

Mapping Economic, Behavioural and  
Social Factors within the Plastic Value  
Chain that lead to Marine Litter in  
Scotland

**Menstrual products report**

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**The Scottish Government**

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**Document prepared for**

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**Commercial confidentiality**

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## Executive Summary

### Aims and approach

In the context of growing public concern around marine litter and a fast moving policy landscape of measures to address marine litter and plastic waste, this research sought to understand opportunities within the plastic value chain to help tackle marine litter. The factors and decisions that lead to marine litter in Scotland were researched with a focus on four products that are not fully addressed by current or planned marine litter and plastics waste policy measures. These four product categories were:

1. Commercial fishing gear
2. Crisps, snack and sweet wrappers
3. Artificial grass pitch
4. Menstrual products

The research findings are presented in six documents as follows:

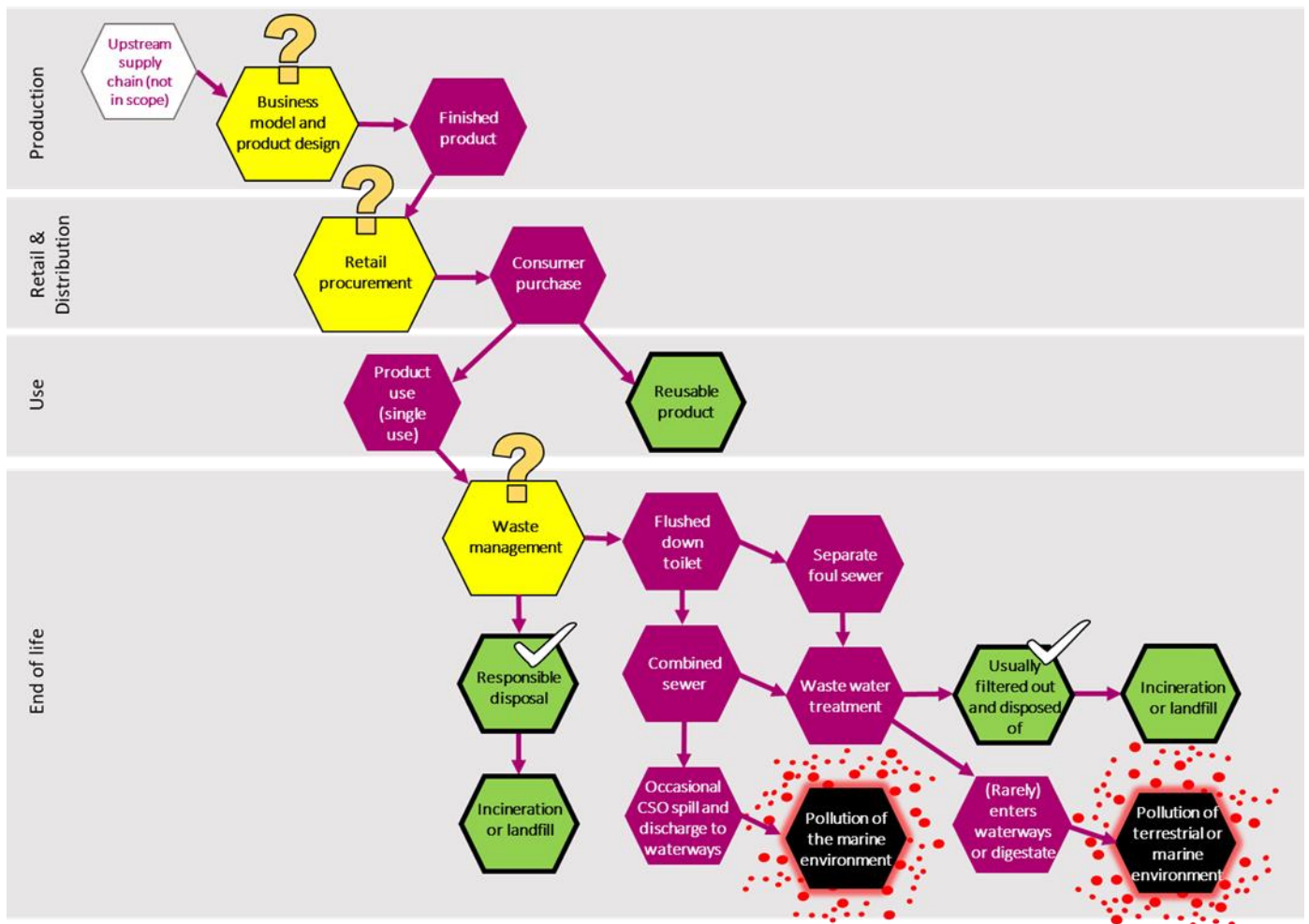
1. **Summary report**
2. **Commercial fishing gear**
3. **Crisps, snack and sweet wrappers**
4. **Artificial grass pitch**
5. **Menstrual products**
6. **Literature review**

This document is the *Menstrual products report*. Key findings for are introduced below. Recommendations are presented for the Scottish Government. The recommendations presented have different potential efficacy, costs and timescales, and to some degree the likely impact is related to the resources and support invested in any single measure.

### Menstrual products

Menstrual products are frequently found on beaches, having been flushed down the toilet and discharged to waterways through the sewerage network. Marine litter pathways and key decision points are illustrated in Figure E1. Key decision points explored in this research are highlighted in yellow.

Figure E1: Menstrual products - Marine litter pathways and key decision points



New innovative products are available that are expected to help tackle marine litter by avoiding plastic altogether, since the materials used biodegrade quicker, or are reusable affecting a reduction in the quantity of products consumed. There is a market for ‘plastic-free’ period products, typically marketed as biodegradable, such as organic tampons with cardboard applicators/without applicators, and tampons with bio-plastic applicators<sup>1</sup>. The market for ‘plastic-free’ and reusable menstrual products is small, and education and engagement efforts could help the market grow, particularly addressing barriers such as consumer confidence in unfamiliar product designs. On a per unit cost basis these alternatives are presently more expensive. However, over a lifetime, reusables can be significantly cheaper for the consumer. This generates a lot less revenue per customer than disposables, and so it is likely that small specialist companies will continue to serve this market, at least in the short-term. In this context, EPR should be considered, but with caution, ensuring discussions are cognisant of the need to balance environmental benefits with respecting social implications and protecting the rights of people who menstruate, and delivered in a positive manner particularly for vulnerable product users.

<sup>1</sup> <https://www.heygirls.co.uk/shop/applicator-tampons/>

Other approaches focus on labelling and educating the user not to flush items, or supporting responsible waste management with sanitary bags and bins where needed. Table E1 presents an analysis of where potential solutions may have the most influence in relation to key decision points in Figure E1. Solutions will have varying degrees of impact, which will also be affected by their design and implementation

*Table E1: Menstrual products - where solutions can most influence key decision points*

Life cycle stage	Key decision point	Education and engagement	Improved labelling	Sanitary bags	Bins and infrastructure	Extended Producer Responsibility
Production	Business model & product design	✓	✗	✗	✗	✓
Retail & distribution	Retail stock & promote	✓	✗	✗	✗	✓
End of life/Recovery	Waste management	✓	✓	✓	✓	✓

✓ = Yes, ✗ = No, ✓ = Yes - if solution designed with this in mind, ? = Unknown

On the basis of the research findings, the following recommendations are made for the Scottish Government and the private sector to tackle marine litter from menstrual products:

1. Design an integrated communications strategy
  - a. Agree common standards for 'Do not flush' labelling
  - b. Publish best practice on education and engagement
  - c. Commission schools' education programme
  - d. Awareness raising campaign
2. Research whether sanitary bags can prevent flushing behaviour
3. Review public and workplace provision of bins, quality of bin provision and adequate access to sinks in toilet cubicles
4. Evaluate feasibility and efficacy of EPR

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## 1 Introduction

Whilst there is significant activity on reducing marine litter in Scotland, there are some products which cause marine litter that are not fully addressed by current activities. The aim of this research study was to identify these problem products and investigate opportunities throughout the value chain to tackle marine litter issues, with Government support or interventions where necessary.

The research findings are presented in six documents: an overarching summary and discussion, a separate report for each of the marine litter product groups researched in detail, and a literature review. The list of six report documents is as follows:

1. **Summary report**
2. **Commercial fishing gear**
3. **Crisps, snack and sweet wrappers**
4. **Artificial grass pitch**
5. **Menstrual products**
6. **Literature review**

This document is the *Menstrual products report* and is structured as follows:

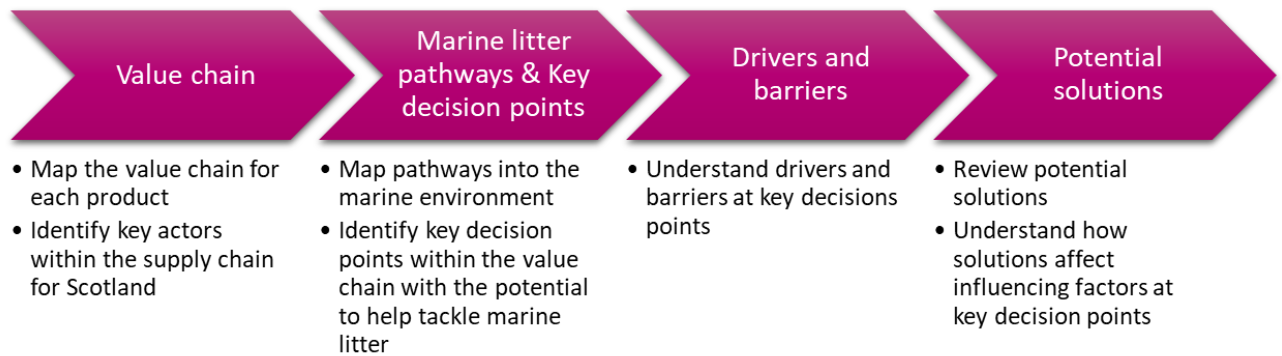
- **Methodology** - section 2
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## 2 Methodology

Over the product life cycle, materials and products pass through multiple actors in the Scottish economy, from raw materials extraction and product manufacturing to the point when products are discarded and recycled or disposed of. The pathways a specific product takes are dictated by decisions taken by the actors in the value chain. This raises an important question: why do some products become marine litter, i.e. what decisions have been made and by whom, *throughout* the product's value chain, that result in 'leakage' into the marine environment? To answer this question, it is necessary to understand decision making in the value chain. Whilst actors may already be aware of marine litter issues and may want to address them, there may be barriers or more dominant drivers that dictate how key decisions are currently made. With an understanding of key decision points in the value chain it is possible to consider how potential solutions can affect decision making to help tackle marine litter. This is the basis of the research framework used in this study, as summarised in Figure 1. The research framework is reflected in the structure of this report and referred to throughout.



Figure 1: Outline of research framework



The framework above outlines the approach taken within the research. To gather this information to inform the study, research activities were conducted in three stages:

1. Scoping study
2. Literature review
3. Interviews and workshops

Products made from bioplastics were considered out of scope in this research. Research and innovation in material science is leading to the development of many new polymers marketed as biodegradable plastics. However, there is ongoing debate over the efficacy of these polymers to biodegrade in the marine environment over short enough timescales to reduce the impacts of marine litter. This is a complicated subject worthy of a dedicated research project, and so was considered outside the scope of this study to assess. Instead, the research scope starts after polymerisation at the point in the value chain where plastic products, or semi-finished products, are manufactured.

The main product life cycle stages are used as the structure for value chain analysis, to represent and understand the sources of marine litter, marine litter pathways and key decision points within the value chain. This enables a clear and consistent structure for analysis and comparison between products that have different value chains and marine litter pathways. The stages in the product life cycle described in this research are:

- Raw materials
- Production
- Retail & distribution
- Use
- End of life/recovery

Further details on the methodology and engagement approach are given in the *Summary report* document for the study as a whole.

### 3 Introduction to product and marine litter issue

The most common menstrual products on the market are disposable tampons and pads, examples of which are shown in Figure 2. Tampons are traditionally manufactured from natural materials of cotton, hydrophilic cellulosic fibres (wood-derived fluff pulp or viscose rayon) and superabsorbent fibres, and plastics in the form of superabsorbent polymer granules and hydrophobic polyester or polypropylene fibres, which can add strength to the product.<sup>2</sup> Pads use natural materials of absorbent wood cellulose and rayon, and plastics in the form of polyolefins (polyethylene, polypropylene), polyester, and absorbent polyacrylate gel. Paper and/or plastic can be used for wrappers and pad wings. Fragrance can also be added as an additional ingredient.<sup>3</sup>

Figure 2: Disposable tampon, plastic applicator and wrapper (left)<sup>4</sup> and disposable menstrual pad (right)<sup>5</sup>



'Plastic-free' products are available including 100% cotton (often organic) tampons and pads.<sup>6 7</sup> There are also ranges of tampons with bio-plastic applicators, which are marketed as biodegradable.<sup>8</sup> A range of reusable menstrual products are also on the market, including menstrual cups, reusable pads, tampon applicators and period pants, and despite having a small market share, reusable products are growing in popularity.<sup>9</sup> In the UK, the best-selling tampon products include plastic applicators but cardboard and reusable options are available.<sup>10 11</sup> Examples of reusable products are shown in Figure 3.

<sup>2</sup> Das, D (2014) *Composite nonwovens in absorbent hygiene products*, p. 75

<sup>3</sup> <https://always.com/en-us/about-us/what-ingredients-are-in-always-pads>

<sup>4</sup> <http://www.echosuppliesmachine.com/supplier-334657-tampon>

<sup>5</sup> <https://www.glamcheck.com/fashion/2010/05/19/what-are-sanitary-pads-types/>

<sup>6</sup> <https://wearedame.co/products/organic-cotton-tampons>

<sup>7</sup> <https://www.natracare.com/products/pads/ultra-super-period-pads/>

<sup>8</sup> <https://www.natracare.com/products/pads/ultra-super-period-pads/>

<https://www.heygirls.co.uk/shop/applicator-tampons/>

<sup>9</sup> <https://www.bbc.co.uk/news/business-45667020>

<sup>10</sup> <https://tampax.co.uk/en-gb/buy-tampax-tampons/tampax-cardboard-tampons>

<sup>11</sup> <https://wearedame.co/products/d-the-reusable-tampon-applicator>

Figure 3: Hey Girls menstrual cup (left)<sup>12</sup> and DAME reusable tampon applicator (right)<sup>13</sup>



Research by Zero Waste Scotland (ZWS) estimates a total market of around 430 million disposable menstrual products per annum in Scotland, on the basis that there are around 1.32 million girls and women in Scotland aged between when periods typically start (age 13) and the average of menopause (50 years old), and that on average each user consumes 340 sanitary products a year. The market currently using reusables is estimated (optimistically) at around 5%.<sup>14</sup> The same research estimated that around 220,000 tampons and 122,000 menstrual pads are flushed down the toilet in Scotland every day, nearly 125 million per annum, suggesting around 30% of all disposable products are flushed by the user. Another estimate based on UK data suggests a higher rate of flushing. The Absorbent Hygiene Product Manufacturers Association (AHPMA) estimated that 4.3 billion menstrual products are used per year in the UK<sup>15</sup>, and another report suggested that 1.5 - 2 billion menstrual products are flushed every year<sup>16</sup>, inferring that 35-47% of all menstrual products are flushed every year although some of the data sources are outdated.

