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Policy interventions to encourage sustainable consumption

Guidance Report

Maddie Harris

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For further information on JNCC's report series please contact:
Joint Nature Conservation Committee
Monkstone House
City Road
Peterborough PE1 1JY
https://jncc.gov.uk/
Communications@jncc.gov.uk

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Author affiliation:
[1] JNCC, Monkstone House, City Road, Peterborough, PE1 1JY

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Summary

Sustainable consumption is increasing in profile as an area of policy priority. This report synthesises key policy interventions that could be used by governments to influence the sustainability of consumption (Figure 1). These must target a range of different supply chain actors, including individual consumers, producers, processors, importers, retailers, investors and governments. In order to improve the sustainability of consumption, each of these actors needs access to sustainable options, an understanding of how sustainable each option is, encouragement to choose the most sustainable options, prevention from choosing the most harmful options and, where appropriate, support to reduce total levels of consumption. Policy interventions that can be used to enact this change can be grouped into infrastructure-based interventions (which include sustainable waste disposal and a circular economy, and supporting local consumption, where appropriate), information-based interventions (including ecolabelling, certification, awareness raising campaigns, school education, and capacity building), economic interventions (such as taxes, subsidies, and funding for research and implementation of sustainable options) and regulatory interventions (such as through free trade agreements, multi-lateral agreements, bans or quotas, sustainable public procurement rules, and controls on advertising). There is significant crossover and synergy between each of these policy interventions, with no one intervention able to create as significant a change alone as when undertaken alongside others. A suite of different policy interventions targeting actors across the supply chain will therefore be most effective at increasing the sustainability of consumption.

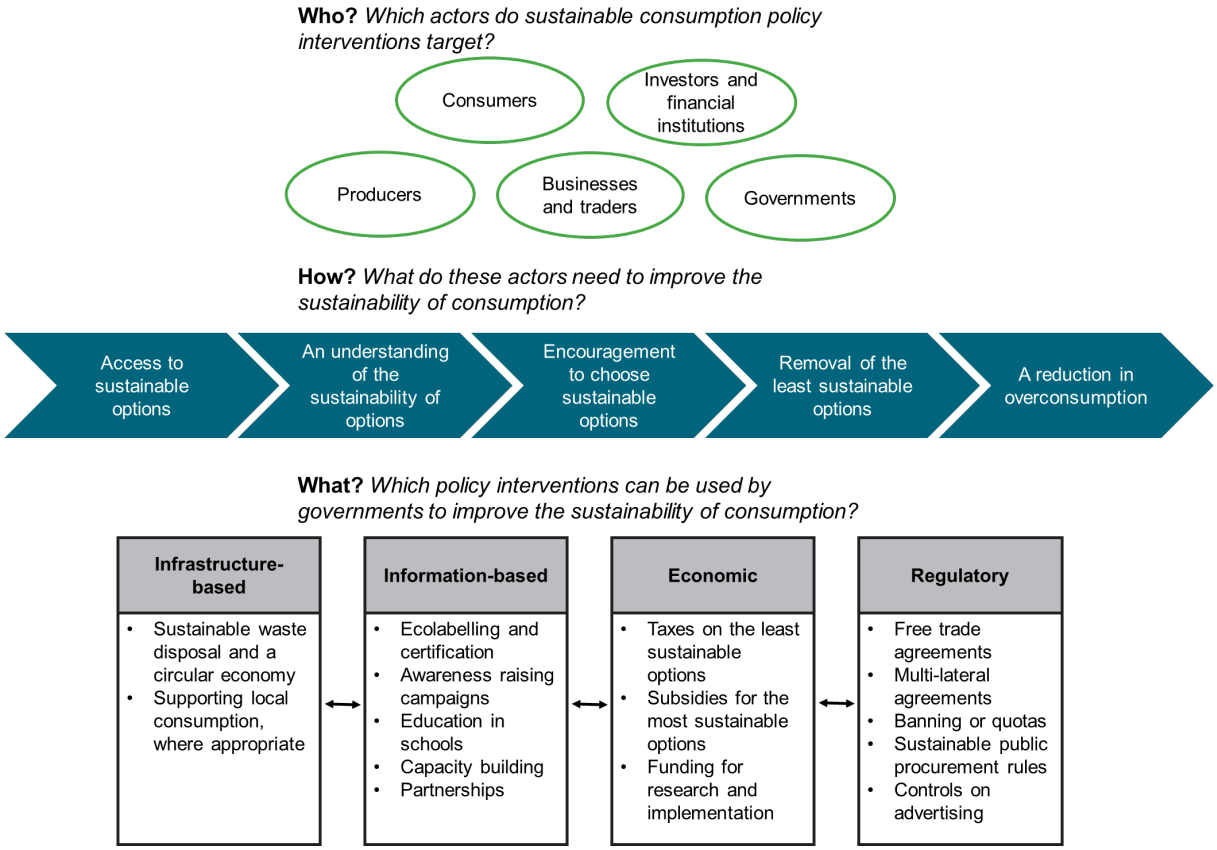

Figure 1. A summary of policy interventions that could be used by governments to improve the sustainability of consumption, the actors they can target and the barriers they can help to break down.

Contents

1 Introduction

This report aims to summarise policy interventions that could be used by governments to influence the sustainability of consumption. It begins by introducing readers to the policy context and scope for the document (Section 1). It then explores audiences that could be targeted by sustainable consumption policy interventions (Section 2). Next, it identifies key barriers to sustainable consumption that policy interventions could aim to overcome (Section 3). Finally, it runs through a range of possible policy interventions grouped by type, giving examples of where these have been implemented and, where information is available, commenting on the effectiveness of their implementation and other factors that would need to be considered (Section 4).

1.1 Policy context

Sustainable consumption is important, both to prevent environmental impacts such as biodiversity loss, and also to ensure continued resource security and supply chain resilience. It is increasing in profile as an area of policy priority; the issue has been highlighted recently in multiple high-profile reports, such as the National Food Strategy, the Dasgupta review and the first draft of the Convention on Biological Diversity's post-2020 framework. Across the four UK countries, the problem is being recognised in key policy documents:

- England's 25 Year Environment Plan aims to "avoid improving our domestic environment at the expense of the environment globally"
- Wales' 2015 Wellbeing of Future Generations Act has a goal for "a globally responsible Wales," which includes "ensuring that our supply chains are fair, ethical and sustainable," "supporting sustainable behaviour," and "efficient use of resources"
- Scotland's 2020 Environment Strategy includes an outcome that "we are responsible global citizens with a sustainable international footprint"
- Northern Ireland's Sustainable Development Strategy has a guiding principle of "living within environmental limits"

Recent JNCC work (Croft *et al*. 2021) has progressed our understanding of the environmental impacts that the UK has through its consumption, through the development of a national indicator. This can be used as a tool to prioritise the sectors and geographies where interventions are most likely to make a difference. However, the workstream has not yet explored what interventions could be carried out. This report therefore aims to identify policy interventions that could be used to improve the sustainability of a country's consumption.

