JNCC Report 813

Guidance for promoting and encouraging sustainable consumption in individual consumers

Morven Rae-Seaman, Ethan Workman and Maddie Harris

January 2026

ISSN 0963 8091

JNCC's report series serves as a record of the work undertaken or commissioned by JNCC. The series also helps us to share, and promote the use of, our work and to develop future collaborations.

For further information please contact:
JNCC, Quay House, 2 East Station Road, Fletton Quays, Peterborough PE2 8YY.
https://jncc.gov.uk/

Communications@jncc.gov.uk

This document should be cited as:
Rae-Seaman, M., Workman, E. & Harris, M. (2026) Guidance for promoting and encouraging sustainable consumption in individual consumers. *JNCC Report 813*. JNCC, Peterborough, ISSN 0963-8091.
https://hub.jncc.gov.uk/assets/fa69e53c-4f8f-4be4-9bf8-30df802e21b2

This document is compliant with JNCC's Evidence Quality Assurance Policy
https://jncc. gov. uk/about-jncc/corporate-information/evidence-quality-assurance/

Summary

Impacts from consumption pose a significant threat to the health of both planet and people. To safeguard resources and protect natural systems into the future, there is a need to shift consumption patterns towards more sustainable types and levels. This can be achieved by educating consumers on the impact of their consumption decisions, and by providing resources and initiatives to encourage more sustainable consumption in the future.

Sustainable consumption is a key international goal from the Global Biodiversity Framework and relates to a number of the UN Sustainable Development Goals. Nationally, sustainable consumption is covered across policy in all four UK countries. Furthermore, industries such as soy and palm oil also have their own specific commitments and pledges on sustainability.

This report aims to understand the drivers of consumption patterns, then discusses methods that may help to encourage more sustainable consumption in the general public. These methods include but are not limited to proposed extensions or modifications to the Global Environmental Impacts of Consumption (GEIC) indicator, developed by JNCC and partners at the Stockholm Environment Institute.

Within this report, the major influences on consumption behaviour, across psychological, personal, social and cultural drivers, are discussed. How these influences can contribute to the success of various intervention approaches is then explored, including different incentive strategies, emphasis of co-benefits and the development of ecolabelling schemes. Some extensions to the GEIC indicator that could make the tool more accessible to individuals are proposed. The report ends with a broad discussion, some suggestions for future research, and key recommendations.

The report is accompanied by two Annexes, which apply the report's recommendations to produce factsheets aimed at encouraging and educating individuals to consume more sustainably in the contexts of fruit and chocolate.

Contents

1. Background

Ongoing human activities are directly linked to negative environmental consequences, including biodiversity loss, ecological collapse, climate change, and high levels of pollution. As a result, Earth has crossed six of nine major planetary boundaries, across a range of systems from biosphere health to land use changes and biogeochemical cycles.

A major source of environmental damage is through unsustainable consumption of resources, leading to deforestation, biodiversity loss and excessive use of blue and green water reserves. To address these challenges, human consumption must be reduced to take place within sustainable levels. “Sustainable consumption” is challenging to define, but finding some consistent agreement around the idea of sustainability may help to bring stakeholders together and improve progress (Wood, Hallatt & Harris 2025), and some suggested definitions are briefly discussed here.

Sustainable consumption is generally thought of as meeting the needs of the present without compromising the ability of future generations to meet their own needs (Keeble 1988). Alternatively, the 1994 Oslo Symposium on Sustainable Consumption defines a sustainable level as “the use of goods and services that respond to basic needs and bring a better quality of life, while minimising the use of natural resources, toxic materials and emissions of waste and pollutants over the life cycle, so as not to jeopardise the needs of future generations”. Therefore, a key consideration of sustainable consumption is the emphasis on the future, and a need to regulate today’s consumption in order not to take away from future generations.

Sustainable consumption, sometimes termed green consumption, mindful consumption or conscious consumption, can encompass multiple components. This report focuses on the environmental impact of consumption, but the full effect of consumer decisions is felt across social and economic spaces too. When discussing sustainable consumption and related behaviours in this report, all sustainably minded behaviours are encompassed, from an overall reduction in consumption to a shift towards more sustainable options (such as a switch to green energy supply, or a change in diet to foods with a lower environmental footprint).

To develop more sustainable models of consumption, current levels of consumption and their impacts must be understood. There are two major challenges which can limit individuals’ understanding of the impacts of their consumption. Firstly, a high proportion of impacts are “embedded” in the final product. For example, consumers may be aware of the environmental impacts of beef as an end product, but they may not be aware of the impact of the soy grown to feed the cattle eventually consumed. Secondly, a great deal of impact is “offshored”, whereby consumption occurring in one country has consequences such as deforestation and biodiversity loss in overseas countries and territories. In this way, impacts of consumption are not fully felt by the final consumer, as there is distance between where consumption is happening and where impacts are occurring.

To enable a better understanding of the global impacts of consumption, JNCC have developed the Global Environmental Impacts of Consumption (GEIC) Indicator to visualise and explain how impacts felt in one country are driven by the consumption activities of others. The tool was developed alongside partners at the Stockholm Environment Institute York, under contract to Defra. It provides information to improve understanding of consumption at a national scale, but there is scope to improve information provisioning at the individual level. Thus, research is needed to understand how best to communicate this information to individuals, to encourage more sustainable consumption choices in the public.