Recent research in the North West of England, shown in Figure 4, provides further insight on flushing behaviours, in which 11% to 14% of respondents self-reported flushing sanitary towels and their packaging, and tampon applicators, occasionally, frequently or all the time. 31% of respondents reported flushing tampons occasionally, frequently or all the time.

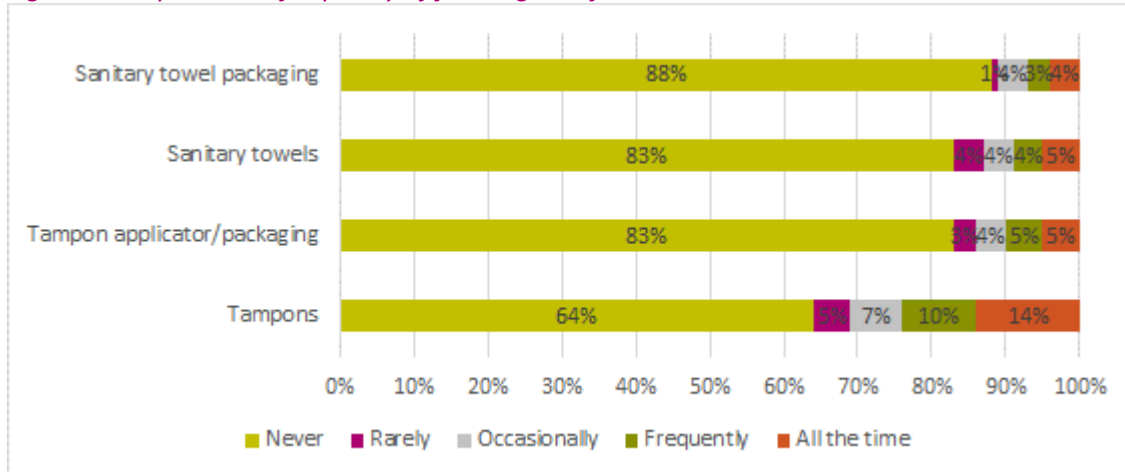
<sup>12</sup> <https://www.heygirls.co.uk/shop/menstrual-cup/>

<sup>13</sup> <https://www.wellandgood.com/good-advice/period-product-eco-friendly-reusable-tampon-applicator/>

<sup>14</sup> Zero Waste Scotland (ongoing research), Re-usable menstrual products research

<sup>15</sup> AHPMA, 2007, <http://www.ahpma.co.uk/docs/Menstruation%20Facts%20and%20Figs.pdf>

<sup>16</sup> MCS, 2015, <https://www.mcsuk.org/downloads/pollution/PPPS%20Marine%20Plastics.pdf>

Figure 4: Respondents' frequency of flushing non-flushable items<sup>17</sup>

In beach litter surveys, menstrual products are often recorded in the category of sewage related debris (SRD), which also includes cotton bud sticks, nappies, tampons, condoms, and human waste (faeces). In the 2018 MCS Great British Beach Clean survey, SRD accounted for 12.6% of coastal litter (487.5 items/km) in Scotland, compared with a UK average of 6.2%<sup>18</sup>. Moreover, in 2019 Scotland was the country worst affected by sewage related debris in the UK<sup>19</sup>. The Women's Environmental Network stated that in 2010 there were 23 menstrual pads and nine plastic tampon applicators per kilometre of beach<sup>20</sup>.

The impact assessment for the EU Single-Use Plastics Directive identified that the highest impacts of menstrual products were transport of invasive species, microbial contamination, and economic impacts on tourism.<sup>21</sup> One key impact of menstrual products washed up on beaches is the visual disamenity and impact on the tourism industry as the presence of these littered products can potentially deter people from using beaches and the surrounding infrastructure. There is also a risk to marine life through ingestion, for example there is evidence of a tampon applicator identified in the stomach of a dead Albatross chick<sup>22</sup>. There is also the potential for chemical leaching into the marine environment as most tampons contain dioxin and chlorine<sup>23</sup>, however the extent of this in the marine environment is unknown.

Flushing menstrual products can also lead to blockages and associated flooding in sewer systems. In 2017 there were around 35,000 blockages in the UK public wastewater network, with over 80%

<sup>17</sup> Jackson and Tehan, 2019,

[https://www.keepbritaintidy.org/sites/default/files/resources/20132\\_Journal%20of%20Litter%20and%20Environmental%20Quality\\_Vol3-V6-ONLINE.pdf](https://www.keepbritaintidy.org/sites/default/files/resources/20132_Journal%20of%20Litter%20and%20Environmental%20Quality_Vol3-V6-ONLINE.pdf)

<sup>18</sup> Data provided by MCS

<sup>19</sup> Scotsman (2019), Fight against sewer-blocking fatbergs takes a step forward,

<https://www.scotsman.com/news/environment/fight-against-sewer-blocking-fatbergs-takes-a-step-forward-1-4854902>

<sup>20</sup> WEN, 2017, <https://www.wen.org.uk/whatstheproblem/>

<sup>21</sup> EC (2018), <https://ec.europa.eu/transparency/regdoc/rep/10102/2018/EN/SWD-2018-254-F1-EN-MAIN-PART-1.PDF>

<sup>22</sup> Edwards, 2004 (<https://bit.ly/2ZdX5rt>)

<sup>23</sup> Organicup, 2018 (<https://bit.ly/2PaoOVc>)

caused by inappropriate disposal of items such as menstrual products<sup>24</sup>, which cost around £7 million pounds to clear<sup>25</sup>. 150 people are employed by Scottish Water to remove blockages and conduct other routine maintenance<sup>26</sup>, a cost which could be reduced if products were disposed of correctly.

## 4 Value chain and stakeholder engagement

The following sections discuss the value chain and the specific stakeholders engaged within this study. This relates to the start of the research framework, shown below.



### 4.1 Value chain

The value chain for menstrual products starts with producers of raw materials, mostly cotton and plastics. Manufacturers then construct the product and its packaging, the majority of which are sold through retailers – supermarkets, pharmacies and local shops, although there is also an online market and direct sales from manufacturers. Products are consumed and used by ‘menstruators’, typically between ages of 13 and 50, with products recommended to be changed every three to five hours whilst in use.<sup>27 28 29</sup>

Disposable products are typically composed of packaging, product, wrapper, and in the case of tampons, often an applicator too. Packaging, wrapper and applicator are disposed of after application, and the product is later disposed of after use. Waste is ideally placed in a bathroom waste bin, but research suggests much of it is flushed down the toilet with nearly 125 million menstrual products flushed in Scotland each year<sup>30 31</sup>. Depending on where the waste is produced, waste placed in bins may enter the household residual waste stream, or facilities sanitary waste most likely handled by a commercial contractor. Flushed items enter the sewerage system, and risk entering waterways and the marine environment (see pathways in section 5 below).

The actors in the value chain are mapped on to the product life cycle stages in Table 1 below.

<sup>24</sup> Jackson and Tehan, 2019,

[https://www.keepbritaintidy.org/sites/default/files/resources/20132\\_Journal%20of%20Litter%20and%20Environmental%20Quality\\_Vol3-V6-ONLINE.pdf](https://www.keepbritaintidy.org/sites/default/files/resources/20132_Journal%20of%20Litter%20and%20Environmental%20Quality_Vol3-V6-ONLINE.pdf)

<sup>25</sup> Scottish Water (<https://bit.ly/2Zs2Th5>)

<sup>26</sup> Interview with Scottish Water

<sup>27</sup> <http://biobank.ctsu.ox.ac.uk/crystal/field.cgi?id=2714>

<sup>28</sup> <http://biobank.ctsu.ox.ac.uk/crystal/field.cgi?id=3581>

<sup>29</sup> [http://www.parliament.scot/S5MembersBills/FINAL\\_Ending\\_Period\\_Poverty\\_consultation\\_document.pdf](http://www.parliament.scot/S5MembersBills/FINAL_Ending_Period_Poverty_consultation_document.pdf)

<sup>30</sup> MCS (2015), <https://www.mcsuk.org/downloads/pollution/PPPS%20Marine%20Plastics.pdf>

<sup>31</sup> The Guardian (2016), Half of UK women flush tampons away – this has to stop, <https://www.theguardian.com/commentisfree/2016/sep/21/flushing-tampons-toilet-blocks-drains-sanitary-products>

*Table 1: Menstrual products - Mapping actors within the value chain onto life cycle stages*

Life cycle stage	Value chain actors
Raw materials	Producers of plastic pellets, cotton, wood fibres, paper, scents and other raw materials
Production	Manufacturers and brands
Retail & distribution	Retailers
Use	Users, e.g. women / people who are menstruating
End of life/recovery	Waste management companies Sewerage industry

A list of manufacturers and retailers relevant for Scotland is provided in Appendix A.1. Several brands exist but the UK market is dominated by Always (Procter & Gamble) and Bodyform (Essity) for pads and Tampax (Procter & Gamble) for tampons.<sup>32 33</sup> In the UK, the tampon market is dominated by applicator products, with between 60-70% of users preferring to use applicator tampons.<sup>34 35</sup> Disposable pantyliners and incontinence products are also part of the nonwoven disposable product market, but these products are not included in the scope of this research.

## 4.2 Stakeholder engagement

The wider group of stakeholders (outside of the value chain) affected by menstrual products as a marine litter issue includes Government and public bodies, wastewater treatment industry, academia, NGOs, and wider groups interested in menstruation and menstrual health. A mapping of the wider stakeholder groups relevant for Scotland is shown in Figure 5.

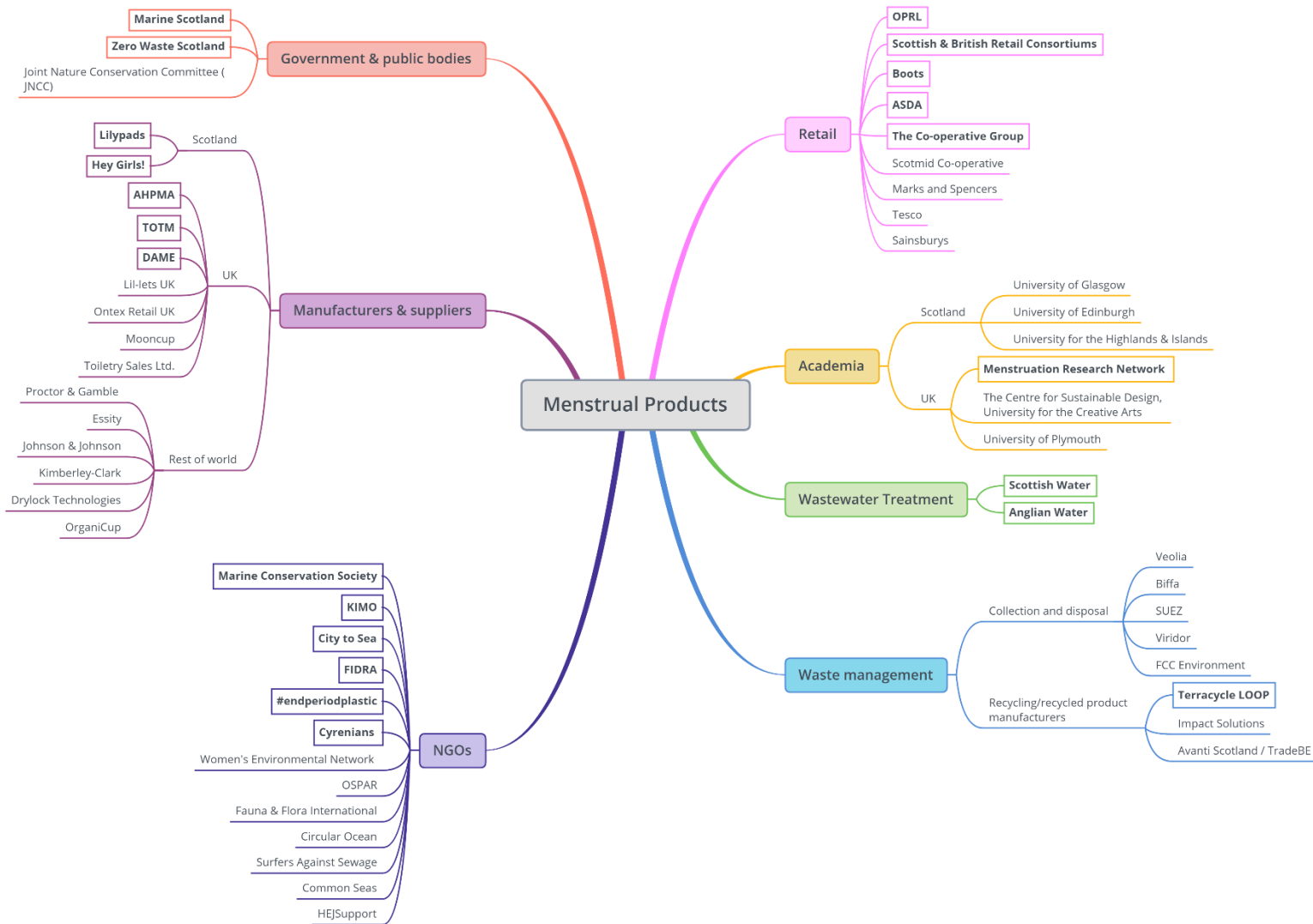
<sup>32</sup> Statista (2017) <https://www.statista.com/statistics/305048/leading-brands-of-feminine-hygiene-towels-in-the-uk/>

<sup>33</sup> Data provided by Kantar (27<sup>th</sup> June 2019)

<sup>34</sup> Data provided by DAME (12<sup>th</sup> June 2019)

<sup>35</sup> <https://www.dezeen.com/2018/03/05/reusable-sustainable-tampon-applicator-dame-design-periods/>

Figure 5: Menstrual products – Stakeholder mapping



Note: Organisations that engaged in the research activities are denoted with a square surrounding the text.