1.2 Aims and scope

The report is based on a review of both scientific and grey literature to identify policies that have been undertaken in other countries, as well as policies that have been suggested as solutions in the scientific literature even if not yet implemented. The review was time-restricted to five days and so did not aim to be comprehensive or systematic.

The scope of the review was limited to actions that could be undertaken by governments. Therefore, actions that could be undertaken directly by (for example) individual consumers were excluded; however, actions that the government could take to engage with, educate or legislate in ways that might change the behaviour of those consumers were included. The report does not aim to give the full detail that would be required for implementation of these

policy interventions, but rather aims to frame thinking with regards to the options that are available and that could be considered.

Whilst previous JNCC work in this area has largely focused on agricultural supply chains, this report has a broader sectoral scope, including policy interventions of relevance to any sector of the economy. The review does not constitute a 'deep dive' into any one environmental impact type (e.g. biodiversity, GHG emissions) or commodity to identify policy interventions specifically applicable in that case. Instead, it focuses on generic and cross-cutting policy interventions that could be applied to reduce any environmental impact type of interest. However, it is important to highlight the importance of and need for additional complementary research that focuses in more detail on specifics.

1.3 Disclaimer

This report does not aim to make specific recommendations about which policy interventions should be adopted; nor does it constitute any kind of suggestion or commitment that any of the policy interventions mentioned will be implemented by a particular actor. Rather, it aims to act as an information source that could be used, alongside other information, by policy makers who are taking such decisions. JNCC is an independent body with a remit for providing impartial expert advice on nature and conservation, with no involvement in policy implementation.

2 Which actors can sustainable consumption policy interventions target?

2.1 Individual consumers

In general, goods produced within the economy are ultimately 'consumed' by individuals, whether directly (e.g. buying an apple to eat, or buying fuel to use in your car) or in an embedded form (e.g. soy used to feed the cow that was made into a burger that you buy, or the fuel in the factory that was used to make your car). Policies that support individuals to consume more sustainably through influencing behaviours such as purchasing decisions and household waste production therefore have the potential to be wide-reaching. For example, where individuals lack knowledge on the impact of their purchasing, they will be unable to take this into account when making decisions. Similarly, where unsustainable options are more affordable than sustainable ones, this price difference may influence purchasing decisions (Jonkutė-Vilkė & Staniškis 2019; Pape *et al.* 2011). In these cases, governments could help through information provision (see Section 4.2) or use of economic policy interventions (see Section 4.3). Infrastructure based interventions (see Section 4.1) and regulatory interventions (see Section 4.4) that help ensure sustainable options are the 'default' could also be helpful. However, a consumer's access to sustainable options is dependent on other actors in the supply chain (e.g. producers, businesses), and so policies aimed at individuals alone will likely be ineffective.

2.2 Producers and processors

The locations at which the environmental impacts associated with consumption take place are often far removed from the location at which the goods are consumed. For example, the deforestation associated with soy occurs where the soy is grown (Pendrill *et al.* 2019); the pollution associated with metals happens where these are extracted (Gosar 2004); and much of the water stress associated with textile production comes about where materials are processed and dyed (Raja *et al.* 2019). Policy interventions influencing producers and processors (such as providing funding for research on and implementation of sustainable practices, see Section 4.3.3) may therefore influence sustainability of the system overall in a more direct manner (Stevens 2010). This may make it easier to identify, to understand the impacts of and to target solutions, thereby solving specific problems on-the-ground. Although the purpose of this review is to identify policy interventions to improve the sustainability of consumption rather than the sustainability of production, any changes in production impacts at a large scale will feed along the supply chain to influence consumption impacts also (if we assume that other factors, such as total volume of consumption, remain the same). Therefore, any framework of policies aiming to influence the sustainability of consumption will need also to consider the sustainability of production as an integral component. Policies aimed at consumption ultimately aim to influence production and processing practices through changing demand.

Targeting producers in addition to consumers also reduces the risk of displacement, which is a concern when policies are aimed at consumers alone. This is the problem that if consumers attempt to improve their sustainability by simply shifting supply from an area with unsustainable production to one with sustainable production, that another consumer will simply take on the unsustainable supply that is left behind, thereby leading to no actual change in the system. However, if producers are targeted as well, unsustainable supply will be addressed whether there is a different potential customer or not.

2.3 Businesses, traders and retailers

Most consumers do not purchase goods directly from producers or processors, but from businesses and retailers that act as a 'middleman'. Traders may in turn act as 'middlemen' between producers and retailers. These actors therefore play an important role in terms of what is made available to consumers. They may have a more direct (and coordinated) influence on producers and processors than individual consumers do (although supply chains can be long and complex, so whilst more direct than individual consumers they are often still far removed). Businesses are increasingly looking for opportunities to show their green credentials to consumers and investors as a selling point (Neill 2020). Policy interventions that help to encourage this further, such as supporting ecolabelling and certification (see Section 4.2.1), can therefore play a role in improving the sustainability of consumption. It is important for any policy targeting businesses to ensure that greenwashing (the use of green credentials that are not backed up by evidence) is prevented.

2.4 Investors and financial institutions

Investors and financial institutions are integral to many stages of the supply chain. If there is no investment in a particular product, it will be much harder for this product to reach markets and be consumed by individuals. As the key aim of investors and financial institutions is to make money from their investments, any economic policy interventions (see Section 4.3) that support the market competitiveness of sustainable options over unsustainable options may be particularly effective. There is also a growing interest in ethical investments (Martini 2021), suggesting that information-based interventions (see Section 4.2) that are aimed at investors and financial institutions to help them understand the impacts associated with their investments, could also be of increasing use. This highlights the importance of ensuring that information-based interventions are targeted to multiple audiences, with adapted material to be of most relevance to each case. For example, an investor or financial institution may not automatically make the link between an awareness campaign aimed at individual consumers about how this could be useful in other contexts.

2.5 Governments

Governments can also implement policies aimed at themselves, or at the governments of countries with which they work. For example, public procurement (see Section 4.4.4) constitutes a significant proportion of a country's total consumption. For example, in OECD countries, it makes up 12% of GDP on average (UNEP 2017). Ensuring this is spent responsibly can be used to both show leadership as an awareness raising tool, and to help drive markets towards sustainable options (BIO Intelligence Service 2012; UNEP 2015). Governments can also work with other governments through interventions such as trade agreements (see Section 4.4.1), which can have an effect on which goods are able most competitively to make it to market, and multi-lateral environmental agreements (see Section 4.4.2), which can provide a united message to encourage changes in production practices more widely. There are also other international governance systems in place that should be considered, such as the World Trade Organisation.