Targets to reduce environmental impact can be set across the entire supply chain, from point of initial production to end consumers, and it should be acknowledged that there are many

opportunities to improve the sustainability of commodities across the chain. However, for the purpose of this report, we focus on how to improve sustainability through consumer decisions at the end point of the supply chain (individual consumers). This aligns with JNCC's remit under the NERC act, where one of the key aims of the organisation is to "foster the understanding of nature conservation". Further, a previous report investigating the actions that governments may take to improve sustainability identified providing information to the public as a key action (Harris 2023).

1.1. Current policy context

Both international and national policies and targets have been set to limit consumption to sustainable levels. Internationally, the UK has committed to sustainable practices through the Global Biodiversity Framework, which has targets to reduce pollution (Target 7); enhance biodiversity and sustainability (Target 10); enable sustainable consumption choices (Target 16) and to ensure knowledge is available and accessible (Target 21). Further, several of the UN Sustainable Development Goals refer directly to sustainability, specifically goals to achieve sustainable cities and communities (Goal 11) and responsible consumption and production (Goal 12).

At the UK scale, consumption is addressed through the 25 Year Environment Plan (25YEP), with a specific aim to "avoid improving our domestic environment at the expense of the environment globally", in Chapter 6. Consumption also fits into the broad themes of the plan, with England-specific goals including using and managing land sustainably (Chapter 1); connecting people with the environment to improve health and wellbeing (Chapter 3); and increasing resource efficiency and reducing pollution and waste (Chapter 4). The 25YEP was updated to create the Environmental Improvement Plan, which acknowledges that "the impact of our use of resources extends beyond our borders" and "shifting to more sustainable supply chains is important".

The Scottish Government have published a route map detailing plans to move towards a circular economy, which encourages a reduction in consumption, and increased reuse and recycling of materials, minimising waste. The Welsh Government have similar guidance on sustainable management of natural resources. In Northern Ireland, the Department of Agriculture, Environment and Rural Affairs (DAERA) have published a Sustainability for the Future plan.

Beyond public policy, some industries have specific commitments and pledges, such as the UK Soy Manifesto, which is an industry commitment to ensure all soy entering the UK is deforestation and land conversion free. Similarly, the Roundtable on Sustainable Palm Oil is a global movement to make palm oil more sustainable, across all levels of the supply chain.

1.2. Research questions

This report aims to address two main research questions. Firstly, it aims to understand the different drivers of decision-making in consumers, by exploring the different factors that can influence decision-making and different ways information may be communicated. It links the drivers of consumption patterns to environmental contexts and discusses factors that can contribute to the likelihood of an individual choosing sustainable options.

Secondly, it investigates what incentives, or information may encourage more sustainable choices. It explores different strategies to encourage a behavioural shift, including promotion of co-benefits, and discusses the potential of expanding existing carbon calculators to include other types of consumption-related impact. This section is linked to existing data available through the GEIC indicator, to assess how this tool may be useful for engagement with the public about consumption impacts.

2. Drivers of decision making in consumers

Consumer decisions are driven by a number of factors, which have been studied across disciplines including behavioural science, psychology, statistics, and economics since the 1960s (Malter *et al.* 2020). Consumer decisions are driven by factors which can be psychological, personal, social or cultural. Each of these are discussed in turn and how they may be linked to a consciousness of sustainability is explored. Consideration is then given to how the framing or delivery of information to consumers is key for understanding and uptake.

Table 1. Different behavioural drivers applicable to sustainability, how they influence consumption patterns, and the key links to sustainability for each type.

Type of driver	Description	Key factors for sustainability
Psychological	Motivations and attitudes, worldviews, information learned, beliefs and opinions.	A sense of environmental responsibility and an understanding of how behaviour can create change.
Personal	Lifestyle and life stage, including age, economic situation, profession, interests and hobbies.	Economic accessibility and value for money and tailoring strategies to different life stages.
Social	Social groups including friends, family, colleagues and neighbours.	A desire to mimic behaviour of others can mean that one individual behaving more sustainably may influence many others around them.
Cultural	Wider societal structures and cultural norms.	Promoting sustainability as a desirable behaviour can encourage sustainable choices in consumers.

2.1. Psychological drivers of consumption behaviour

Psychological drivers include a person's motivation, perception, learning and attitudes. These factors will influence how individuals respond to information and marketing messages, which ultimately shapes purchasing decisions. In an environmental context, the key drivers of sustainable purchasing decisions are a feeling of environmental responsibility, an understanding of how individual behaviour is linked to environmental change, and a belief that an individual's decision matters and can make a difference (Joshi & Rahman 2015; Buerke *et al*. 2017). These results suggest that sustainable behaviour is dependent on educating the consumer on the challenge at hand and practically demonstrating how customers' decisions can have an impact.

2.2. Personal drivers of consumption behaviour

Personal drivers are related to the specific individual's lifestyle and life stage, and include a person's age, their economic circumstances, and their interests and hobbies. There is a general agreement that lifestyle is linked to consumption, but to understand how changes can be made, more specific aspects must be examined (Lubowiecki-Vikuk, Dąbrowska & Machnik 2021). Economic factors are often found to be a major barrier for many individuals to consume sustainably, as sustainable products are generally regarded as more expensive. However, this can be mitigated to some extent as consumers have been shown to spend

more on more expensive “green” options if they see them as good value for money (Dangelico, Nonino & Pompei 2021). There is further nuance to this as whilst some sustainable options are more expensive at the point of purchase, they may be cheaper in the longer term as they are more durable and last longer (Van Nes & Cramer 2006).