Figure 5 shows the organisations that engaged with the research activities in this study, denoted with a square surrounding box and bold text. The Absorbent Hygiene Products Manufacturers Association (AHPMA) is a UK trade association for nappies, feminine hygiene and continence products, and counts all the large manufacturers listed in Figure 5 amongst its members.<sup>36</sup> AHPMA participated in the workshop and interviews, and provided valuable insight on their co-ordinating role for brands and manufacturers. Manufacturers of reusable and plastic free products also participated in the research activities, and a large number of NGOs were found to have an active interest in the topic, alongside key stakeholders from the wastewater sector, and academia. The Scottish and British Retail Consortiums and some of its members provided insight from the retail sector.

A high level of awareness and interest in the issue was found across all stakeholder groups. Almost all organisations engaged in the research are active on the issue. Common themes raised by stakeholders focussed on flushing behaviour, plastic-free and reusable products, and behaviour change. Views differed amongst some stakeholders over the scale of the issue and the solutions needed. These themes are explored in later sections.

## 5 Marine litter pathways and key decision points

The following section discusses the marine litter pathways and key decision points, as per the second stage in the research framework, shown below.



The marine litter pathways of menstrual products are shown in Figure 7 with key decision points in the value chain to tackle marine litter. The pivotal point is the waste management decision of the consumer, whether they dispose of the used product responsibly or flush it down the toilet. If flushed, the waste product will travel through the sewerage network. As discussed above, 30% of menstrual products or more may be flushed in Scotland, and stakeholders interviewed were of the opinion that many members of the public assume that products will disintegrate or be filtered out at wastewater treatment plants.

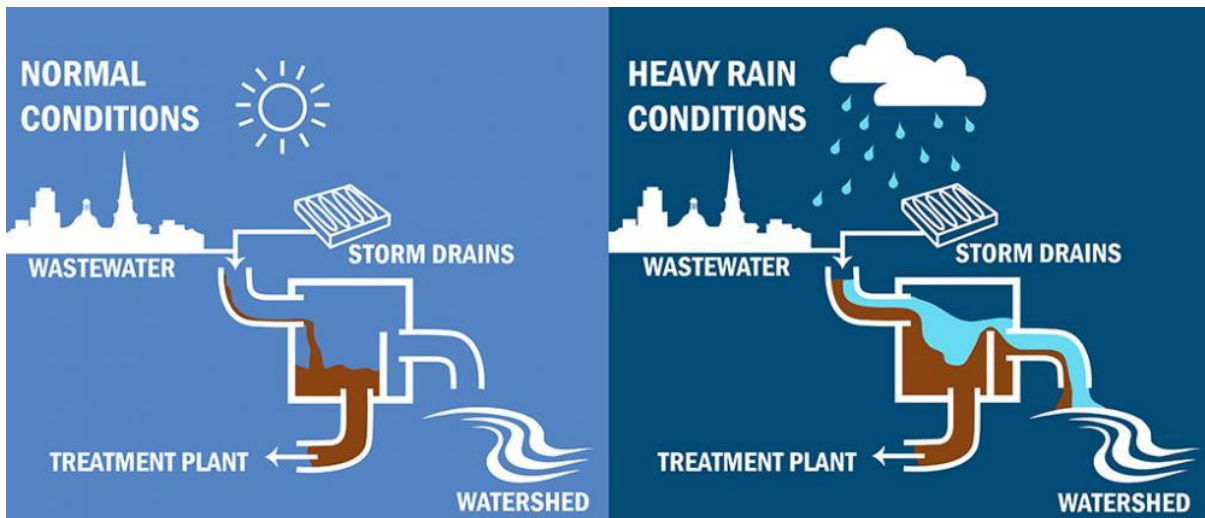
Once flushed, the greatest risk of entering the marine environment occurs through combined sewer overflows (CSOs). CSOs are designed to spill sewage to watercourses when a rainfall event pushes the sewerage network over capacity, protecting properties from flooding, as illustrated in Figure 6. When menstrual products – as well as other ‘unflushable’ products, such as oils or fats – are flushed in areas with combined sewers, they are at risk of being discharged to the marine environment with other sewage when a CSO spills. CSOs can be put at increased risk of activation by blockages, which reduce the capacity of the sewer network and as such increase the likelihood of the system becoming overloaded. Combined sewer areas account for 47% of the Scottish network by km length<sup>37</sup>.

<sup>36</sup> AHPMA members include Drylock Technologies Ltd, Johnson & Johnson, Kimberly-Clark Ltd, Lil-lets UK, Ontex Retail UK, Procter & Gamble UK, Essity, and Toiletry Sales Ltd, <http://www.ahpma.co.uk/members.html>

<sup>37</sup> Personal correspondence with Scottish Water



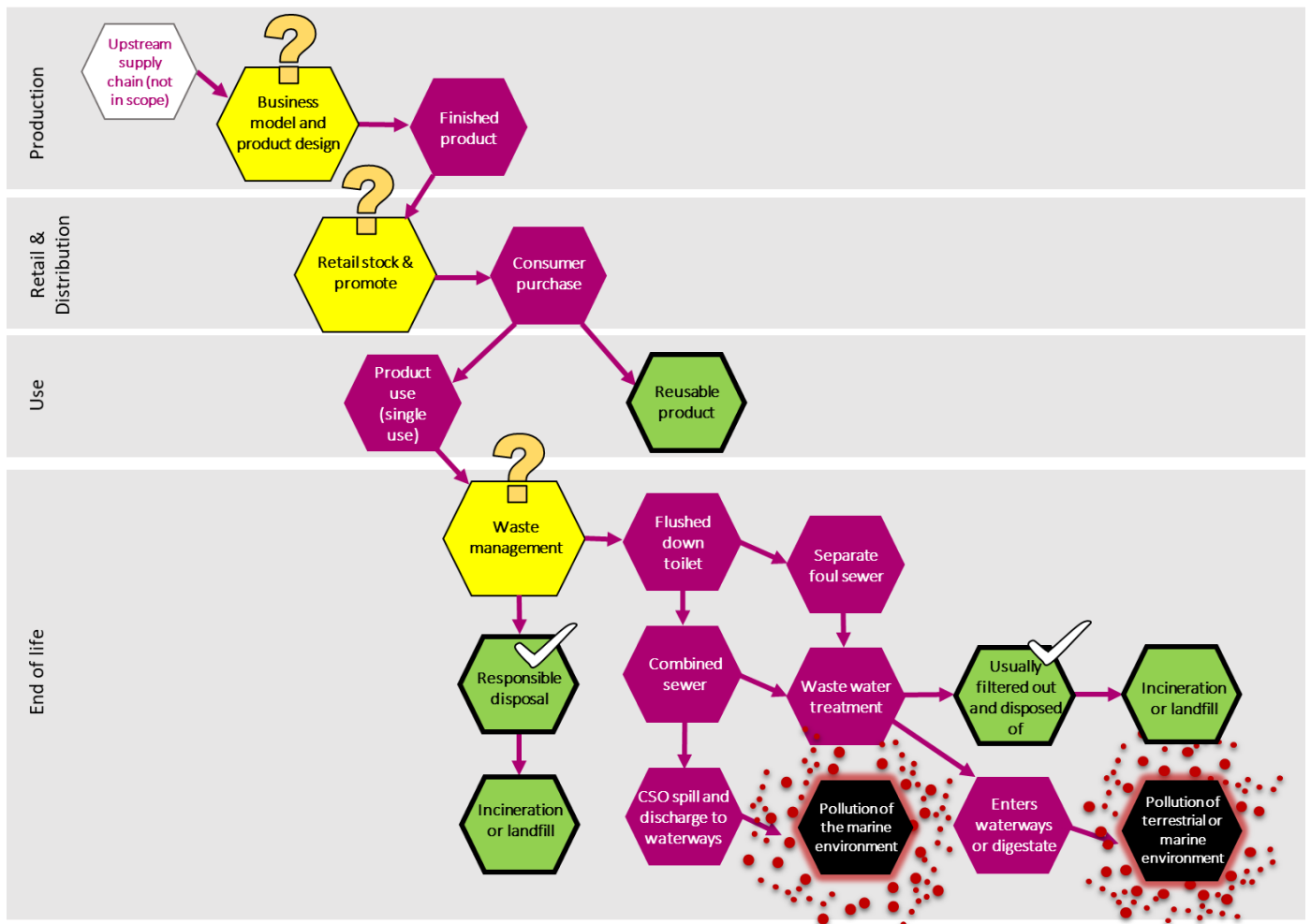
Figure 6: CSO operation in normal and wet weather conditions<sup>38</sup>



There are two principal approaches by which the value chain can help tackle marine litter of menstrual products. Firstly, the plastic consumption can be reduced or eliminated altogether (i.e. plastic-free or reusable products). Figure 7 shows key decision points for the value chain to support this, through product design and business model, and making the products accessible and visible to customers via decisions in retail over what to stock and promote. The second approach to tackling marine litter is to change consumers waste management behaviour to not flush products down the toilet. Whilst researching public flushing behaviour is out of scope of this project, stakeholders identified a number of actions that the value chain can take to support the public in making responsible waste management decisions.

<sup>38</sup> City of Lynchburg (<https://bit.ly/2J3W1Ro>)

Figure 7: Menstrual products - Marine litter pathways and key decision points



## 6 Drivers and barriers

The following section discusses the drivers and barriers, as per the third stage in the research framework, shown below.



Stakeholder engagement highlighted three key decision points as the most important for menstrual products, and are as follows:

1. Business model & product design
2. Retail stock & promote
3. Waste management

The barriers and drivers at these key decision points are discussed in the sections below, drawing upon stakeholder engagement in the workshop and interviews.

## 6.1 Business model & product design

Plastic-free and reusable products significantly reduce the marine litter risk. Moving to plastic-free disposables does not eliminate all issues (including contributing to sewerage blockages), and reusables are not suitable for all users, but both address users' concerns around plastic use and marine litter impacts. Improving 'do not flush' labelling was also raised as a potential solution by many stakeholders. The point of business model and product design is illustrated in Figure 8 as an extract from the full mapping of marine litter pathways and key decision points in section 5.

*Figure 8: Decision point - bespoke product design and purchase decision*

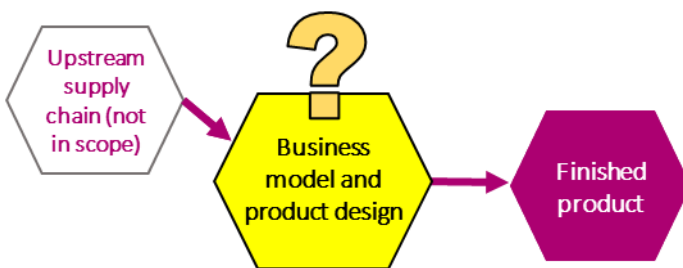
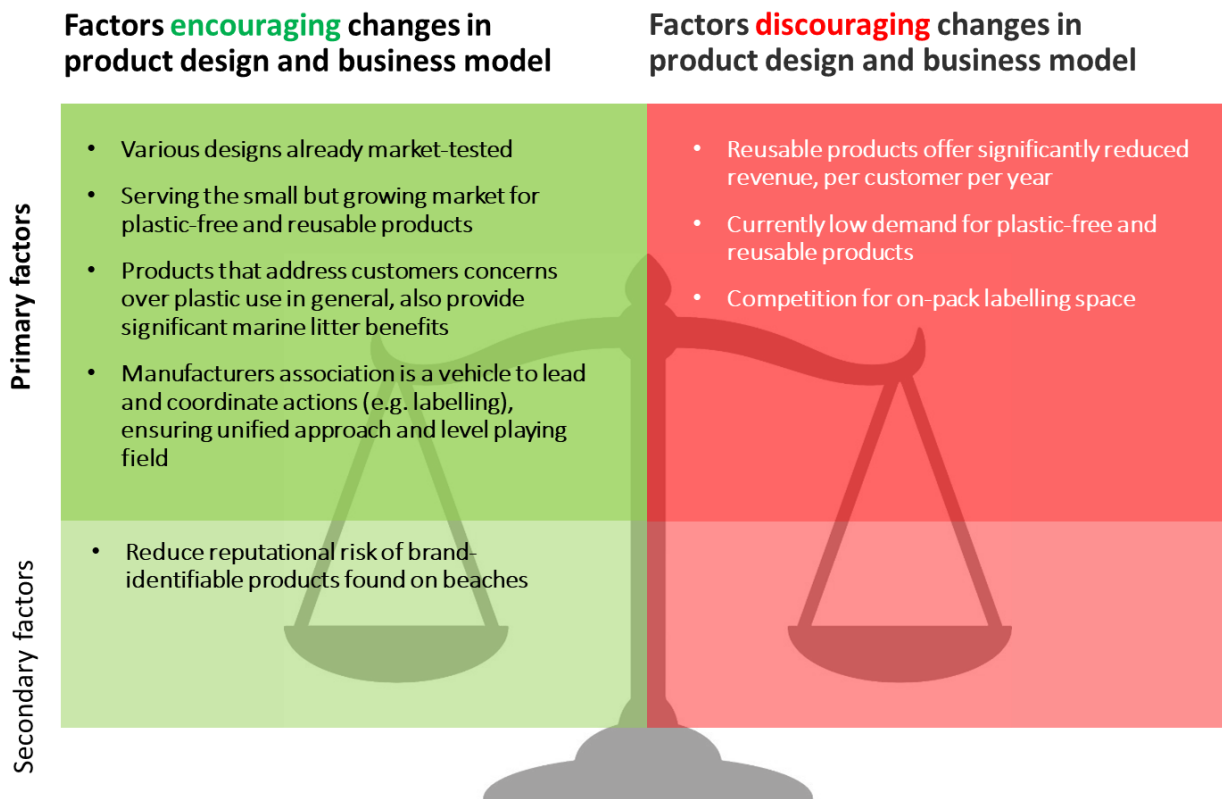


Figure 9 outlines the drivers and barriers related to these actions. The actors at this decision point are brands and manufacturers, albeit influenced by the end customer (consumers/users). However, we cannot report directly on their views as the brands and manufacturers of disposable products approached for this research did not accept the invitation to participate. The drivers and barriers reported are instead derived from market analysis and views of other stakeholders including the trade body representing manufacturers. These views provide valuable insight into some of the drivers and barriers at work, although the information presented here does not necessarily represent the views of any one individual or organisation.