3 What do these actors need to improve the sustainability of consumption?

3.1 Access to sustainable options

If actors are not able to access sustainable options, they are unable to consume, produce or invest sustainably. For example, if producers or processors do not have investment for research or implementation to improve the sustainability of their practices (see Section 4.3.3), they may have no option but to continue their current practices. In turn, this would mean that businesses and retailers cannot pass on sustainable produce to final consumers. If consumers are being encouraged to adopt solutions such as consuming locally, but do not have access to local produce through the infrastructure available (see Section 4.1.2), they will find it difficult to follow the advice even if they wished to. If unsustainable products are more competitive in the market than sustainable alternatives, it is less likely that investors, businesses and retailers will take the risk to supply them as an option to final consumers (see Section 4.3 on economic interventions). Interventions aimed at breaking down these barriers to access could be a useful first step to ensure that sustainable options are available. Although alone this may do little, it is necessary before interventions aimed at increasing the likelihood that these options will be selected by consumers can be implemented. Combining actions aiming to improve access to sustainable options with actions aiming to improve the likelihood of selection of sustainable options could have a much greater impact than improving access alone.

3.2 An understanding of the sustainability of options

If sustainable options are available, but actors do not understand the relative impacts of the different options, there is no reason for them to select the sustainable options over other options. If information on the impacts linked to consumption is provided (see Section 4.2), actors who wish to are able to make informed decisions about their production practices, investment decisions or purchasing choices. Whilst this may represent a small proportion of total actors, public interest in the area is growing (Deloitte 2022). Whilst other barriers such as price and ease of access may have a greater impact on an actor's decisions, if used in combination with interventions aiming to break down those barriers then information provision can be an important step (Deselnicu *et al.* 2014; Pape *et al.* 2011; Scholl *et al.* 2010).

3.3 Encouragement to choose sustainable options

Governments can also use a range of interventions aimed at encouraging actors to select sustainable options by improving the ease of access to them and reducing the ease of access to unsustainable options, through influencing 'default' behaviours. For example, this could be through provision of infrastructure (see Section 4.1) or through intervening in affordability through taxes or subsidies (see Section 4.3). Whilst interventions aimed at improving understanding will typically only affect actors who are already interested in the problem, interventions aimed at encouraging sustainable choices may be effective in steering even disinterested actors towards more sustainable choices. They can therefore be more comprehensive in who they affect.

3.4 Removal of the least sustainable options

In cases where there is strong agreement that an option has significantly negative environmental consequences, there may be scope to ban it, or to set a quota (see Section

4.4.3 – and note references in that section to WTO rules). This would remove the option from the market, so consumers are unable to select it. Assuming their other consumption remains consistent, and they are forced to find a more sustainable alternative to the option in question, this would improve the sustainability of their consumption overall. Bans could also be made in the context of a smaller scope, for example through setting rules around public procurement (see Section 4.4.4) rather than at a national scale, or through making bilateral agreements with individual trading partners (see Section 4.4.1) to restrict what is imported from a single producing country rather than across the board.

3.5 A reduction in overconsumption

The environmental sustainability and resource security associated with consumption is not only linked to the sustainability of products that are consumed, but also to how much is consumed overall. Even if the production of a particular good in isolation has minimal effects on the environment or on the system's ability to regenerate and provide resource security, production of this good at a large scale can multiply those minimal effects to significant effects. The total amount of consumption in a country is related to individuals' purchasing decisions, wealth and population levels. There is a strong imbalance in levels of consumption around the world, meaning that whilst interventions relating to overconsumption may be apt to consider in countries with high levels of consumption, other countries will need to focus on ensuring they can support an increased level of consumption to support growing populations and reductions in poverty. Preventing overconsumption is often seen as the least popular policy intervention due to the importance placed on GDP and economic growth (Lorek & Fuchs 2013; Pape *et al.* 2011). However, some authors highlight the importance of more holistic economic metrics that do not only measure current economic activity, but also reflect how it might impact future potential for growth (UNEP 2015), for example through inclusion of natural capital accounts. Similarly, if consumption practices are undermining resource security, this prevents potential for future growth. Interventions that could help to prevent overconsumption include supporting a service-based economy that may allow for growth with minimal environmental impact (see Section 4.1.2), ensuring information-based interventions (see Section 2) address the risks of overconsumption alongside the risks of other types of unsustainable consumption, implementing quotas on the least sustainable products (see Section 4.4.3), and supporting access to family planning services.

4 Which policy interventions can be used by governments to improve the sustainability of consumption?

4.1 Infrastructure-based interventions

Infrastructure can be very influential in terms of consumer behaviour. 'Green Growth' strategies typically focus on investment in sustainable infrastructure. These may include options related to bike lanes or public transportation (not explored here) to improve the sustainability of transport options, or infrastructure related to ensuring the provision of sustainable waste disposal (see Section 4.1.1) and purchasing options (see Section 4.1.2).

4.1.1 Sustainable waste disposal and a circular economy

Anything that is produced has environmental impacts, for example through putting pressure on land, water and biodiversity. Reducing waste could allow for consumption needs to be met with a lower volume of production, and therefore lower impacts. For example, it is estimated that 30–40% of all food produced for human consumption is lost or wasted (FAO 2011; UNEP 2021; WWF UK 2021). If this could be minimised, it could represent a significant reduction in the total environmental impacts associated with food production, as well as addressing social issues such as food security (UNEP 2021). Unsustainable waste disposal also causes problems in terms of pollution. For example, it is estimated that about a third of all plastic packaging produced ends up dispersed in the environment rather than collected (WRAP 2022). Improving waste disposal infrastructure and encouraging a circular economy can help reduce both the total amount of waste, and the total amount that is disposed of unsustainably. The Ellen Macarthur Foundation has done a lot of work on circular economy principles, including sharing products, maintaining and prolonging the life of products, reusing products, refurbishing products, recycling products and returning the nutrients from biodegradable materials to the earth.

In the UK, waste disposal is a devolved policy area.

4.1.1.1 Kerbside recycling collection and waste separation

Provision of infrastructure to support recycling gives people access to an option to dispose of their waste more sustainably, and therefore reduce the associated environmental impacts. Kerbside recycling in particular encourages households to choose to recycle by making it a simple and convenient option that does not require the time, expense and behavioural change that drop-off points would, especially if combined with other interventions such as education and economic incentives (Struk 2017).

Kerbside recycling measures are already widely practised (Scholl *et al.* 2010), but significant scope for improvement remains. For example, it is estimated that only 9% of plastics ever produced have been recycled (Geyer *et al.* 2017). One example identified within the literature of where such measures have been implemented is the Catalonian organic waste regulations (Wolff *et al.* 2017). These aimed to reduce disposal in landfills through separate collection of organic waste. Sixteen years after its introduction, 63% of municipalities had implemented it, falling short of targets (Wolff *et al.* 2017). When combined with a tax on those that had failed to implement it after this point, compliance increased considerably. No direct assessment was made on the environmental impacts of this initiative (Wolff *et al.* 2017).

As well as improving infrastructure at the point of collection, this intervention relies on the provision of infrastructure able to process the recyclable waste. Currently, much of the UK's waste is sent abroad for recycling, leading to concerns around associated environmental and social implications, as well as longevity of the solution given some countries are starting to reject further waste imports (Burgess *et al.* 2021). Another concern raised in relation to interventions, such as recycling, that aim to improve resource efficiency is the 'rebound effect.' This is where consumers worry less about the costs or impacts of the goods they consume and the waste they produce, because they feel that solutions are already in place to mitigate the impacts they are having (UNEP 2012).