Age and life stage also strongly influence consumer behaviour. As people age, their needs and priorities change, which can influence both what they buy and how they buy it. One review paper found that older adults tend to prefer purchasing from well-established brands and rely more heavily on cognitive biases to enable quicker decision making, whereas younger consumers may take more time to decide on a purchase (Carpenter & Yoon 2011). Younger generations tend to show greater concern and action towards sustainable practices, possibly due to a higher awareness of environmental challenges and the overall sustainability landscape (Jürkenbeck, Spiller & Schulze 2021).

These results suggest that influencing consumers to behave more sustainably is context dependent, and there may be a need to personalise information to the individual consumer for maximum impact (see Section 2.6). Generally, marketing and policy can maximise impact by understanding their target markets in more depth, and tailoring messages in a way to make them clearer and more relevant to the target users – as discussed in a study of persona mapping for sustainable consumption (Onel *et al*. 2018).

2.3. Social drivers of consumption behaviour

Consumption is influenced by an individual’s social groups, such as family, friends, colleagues, neighbours and community members. Individuals generally want to conform to the norms and expectations of their groups, so will consume similar products to their peers. This drive for acceptance can mean that if sustainable practices are commonplace within a group, an individual within the group is more likely to adopt those practices themselves, in order to fit in (Salazar, Oerlemans & Van Stroe-Biezen 2013).

Therefore, it may be beneficial, when promoting the idea of sustainable consumption, to focus on the wider impacts individuals can have. If one or a few individuals in a group begin to behave more sustainably, this can have knock-on effects to the remainder of the group members, leading to a ripple effect and a wider shift towards pro-environmental behaviour.

2.4. Cultural drivers of consumption behaviour

On a larger scale, wider social structures also contribute to consumer decision making through the development of culture and societal norms. What is considered “normal” and/or “desirable” in a certain culture can significantly influence a person’s behaviour as there is an inherent want to be accepted as part of the group. Where sustainable consumption is the social norm, individuals are encouraged to shift their behaviours (Pristl, Kilian & Mann 2021). In some cases, a perceived societal norm for sustainability can even outweigh an individual’s personal norms and encourage sustainable behaviour at increased personal cost (Niu *et al*. 2023).

Sustainability can be promoted as a cultural norm in a variety of ways. Firstly, prioritising community and collaboration promotes the collective good over individualistic gain, which may lead to increased sharing of items in a variety of contexts, such as community gardens and repair cafes (Cohen & Muñoz 2016). Furthermore, promoting an inherent cultural respect for nature can promote mindful resource use and a sense of responsibility for the environment, which in turn links to the psychological and personal drivers discussed previously (Kunchamboo, Lee & Brace-Govan 2017).

2.5. Framing and delivery of information

Behavioural framing is how people's decisions can be influenced by the way that information is presented, even if options are identical. Often, the framing effect is unconscious. Presenting options in a positive (potential gains) or negative (potential losses) light can have a significant impact on an individual's subsequent choice.

For example, we could frame climate change using loss-framing as "*without* mitigating climate change, we will see further *increases* in winter floods in maritime regions and flash floods throughout Europe", or we can frame this same information as gain-framing with "by *mitigating* climate change, we can *prevent further increases* in winter floods in maritime regions and flash floods throughout Europe" (Spence & Pidgeon 2010). In the study comparing these phrases, the authors found that gain-framing messaging led to an increased likelihood of mitigation action and, more broadly, increased awareness of the severity of climate change impacts.

2.6. Generalised vs. personalised information

As there is such variety between consumers in the factors driving their decisions, it may seem intuitive that there should be variety in the way that information is presented. A number of studies have investigated the value of personalised information in comparison to generalised information for encouraging behavioural change. Generalised information, such as broad suggestions to "reduce your carbon footprint" often do not resonate with consumers, and can be easily forgotten or ignored.

Providing personalised information, such as specific ways that individuals may reduce their carbon footprints, has been suggested as an alternative to promote behavioural change. One study analysed household carbon footprints through a detailed calculator and interviews, then provided specific, practical advice on ways that a household may reduce their carbon usage (Büchs *et al*. 2018). The authors found that direct, personalised information was more effective, but did not always lead to long-term changes, highlighting the value of renewed information at regular intervals.

Providing detailed personalised information is labour intensive and requires a significantly larger effort than general information, for mixed results on the reward. However, some level of personalisation, such as providing local geographic context, can help to engage consumers with environmental impact calculators (Adams & Gynnild 2013), in turn promoting sustainable behaviours. Therefore, there may be a middle ground that providing some level of personalised information can significantly contribute to more sustainable decisions.

3. Information provisioning and incentives

3.1. Incentives for sustainable behaviour

There are several methods to incentivise and encourage sustainable behaviour. In this section, we discuss some examples of nudges or framing interventions from a variety of contexts that can lead to more environmentally friendly behaviours.

Making sustainable options the default, or more convenient than less sustainable options, allows people to change their behaviour without a significant amount of additional effort (Franzoi & vom Brocke 2022). For example, energy providers could default to energy plans with a high proportion of renewable energy. In a similar way, removing unsustainable options entirely can also be successful. Catered events could immediately improve their sustainability by providing only vegetarian options, for instance, or by providing a menu which focuses on seasonal, locally grown produce (Speck *et al*. 2022).

A more environmentally friendly diet can also be promoted at home, through improving access to "green" recipes, using seasonal, environmentally friendly ingredients with reduced environmental impact (Deudon 2020). Recipes could be provided online, via social media or through a regular newsletter. This concept could be expanded upon to include provisioning of recipe kits, where ingredients for recipes are bundled together, reducing waste and making new options more accessible. These interventions work as they remove friction associated with decision making and planning – making it easier for the individual to make a sustainable choice.