Figure 9: Drivers and barriers in bespoke product design and purchase decision



Competition in the reusables market has grown in recent years, with several small brands now based in the UK and two identified in Scotland, as shown in Figure 5. All major supermarkets in the UK stock at least one reusable or plastic-free menstrual product, whilst pharmacies and health & beauty retailers have also extended their product ranges. Procter & Gamble, the leading tampon and pad manufacturer in the UK, has launched a reusable product, the Tampax cup (Procter & Gamble), but this product is currently only available in the US <sup>39</sup>. There is an opportunity for manufacturers of disposables to consider adopting plastic-free and reusable product designs into their range to serve the small but growing market for these products. Consumers are choosing reusable and/or plastic-free products for a range of reasons, one of which is as a response to concerns over plastic use <sup>40</sup>, as well as growing visibility of menstrual products as a marine litter issue through MCS Beach Clean data and increased media coverage <sup>41</sup>.

Disposable menstrual products are high-volume sales items. Around 430 million disposable menstrual products are sold per annum in Scotland. <sup>42</sup> Brand-name tampons can be purchased in a supermarket at £2

<sup>39</sup> <https://www.bustle.com/p/where-to-buy-the-tampax-menstrual-cup-in-the-uk-because-women-deserve-more-period-product-choice-12635654>

<sup>40</sup> <https://www.bbc.co.uk/news/business-45667020>

<sup>41</sup> <https://www.mcsuk.org/news/plastics-flushed-incorrectly>

<sup>42</sup> Zero Waste Scotland (ongoing research), Re-usable menstrual products research

for a pack of 18, and menstrual pads at £2.50 for a pack of 22.<sup>43 44</sup> Using the ZWS assumption of 40% tampon and 60% menstrual pad market share, this equates to a total market value of £48 million per annum. Reusables require a bigger outlay from the consumer but are generally considered cheaper over the product lifetime<sup>45</sup>. Hey Girls menstrual cup is one of the cheapest on the UK market, retailing in ASDA at £8.95, and manufacturers' advice differs but many claim cups can last up to 10 years.<sup>46 47</sup> On this basis, if the whole disposable product market were to move to a £8.95 cup the total market value would drop from £48 million to just £1.1 million per annum. If cups were replaced five times as frequently (on average every 2 years) the market would be worth £5.6 million.

These figures suggest reusables cost 88% to 98% less than disposables over the product lifetime. This is good news for consumers who wish to use reusables, particularly when considering issues such as period poverty. However, an important caveat is that there are additional socio-economic costs to reusable products, including higher upfront cost, lack of access to safe and reliable washing facilities, as well as cultural and social barriers for users. On purely economic terms, manufacturers of disposables are unlikely to favour growth in the reusables market. If a major market shift were seen from disposables to reusables it would inevitably require fundamental change to the business models of the major brands and unavoidable drop in revenue, and this is perhaps why the market is currently served by small companies whilst a small number of the larger brands have only recently considered introducing reusable products onto the market. Such a large shift is not expected, nor are reusables suitable for all users, but the calculations illustrate the financial difference in business models.

On-pack labelling is considered an important point at which to emphasise the do not flush message, as 41% of women report getting disposal information from product packaging<sup>48</sup>. The manufacturers association AHPMA provides a 'Code of Practice for Tampon Manufacturers and Distributors' which includes information on labelling and absorbency<sup>49</sup>. It was also reported that AHPMA is working with its members on a standard do not flush label<sup>50</sup>. This would be welcomed in terms of raising the profile of this message and standardising communications approaches. If sufficient labelling improvements are delivered voluntarily amongst all AHPMA members, this would cover the large majority of the disposables market.

Competition for on-pack labelling space is an important consideration. Outer packaging, e.g. cardboard box for a pack of tampons / plastic film for pack of pads has considerable space but most is given to branding and making the product easily recognisable. Within the outer packaging, disposable menstrual products are individually wrapped. Users typically transport products without the outer cardboard box, when carried

<sup>43</sup> ASDA, Tampax Pearl Compak Regular Tampons Applicator, accessed on 1/8/2019,

<https://groceries.asda.com/product/tampons/tampax-pearl-compak-regular-tampons-applicator/910001747911>

<sup>44</sup> ASDA, Always Ultra Long (Size 2) Sanitary Towels Wings, accessed on 1/8/2019,

<https://groceries.asda.com/product/towels-pads/always-ultra-long-size-2-sanitary-towels-wings/910000562498>

<sup>45</sup> <https://www.moneysavingexpert.com/family/cheap-sanitary-products/#cost>

<sup>46</sup> Accessed on 1/8/2019, <https://groceries.asda.com/product/feminine-washes-accessories/hey-girls-menstrual-cup-large/1000102496237>

<sup>47</sup> van Eijk et al. (2019), Menstrual cup use, leakage, acceptability, safety and availability

<sup>48</sup> Jackson and Tehan, 2019,

[https://www.keepbritaintidy.org/sites/default/files/resources/20132\\_Journal%20of%20Litter%20and%20Environmental%20Quality\\_Vol3-V6-ONLINE.pdf](https://www.keepbritaintidy.org/sites/default/files/resources/20132_Journal%20of%20Litter%20and%20Environmental%20Quality_Vol3-V6-ONLINE.pdf)

<sup>49</sup> AHPMA, 2017, <http://www.ahpma.co.uk/CodeofPracticeMay17.pdf>

<sup>50</sup> Comment from stakeholder engagement workshop

outside the home<sup>51</sup>. The wrapper of individual items – which is most often made from plastic film – is much smaller than the outer packaging and often carries little or no information. However, this does not mean that do not flush messaging cannot be added to the individual wrappers as well, which is arguably a more important communications touch point than the outer box. There is opportunity for additional communication points to include manufacturers websites, where the ‘do not flush’ logo and general waste management advice could be more viable (e.g. homepage of brand websites), and retail spaces.

The water industry has developed a ‘fine to flush’ standard and test, to indicate which products will not cause problems for the sewerage network and wastewater treatment plants. The Water UK ‘Fine to flush’ standard was recently published, in addition to the European EDANA standard.<sup>52 53</sup> The ‘fine to flush’ standard has been adopted by some manufacturers of wet wipes and could be used for menstrual products.<sup>54</sup> Whilst the standard is relatively new, it has received a mixed reception. Some NGO and water industry stakeholders argued that it is a positive move, especially if all products not meeting the standard are labelled ‘Do not flush’, but recognised that it may be confuse the consumer on which products are ok to flush or not and goes against the simple ‘3 Ps’ messaging. Retailers responded that it is impractical to meet both UK and EU standards at once, thereby requiring special manufacturing lines for the UK market.

Tampon applicators were also a focus of discussion. The use of applicators is, to some extent, cultural<sup>55</sup>, as in some countries tampons without applicators are more popular. Applicators were traditionally made from card but now plastic is more common and preferred by users in the UK<sup>56 57</sup>. Industry experts highlighted that applicators are initially preferred by young users<sup>58</sup>, and are a necessity for some, particularly people with certain disabilities, and that the plastic material is perceived to make the applicator easier to use and minimise discomfort<sup>59</sup>. There are tampons sold without applicators on the Scottish market, sometimes called ‘digital tampons’ referring to the use of a digit or finger, however these products have a small market share<sup>60</sup> As these products are readily available, efforts may focus on increasing demand by establishing them as a cultural norm, e.g. Lil-lets ‘Give Plastic The Finger’ campaign<sup>61</sup>

## 6.2 Retail stock & promote

The decision point of retail stock and promotion is illustrated in Figure 10 as an extract from the full mapping of marine litter pathways and key decision points in section 5.

<sup>51</sup> Comment from stakeholder engagement workshop

<sup>52</sup> <https://www.water.org.uk/policy-topics/managing-sewage-and-drainage/fine-to-flush/>

<sup>53</sup> <https://www.edana.org/industry-initiatives/flushability>

<sup>54</sup> <https://www.natracare.com/products/wipes/moist-toilet-tissue/>

<sup>55</sup> <https://qz.com/quartz/1224531/why-american-women-use-applicator-tampons-and-european-women-dont/>

<sup>56</sup> Survey of 1500 users, conducted by DAME (12<sup>th</sup> July 2019)

<sup>57</sup> Market data provided by Kantar (27<sup>th</sup> June 2019)

<sup>58</sup> Comments from stakeholder engagement workshop

<sup>59</sup> Comments from stakeholder engagement workshop

<sup>60</sup> Market data provided by Kantar (27<sup>th</sup> June 2019)

<sup>61</sup> <https://lil-lets.com/uk/period-plastic>

Figure 10: Decision point – retail stock & promote

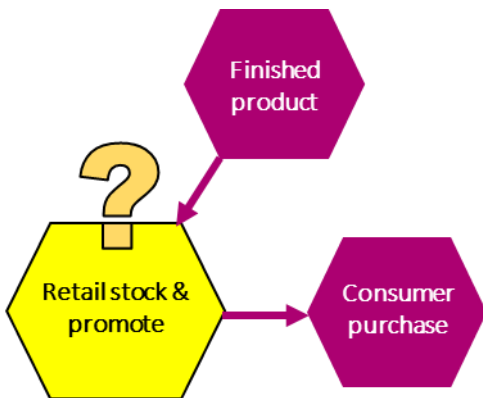
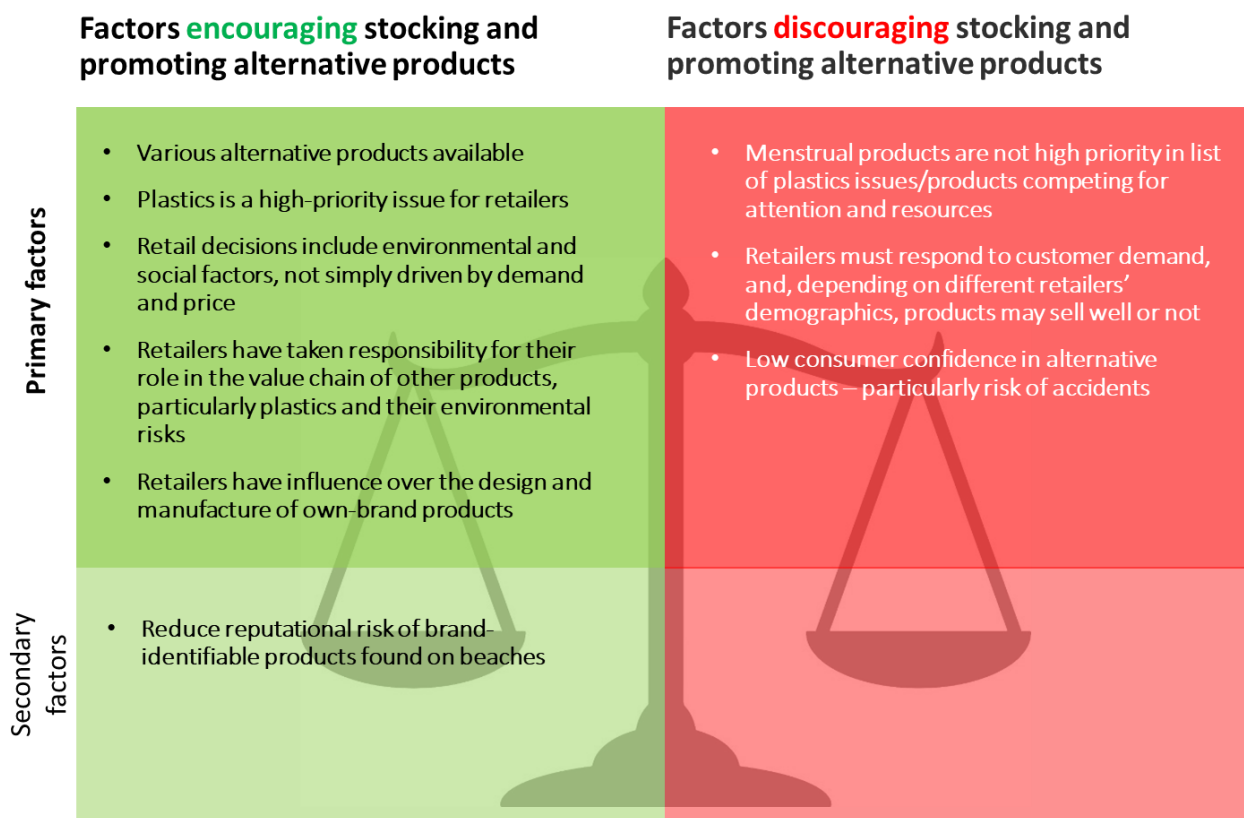


Figure 9 outlines the drivers and barriers for retailers stocking and promoting alternative products that deliver marine litter benefits such as reusable and plastic-free products. The actors at this decision point are retailers, influenced by customers (consumers), colleagues and the general public interest in environmental issues.

Figure 11: Drivers and barriers in retail stock & promote decision



Manufacturers of these alternative products, and other stakeholders, reported the need for mainstream access to reusable and plastic-free products, in supermarkets and pharmacies rather than just wholefood organic and other niche retail outlets. There is also emphasise on the need for education around alternative

products to build trust, as fear of leaking and resulting embarrassment or shame is identified as a barrier for engaging new users <sup>62</sup>.

A spot check of retailers websites shows the number of disposable vs. reusable menstrual products available (Table 2), as well as tampon products available without a plastic applicator or plastic-free (Table 3). Reusable products were typically a menstrual cup, and where multiple sizes of cup were stocked these are counted as separate products. Boots and Superdrug offered the greatest range of cups, each stocking two brands with some of choice of sizes. Waitrose was the only retailer to stock other reusable products with the DAME Reusable Tampon Applicator.

*Table 2: Number of menstrual products of each category in major retailers <sup>63</sup>*

	Tesco	Sainsburys	ASDA	Waitrose	Boots	Superdrug
Disposable	73	54	89	50	111	100
Reusable	1	2	1	3	4	3

*Table 3: Tampon product ranges with reduced or zero plastic content <sup>64</sup>*

	Tesco	Sainsburys	ASDA	Waitrose	Boots	Superdrug
Tampon without plastic applicator	20	14	17	8	20	21
Plastic-free tampon	0	2	0	4	10	0

The retail sector was engaged via stakeholder interviews and provided valuable insight. As shown in the table above, many stock reusables and plastic-free products. It is recognised that not all products available online are stocked in shops but many of the retailers interviewed reported the reusable products were available on their shelves. What products are stocked and where they are placed on the shelf is primarily based on commercial considerations. The decision making process takes into account retailers’ own brand and brand name products, whether products are part of a campaign or promotion, as well as how products fit with the retailers’ corporate identity and CSR strategy. Prime position is at eye level for the customer.