4.1.1.2 Deposit refund schemes

Deposit refund schemes combine infrastructure provision with an economic incentive for consumers to return recyclable or reusable items, such as glass bottles, batteries, tyres, oil and electronics. The incentive does not involve funding provision by the state, but rather is based on a system where the consumer pays an extra fee when they purchase an item, that can be refunded when it is returned. Studies have shown that such schemes can be very effective at increasing return rates, but that associated administrative costs can by fairly high (UNEP 2015). Although used in many countries, one example found in the literature review is the 'Packaging Ordinance with deposit scheme' that was implemented in Germany from 2006. This required consumers to pay at least €0.25 per unit when buying single-use plastic bottles and other drink packaging. The scheme was successful in significant improvements in waste disposal of such items, but did not achieve its principal aim of stabilising the share of more sustainable drinks containers on the market (Wolff *et al.* 2017). As with the case of kerbside recycling, this intervention is aimed at the consumer, and will only be effective if infrastructure is subsequently available effectively to recycle or reuse the collected waste.

4.1.1.3 Encouraging a service-based economy

One way to reduce the impacts of consumption in a way that does not threaten economic growth could be a shift in perspective from consumption being largely about purchasing new products, to having a greater focus on purchasing services. This could take the form of after-sales services, whereby companies selling a product are mandated to provide long-term warranties or repair services, or rental-based business models, whereby consumers could pay to use an item they will only need rarely, rather than buy one themselves (UNEP 2015). The sale of second-hand goods could also be encouraged.

Governments could support the shift towards a more service-based economy through provision of infrastructure (e.g. requiring all shopping centres to ensure that a certain percentage of their area is used for repairs), through information campaigns communicating its advantages, through economic support (e.g. subsidising rental-based business models) or regulatory factors such as mandating long-term warranties (UNEP 2015).

One example of a government initiative aiming to encourage the shift towards a more service-based economy is the "Sharing City, Seoul" project, launched in 2012 (Urban Sustainability Exchange 2014). This includes a wide range of programmes and policies aiming to solve a range of the city's economic, social and environmental issues through the construction of 'secondary' infrastructure and creation of new economic opportunities (UNEP 2015). The project defined primary infrastructure as that already covered by existing policies, such as roads, schools, and libraries. Meanwhile, secondary infrastructure was considered to be that for which opportunities existed but for which a lack of infrastructure prevented communal use, to increase the sharing of objects, spaces and talents (Urban Sustainability Exchange 2014). The project has been reported on as a success, with other cities trying to

follow Seoul's example and set up similar projects (Urban Sustainability Exchange 2014), but no data were found directly assessing the environmental impacts of the scheme.

Service-based approaches will not be relevant to all sectors. For example, food and other one-use items will not be able to follow such a model. However, for many other sectors, such as clothing, transport and home goods, it could create significant opportunities.

4.1.2 Supporting local consumption, where appropriate

For certain products, consuming goods produced locally can be beneficial in terms of reduced greenhouse gas emissions from transport and a greater certainty in the environmental (and social) impacts associated with their production. Therefore, support for the provision of infrastructure such as local markets, and provision of space for them in popular locations, is suggested in the literature as a useful policy intervention to provide access to local produce (UNEP 2015). It is important to note that not everything is more efficient to produce locally (life cycle assessments can report on the differing impacts between production systems and should be used if aiming to make direct comparisons between two different options) and so further research should be undertaken if aiming to implement such a policy in a more targeted way or to assess its success. For example, one study found that whilst potatoes, beef and apples led to lower carbon emissions in the UK compared to when imported, that this was not the case for tomatoes, strawberry, poultry and lamb (even when considering carbon emitted during transport), when comparing to a selection of alternative producer countries (Webb *et al.* 2013).

In the UK, this could be implemented at any scale (national, devolved, or local government).

4.2 Information-based interventions

Information-based interventions focus on communicating the impacts of consumption to allow actors to make more informed choices. These were found to be the most commonly referenced type of intervention that came up as part of the literature review, consistent with findings from a previous study (Wolff *et al.* 2017). With a lack of clarity in the current information available to supply chain actors, knowledge can present a significant barrier to making responsible choices for those who wish to do so. However, studies investigating the effectiveness of information-based interventions had mixed results (Deselnicu *et al.* 2014), with many suggesting limited willingness for consumers to change their consumption patterns based on greater knowledge of environmental impacts (e.g. Upham *et al.* 2011) and others showing greater potential (e.g. Testa *et al.* 2015). Many concluded that they were only effective when combined with other types of intervention that focus on factors such as price or health, which can be more influential to consumer behaviour than knowledge of environmental impacts alone, a phenomenon known as the 'value-action gap' (Deselnicu *et al.* 2014; Pape *et al.* 2011; Scholl *et al.* 2010). In addition, information-based interventions could help change norms and provide greater acceptance for other policy interventions such as taxes and bans (see sections 4.3 and 4.3) which may otherwise prove to be unpopular due to their more invasive nature (Röös *et al.* 2021).

4.2.1 Ecolabelling and certification

Ecolabelling consists of adding labels to products, so consumers have more information available at the point of purchase about the impacts that a product they are purchasing has had. The theory is that this could change consumer behaviour through breaking down barriers related to knowledge. For example, an ecolabel may show the amount of carbon that has been released in the production of a particular product or the amount of water that

has been used, typically through Life Cycle Assessment (a method that analyses all inputs and outputs of a defined life cycle for a particular product). The ISO (International Organization for Standardization) has produced a set of standards for ecolabels and environmental reporting more generally through the 14000 suite of standards, which includes Type I labels (awarded by national authorities based on a set of criteria), Type II labels (environmental claims made by companies themselves, for example in their advertising) and Type III labels (awarded by a qualified independent organisation such as a certification scheme body). Another example of product labelling is recycling labels, which help consumers to identify how to sustainably dispose of the waste (see Section 4.1.1) associated with products that they purchase (Mirela *et al.* 2014). Labels can either be positive (certifying that a product has been produced sustainably) or negative (signalling that a product has a large environmental footprint). Consumers are likely to be more susceptible to negative labelling but companies are more likely to be open to implementing positive labelling (Röös *et al.* 2021).

Currently, ecolabelling and certification are largely run and implemented voluntarily by companies or independent certification bodies. As well as centralising certification schemes to act as a national provider, governments could help encourage ecolabelling and certification through mandating and standardising the information that companies report to ensure consistency across labels and certification schemes. It has been shown that greenwashing (unsubstantiated or irrelevant environmental claims, made in cases where companies aim only to attract environmentally conscious consumers rather than also to improve the sustainability of their products) is a significant problem, especially in terms of consumer trust in claims, which is necessary for behavioural change to occur (UNEP 2015). One study found only 52% of sustainability claims assessed to be acceptable (Pape *et al.* 2011). Therefore, it has been suggested that another useful role Governments could play in ensuring the accurate communication of environmental product claims is through setting up a watchdog, impartial product testing, or an ombudsman function that allows consumers to complain (UNEP, 2015).