Creation of accountability through a public or social commitment can lead to significant behaviour change, by including feedback and rewards (Michaelsen & Esch 2023). Creating leaderboards or impact trackers for people to compare their progress with others can be highly motivating, as can providing habit tracking methods for people to track streaks and milestones towards reducing impact. For example, one study developed a game-based approach to encourage public transport use, whereby assigning points for more sustainable journeys led to behaviour shifts in participants (Wells *et al*. 2014).

Economic incentives are also highly effective motivators. Charging for single-use items such as plastic bags or coffee cups can act as deterrents and encourage individuals to bring their own reusable items (Dey *et al*. 2021). On a larger scale, the development of green financing initiatives can encourage property owners to invest in sustainable infrastructure (Meng, Ye & Wang 2024). Deposit return schemes, where consumers pay a small deposit on bottles or cans which is refunded on return, can increase recycling rates and reduce litter (Kükenthal *et al*. 2023).

3.2. Co-benefits

One method for encouraging environmentally conscious decisions is to relate environmental benefits to other, more personal benefits. A "doubling up" of benefits, or a "win-win" situation, can make the choice more palatable to the end consumer, and outweigh any perceived negatives of the environmental choice (Cohen *et al*. 2021). Making choices to protect the planet can be viewed as an entirely altruistic choice, and so may be less favourable to the individual consumer. Presenting the co-benefits and highlighting the benefit to the individual makes the choice more attractive (De Dominicis, Schultz & Bonaiuto 2017).

One example of co-benefits is linking environmental sustainability to personal health and wellbeing. When considering food choices, sustainable choices are often (but not always) a

more health-conscious choice. Transitions from diets high in animal products (in particular, meat and dairy) to a plant-based diet can help to mitigate climate change by reducing greenhouse gas emissions and is linked to reductions in health conditions including type 2 diabetes and heart disease (Barrett 2022). Thus, shifts towards more sustainable diets can lead to co-benefits for improving population health (Laine *et al*. 2021).

It is important to note here that there is no "right" or "wrong" diet, and a complete exclusion of meat and dairy is not required to experience some benefits. Small swaps, such as having one meat-free day a week, or simply making a conscious effort to include more plant-based choices can all add up. For example, one study found that reducing red meat consumption by 25% to 50% led to significant declines in diet-related greenhouse gas emissions and significantly increased human lifespan estimates (Auclair *et al*. 2024).

Co-benefits may also be observed between environmentally conscious choices and financial wellbeing. A fast transition to green energy could save up to $12 trillion globally by the year 2050, compared to a business as usual scenario (Way *et al*. 2022). By passing these savings on to the end consumer via economic subsidies, uptake and demand for green energy can increase (Long *et al*. 2015). A demand for sustainability can lead to a demand for innovation, which in turn can create new products and services that benefit the wider economy, as well as creating new jobs. Finally, a shift towards greener, cleaner energy can improve air quality and reduce pollution, improving overall public health (Midilli, Dincer & Ay 2006).

There are also wider societal co-benefits when communities as a whole focus on environmentally friendly options. Shared goals help to build a sense of belonging and collective identity, and this connectedness helps individuals to feel heard and valued (Neville & Reicher 2011). Development of community initiatives such as community gardens and local clean-up events improve collaboration and trust in the wider community, decreasing loneliness, and improving wellbeing by increasing access to nature, cleaner air and quieter environments, and creating a deeper sense of purpose (Ives *et al*. 2018).

3.3. Labelling and certification schemes

Ecolabelling has received a significant amount of attention over the last few decades, as a potential mechanism to inform consumers on the impact of their choices, and improve sustainability. Ecolabels have become commonplace for industries including forestry (So & Lafortezza 2022) and food (Van Amstel, Driessen & Glasbergen 2008). Their presence can help consumers to make an educated choice and raises awareness more generally, engaging people with the topic of environmental sustainability, potentially helping to shift cultural norms towards more responsible levels.

However, there is concern that ecolabels may lead to confusion or overwhelm consumers as there are many different schemes, often with inconsistent criteria. Some labelling schemes are unregulated, poorly verified, or self-declared, allowing companies to claim sustainability benefits without any real impact criteria (Van Amstel, Driessen & Glasbergen 2008). There is also a risk of alienating some consumers with too much of a focus on the "green" aspects of a product, since some consumers hold a belief that greener products are less effective, particularly for personal care or household products (O'Rourke & Ringer 2016). Finally, for consumers who are less aware of environmental impacts, or are more sceptical of the effectiveness of ecolabels, labelling schemes may be ignored entirely, since a primary driver of green purchasing decisions is the belief that individual impact can make a difference (Buerke *et al*. 2017).

To make ecolabels more effective, a standardised set of criteria, such as the ISEAL Code or the EU Ecolabel could be developed to improve transparency and build consumer trust in

the schemes, which in turn makes consumers more likely to utilise labels to inform purchases (Daugbjerg *et al*. 2014). The criteria should be broad, and encompass multiple aspects of sustainability, since a focus on one component can be misleading. For example, in the dairy industry, a dairy farm can reduce its carbon footprint by intensifying production, but this can lead to greater losses to biodiversity, increased water use and a disruption to local ecosystems and soil health, which would be missed by a carbon-focused label (Maree *et al*. 2025).