Boots have added a ‘Do not flush’ logo on own brand menstrual products. All retailers interviewed indicated they work with manufacturers and suppliers for their own brand products to set product requirements and explore new ideas. However, one highlighted that own brand products are typically designed to cover basic needs at affordable prices, and each retailer must respond to their customer demographic. For this reason, reusable cups have worked well for some retailers and not others. Another commented that they always take a holistic view, including sustainable sourcing of materials, to avoid replacing one problem with another. For this reason, they commission LCA studies on major issues, and

<sup>62</sup> Comment from stakeholder engagement workshop

<sup>63</sup> Data gathered in July 2019. ScotMid, Marks and Spencer and Savers were excluded as sanitary product range was not accessible online.

<sup>64</sup> Data gathered in July 2019. ScotMid, Marks and Spencer and Savers were excluded as sanitary product range was not accessible online.



conduct internal environmental assessments for others alongside Environmental Product Declarations. Many are currently looking into alternative products and other solutions that are not yet represented in their product range.

The stock and promotion decision making process was outlined by one retailer. The decision making and delivery process involves different internal stakeholder groups who might have competing or complimentary agendas. For example, if signed up to a particular strategy, e.g. on plastics, then any action will form part of that programme. If a campaign is planned to increase visibility of reusable menstrual product they would work closely with the operations team. The proposal could come from the retail CSR team or the 'global 'brands' part of the company, but the decision involves teams from commercial, store operations, sustainability, marketing and communications. Processes must be set up and fit in with sales strategies, with a planned lead-in from the communications team to inform colleagues on how to deliver it.

All retailers interviewed highlighted that 'plastics' are high on the agenda, only surpassed currently by Brexit, but there are many fronts on which retailers are responding to public concern for this issue. However, many are active on the issue. For example, Boots is partnering with FareShare and the Scottish Government to tackle period poverty in Scotland, to provide products to vulnerable women and girls via charitable networks.

Many stakeholders commented on the fact that reusable products can save the consumer money over the lifetime of the product. ZWS estimates that the average consumer of disposable menstrual products consumes 340 units per year.<sup>65</sup> Using this figure and those from section 6.1 suggests consumer savings of £34 to £37 per annum by switching to a reusable cup, depending on how often they replace the cup (2 years or 10 years respectively).

One key finding expressed by stakeholders is that price acts as a disincentive for consumers to try reusable menstrual products. Even though the Hey Girls cup can offer upwards of £34 annual savings, this may not be well known by consumers, or at least the unit sale price is a more important factor. It is reasonable to assume that the relatively high initial outlay could be seen as a risky investment, particularly if the consumer hasn't tried reusables before, or is trying a new product they are unfamiliar with and do not know whether it will be comfortable and suit their needs. Consumer confidence was raised as an issue by stakeholders across the value chain, reporting public concerns that users feared the risk of discomfort or leakage from trialling a different product than they were used to<sup>66</sup>. Stakeholders acknowledged that users are loyal to specific brands. Due to persistent stigma around discussing menstruation, it remains unclear whether users remain loyal to specific brands because they are happy with the product or because they are fearful of trying anything different<sup>67</sup>. Plastic-free disposables are also more costly, both in unit and annual costs to the consumer, but are very similar in design and use to products most consumers are familiar with. Instore messaging, perhaps on using educational 'wobblers' in supermarkets was proposed by stakeholders outside of the retail sector. However, retailers indicated that there is a strong movement away from instore branding and messaging to prevent the customer feeling bombarded with information<sup>68</sup>.

<sup>65</sup> Average figures: period length 5 days, menstrual cycle 26.8 days = 13.6 cycles per year, recommended products are changed every 3 to 5 hours = 4 or 5 units used per day (assume 5).  $5 \times 13.6 \times 5 = 340$  units.

<sup>66</sup> Comment from stakeholder engagement workshop.

<sup>67</sup> Comment from stakeholder engagement workshop.

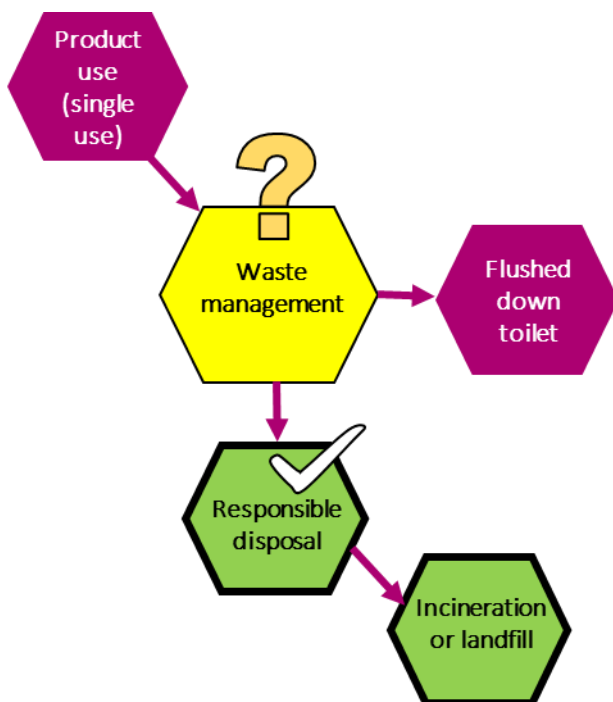
<sup>68</sup> Comment from interview with retailer.

Addressing the marine litter issues will also provide reputational benefits to brands, especially if adopting new product designs that create a 'story' for a new product range.

### 6.3 Waste management

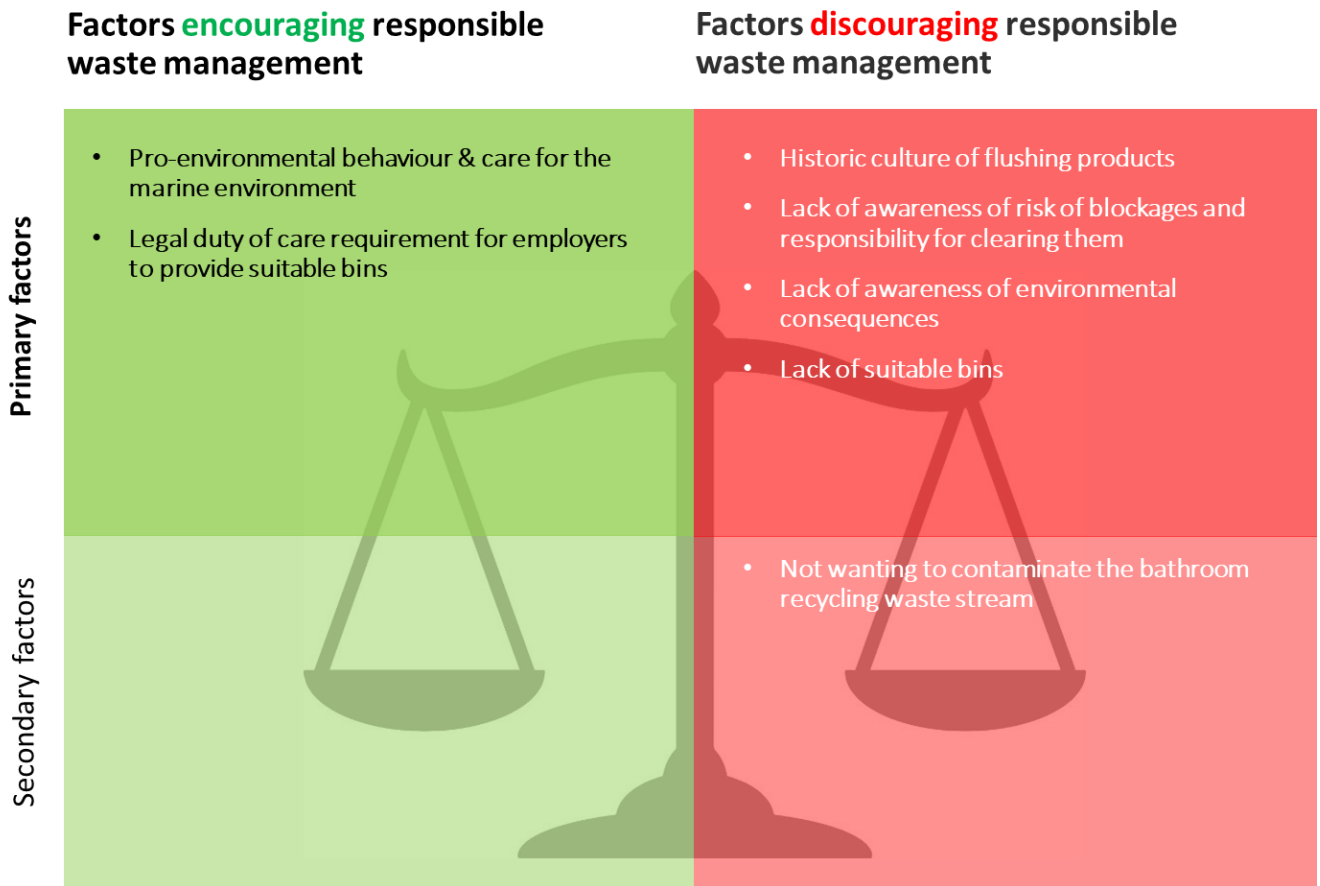
Researching public littering behaviour is outside the scope of this study, as we are focussed on value chain opportunities. Waste management is therefore discussed in terms of the provision of bins and waste infrastructure for menstrual products by public bodies and private companies. The point of waste management decisions is illustrated in Figure 12 as an extract from the full mapping of marine litter pathways and key decision points in section 5.

*Figure 12: Decision point – waste management*



There are opportunities for the value chain to influence the consumer waste management decision. Some of these, such as labelling, are discussed above. Other opportunities raised in the research include the provision (or lack of) of suitable bins, and education and awareness raising, discussed under potential solutions in section 7 below. To understand how these solutions might act we outline some of the drivers and barriers in the consumer waste management decision, shown in Figure 13.

Figure 13: Drivers and barriers in waste management



Pro-environmental behaviour is seen across the value chain, and in fact evidence suggests that most product users dispose of waste responsibly. Employers have a legal requirement to provide suitable bins and arrange for waste management under Duty of Care requirements set out in the Environmental Protection Act 1990<sup>69</sup>. One stakeholder highlighted that this legislation only requires the legal provision of bins within ‘female’ toilets<sup>70</sup>, which means that ‘mens’ toilets do not require sanitary bins causing concerns around incontinence provision and trans-rights. Despite this provision, products are flushed down the toilet and sanitary bin provision is acknowledged to be a contributor to the issue<sup>71</sup>. Some stakeholders reported a lack of suitable bins in public and in the home. There was some discussion at the workshop that there are often no bins in home bathrooms. Interestingly, workshop participants thought that even if there was a household bathroom bin, some users may not wish to put their menstrual products in the bathroom bin as this would contaminate other objects in the bin preventing them from being recycled<sup>72</sup>. Indeed, research

<sup>69</sup> <https://www.principalhygiene.co.uk/sanitary-waste-faq>

<sup>70</sup> Call with Tracy Stewart, AHPMA (5<sup>th</sup> June 2019)

<sup>71</sup> Plan International UK (2018), ‘Break the Barriers: Girls’ experiences of menstruation in the UK’, p.37-38

<sup>72</sup> Comment from stakeholder engagement workshop

suggests only 50% of bathroom waste is recycled<sup>73</sup>. There was also a perceived risk that products would smell or potentially cause offence to others and/or embarrassment to individual.

There are many other drivers and barriers that contribute to flushing behaviour, including a lack of awareness of environmental consequences with consumers believing that products simply disintegrate or are filtered out by the sewage treatment. The literature also shows a significant proportion of residents do not perceive menstrual products as causing blockages and that residents are not responsible for dealing with blockages in their local area.<sup>74</sup> The historic culture of flushing behaviour was also raised, suggesting intervention and awareness raising is needed to break the habit. Stakeholders also highlighted the persistent stigma associated with menstruation that can result in users being secretive about their disposal habits when menstruating. This can lead to many users being unaware that products should not be flushed

<sup>75</sup> <sup>76</sup>

## 7 Potential solutions

The following sections discuss the potential solutions, the final stage in the research framework shown below.



Potential solutions are discussed in the sections below. The measures focus on improving product labelling to instruct the consumer not to flush anything down the toilet, or making it easier to dispose of the waste responsibly, or increasing demand for plastic-free and reusable products. Table 4 provides an overview of where solutions can influence key decision points in the value chain, with opportunity to help tackle marine litter.

<sup>73</sup> <https://resource.co/article/only-50-cent-bathroom-waste-recycled-says-new-research>

<sup>74</sup> Jackson and Tehan, 2019,

[https://www.keepbritaintidy.org/sites/default/files/resources/20132\\_Journal%20of%20Litter%20and%20Environmental%20Quality\\_Vol3-V6-ONLINE.pdf](https://www.keepbritaintidy.org/sites/default/files/resources/20132_Journal%20of%20Litter%20and%20Environmental%20Quality_Vol3-V6-ONLINE.pdf)

<sup>75</sup> Comment from stakeholder engagement workshop

<sup>76</sup> <https://www.goodhousekeeping.com/health/news/a43348/tampon-disposal/>

Table 4: Menstrual products - where solutions can most influence key decision points

Life cycle stage	Key decision point	Education and engagement	Improved labelling	Sanitary bags	Bins and infrastructure	Extended Producer Responsibility
Production	Business model & product design	✓	✗	✗	✗	✓
Retail & distribution	Retail stock & promote	✓	✗	✗	✗	✓
End of life/Recovery	Waste management	✓	✓	✓	✓	✓

✓ = Yes, ✗ = No, ✓ = Yes - if solution designed with this in mind, ? = Unknown

### 7.1 Education and engagement

Education and engagement efforts are currently focussed in schools and wastewater treatment companies ‘do not flush’ campaigns. Correct disposal of waste products should form an important part of education, alongside product choice and use. Messaging should be independent and in line with best practice. In the UK, menstrual education films and products are typically provided to schools by disposable menstrual product manufacturers. Although this is welcomed by many schools, it has been identified as biased in promoting disposable products, especially major brands, to young users<sup>77</sup>. It is important that consumer choice is encouraged by presenting a wide range of products including reusable and plastic-free products, and so education programmes should be designed with consultation from different manufacturers and stakeholders. Workshop attendees suggested mixed sex classes to avoid propagating a culture of secrecy and taboo around menstruation and so that all young people can benefit from menstrual education.