Another limitation of ecolabelling is that whilst it may help consumers make the best choice within a particular product category (e.g., between different types of fish), it does not help encourage consumers to change their consumption patterns more broadly in terms of shifting from the most harmful product categories to unrelated alternatives (e.g., from red meat to plant based proteins), which would have a greater overall impact than smaller within-category shifts (Poore & Nemecek 2018; Röös *et al.* 2021). Again, using it in combination with other interventions (such as more general awareness raising campaigns – see section 4.2.2) would therefore be important.

Similarly, ensuring that consumers understand the full picture of their consumption in a holistic manner and do not assume that buying more or bigger products labelled as sustainable will lead to no effect on the environment or offset impacts from other goods they purchase, is an important risk to mitigate (UNEP 2015). Even if all products consumed are within a threshold of sustainability, consuming more of them would lead to increased impacts overall (see Section 3.5).

It is also important for labelling schemes to consider public interpretation of information presented. For example, one study showed that the public found it very difficult to understand carbon emission values presented as part of a UK carbon labelling trial, without being provided with further information (Upham *et al.* 2011). If consumers are unable to understand the information presented, it will not lead to behavioural change.

One example of an ecolabelling scheme is the EU Ecolabel scheme. This is a voluntary label, originally set up in 1992 and subsequently revised in 2009-10, that aimed to promote resource efficiency and reduce the environmental impacts of products (Deselnicu *et al.*

2014). Products that have been awarded an EU Ecolabel show a green flower logo. Although considered key to the EU's Sustainable Consumption and Production Action Plan (Deselnicu *et al.* 2014), uptake has been relatively low, with the extent of documentation required, costs of implementation, a lack of recognition, and a lack of support from public bodies (e.g. through inclusion in sustainable public procurement criteria) cited as key barriers (Iraldo & Barberio, 2017; Prieto-Sandoval *et al.* 2020). No studies were found within the time limits of the review that went beyond exploring uptake rates to identifying specific environmental effects associated with the scheme's implementation.

In the UK, certification and ecolabelling could be implemented by either national or devolved governments.

4.2.2 Awareness raising campaigns

Awareness raising campaigns focus on a broader suite of communication tools than product labels alone. They may include consumer guides, dietary advice and declaration of footprints. This can allow for presentation of a more holistic message (e.g. demonstrating where sustainable alternatives would involve switching product category or highlighting that it is important to reduce overconsumption overall) than ecolabels alone, but information provided may be less specific. Like with ecolabels, it is important for any awareness raising campaign to consider public interpretation of information presented and how best to simplify advice without losing nuance. As with all interventions presented in the information-based interventions section, increasing knowledge needs to be carried out in combination with other policy interventions that provide easier access to sustainable options.

One risk of awareness raising campaigns, particularly when related to consumption, is that they can get 'drowned out' by companies' professional marketing campaigns promoting the increasing sale of products (UNEP 2015). This suggests potential for synergy with interventions based on advertising controls (see Section 4.4.5). It has been suggested that governments could learn much from marketing experts in terms of how to most effectively transmit information that can influence purchasing decisions (BIO Intelligence Service 2012).

Examples of public information campaigns on the theme of sustainable consumption include the Swedish Food Agency's 2017–2019 campaign to reduce food waste (Röös *et al.* 2021), Ireland's Power of One campaign to build people's understanding of the environmental impacts associated with energy consumption (Pape *et al.* 2011) and Denmark's One Tonne Less campaign which aimed to reduce CO_2 emissions by providing practical and motivational information (Scholl *et al.* 2010). Again, the impact of these campaigns remains largely unclear, with one paper commenting on the fact that evaluation reports for several such campaigns exist but are not available in the public domain (Pape *et al.* 2011). However, analysis of the One Tonne Less campaign showed that about a third of the Danish population were aware of the campaign and 17% thought it had helped them in reducing their emissions (Scholl *et al.* 2010). Factors believed to have led to this campaign's success include its careful and evidence-based planning, strong engagement from political leaders and celebrities which enhanced visibility and credibility, the building of an online community, organisation of events and workshops, and visibility at major music and sports events (Scholl *et al.* 2010).

In the UK, awareness raising campaigns could be implemented by either national or devolved governments.

4.2.3 Education in schools

Ensuring that sustainable consumption habits are taught as a cross-cutting part of the national educational curriculum across all ages is another intervention governments could use to increase consumers' knowledge in a way that could help break down barriers to behavioural change (Jonkutė-Vilkė & Staniškis 2019). For example, integrating sustainability into home economics and food technology classes could help to increase students' knowledge of how to put together meals that are not only sustainable, but also economic and tasty (Röös *et al.* 2021; Tucker 2018). For example, a lack of knowledge in how to cook appetising plant-based meals is a well-documented barrier to those who wish to reduce their meat consumption (which would make a significant difference to the land required to support consumption due to the reduced need for pasture land) from making the change (Graça *et al.* 2019). Similarly, technology lessons could include teaching on eco-innovation, biology could discuss endangered species, history could outline changes to the environment over time and economics could cover natural capital thinking (UNEP 2015). Governments could also support schools to run extra-curricular volunteering activities relating to sustainable consumption and ensure these are recognised through the award of credits or certifications (UNEP 2015). Activities involving 'greening' the school, such as recycling and rainwater harvesting, could be undertaken to give students further experience and inspiration (UNEP 2015). Ensuring sustainable consumption is covered in teacher training courses would help equip teachers with the relevant skills to enable this intervention to be as effective as possible (UNEP 2015).

One example of the use of education in schools as a policy intervention to promote sustainability is Ireland's Green Schools Programme (Pape *et al.* 2011). This aimed to ensure that positive environmental behaviours were integrated into both students' school lives and home lives. Analysis showed that students who had been through the programme had higher scores across all sustainability-related behaviours assessed, although longer term research would be required to demonstrate that such behavioural changes endured into their adult life (Pape *et al.* 2011).

In the UK, education is a devolved power.

4.2.4 Capacity building

Learning does not stop when people leave school. Training courses to build capacity and improve understanding of how best to make sustainable choices can be designed and targeted at any of the actors listed in Section 2 (individual consumers, producers, businesses, investors, and policy makers). Chef training to increase skills in sustainable gastronomy is a commonly cited example (e.g. Röös *et al.* 2021, Tucker *et al.* 2018). This includes increasing knowledge of how to use effectively local, seasonal, and vegetarian ingredients.

One example of capacity building as a policy intervention is the EEE (Energy and Environmental Expert) scheme, implemented in Finland from 1995 (Wolff *et al.* 2017). This was developed by a state-owned agency but run by volunteers in the community to provide peer-to-peer advice. Training and capacity building on sustainable choices was provided to community volunteers. These volunteers then disseminated the information more widely through acting as a point of expertise to advise other residents in the community on monitoring and reducing environmental issues. Success of the programme was variable across individual cases, but with some cases leading to a significant reduction in water and energy consumption and suggesting longer term effects through changing consumer attitudes (Wolff *et al.* 2017).