It may also help to apply ecolabels to all products available. Currently, there is a focus on highlighting only products which are certified "sustainable", and there is no labelling of products which are unsustainable or have greater environmental impact. Having consistent criteria across all products would lead to greater acceptance of ecolabels due to their commonplace nature and allow consumers to draw their own comparisons between options. This could be a similar scheme to traffic-light food labels, which have previously been shown to successfully influence UK consumers towards healthier options (Scarborough *et al*. 2015).

3.4. Environmental impact calculators

There are several freely available calculators that allow users to calculate their environmental impact across categories such as travel, diet choices and household consumption. Examples include the WWF Footprint Calculator and the Ecological Footprint Calculator. Calculators can positively influence behaviour by helping individuals to visualise their impact, leading to raised awareness and potentially acting as a wake-up call. Many calculators also provide benchmarks, such as national averages, enabling comparison and goal setting.

However, for calculators to provide maximal benefit, regular engagement is required for users to monitor their progress. Without continuous engagement and support, it is likely that users may shift their behaviour for a short period of time before returning to baseline levels (Biørn-Hansen, Katzeff & Eriksson 2022). Some calculators offer practical advice or steps that the user can take to reduce their footprint, but if these steps are too dramatic, they will not be implemented by the user. For example, one test study generally reported that making large lifestyle changes such as giving up flying, or shifting to a vegan diet, would be impossible for users (Büchs *et al*. 2018), even when presented with the environmental benefits of those decisions.

For the results presented by calculators to be useful, they should offer practical changes across a variety of scales, including small-scale, easily implemented actions, for example suggesting "Meatless Mondays" instead of a fully vegan diet, or washing clothes in cold water to reduce energy use. Furthermore, calculators could provide estimates of tangible impacts that the individual would feel, such as saving money, or health benefits (see Section 3.2 for a broader discussion on co-benefits).

4. Integration with GEIC

The GEIC indicator provides useful information at the national level, to enable country-level reporting of consumption patterns and trends. However, it is currently challenging for an individual to understand how their own consumption contributes to the wider image.

To enable individual users to get more information from the GEIC indicator, we propose some alterations or suggested use cases for GEIC data:

- The ability for users to visualise impact information per tonne of consumption, effectively standardising commodities against one another. This would allow consumers to understand the differences between similar options. In the current format, it is not possible to see if a commodity has a high footprint because it is particularly resource-intensive, or if there is just a lot of that commodity imported. Accessing the standardised information is technically already possible by downloading the data, but not easily accessible on the GEIC webpage.
- Availability of "fact sheets" to summarise the impact of common commodities (see Annexes 1 and 2). These could be available for all commodities individually, or fact sheets could be created for groups of commodities (e.g. the most popular fruits in the UK, or different beans and legumes). This helps to educate consumers and provide the information they need to make informed decisions and could suggest similar swaps for items they already use.
- Potential development of "scoring" commodities across different categories of impact (such as deforestation, biodiversity loss, water use, etc.), modelled after nutrition label traffic lights. This would allow users to quickly assess the different environmental impacts, without the need for value judgements required for a single score.
- A method to compare different commodities and highlight the difference between them, presented as a potential "saving" to the consumer if switching from one to the other. Presenting information as a saving can make the switch more appealing to consumers, by promoting the sustainable option as more beneficial.
- Links to resources of ways to include more of the "greener" commodities in everyday life for the consumer. For example, links to recipes for seasonal fruits and vegetables. This makes it easier for the consumer to implement the changes, with minimal friction.
- Incorporation of the personal benefits to consuming more of specific commodities, potentially by adding pop-up menus to display some of the non-environmental benefits to the consumer (e.g. economic affordability, health benefits). Alternatively, a separate section could be added to the indicator webpage which details some of the general benefits to greener consumption. This emphasises the co-benefits of more environmentally friendly decisions, increasing their likelihood.

5. Discussion, limitations and key findings

Within this report, the primary factors influencing consumption behaviours, across psychological, personal, social and cultural drivers were discussed. Key factors which support sustainable consumption include access to information and an understanding of how individual behaviour links to environmental change; the belief that individual action can make a difference; and feeling part of a social and cultural environment which promotes sustainable actions.

The report suggests that a variety of incentives can be implemented to bring sustainability into more of a focus for individuals, including gamification of sustainable choices and making sustainable options more accessible through recipes and changes to default options. A major driver of change could be to emphasise the co-benefits of more environmentally friendly options, by pairing the environmental benefits with personal benefits to health or finances. Packaging the information in this way makes it clear what benefits the consumer can expect on a personal level, rather than asking for a change that is purely beneficial for the environment. The report also explores how calculator metrics could help to educate consumers and encourage swaps by clearly showing the savings. Calculators are maximally effective when they provide a range of actions that could be used to improve the user's score, and actions should range in the level of commitment asked. Finally, ecolabels are discussed as a method for increasing access to information for the consumer, helping to promote informed choices.

An important caveat is that many of the approaches discussed within this report, and particularly the recommendations for the GEIC indicator, refer to a change in the specific commodity being consumed. However, there is still a larger challenge in adjusting the overall amount of consumption. For example, ecolabelling focuses on consumption choices, and not the specific commodities consumed – whilst bananas from Ecuador with a Rainforest Alliance certification may be more sustainable than an uncertified banana, they are still overall more resource-intensive than a locally grown apple. Incentivising product switches is not the primary focus of this report but could be an important question for future research.