Workshop participants highlighted the role of local government in handling household bathroom waste. Local authority communications on waste rarely, if ever, mention menstrual products and other commonly flushed items or bathroom waste. In describing what to put in the residual waste or ‘landfill’ bin is typically described as “household waste that can’t be recycled”, as per the Edinburgh City Council website.<sup>78</sup> Local authorities could take a more active role is specifying what to do with certain problem waste streams, such as menstrual products. It is also important to identify accessible language to ensure that all householders understand what products are being discussed, as terminology around menstruation can be confusing and may exclude some groups<sup>79</sup>.

<sup>77</sup> Plan International UK (2018), ‘Break the Barriers: Girls’ experiences of menstruation in the UK’, p. 19

<sup>78</sup> [http://www.edinburgh.gov.uk/info/20001/bins\\_and\\_recycling/1618/individual\\_kerbside\\_collections](http://www.edinburgh.gov.uk/info/20001/bins_and_recycling/1618/individual_kerbside_collections)

<sup>79</sup> Comment from stakeholder engagement workshop

Education efforts could help stimulate the market for alternative products, and an increase in demand will facilitate action elsewhere in the value chain. As shown above, major supermarkets and pharmacies already stock alternative menstrual products. Retailers have commented that this is often due to CSR and plastics-policy drivers, making the products available to customers even where demand alone would not justify it. There has also been growing activism, with campaign groups demanding that retailers’ stock and promoting plastic-free and reusable menstrual products<sup>80 81</sup>. There is scope for retailers to further promote menstrual products, but they are cautious around consumers potential sensitivity to ‘taboo’ topics, and given the range of plastic products sold by retailers their resources are currently stretched responding to many other plastics issues. Retailers are also conscious of not overloading the customer with too much information in-store and through other channels. The most effective actions may be ensuring a range of alternative products is stocked in all high street stores and placed at eye level. Increased public interest and product demand, led by Government focus on the topic, would support retailers in prioritising menstrual products in their strategy on plastics.

Education and engagement efforts have traditionally been led by the water industry and NGOs, with some supported by retailers. EPR may be used to fund awareness raising activities, as manufacturers of disposable products may not voluntarily support activities that promote reusable products (which generate significantly less revenue) and manufacturers of reusable products are typically small companies that may not have sufficient funds to support large campaigns. If voluntary and industry-led, then efforts should be coordinated to involved different stakeholder groups so that material is unbiased and all views are represented.

Table 5 summarises key points from text above, highlighting the effect that education and engagement could have on drivers and barriers from section 6 to help tackle marine litter.

*Table 5: Desired effect of education and engagement on key decision points*

Key decision point	Driver/barrier	Effect of solution
Business model & product design	Currently low demand for plastic-free and reusable products	Increase demand for alternative products
Retail stock & promote	Menstrual products are not high priority in list of plastics issues/products competing for attention and resources	Increase demand for alternative products
	Retailers must respond to customer demand, and, depending on different retailers’ demographics, products may sell well or not	
	Low consumer confidence in alternative products – particularly perceived risk of leakage or discomfort	

<sup>80</sup> #EndPeriodPlastic campaign (2018), <https://www.change.org/p/make-all-menstrual-products-plastic-free>

<sup>81</sup> Interview with Ella Daish, #EndPeriodPlastic (18<sup>th</sup> July 2019)

Key decision point	Driver/barrier	Effect of solution
Waste management	Pro-environmental behaviour & care for the marine environment	Raise awareness of consequences of flushing and encourage pro-environmental behaviour
	Historic culture of flushing products	
	Lack of awareness of environmental consequences	
	Lack of awareness of risk of blockages and responsibility for clearing them	

## 7.2 Improved labelling

Steps must also be taken to improve disposable plastic products and labelling was the most common method proposed. Disposable menstrual product manufacturers are not required to disclose all product ingredients, and although most major brands now provide an outline of ingredients on their website due to public pressure<sup>82</sup>, there is no standard requirement to display ingredients on product packaging. This could be one factor contributing to lack of understanding from users that tampons and pads contain plastic and should not be flushed. AHPMA is working with the main manufacturers on improved ‘Do not flush’ labelling<sup>83</sup>. An industry standard could be developed for text and symbols, as well as label size, position, and placement. Messaging will be most effective if the label is provided on both the outer box and the wrappers on individual items<sup>84</sup>. Table 6 highlights the effect that improving product labelling could have on drivers and barriers from section 6 to help tackle marine litter.

*Table 6: Desired effect of improving labelling on key decision points*

Key decision point	Driver/barrier	Effect of solution
Waste management	Historic culture of flushing products	Disrupt flushing habits and provide key information to user
	Lack of awareness of environmental consequences	
	Lack of awareness of risk of blockages and responsibility for clearing them	

## 7.3 Sanitary bags

Sanitary bags could be provided in boxes of disposable menstrual products as standard. The stakeholder engagement found mixed views on provision of ‘sanitary bags’, and whether adding more plastic or packaging is a good idea. However, in the context of minimising marine litter, it is suggested that ‘sanitary bags’ could discourage flushing of disposable products, thus contributing to reducing marine litter. Product design could make the process more efficient and less wasteful. For example, Bodyform has developed a

<sup>82</sup> [https://www.nytimes.com/2015/10/27/business/under-pressure-feminine-product-makers-disclose-ingredients.html?\\_r=0](https://www.nytimes.com/2015/10/27/business/under-pressure-feminine-product-makers-disclose-ingredients.html?_r=0)

<sup>83</sup> Comments provided by AHPMA at stakeholder engagement workshop

<sup>84</sup> Comments from stakeholder workshop

menstrual pad where the wrapper is designed to be used as a sanitary bag.<sup>85</sup> Table 7 highlights the effect that sanitary bags could have on drivers and barriers from section 6 to help tackle marine litter.

*Table 7: Desired effect of sanitary bags on key decision points*

Key decision point	Driver/barrier	Effect of solution
Waste management	Lack of suitable bins	Provide a temporary waste container until a suitable bin can be found
	Not wanting to contaminate the bathroom recycling waste stream	

#### 7.4 Bins and infrastructure

Workshop participants suggested bin infrastructure was important in supporting responsible waste management. It was acknowledged that a bin should be a standard part of any toilet infrastructure. Suggestions included requiring all bathroom bins sold to have two compartments to separate recycling and residual waste, and co-design of bins with young people to involve them in the process. Bins could be funded by local authorities as part of the provision of household waste containment, or by other stakeholders affected such as the sewerage industry. The infrastructure needs of users of reusables are different in that a bin is not needed but sinks to wash the product are required, preferably within the bathroom stall. Workshop participants suggested that developers could better plan bathrooms to make waste management easier, perhaps led by sustainable or ‘smart’ homes, and the need to plan for future needs (such as sinks in cubicles)<sup>86</sup>. Table 8 highlights the effect that provision of bins and infrastructure could have on drivers and barriers from section 6 to help tackle marine litter.

*Table 8: Desired effect of bins and infrastructure on key decision points*

Key decision point	Driver/barrier	Effect of solution
Waste management	Lack of suitable bins	Provide suitable bins in toilets for waste disposal, and provide sinks for washing reusable products
	Not wanting to contaminate the bathroom recycling waste stream	

#### 7.5 Extended Producer Responsibility

Menstrual products are typically single-use products containing plastics that are relatively cheap per item, sold in very high volumes, and commonly identified as marine litter. However, reusable and plastic-free disposable products are already available and future design and innovation could deliver further improvements. EPR could be used to further incentivise brands and manufacturers in this direction and stimulate new product design and business models.

<sup>85</sup> <https://www.bodyform.co.uk/products/roll-press-go/>

<sup>86</sup> Comments from stakeholder engagement workshop



The SUP Directive only focussed on ‘sanitary towels’, not tampons, and did not include EPR in the recommended measures. However, menstrual products would appear to be strong candidates for EPR. The aim of EPR would be twofold:

1. Connect producers with the externality costs these products cause the sewerage industry and wider society as marine litter, to follow the producer pays principal and incentivise product design innovation, and
2. Represent the true lifecycle costs of the product in the price.

The second point is particularly important, as alternative products that deliver marine litter benefits, struggle to compete on price, even though reusables deliver consumer savings over the lifetime of the product. A modulated fee approach is arguably the best means to design EPR for menstrual products, given the flexibility to incorporate various externality costs, including presence as marine litter and cleanup costs. Furthermore, EPR could be used to fund awareness raising activities, and if the negative externalities were reflected in the product price, this could be made transparent to the consumer thereby further affecting education and behaviour change around waste management.

EPR could address the negative environmental impact of disposable menstrual products on the marine environment, but it is important to consider the social and cultural implications. In the UK, there has been public campaigns to demand an end to the ‘Tampon Tax’ – menstrual products are subject to 5% VAT and are considered to be a ‘luxury’ product<sup>87 88</sup> – in order to tackle period poverty and make disposable menstrual products more affordable. Currently, reusable menstrual products only have a small market share, with the majority of users reliant on disposable products. If EPR resulted in additional costs to the consumer/user, it could be viewed as an additional ‘tax’ on menstruation, which could be seen as contradictory to the Scottish Government’s commitment to tackle period poverty through providing access to free menstrual products<sup>89</sup>.

However, these factors should not rule out initial exploration of EPR solutions. EPR is a broad group of policy measures that can be adapted through design to suit different situations, and there may be some applications that would be beneficial for menstrual products if developed through close consultation or co-design with stakeholder representatives. Any consideration of EPR should balance the need to address environmental harm with respecting social implications and protecting the rights of people who menstruate.

Table 9 highlights the effect that EPR could have on drivers and barriers from section 6 to help tackle marine litter.

<sup>87</sup> <https://www.womanandhome.com/life/news-entertainment/what-is-the-tampon-tax-why-do-we-pay-it-and-when-will-it-finally-be-scrapped-205638/>

<sup>88</sup> [https://www.change.org/p/sainsbury-drop-the-price-of-period-products-by-5-and-help-to-end-tampon-tax-period?utm\\_medium=email&utm\\_campaign=aa\\_sign&utm\\_source=116123&j=116123&sfmc\\_sub=166878361&l=32\\_HTML&u=22702937&mid=7259809&jb=256](https://www.change.org/p/sainsbury-drop-the-price-of-period-products-by-5-and-help-to-end-tampon-tax-period?utm_medium=email&utm_campaign=aa_sign&utm_source=116123&j=116123&sfmc_sub=166878361&l=32_HTML&u=22702937&mid=7259809&jb=256)

<sup>89</sup> Scottish Government (2018) Students to get free access to sanitary products, <https://news.gov.scot/news/students-to-get-free-access-to-sanitary-products>

Table 9: Desired effect of EPR on key decision points

Key decision point	Driver/barrier	Effect of solution
Business model & product design	Currently low demand for plastic-free and reusable products	Incorporate externality costs into product price, thereby making alternative products more competitive on price, reducing price-barriers and increasing demand
Retail stock & promote	Retailers must respond to customer demand, and, depending on different retailers' demographics, products may sell well or not	
Waste management	Lack of awareness of risk of blockages and responsibility for clearing them	Awareness raising measures, funded through EPR, and transparency on environmental impacts if internalised in product sale price
	Lack of awareness of environmental consequences	

### 7.6 Other measures

Menstruation is much broader than waste and marine litter issues, and a holistic approach is needed. Other considerations include period poverty, consumer choice, disability, religious and cultural factors, gender identity and gender equality. Many groups are working in this space and would be valuable collaborators on issues relating to waste and marine litter. The need to empower not blame the public and be sensitive to individuals' interest and comfort with the subject was raised by workshop participants. Normalising menstruation and promoting period positivity as part of being healthy was also highlighted.

The provision of free menstrual products by Scottish Government and its partners is an opportunity to engage on the issues discussed above. Reusable products are available through the scheme but the higher outlay cost was raised as a concern at the workshop that fewer people would be reached with the available budget. It is difficult to balance this with the cost-savings over the lifetime of the product. Workshop attendees commented that providing reusable products could help users to 'try' them, but that if given away for free the user may not value it and feel invested in the same way as if they had bought it. There was also emphasis on the need for comprehensive education and support on using alternative menstrual products, as simply providing the product may not result in the individual using the product. Different options for reusables through the scheme could be explored, for example discounted items rather than completely free, or other means to invest the user, such as investment of time in attending training sessions on how to use the product.

Stakeholders also raised the need to involve men in discussions and make menstrual products available to men, e.g. if provided through food banks, as they may be collecting items on behalf of women in their household. Moreover, stakeholders raised concern that not all menstrual product users are women, and that education and engagement must consider trans rights and use inclusive language.

Some stakeholders suggested banning plastic applicators but further research would be needed to understand the full implications of this, for example on users with disabilities and other needs.

## 8 Recommendations

Based on the research findings, the following recommendations are made to The Scottish Government in Table 10, with some broken down into smaller tasks. The recommendations presented have different potential efficacy, costs and timescales. To some degree the likely impact is related to the resources and support invested in any single measure. The recommendations can be implemented in any order, but sub tasks for the integrated communications strategy are presented in a logical sequence. Appraising and eventually implementing EPR is likely to require longer timeframes.

*Table 10: Recommendations to address marine litter from menstrual products*

Recommendation	Details
<b>1. Design an integrated communications strategy</b>	Design an integrated communications strategy, where messaging, symbols and approach are co-ordinated across education, awareness raising campaigns and product labelling. Collaborate with UK and devolved governments to standardise for whole of the UK. The costs could be covered by EPR, if established for disposable menstrual products, or if voluntary and industry-led should be coordinated to involve key stakeholder groups. Individual steps are outlined below.
<b>a) Agree common standards for 'Do not flush' labelling</b>	Engage AHPMA and manufacturers of disposable plastics menstrual products, who are already working on this topic, and consult other stakeholders. Labelling will be most effective if provided in large text, with standard symbols, on both the outer pack and the individual product wrappers. Consider how to communicate motivating factors such as the impacts of flushing on the marine environment, sewer blockages, and blockages in the home with impacts to the resident.
<b>b) Publish best practice on education and engagement</b>	Standardising messaging, ensuring consumer choice is supported with inclusion of reusable and plastic-free products, discussion of their use, benefits and addressing common concerns. Correct disposal of single-use products should also be covered in detail, as well as the negative impacts of flushing behaviour.
<b>c) Commission schools' education programme</b>	Commission a nation-wide education programme. Following the best practice guidance above. City to Sea has developed a promising programme in England, with support from Anglian Water and Waitrose, which could be adapted for Scotland. Education programme should have ambition to engage all demographics, and should not focus solely on young people.
<b>d) Awareness raising campaign</b>	Deliver an awareness raising campaign on all commonly flushed items (wet wipes, condoms, etc.), covering impacts on sewerage network and marine litter, correct disposal behaviour and alternative products where available. Incorporate messaging onto local authority communications materials (website and flyers) around household waste.