In the UK, this could be implemented at any scale (national, devolved, or local government).

4.2.5 Partnership-based interventions

Partnership-based interventions rely on actors working together to exchange knowledge and to progress implementation of sustainable consumption options. Public-private partnerships, where governments work with businesses, are used in many countries. In such cases, governments can get knowledge of how businesses work, whilst businesses feel ownership of inputting to the process. Beginning with this and only implementing regulatory interventions (see Section 4.4) if partnership-based interventions have failed is often seen as a useful stepped approach. Concerns have been raised over the potential for increases in industry influence on food systems, but effective collaborations are designed to obtain gains that would otherwise not be possible (Smyth *et al.* 2021). Partnership-based interventions have been commonly used in attempts to improve public health (Lourenço *et al.* 2019; Pan American Health Organisation 2015), but examples of their use in attempts to improve environmental sustainability also exist.

One such example is the UK the Roundtable on Sustainable Soya (Efeca and Partnership for Forests 2018), which is brought together and funded by the UK Government, and consists of key players in the UK soya market. It convened for the first time in 2017 and aims to support progress towards a goal of soya use that is "legal and cultivated in a way that protects against conversion of forests and valuable native vegetation."

In the UK, this could be implemented by any level of government.

4.3 Economic interventions

Economic interventions aim to make sustainable options more financially viable for supply chain actors. This could be through taxing or reducing subsidies on the most harmful options, reducing taxes or subsidising the most sustainable options, or funding research on and implementation of sustainable solutions. As well as addressing products directly, taxes or subsidies could also be applied to other aspects addressed in the review, such as subsidising the building of sustainable waste infrastructure. Taxes and subsidies could be aimed either at the end consumer to try to change consumption-related behaviours, or at other stages of the supply chain such as to try to change the behaviours of businesses and traders.

Advantages of these kinds of interventions include that they are often seen to be flexible and efficient ways to create change through provision of incentives for behavioural change (Pape *et al.* 2011). The price of a good (alongside quality and income level) is generally one of the key factors influencing purchasing decisions (BIO Intelligence Service 2012). The full cost based on natural capital thinking (including factors such as the cost that would be required to clear up all pollution caused by the good's production) is not currently included in prices paid by consumers in most cases; if it were, there would be a clear signal and motivation to change purchasing decisions (BIO Intelligence Service 2012). Changing purchasing decisions made by consumers may also lead to transformations within businesses who seek to remain competitive by matching this change in demand through more sustainable sourcing.

Disadvantages include that some people have concerns over the level of intervention a government can and should make to what can be seen as consumers' private lives or the interests of individual businesses (Wolff *et al.* 2017). They can also lead to unpredictable and sometimes unequally distributed costs (Pape *et al.* 2011), although this could be mitigated by ensuring prices are progressively graduated based on taxes and supporting

low-income households (BIO Intelligence Service 2012). Whilst research supports the use of financial incentives as a driver of short-term behavioural changes, it has been shown in certain cases to reduce intrinsic motivation for such behavioural changes, which is thought to be an important factor in sustaining changes in the long term (Pape *et al.* 2011).

As there have been fewer examples of economic interventions to encourage sustainable consumption than there are for information-based interventions, there is also less research available on their effectiveness (Wolff *et al.* 2017). The importance of ensuring that economic incentives are distributed throughout the supply chain so all actors share the costs and incentives for change has been highlighted as a key factor for ensuring their success (Jonkutė-Vilkė & Staniškis 2019).

4.3.1 Taxes and fees

Examples of tax or fee based sustainable consumption policies that have been implemented include:

- Ireland's pay-by-use waste charging system, which was found to lead to reductions in waste collection, but also a high level of resistance and tension at its introduction (Pape *et al.* 2011). If implementing similar policies in future, the authors of Pape *et al.* (2011) recommend ensuring a greater level of guidance is provided for waste collectors involved in the policy's implementation and ensuring that the payments required relate to the amount of waste produced to ensure the 'polluter pays' principle is taken into account, rather than just using a flat fee for any collection.
- Vehicle taxes, which have been implemented in a number of countries based on the emissions produced by each type of vehicle (Beacon 2018; UNEP 2012). For example, France introduced the "bonus/malus" system in 2007, in which sales of highly polluting vehicles are taxed, the revenue from which is used to support a credit-based system to subsidise sales of low emission vehicles. It has been considered a very effective policy in terms of shifting sales towards those that produce less pollution, with a rise in the purchase of fuel-efficient vehicles from 30% in 2007 to 56% in 2009 (Beacon 2018; BIO Intelligence Service 2012). Adjustments had to be made to ensure cost neutrality, as there was a bigger response to the incentives than initially predicted (Beacon 2018). Strong engagement with the automotive industry has helped with the policy's success by ensuring understanding and support (Beacon 2018).
- Plastic bag levies or bans have also been introduced in a wide range of countries, including levies in all four countries of the UK. These require consumers to pay a small charge to use plastic bags when shopping, thereby changing the 'default' option. Estimates suggest this has led to a 71–96% reduction in plastic bag use across the four UK countries (Xanthos & Walker 2017).

A number of papers also suggested the possibility of using Life Cycle Assessment (LCA) measurements to reform the Value Added Tax (VAT) system so that it includes ecologically differentiated VAT based on the environmental damages that a good's production is estimated to cause across all sectors of the economy (Bahn-Walkowiak & Wilts 2015; De Camillis & Goralczyk 2013; Timmermans & Achten 2018). Although suggested (and considered potentially feasible) in several scientific papers, no examples of actual implementation of such a policy were found.

In the UK, taxes and fees could be implemented by either national or devolved governments.

4.3.2 Subsidies

Examples of subsidy or payment based sustainable consumption policies that have been implemented include:

- Deposit refund schemes (see Section 4.1.1)
- Incentive schemes for electric cars, which have been adopted in a wide range of countries. In the USA, it has been estimated that for every $1000 of subsidy offered, sales of electric vehicles increased by between 2.5% and 11% (Jenn *et al.* 2018; Wee *et al.* 2018). In Europe, estimates suggest an increase of 5-7% for every €1000 (Münzel *et al.* 2019). However, other factors such as the provision of charging infrastructure (of relevance to Section 4.1) were found to have a greater effect than incentives alone (Sierzchula *et al.* 2014).
- Reform and reduction of harmful subsidies. For example, in Indonesia, fuel subsidies were reduced (UNEP 2015).

In the UK, subsidies could be implemented by either national or devolved governments.

4.3.3 Funding research and implementation

Innovation focusing on the development of more sustainable production practices and supply chain processes could lead to changes that mean increases in efficiency, with reduced environmental impacts from consumption of the same amount of commodity. Similarly, once research has identified such an improvement, its uptake and implementation will require supply chain actors to provide training and to change their current practices and infrastructure, which is also associated with a cost. Provision of funding to these cases is therefore another policy intervention that could be used by governments to improve the sustainability of their country's consumption (Jonkutė-Vilkė & Staniškis 2019).