For environmental incentives to be successful, they broadly rely on the consumer having the baseline knowledge and a level of understanding that allows them to make an educated choice, and an understanding of why it is important to engage or care about the environment. To ensure this baseline exists, it may be beneficial to promote a holistic perspective, including an understanding of the environment, as much as possible in everyday lives. For example, improving environmental education in schools and increasing community engagement and connections to nature can promote greener behaviour in individuals.

Further work should also consider how to engage businesses and the private sector with moving towards more sustainable practices, although this would require major societal adjustments and policy interventions that support economies through such a shift.

5.1. Key findings and recommendations

- More sustainable levels of consumption are required to protect biodiversity, the health of the planet, and the goods and services derived from ecosystems. This need has already been identified in key national and international policy.
- Understanding the motivations behind how consumers make decisions can help to promote more sustainable options and encourage greener behaviour.

- Providing semi-personalised information to end consumers is the most effective way to encourage behaviour shifts. Explaining co-benefits to the individual and the environment can make the behaviour easier and more appealing, increasing its likelihood.
- Providing a form of calculator, like carbon calculators, may be beneficial to help users understand the total impact of their consumption, leading to behaviour shift towards an improvement. Calculators should include specific, actionable points that users can take forwards.
- Ecolabelling schemes have some merit and may be a potential avenue for future research, but labels should be applied to all products and the limitations to their use should be acknowledged.
- Some suggested modifications or extensions to the GEIC indicator are provided to make it more relevant to individual users, rather than a national scope as is its current focus.

References

Adams, P.C. & Gynnild, A. 2013. Environmental Messages in Online Media: The Role of Place, *Environmental Communication*, **7**(1), 113–130. https://doi.org/10.1080/17524032.2012.754777

Auclair, O. Eustachio Colombo, P, Milner, J. & Burgos S.A. 2024. Partial substitutions of animal with plant protein foods in Canadian diets have synergies and trade-offs among nutrition, health and climate outcomes, *Nature Food*, **5**(2), 148–157. https://doi.org/10.1038/s43016-024-00925-y

Barrett, B. 2022. Health and sustainability co-benefits of eating behaviors: Towards a science of dietary eco-wellness, *Preventive Medicine Reports*, **28**, 101878. https://doi.org/10.1016/j.pmedr.2022.101878

Biørn-Hansen, A., Katzeff, C. & Eriksson, E. 2022. Exploring the Use of a Carbon Footprint Calculator Challenging Everyday Habits. In *Nordic Human-Computer Interaction Conference (NordiCHI '22), October 8–12, 2022, Aarhus, Denmark.* ACM, New York, NY, USA 10 Pages. https://doi.org/10.1145/3546155.3546668

Büchs, M., Bahaj, A.S., Blunden, L., Bourikas, L., Falkingham, J., James, P., Kamanda, M. & Wu, Y. 2018. Promoting low carbon behaviours through personalised information? Long-term evaluation of a carbon calculator interview, *Energy Policy*, **120**, 284–293. https://doi.org/10.1016/j.enpol.2018.05.030

Buerke, A., Straatmann, T., Lin-Hi, N. & Müller, K. 2017. Consumer awareness and sustainability-focused value orientation as motivating factors of responsible consumer behavior, *Review of Managerial Science*, **11**(4), 959–991. https://doi.org/10.1007/s11846-016-0211-2

Carpenter, S.M. & Yoon, C. 2011. Aging and consumer decision making, *Annals of the New York Academy of Sciences*, **1235**(1), E1–E12. https://doi.org/10.1111/j.1749-6632.2011.06390.x

Cohen, B., Cowie, A., Babiker, M., Leip, A. & Smith, P. 2021. Co-benefits and trade-offs of climate change mitigation actions and the Sustainable Development Goals, *Sustainable Production and Consumption*, **26**, 805–813. https://doi.org/10.1016/j.spc.2020.12.034

Cohen, B. & Muñoz, P. 2016. Sharing cities and sustainable consumption and production: towards an integrated framework, *Journal of Cleaner Production*, **134**, 87–97. https://doi.org/10.1016/j.jclepro.2015.07.133

Dangelico, R.M., Nonino, F. & Pompei, A. 2021. Which are the determinants of green purchase behaviour? A study of Italian consumers, *Business Strategy and the Environment*, **30**(5), 2600–2620. https://doi.org/10.1002/bse.2766

Daugbjerg, C., Smed, S., Mørch Andersen, L. & Schvartzman, Y. 2014. Improving Eco-labelling as an Environmental Policy Instrument: Knowledge, Trust and Organic Consumption, *Journal of Environmental Policy & Planning*, **16**(4), 559–575. https://doi.org/10.1080/1523908X.2013.879038

De Dominicis, S., Schultz, P.W. & Bonaiuto, M. 2017. Protecting the Environment for Self-interested Reasons: Altruism Is Not the Only Pathway to Sustainability, *Frontiers in Psychology*, **8**. https://doi.org/10.3389/fpsyg.2017.01065

Deudon, M. 2020. On food, bias and seasons: A recipe for sustainability [online]. Available from: https://hal.science/hal-02532348 [Accessed 13 August 2025].

Dey, A., Dhumal, C.V., Sengupta, P., Kumar, A., Pramanik, N.K. & Alam, T. 2021. Challenges and possible solutions to mitigate the problems of single-use plastics used for packaging food items: a review, *Journal of Food Science and Technology*, **58**(9), 3251–3269. https://doi.org/10.1007/s13197-020-04885-6

Franzoi, S. & vom Brocke, J. 2022. Sustainability by Default? Nudging Carbon Offsetting Behavior in E-Commerce, *ECIS 2022 Research Papers*, **111**. Available from: https://aisel.aisnet.org/ecis2022_rp/111 [Accessed 23 Sept 2025].