Recommendation	Details
<p><b>2. Research whether sanitary bags can prevent flushing behaviour</b></p>	<p>Research evidence for providing sanitary bags, or similar, and if justified, promote changes to product design of disposable menstrual products to include a bag to assist disposal, or redesigning the wrapper as a bag.</p>
<p><b>3. Review public and workplace provision of bins, quality of bin provision and adequate access to sinks in toilet cubicles</b></p>	<p>If services are lacking it acts as a barrier to responsible waste management and using reusables. Guidance for waste companies, facilities management firms, employers and public institutions could help clarify requirements. Potential for bin provision and access to sinks to be delivered through a process of co-design with users.</p>
<p><b>4. Appraise feasibility and efficacy of EPR</b></p>	<p>Currently the environmental and social impacts of disposable menstrual products as marine litter are not reflected in the product price, and so alternative products that address these issues struggle to compete. These impacts are borne by the wider society rather than the polluter. EPR could help address these issues and incentivise further action to improve product design and labelling. EPR could stimulate new product designs to tackle marine litter, recognising a segment of society still persist with poor disposal behaviours in spite of the best education endeavours. Such an incentive could be delivered through a modulated fee linked to marine litter prevalence and cleanup costs. Discussion of EPR should consider the proliferation of period poverty in the UK and ensure that EPR is not viewed as an additional ‘tax’ on women and people who menstruate.</p>

## 9 Comparable products

Some of the findings of the research for menstrual products may well be relevant to other flushable products. Stakeholders highlighted incontinence products as a comparable marine litter issue. They are similar in form and function to menstrual pads, and share many of the same drivers and barriers. In particular, the lack of bins in men’s toilets was raised as a barrier to responsible waste management. Nappies were also highlighted, although as they are bulkier items they may be less prone to flushing behaviour.

Wet wipes are currently highest profile of the ‘non-flushables’ found in marine litter, and are receiving the most attention from manufacturers and retailers. This is partly due to their role in sewerage blockages and subsequent communications efforts from wastewater companies and NGOs. Wet wipes share many of the drivers and barriers presented above and solutions such as plastic-free products and flushability standards. Other commonly flushed items such as condoms share aspects of the research but to a lesser degree.

These products should be considered in communications and awareness raising activities. Whilst education should be tailored for discussion of menstruation and menstrual products particularly in schools, wider communications on flushing behaviour should encompass all product groups, for example whilst reinforcing the ‘3 Ps’ message.

## Appendix A Key organisations in the value chain for Scotland

### A.1 Menstrual products

Table 11 outlines key private sector organisations for Scotland in the role of manufacturing and supply of menstrual products, identified in this research.

*Table 11: Menstrual products - Key organisations in production, retail/distribution*

Key Players	Location	Role within the supply chain
AHPMA	Haslemere, UK	Trade association
Proctor & Gamble UK	Surrey, UK	Manufacturer (global) – disposable menstrual products
Drylock Technologies Ltd	Wakefield, UK	Manufacturer – disposable menstrual products
Johnson & Johnson Consumer Services EAME Ltd	Maidenhead, UK	Manufacturer – disposable hygiene products
Kimberly-Clark Ltd	Surrey, UK	Manufacturer – disposable hygiene products
Lil-lets UK Ltd	Solihull, UK	Manufacturer – disposable menstrual products
Ontex Retail UK Ltd	Corby, UK	Manufacturer – disposable menstrual products
Essity	Dunstable, UK	Manufacturer – disposable menstrual products
Toiletry Sales Ltd	Wakefield, UK	Manufacturer – disposable menstrual products
Hey Girls!	Dunbar, Scotland	Manufacturer – reusable and plastic-free menstrual products
DAME	London, UK	Manufacturer – reusable menstrual products
Lily Pads	Edinburgh, Scotland	Manufacturer – reusable menstrual products
TOTM	Cardiff, Wales	Manufacturer – reusable and plastic-free menstrual products
OrganiCup	Denmark, Europe	Manufacturer – reusable menstrual products
Mooncup	Brighton, UK	Manufacturer – reusable menstrual products
Boots	<a href="#">Various</a> , UK	Retailer
<a href="#">Tesco</a>	<a href="#">Various</a> , UK	Retailer

Key Players	Location	Role within the supply chain
<a href="#">Sainsbury's</a>	<a href="#">Various</a> , UK	Retailer
<a href="#">Asda</a>	<a href="#">Various</a> , UK	Retailer
<a href="#">Morrisons</a>	<a href="#">Various</a> , UK	Retailer
<a href="#">Waitrose</a>	<a href="#">Various</a> , UK	Retailer
<a href="#">Co-op Scotmid</a>	<a href="#">Various</a> , Scotland	Retailer

## Appendix B Workshop activities

### B.1 Introduction

Workshops were conducted to engage actors across the value chain and facilitate discussion of the marine litter issues. The workshops followed the research framework of the project, and informed by preliminary findings from the literature review and 1-2-1 interviews, focussed on key decision points in the supply chain to understand the drivers and barriers that lead to marine litter. This was followed by a discussion of solutions and a prioritisation exercise to help identify which of the points discussed were felt to be most pertinent by the participants in the room.

The workshop aims, agenda and participant lists are given below. The agenda was tailored to the product group and so workshops for each product in the study varied slightly, and reflected key knowledge gaps and discussion points that needed to be addressed.

The authors would like to thank all participants of the workshops and interviewees who contributed enormously to the research.

### B.2 Menstrual products workshop

#### Workshop aims

- Cross-supply chain discussion on solutions, key decision points, and Government support
- Identify favoured solutions, generated from cross-value chain dialogue
- Note differences of opinion across stakeholder groups / supply chain points

#### Workshop agenda

Part 1 – Potential solutions:

- What solutions exist or could be designed to help tackle marine litter from menstrual products?
- Which solutions can be adopted or supported by the actors within the value chain?
- What are the key decision points in the value chain where solutions need to be adopted? (including e.g. waste management solutions / bins)
- What are the barriers and enablers to adopting the solutions?

Part 2 – Government support:

- What can the Scottish Government do to encourage and support value chain solutions?
- What other factors and stakeholder needs should be considered (e.g. taboos in discussing menstruation, period poverty, medical needs, consumer choice, social and cultural factors, etc.)

Part 3 - Prioritisation:

- Voting exercise on what can Scottish Government do to support value chain solutions?
- Discussion of reasons for choices made
- Discuss what other factors and stakeholder needs should be considered in the wider context of discussing menstrual products

Table 12: Menstrual products workshop attendees

Organisation	Sector	Attendees
AHPMA	Manufacturer trade association	1
TOTM	Manufacturer	1
Lilypads	Manufacturer	1
Hey Girls!	Manufacturer	1
Anglian Water	Water industry	1
Scottish Water	Water industry	1
Menstruation Research Network	Academia	3
Marine Conservation Society	NGO	1
Fidra	NGO	1
Cyrenians	NGO	1
#endperiodplastic	NGO	1
Independent	Independent	1
Marine Scotland	Government and public bodies	1
Scottish Government	Government and public bodies	1



# Menstrual products



# Menstrual products

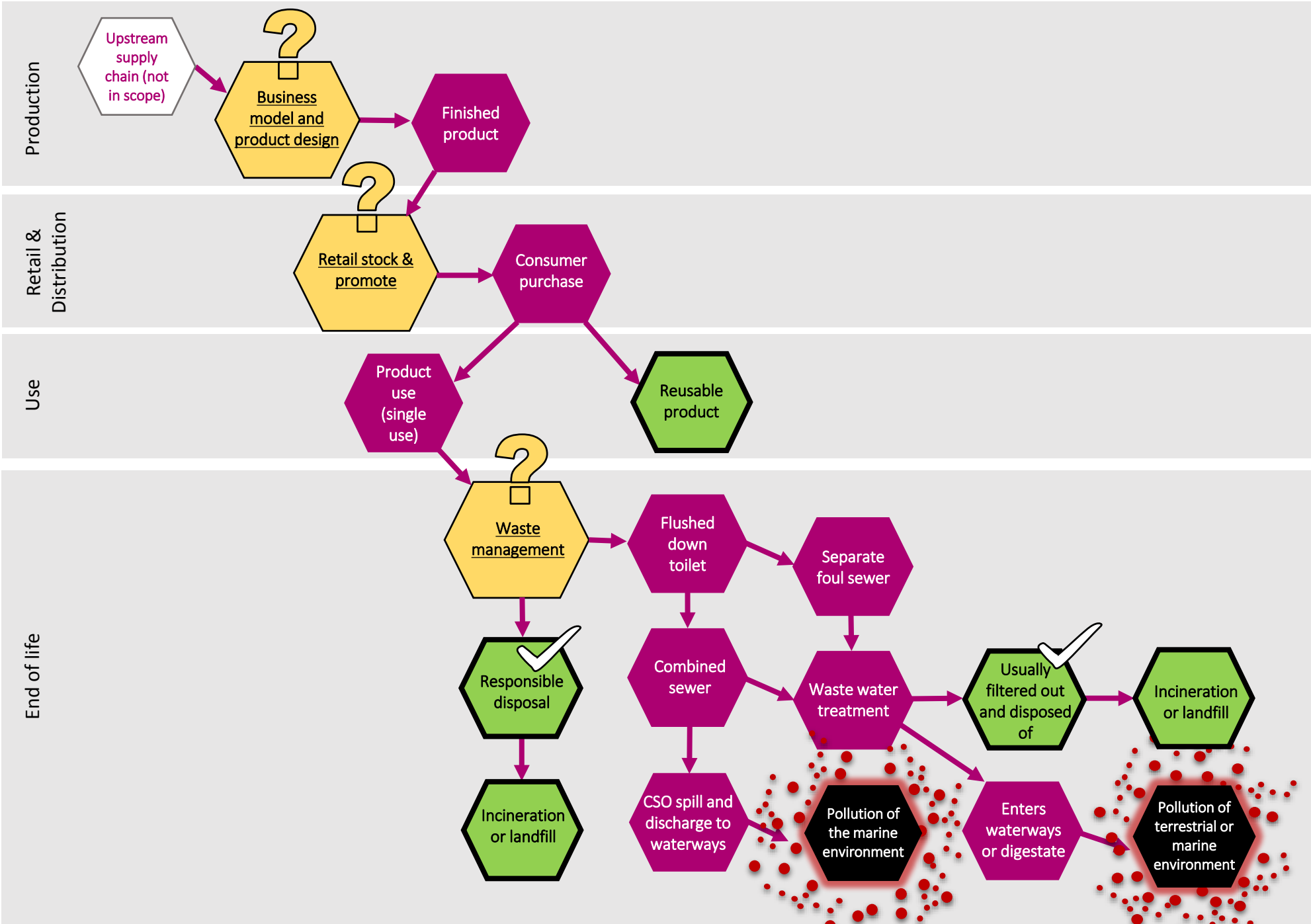
The main pathways to the marine environment are illustrated on the next slide.

Key decision points in the value chain have been identified where there is opportunity to help tackle marine litter.

Click on the yellow decision points to view more, including drivers and barriers and potential solutions.



*Images: Disposable tampon, plastic applicator and wrapper (Echo Supplies) and disposable menstrual pad (GlamCheck)*

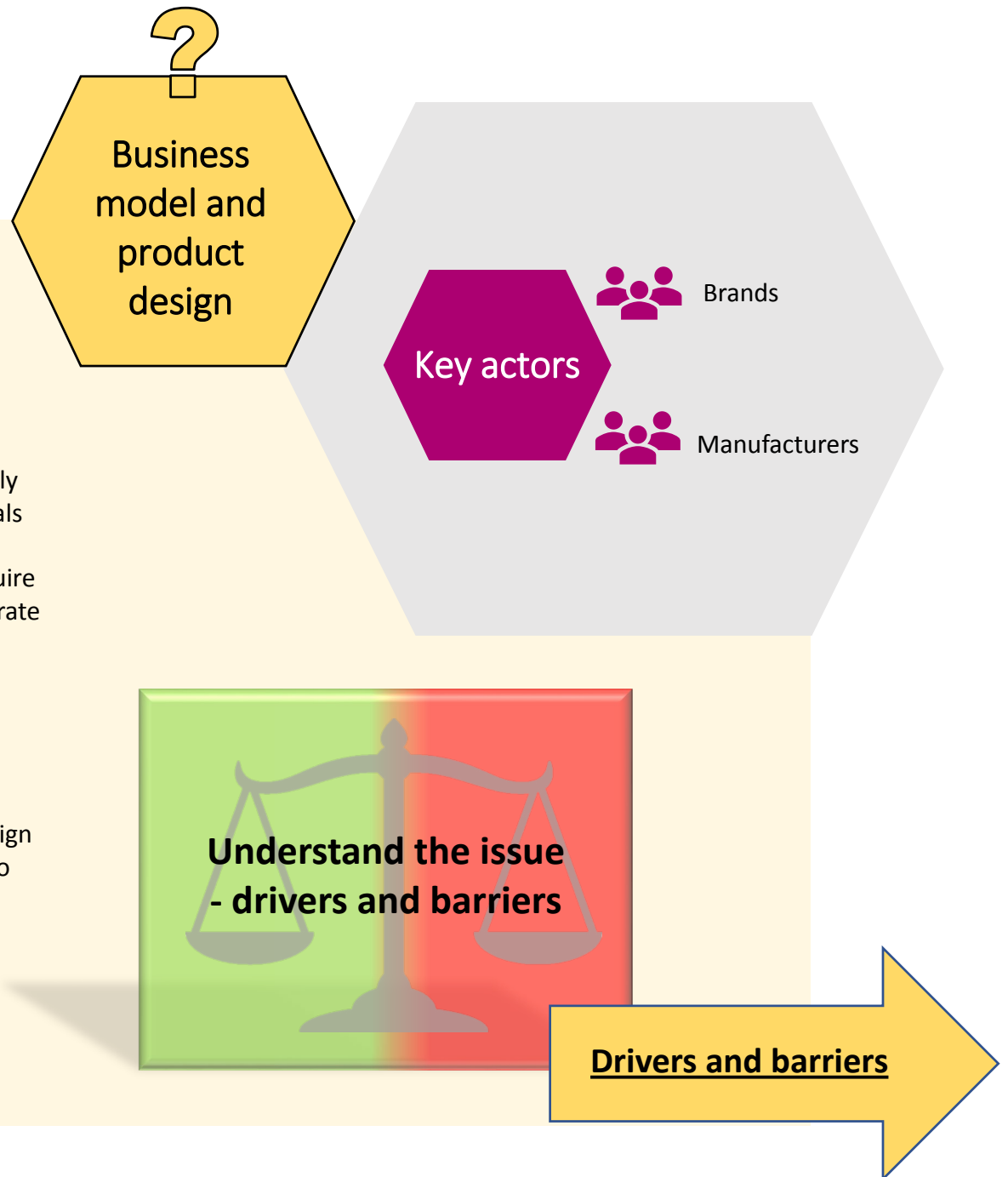


## Key decision point

Plastic-free and reusable product designs already exist on the market and deliver significant benefits in terms of marine litter. This market of alternative products is typically served by small companies, but multinationals are also starting to trial and adopt these designs. Reusable products in particular require changes to the business model as they generate much less revenue per customer.

