendations.

1.3 The Panel has developed overarching general principles to inform and underpin its work. These include a commitment to transparency, integrity and accountability, to be achieved in part through effective and appropriate communication and stakeholder engagement.

1.4 This introductory paper proposed a high level approach to communications and engagement; it will inform the development of a strategy and subsequent implementation plans to be delivered over the course of the Panel's work. It provides initial suggestions on potential engagement objectives, key messages and priority activity.

1.5 Plans will be tailored where appropriate to enable communication /engagement on specific single use items (e.g. disposable cups, straws, tyres etc.) and with specific audiences (e.g. general public, local authorities, industry).

1.6 The Expert Panel's work programme does not sit in isolation; it will be progressed as part of a wider context and there will be opportunity to align activity with wider communication and engagement activity on circular economy issues.

2 Scope

2.1 Secretariat propose to develop a high level strategy to identify key messages, engagement objectives, key stakeholders and the various channels available. The strategy will also identify the approach which should be taken when identifying and prioritising stakeholders and planning engagement on specific single use items.

3 Expert Panel – Key objectives

3.1 All communications and engagement activity will be undertaken with a view to helping achieve the Expert Panel's overarching remit and to deliver its work programme objectives.

4 Communication and stakeholder engagement strategy - objectives

4.1 Maximising participation in the Panel's work is crucial to ensure it delivers high quality advice to Ministers to inform evidence based decision making. With this in mind, the proposed key objectives of this strategy are to:

- increase awareness, understanding and support for the Expert Panel's work
- encourage participation by key stakeholders to inform the Panel's consideration of key issues
- identify, learn from and foster connections between the Panel and other relevant projects and key stakeholders from a range of sectors across Scotland
- manage stakeholder expectations throughout the duration of the Expert Panel's work
- in due course, ensure key stakeholders are aware of the Panel's recommendations.

4.2 Throughout the duration of the Panel's work, in line with its overarching principles, the Panel will maintain an approach to openness and transparency making every effort to communicate and engage with the widest possible range of stakeholders.

Main stages of communications and stakeholder engagement

4.3 The Panel has been convened for a 2 year period. The communications and engagement activity will need to be flexible and adapt as the Panel's work programme progresses but broadly activity will comprise the following two dimensions:

- raising awareness (telling)** – to inform people of the Panel's work and, in due course, its key findings and recommendations
- engaging (listening)** – to hear views on key issues and potential future actions.

4.4 Secretariat envisage working alongside the Scottish Government, SEPA and Zero Waste Scotland communications teams to access their skills and experience in supporting delivery of communication plans.

The focus and phasing of communications/engagement activity will be confirmed and refined as the Panel's work programme progresses further.

5 Key messages

5.1 Proposed key messages for the first phase (November 2018-January 2019) are:

- The Expert Panel has mapped key issues and priorities and agreed an initial work programme.
- Although it is focusing attention in the first instance on disposable cups and straws/cutlery, the Panel will also consider other priority single use items, including tyres and mattresses, given the environmental and social impact of these items
- The Panel has agreed overarching principles that will underpin and inform its work (and communicate what these are)
- The Panel has collated initial accounts of available evidence on disposable coffee cups and will engage directly with key stakeholders on this issue in early 2019.

5.2 In undertaking its work, the Panel intends to:

- work collaboratively with others where appropriate
- seek input as widely as possible across Scotland's communities, representative groups and other partners
- keep stakeholders and users regularly informed of progress
- ensure all stakeholders will be aware of its eventual outputs.

6 What environment is the Panel working in?

6.1 The Expert Panel's work programme does not sit in isolation; there will be opportunities to embed or align activity with wider communication and engagement on circular economy issues.

7 Approach to engagement

7.1 Objectives associated most specifically with engagement include: raising awareness, understanding user needs (and shaping design around those needs), increasing support, building mutual trust, creating partnerships and enlisting advocates.

7.2 The communication and engagement programme will follow a staged approach to achieving the Panel's engagement objectives. In summary, the stages should include:

- identifying the objectives/ reasons the Panel want to engage
- identifying/mapping the Panel's stakeholders
- preparing and defining engagement plans for priority activity and/ or stakeholders (including expected outcomes, communication channels, timescales)
- implementing those plans and communicating/engaging
- monitoring/ evaluating the effectiveness of activity and adapting accordingly.

Identification and mapping of stakeholders

7.3 Given the breadth of the circular economy agenda and the range of single use items that the Panel may consider, the Panel will have to communicate and engage with a wide range and significant number of stakeholders. A detailed stakeholder map database will be compiled by the Expert Panel Secretariat.

7.4 Given the number and breadth of potential stakeholders, it is sensible to map and categorise them. This will help determine how, when and how often the Panel engages with them. To do so, Secretariat propose to consider two main factors: their **influence** and their **interest** in the issues being considered by the Panel to help prioritise activity and provide stakeholders with targeted communication and engagement activity. As well as an overall stakeholder map, maps will be developed for specific single use items. Working with the Panel, Secretariat will review and revisit the stakeholder map throughout the lifetime of the Panel.

Engagement plans

7.5 Individual communications and engagement profiles/ plans will be prepared for a selection of stakeholder groups; particularly those identified as being key influencers or potential partners/ collaborators. This will capture the way in which the Panel intend engaging with them, timings, channels and also detail our understanding of their objectives.

8 Methods of engagement

8.1 Some of the methods and channels which should be considered include:

Informing:

- Website: ensuring regular updates on Panel progress on SG webpage
- Contributing to Websites/ forums owned by others etc.
- Media

Involving/collaborating

- Written calls for evidence
- Evidence sessions – inviting key stakeholders to attend/present
- Visits
- Social media/online forum on key issues

Consulting:

- Consultation exercise(s)
- Focus groups/ Surveys
- Social media/online forum on key issues

8.2 Although a range of methods will be used, we propose to maximise opportunities that social media presents to engage with a wider audience, including the general public. Social media present specific opportunities for the panel to communicate with young people.

9 Resources & risks

9.1 The communication and engagement strategy is supported in the first instance by the Secretariat to the Expert Panel. Any financial requirements will be identified and considered by Scottish Government.

9.2 There are a variety of risks associated with the communications and engagement activity given the breadth of the Panel's remit. For example, engaging directly with all stakeholders individually will not be feasible and therefore opportunities should be sought to engage with them in groups and/ or identify existing networks with whom the Panel can engage instead.

10 Initial priorities

10.1 The focus and phasing of communications/engagement activity will be refined as the Panel's work programme progresses. Initial priorities will be

- to raise awareness of the Panel's initial deliberations and outputs (e.g. publishing overarching principles and knowledge accounts, if agreed) and
- support further engagement on disposable cups and straws in early 2019.

Further work will be undertaken to map key stakeholders, key messages and the various channels available.

10.2 In line with the recommendations flowing from the initial review of evidence on single use plastics and disposable coffee cups, the Panel may wish to commission targeted engagement activity to explore drivers and barriers to retailer and consumer behaviour change around single use items as part of overall engagement strategy.

10.3 The Cabinet Secretary has also encouraged policy makers and practitioners to actively engage with young people on key issues. Secretariat proposes to approach Young Scot to consider how the views and voices of young people can be embedded within the Panel's considerations.

11. Action required

11.1 Expert Panel members are asked to:

- note that a communication and engagement strategy and detailed implementation plans will be developed to support the Panel's work
- comment on proposed engagement objectives, initial key messages and priority activity at the meeting on 20 November 2018.

Expert Panel Secretariat
November 2018