Harris, M. 2023. Policy interventions to encourage sustainable consumption. *JNCC Report 747 (Guidance report).* JNCC, Peterborough, ISSN 0963-8091. Available from: https://data.jncc.gov.uk/data/859c5573-1f84-4122-b509-65d779489757/jncc-report-747.pdf [Accessed 23 Sept 2025].

Ives, C.D., Abson, D.J., von Wehrden, H., Dorninger, C., Klaniecki, K. & Fischer, J. 2018. Reconnecting with nature for sustainability, *Sustainability Science*, **13**(5), 1389–1397. https://doi.org/10.1007/s11625-018-0542-9

Joshi, Y. & Rahman, Z. 2015. Factors Affecting Green Purchase Behaviour and Future Research Directions, *International Strategic Management Review*, **3**(1–2), 128–143. https://doi.org/10.1016/j.ism.2015.04.001

Jürkenbeck, K., Spiller,A. & Schulze, M. 2021. Climate change awareness of the young generation and its impact on their diet, *Cleaner and Responsible Consumption*, **3**, 100041. https://doi.org/10.1016/j.clrc.2021.100041

Keeble, B.R. 1988. The Brundtland report:"Our common future", *Medicine and war*, **4**(1), 17–25. Available from: https://www.jstor.org/stable/45353161. [Accessed 23 Sept 2025].

Kükenthal, V.C., Mitchell, B., Mounzer, Y. & Rtabi, A. 2023. Optimising Recycling Policy in the UK: The UK's Deposit Return Scheme. *Cambridge Journal of Science and Policy*. https://doi.org/10.17863/CAM.102272

Kunchamboo, V., Lee, C.K.C. & Brace-Govan, J. 2017. Nature as extended-self: Sacred nature relationship and implications for responsible consumption behavior, *Journal of Business Research*, **74**, 126–132. https://doi.org/10.1016/j.jbusres.2016.10.023

Laine, J.E., Huybrechts I., Gunter, M.J., Ferrari, P., Weiderpass, E., Tsilidis, K., Aune, D., Schulze, M.B., Bergmann, M., Temme, E.H.M., Boer, J.M.A., Agnoli, C., Ericson, U., Stubbendorff, A., Ibsen, D.B., Dahm, C.C., Deschasaux, M., Touvier, M., Kesse-Guyot, E., Sánchez Pérez, M.J., Rodríguez Barranco, M., Tong, T.Y.N., Papier, K., Knuppel, A., Boutron-Ruault, M.C., Mancini, F., Severi, G., Srour, B., Kühn, T., Masala, G., Agudo, A., Skeie, G., Rylander, C., Sandanger, T.M., Riboli, E. & Vineis, P. 2021. Co-benefits from sustainable dietary shifts for population and environmental health: an assessment from a large European cohort study, *The Lancet Planetary Health*, **5**(11), e786–e796. https://doi.org/10.1016/S2542-5196(21)00250-3

Long, T.B., Young, W., Webber, P., Gouldson, A. & Harwatt, H. 2015. The impact of domestic energy efficiency retrofit schemes on householder attitudes and behaviours, *Journal of Environmental Planning and Management*, **58**(10), 1853–1876. https://doi.org/10.1080/09640568.2014.965299

Lubowiecki-Vikuk, A., Dąbrowska, A. & Machnik, A. 2021. Responsible consumer and lifestyle: Sustainability insights, *Sustainable Production and Consumption*, **25**, 91–101. https://doi.org/10.1016/j.spc.2020.08.007

Malter, M.S., Holbrook, M.B., Kahn, B.E., Parker, J.R. & Lehmann, D.R. 2020. The past, present, and future of consumer research, *Marketing Letters*, **31**(2–3), 137–149. https://doi.org/10.1007/s11002-020-09526-8

Maree, E., Blignaut, J.N., Du Toit, C.J.L., Meissner, H.H. & Ederer, P. 2025. Review: The need for holistic, sector-tailored sustainability assessments for milk− and plant-based beverages, *animal*, **19**, 101348. https://doi.org/10.1016/j.animal.2024.101348

Meng, J., Ye, Z. & Wang, Y. 2024. Financing and investing in sustainable infrastructure: A review and research agenda, *Sustainable Futures*, **8**, 100312. https://doi.org/10.1016/j.sftr.2024.100312

Michaelsen, M.M. & Esch, T. 2023. Understanding health behavior change by motivation and reward mechanisms: a review of the literature, *Frontiers in Behavioral Neuroscience*, **17**. https://doi.org/10.3389/fnbeh.2023.1151918

Midilli, A., Dincer, I. & Ay, M. 2006. Green energy strategies for sustainable development, *Energy Policy*, **34**(18), 3623–3633. https://doi.org/10.1016/j.enpol.2005.08.003

Neville, F. & Reicher, S. 2011. The experience of collective participation: shared identity, relatedness and emotionality, *Contemporary Social Science*, **6**(3), 377–396. https://doi.org/10.1080/21582041.2012.627277

Niu, N., Fan, W., Ren, M., Li, M. & Zhong Y. 2023. The Role of Social Norms and Personal Costs on Pro-Environmental Behavior: The Mediating Role of Personal Norms, *Psychology Research and Behavior Management*, **16**, 2059–2069. https://doi.org/10.2147/prbm.s411640