## Opportunity

There is opportunity for brands and manufacturers to adapt existing product design or introduce new products into their range to help tackle marine litter.



## Factors **encouraging** changes in product design and business model

## Factors **discouraging** changes in product design and business model

Primary factors

- Various designs already market-tested
- Serving the small but growing market for plastic-free and reusable products
- Products that address customers concerns over plastic use in general, also provide significant marine litter benefits
- Manufacturers association is a vehicle to lead and coordinate actions (e.g. labelling), ensuring unified approach and level playing field

Secondary factors

- Reduce reputational risk of brand-identifiable products found on beaches

- Reusable products offer significantly reduced revenue, per customer per year
- Currently low demand for plastic-free and reusable products
- Competition for on-pack labelling space

**Potential solutions**





Business  
model and  
product  
design

## Potential solutions

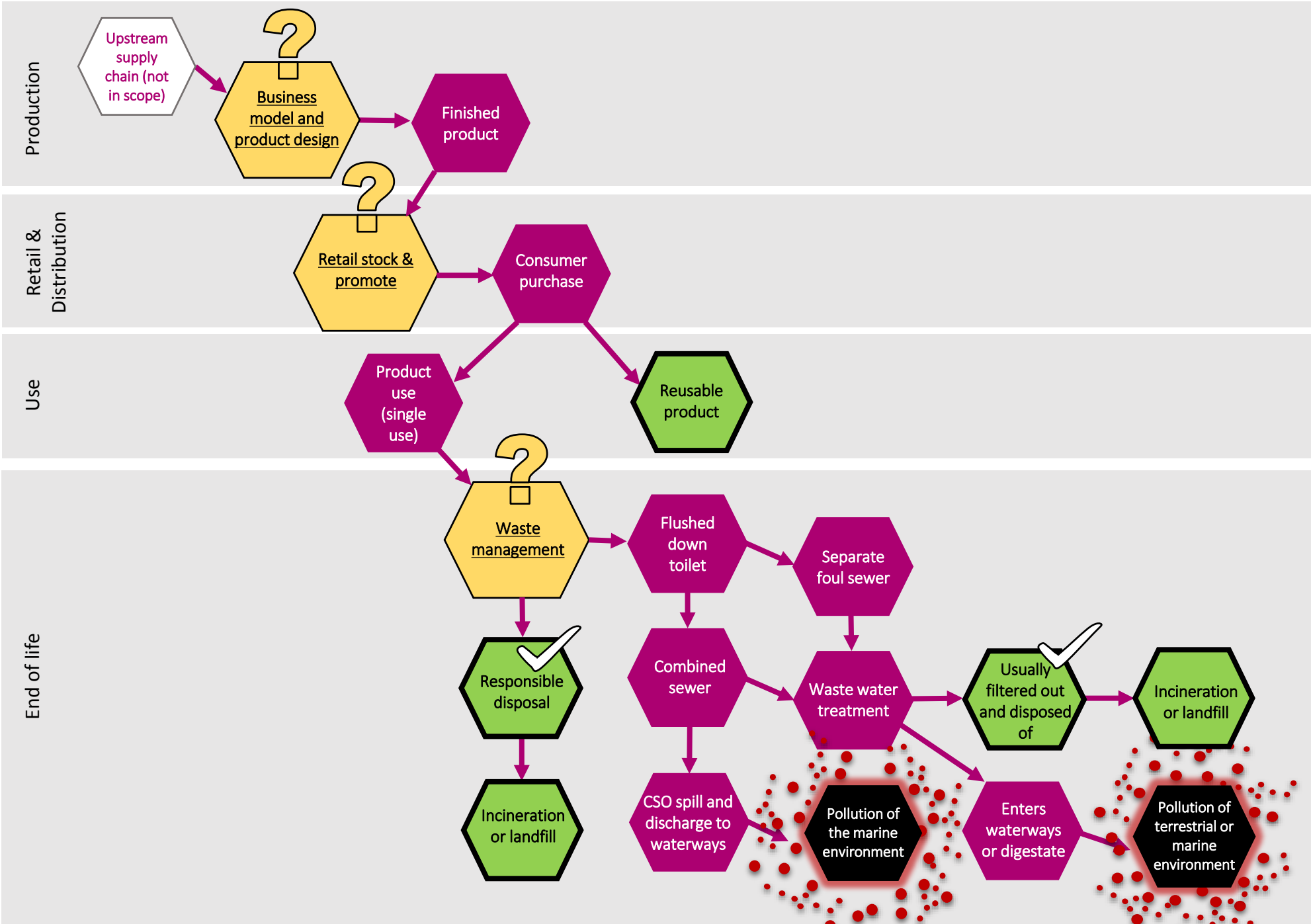
### Education and engagement

- Stimulate demand for alternative products, particularly by addressing issues of consumer confidence in new product designs and by promoting other benefits associated with these products, such as cost savings to consumer for reusable products.
- Similarly stimulate demand with public awareness raising on impacts as marine litter.

### Extended producer responsibility

- Incorporate negative externality costs into product price, thereby making alternative products more competitive on price, reducing price-barriers and increasing demand.
- Any consideration of EPR should balance the need to address environmental harm with respecting social implications and protecting the rights of menstruators. Suitable policy measures may be developed through close consultation or co-design with stakeholder representatives.

**Back to start**





Retail stock  
& promote

## Key decision point

The decision of retailers in what to stock online and in stores, and how products are promoted by given the best position on shelves or through offers and marketing.

## Opportunity

Alternative products were available at six major retailers assessed in the study, but the range of products could be increased to offer more formats (e.g. reusable cups, underwear, and tampon applicators, as well as plastic-free disposable products), sizes, etc.

Retailers could also choose to promote these products further.

Key actors



Retailers

Understand the issue  
- drivers and barriers

Drivers and barriers



## Factors **encouraging** stocking and promoting alternative products

## Factors **discouraging** stocking and promoting alternative products

Primary factors

- Various alternative products available
- Plastics is a high-priority issue for retailers
- Retail decisions include environmental and social factors, not simply driven by demand and price
- Retailers have taken responsibility for their role in the value chain of other products, particularly plastics and their environmental risks
- Retailers have influence over the design and manufacture of own-brand products

- Menstrual products are not high priority in list of plastics issues/products competing for attention and resources
- Retailers must respond to customer demand, and, depending on different retailers' demographics, products may sell well or not
- Low consumer confidence in alternative products – particularly risk of accidents

Secondary factors

- Reduce reputational risk of brand-identifiable products found on beaches

**Potential solutions**





Retail stock  
& promote

## Potential solutions

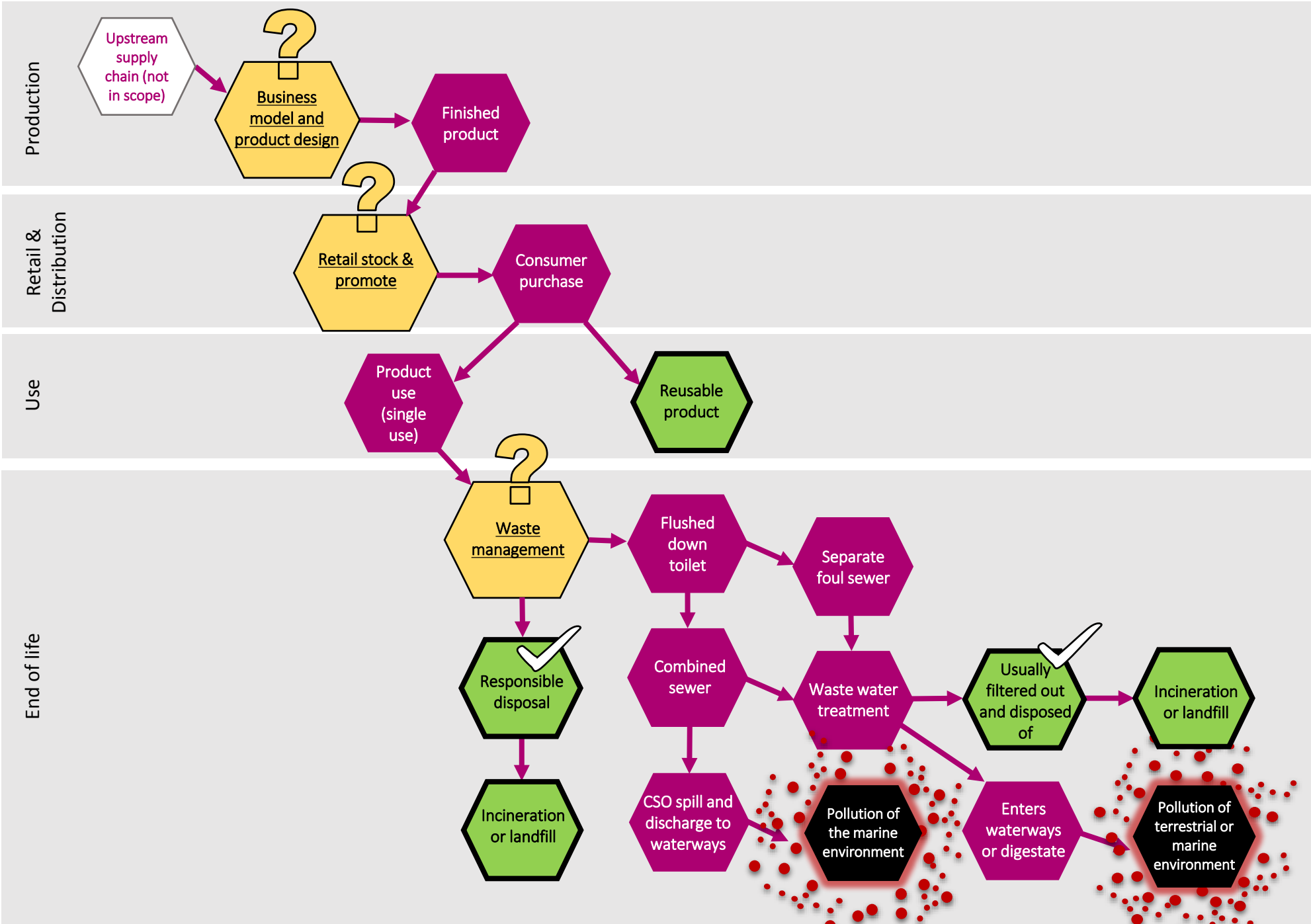
### Education and engagement

- Stimulating demand for alternative products will enable retailers to stock and promote a wider range to serve this demand.
- This can be achieved by addressing issues of consumer confidence in new product designs and by promoting other benefits associated with these products, such as cost savings to consumer for reusable products. Also with public awareness raising on impacts as marine litter.

### Extended producer responsibility

- Stimulate demand for alternative products by addressing the current imbalance in unit price between plastic disposable products and alternative products.
- Incorporate negative externality costs into product price, thereby making alternative products more competitive on price, reducing price-barriers and increasing demand.
- Any consideration of EPR should balance the need to address environmental harm with respecting social implications and protecting the rights of menstruators. Suitable policy measures may be developed through close consultation or co-design with stakeholder representatives.

**Back to start**



Production

Retail & Distribution

Use

End of life

Upstream supply chain (not in scope)

Business model and product design

Finished product

Retail stock & promote

Consumer purchase

Product use (single use)

Reusable product

Waste management

Responsible disposal

Incineration or landfill

Flushed down toilet

Combined sewer

CSO spill and discharge to waterways

Separate foul sewer

Waste water treatment

Pollution of the marine environment

Usually filtered out and disposed of

Enters waterways or digestate

Incineration or landfill

Pollution of terrestrial or marine environment



Waste management

## Key decision point

Waste management is discussed in terms of how the value chain can support product users to manage waste responsibly.

## Opportunity

Stakeholders raised the opportunity to support product users with improved product labelling, and appropriate waste management infrastructure.

Key actors



Public bodies



Waste management companies

Understand the issue  
- drivers and barriers

Drivers and barriers

## Factors **encouraging** responsible waste management

## Factors **discouraging** responsible waste management

Primary factors

- Pro-environmental behaviour & care for the marine environment
- Legal duty of care requirement for employers to provide suitable bins

- Historic culture of flushing products
- Lack of awareness of risk of blockages and responsibility for clearing them
- Lack of awareness of environmental consequences
- Lack of suitable bins

Secondary factors

- Not wanting to contaminate the bathroom recycling waste stream

**Potential solutions**





## Potential solutions

### Education and engagement

- Raise awareness of consequences of flushing and encourage pro-environmental behaviour

### Improved labelling

- Disrupt flushing habits and provide key information to user

### Sanitary bags

- Provide a temporary waste container until a suitable bin can be found

### Bins and infrastructure

- Provide suitable bins in toilets for waste disposal, and provide sinks for washing reusable products

### Extended producer responsibility

- Awareness raising measures, funded through EPR, and transparency on environmental impacts if internalised in product sale price
- Any consideration of EPR should balance the need to address environmental harm with respecting social implications and protecting the rights of menstruators. Suitable policy measures may be developed through close consultation or co-design with stakeholder representatives.

**Back to start**