This could be executed through existing instruments such as research councils and overseas development assistance, so could be relatively simple to implement as it would only require ensuring that sustainable consumption is specified in calls for projects and assessed against as a key criterion when making funding decisions. Alternatively, it could be implemented on a larger scale through the establishment of a new instrument, such as a research council with a specific sustainability remit.

In the UK, funding could be provided at any scale (national, devolved, or local government).

4.4 Regulatory interventions

Regulatory interventions aim to make use of legislation or commitments made with partner countries in order to reduce the environmental impact of consumption. This may form part of an international or bilateral agreement, a ban or quota, or rules relating to public procurement.

Regulatory interventions are the type that are the most likely to have a direct impact on the behaviour of supply chain actors, as they rely on outright bans rather than nudging behaviour. Whilst other intervention types mentioned often focus more on breaking down barriers for the frontrunners who are already conscious of and making efforts towards sustainable consumption, regulatory interventions may be more effective for actors who are less inclined to strive for positive change.

As with economic interventions, some people have concerns over the level of intervention a government can and should make to what can be seen as consumers' private lives or the interests of individual businesses (Wolff *et al.* 2017); a sentiment that may be stronger for an outright ban than for changes in prices. Bans also run a greater risk of 'black markets' developing, with goods being sold illegally, so implementation of regulatory interventions must be coupled with appropriate enforcement in order to be effective.

Additionally, the implementation of regulatory policies that lead to barriers to trade must ensure they meet WTO (World Trade Organisation) rules. These state that countries cannot ban the imports of goods outright and that tariffs on goods must be the same for all countries for which a specific bilateral trade agreement has not been made, except in a very specific set of cases listed in Article XX of the General Agreement on Tariffs and Trade (GATT). These exceptions include where measures are "necessary to protect public morals," "necessary to protect human, animal or plant life or health" and "relating to the conservation of exhaustible natural resources if such measures are made effective in conjunction with restrictions on domestic production or consumption." This does provide scope for bans on environmental grounds, such as the ban on ozone-depleting products that was made as part of the Montreal Protocol or bans relating to CITES (the Convention on International Trade in Endangered Species of Wild Fauna and Flora). However, it does not provide scope for discrimination between 'like' products, which would enable broader application. A lack of clarity from WTO remains a commonly cited barrier to implementation of these kinds of policy intervention, although a recent WWF report provides a detailed legal analysis of the situation (van der Ven *et al.* 2022).

Similar to economic interventions, there have been relatively few examples of regulatory interventions to encourage sustainable consumption in comparison with information-based interventions, so there is also less research available on their effectiveness (Wolff *et al.* 2017).

4.4.1 Trade agreements

Free trade agreements take place bilaterally between two countries or trading blocs in order to negotiate trade tariffs. Often, agreements contain text addressing the environmental impacts associated with the trade in question. In many cases, this simply acknowledges that certain activities are environmentally harmful and states that both parties should endeavour to limit impact. In some cases, a more specific analysis of the environmental impacts and sustainability of the trade between two countries is undertaken. Although relatively few mentions of this and no assessments of effectiveness were found within the literature review, encouraging this more detailed analysis nonetheless represents an opportunity more fully to embed environmental negotiations within trade negotiations in a way that meets WTO requirements (i.e. does not need to meet one of the specific exceptions listed above, as it is only applied between the two countries that have agreed on it).

Trade agreements would focus on trade (which covers imports and exports, regardless of whether these are then consumed within the country or processed and re-exported) rather than consumption (final use). However, there is likely to be a strong link between trade and consumption: trade is required to provide sustainable options for consumption even if some of these are re-exported. Additionally, addressing sustainability in trade can help reduce consumption impacts overall at the global scale (regardless of whether the impact is linked to consumption of the country in question or to the consumption of a country that imports the re-exported goods further up the supply chain).

In the UK, this would need to be implemented centrally through national government.

4.4.2 Multilateral environmental agreements (MEAs)

MEAs consist of agreements made between at least three states, which aim to improve environmental outcomes. They include both “soft law” (where parties are obligated to consider defined environmental principles) and “hard law” (where parties must undertake legally binding actions) options. They often include setting targets that are agreed across multiple countries which aim to galvanise action.

The Montreal Protocol is one example of an MEA that has been implemented very effectively. This aimed to ban ozone depleting substances, thereby taking them off the market so that no supply chain actors had access to them, forcing an improvement in the sustainability of their consumption. It was adopted on 15 September 1987 and to this date is the only MEA that has been agreed to by every country of the world. Without the Protocol, it is estimated that ozone depletion would have increased ten times by 2050 and led to an additional two million skin cancer deaths each year by 2030 (UNEP 2018). Because of the treaty, it is estimated that the ozone layer will have recovered by 2050 (UNEP 2018). One factor contributing to the success of the treaty is the Multilateral Fund for the Implementation of the Montreal Protocol, which ensured that all countries were able to take the necessary actions and carry out the required monitoring (UNEP 2012).

Another example of an MEA is the Amsterdam Declarations, made by seven European countries in 2015, which aimed “to lend public sector support to the implementation of existing private and public sector commitments to achieve fully sustainable and deforestation-free agro-commodity supply chains in Europe by 2020” (Amsterdam Declarations Partnership 2016). This target was not met, and sources in the literature are sceptical of the extent of the impact that the agreement has had at all (Ermgassen *et al.* 2020). Reasons suggested for this include a focus on engagement rather than implementation, a reduction in the market share of the signatory countries as others such as China have grown over the relevant time period, the complexity of the supply chains involved, and the need for a greater understanding of the implications on local stakeholders in producer countries (Ermgassen *et al.* 2020; Lyons-White *et al.* 2020). A similar commitment to “working collectively to halt and reverse forest loss and land degradation by 2030 while delivering sustainable development and promoting an inclusive rural transformation” was made in 2021 as the Glasgow Leaders’ declaration on forests and land use, this time signed by 145 countries (Messetchkova 2021). Not enough time has passed to understand the impacts of this MEA, but the expanded number of signatories and the more holistic nature of the wording are positives, while the lack of clarity around whether referring to gross or net deforestation has been suggested as a likely limiting factor (Gasser *et al.* 2022).

One key advantage of MEAs over other policy interventions listed in this document, if adopted by enough partner countries, is the reduction in risk of displacement. A key concern when implementing demand side policy interventions to improve the sustainability of production is whether they will actually make a difference overall, or whether other nations will simply take on the goods rejected or reduced by the country implementing the policies. If a significant number of countries, have signed up to undertake similar actions, the risk of this reduces considerably. MEAs are therefore a key component to include in any suite of policy interventions aimed at sustainable consumption, to ensure the relevance and effectiveness of any others that are deployed.

In the UK, this would need to be implemented centrally through national government.

4.4.3 Banning of or quotas on the least sustainable options

Bans or quotas may focus on removing or reducing a particular option from the market. Bans due to environmental reasons in the field of chemical substances are relatively widespread, such as through the European Union's REACH (Registration, Evaluation, Authorization and restriction of Chemicals) directive (UNEP 2015, 2012). There are far fewer examples of bans relating to other sectors of the economy that affect consumers more directly on a day-to-day basis, such as foodstuffs, although bans relating to the consumption of single use plastics are becoming increasingly popular (UNEP 2015).