Onel, N., Mukherjee, A., Bieak Kreidler, N., Díaz, E.M., Furchheim, P., Gupta, S., Keech, J., Murdock, M.R. & Wang, Q. 2018. Tell me your story and I will tell you who you are: Persona perspective in sustainable consumption, *Psychology & Marketing*, **35**(10), 752–765. https://doi.org/10.1002/mar.21132

O'Rourke, D. & Ringer, A. 2016. The Impact of Sustainability Information on Consumer Decision Making, *Journal of Industrial Ecology*, **20**(4), 882–892. https://doi.org/10.1111/jiec.12310

Pristl, A., Kilian, S. & Mann, A. 2021. When does a social norm catch the worm? Disentangling social normative influences on sustainable consumption behaviour, *Journal of Consumer Behaviour*, **20**(3), 635–654. https://doi.org/10.1002/cb.1890

Salazar, H. A., Oerlemans, L. & Van Stroe-Biezen, S. 2013. Social influence on sustainable consumption: evidence from a behavioural experiment, *International Journal of Consumer Studies*, **37**(2), 172–180. https://doi.org/10.1111/j.1470-6431.2012.01110.x

Scarborough, P., Matthews, A., Eyles, H., Kaur, A., Hodgkins, C., Raats, M.M. & Rayner, M. 2015. Reds are more important than greens: how UK supermarket shoppers use the different information on a traffic light nutrition label in a choice experiment, *International Journal of Behavioral Nutrition and Physical Activity*, **12**(1), 151. https://doi.org/10.1186/s12966-015-0319-9

So, H.W. & Lafortezza, R. 2022. Reviewing the impacts of eco-labelling of forest products on different dimensions of sustainability in Europe, *Forest Policy and Economics*, **145**, 102851. https://doi.org/10.1016/j.forpol.2022.102851

Speck, M., Wagner, L., Buchborn, F., Steinmeier, F., Friedrich, S. & Langen, N. 2022. How public catering accelerates sustainability: a German case study, *Sustainability Science*, **17**(6), 2287–2299. https://doi.org/10.1007/s11625-022-01183-2

Spence, A. Pidgeon, N. 2010. Framing and communicating climate change: The effects of distance and outcome frame manipulations, *Global Environmental Change*, **20**(4), 656–667. https://doi.org/10.1016/j.gloenvcha.2010.07.002

Van Amstel, M., Driessen, P. & Glasbergen, P. 2008. Eco-labeling and information asymmetry: a comparison of five eco-labels in the Netherlands, *Journal of Cleaner Production*, **16**(3), 263–276. https://doi.org/10.1016/j.jclepro.2006.07.039

Van Nes, N. & Cramer, J. 2006. Product lifetime optimization: a challenging strategy towards more sustainable consumption patterns, *Journal of Cleaner Production*, **14**(15–16), 1307–1318. https://doi.org/10.1016/j.jclepro.2005.04.006

Way, R., Ives, M.C., Mealy, P. & Doyne Farmer, J. 2022. Empirically grounded technology forecasts and the energy transition, *Joule*, **6**(9), 2057–2082. https://doi.org/10.1016/j.joule.2022.08.009

Wells, S., Kotkanen, H., Schlafli, M., Gabrielli S., Masthoff, J., Jylha, A. & Forbes, P. 2014. Towards an Applied Gamification Model for Tracking, Managing, & Encouraging Sustainable Travel Behaviours, *ICST Transactions on Ambient Systems*, **1**(4), e2. https://doi.org/10.4108/amsys.1.4.e2

Wood, E., Hallatt, R. & Harris, M. 2025. Defining limits: What is ‘sustainable’ consumption? *JNCC Report 796.* JNCC, Peterborough, ISSN 0963-8091. Available from: https://data.jncc.gov.uk/data/0f9f4ff4-c870-487d-bbaa-94fc71108a42/jncc-report-796.pdf. [Accessed 23 Sept 2025].

Weblinks

Table 2. Full URLS for weblinks used in the text.

Weblink text	Full URL
Major planetary boundaries	https://www. stockholmresilience. org/research/planetary-boundaries. html
Oslo Symposium on Sustainable Consumption	https://enb. iisd. org/consume/oslo004. html
Global Environmental Impacts of Consumption (GEIC)	https://commodityfootprints. earth/
JNCC's remit under the NERC act	https://www. legislation. gov. uk/ukpga/2006/16/part/2/crossheading/joint-nature-conservation-committee-etc
Global Biodiversity Framework	https://www. cbd. int/gbf
UN Sustainable Development Goals	https://sdgs. un. org/goals
25 Year Environment Plan (25YEP)	https://www. gov. uk/government/publications/25-year-environment-plan
Environmental Improvement Plan	https://www. gov. uk/government/publications/environmental-improvement-plan
Scottish Government route map to a circular economy	https://www. gov. scot/publications/scotlands-circular-economy-waste-route-map-2030/
Welsh Government guidance on sustainable management of natural resources	https://www. gov. wales/sustainable-management-natural-resources-guide
Northern Ireland's Sustainability for the Future plan	https://www. daera-ni. gov. uk/publications/sustainability-future-daeras-plan-2050
UK Soy Manifesto	https://www. uksoymanifesto. uk/
Roundtable on Sustainable Palm Oil	https://rspo. org/
ISEAL Code	https://isealalliance. org/
EU Ecolabel	https://eu-ecolabel. de/en/
WWF Footprint Calculator	https://footprint. wwf. org. uk/
Ecological Footprint Calculator	https://www. footprintcalculator. org/home/en