Bans or quotas may also take the form of defining specific sustainability standards below which goods are not allowed to enter the market. Again, these are relatively common in certain contexts (such as vehicles in terms of fuel emissions and energy efficiency standards for household appliances), but far less so in others, including food products (UNEP 2015). A number of recent reports and commissions have recommended the use of 'core environmental standards' to define minimum environmental conditions for imports (Department for International Trade 2021; Dimbleby 2021; The Climate Change Committee 2022; WWF 2022).

One example of legislation banning the least sustainable options is the Due Diligence legislation being adopted or considered by the UK, the EU and the USA. These vary slightly in scope (e.g. whether all deforestation is considered, or only deforestation that is illegal in the producer country) but each aim to define unacceptable deforestation and obligate companies above a certain size to ensure that they have performed Due Diligence on their supply chains to guarantee that what they are importing does not contain goods from land that has undergone such deforestation. None of these policies have yet been in place long enough (or are not yet in place) for an assessment of their effectiveness.

An example of a restriction that was commonly mentioned in the scientific literature as something that would lead to significant improvements in the sustainability of consumption, but which has not yet been implemented in any real-life examples, is the concept of restricting meat consumption (González *et al.* 2011; Röös *et al.* 2021; Tucker 2018). This topic is particularly sensitive and controversial as many people see meat consumption as part of their identity (Röös *et al.* 2021). Approaches that encourage 'less and better' meat consumption are therefore likely to be supported and implemented by a wider range of actors than an outright ban (Trewern *et al.* 2022). Similarly, restrictions on packaging sizes were suggested in the literature as a potential mechanism to prevent overconsumption, which would have both environmental and health benefits (Röös *et al.* 2021).

Disadvantages of regulatory approaches include that they may need significant research before implementation (it is important to consider potential economic impacts, alternative options that will be available to consumers, potential for unintended consequences and public acceptance), and they may lead to a need for long term enforcement and administration costs (BIO Intelligence Service 2012; Pape *et al.* 2011; UNEP 2015).

In the UK, bans or quotas could be implemented by either national or devolved governments.

4.4.4 Sustainable public procurement rules

Another way governments can influence the sustainability of consumption is through what they consume themselves. As public procurement of goods and services is estimated to make up 13–20% of GDP in developed countries (Fuentes Bargues *et al.* 2021), governments have significant power to implement change through rules and requirements

surrounding their own purchasing practices (Jonkutė-Vilkė & Staniškis, 2019). This could be considered a regulatory intervention because it involves defining rules, but it would also have an economic influence through supporting sustainable businesses and an information-based influence in terms of setting a good example for others to follow. For example, if school meals are sustainable and this is combined with interventions discussed in section 4.2, they may get more ideas about what to cook at home as an adult. The set of rules developed could also be extended voluntarily into the private sector, so that sustainably minded shops or restaurants could use it as a model to follow, if the rules and requirements are made public and easy to understand.

One example of a sustainable public procurement scheme is the Netherlands' CO_2 Performance Ladder. This uses certification (see Section 4.2.1) to give companies a competitive advantage over those that have not been certified. One study estimated that it has the potential to reduce total Dutch CO_2 emissions by 0.8–1.5% per year (Rietbergen & Blok 2013). Another study estimated that total CO_2 reductions between 2010 and 2013 in the Netherlands that could be attributed to the Performance Ladder were 1–1.6% (Rietbergen *et al.* 2017).

However, another study, which looked at Swedish cleaning service procurements (a case where very detailed environmental standards are set) found limited effect of green public procurement on supplier behaviours (Lundberg *et al.* 2015). It was suggested that the total number of bidders and their decision to participate in procurement processes are key factors to consider when determining how effective sustainable public procurement rules will be (Lundberg *et al.* 2015). Another paper has pointed out trade-offs that must be considered, relating to factors such as the higher price of sustainable options conflicting with parallel aims about keeping public sector costs as low as possible, and additional hygiene regulations that would need to be followed if switching from high impact pre-processed foods to raw foodstuffs (Wolff *et al.* 2017).

In the UK, this could be implemented at any scale (national, devolved, or local government).

4.4.5 Controls on advertising

One suggestion in the literature was that governments could provide regulations on advertising of the most harmful products (UNEP 2015). No examples of actual implementation in the context of sustainable consumption were found, but a similar intervention has been widely used for products that can be damaging to health, such as for cigarettes and alcohol. Marketing and media are known to have significant impacts on consumer behaviour and choices, so working with those in this sector and ensuring that advertisements are not over-aggressive, promoting overconsumption, or focused on the least sustainable options could help to encourage people to move toward more sustainable choices, especially if combined with public information campaigns (UNEP, 2012).

In the UK, this could be implemented by either national or devolved governments.

5 Conclusions

Overall, there are many different policy interventions (Section 4) that can be targeted at different actors (Section 2) and can focus on breaking down different barriers to sustainable consumption (Section 3). Each intervention, actor or barrier alone will do little to contribute to the overall problem if carried out in isolation; an effective solution will require a holistic integration of as many of these factors as possible, and a ratcheting of policies that start small and then build in ambition to address the systemic nature of the problem. Further research is required in most cases to demonstrate how effective each potential policy intervention is, what synergies they bring to each other and what contexts they work best within. A greater understanding of the potential for perverse incentives, such as displacement of impacts to other actors, will also be necessary, although the relevance of this will reduce as the coverage of such interventions increases globally. It will also be important to consider sustainable consumption policy interventions within the wider context of other factors, such as combining environmental factors with health factors when encouraging a change in consumption patterns. Learning from other areas, such as health, which are more advanced in their thinking on using policy to create cultural change (e.g. The Nuffield Council on Bioethics 2007), would also be useful.

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Annex 1: Methods

This report was undertaken as a rapid, time-limited (five days total for reading and write-up) synthesis of a literature review of scientific papers and the grey literature. The review did not aim to be comprehensive, but rather to provide a useful amount of information to frame key opportunities and issues.

A Scopus search was made using the syntax: *"policy lever*" OR "policy action*" AND "sustainable consumption" OR "sustainable trade".* This returned 386 results, 104 of which were considered of relevance based on abstract screening. Of these, the first 24 on the list were read and summarised in note form to input into the synthesis. Others were excluded due to time constraints.

A search for "[country name] sustainable consumption policy" was subsequently made for Australia, Canada, the USA, New Zealand, China, Germany, France, Spain, Sweden, and Finland. These countries were selected subjectively, based on factors such as the author's prior knowledge of those that have implemented sustainable consumption policies, those with large consumption impacts and those that may sit within similar context to the UK. This process led to the identification of 55 relevant papers and reports, of which information from a subset of eight documents identified was recorded, again largely restricted by time constraints.

The information from these papers was then synthesised into this report.

This study did not directly engage with any of the bodies within the UK who would be in position to implement such policies (although some kindly reviewed the report), which would be an obvious next step in the research.