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A review of effective public engagement on climate and implications for Scotland

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1 Executive summary

This report presents findings from research exploring the role of government in public engagement and ways to improve Scottish Government's public engagement approach on climate change. The research is part of the mid-point review of the Scottish Government's Public Engagement Strategy for Climate Change (PES).

1.1 Aims

The research aimed to address the following questions:

1. What does recent thinking and research suggest are the most effective roles and practical actions a government such as the Scottish Government can take to successfully engage the public on climate change and deliver the aims of the PES?

2. What lessons can be learned from approaches taken by comparative governments internationally to improve delivery of the aims and activities of the PES?

3. What are the views of the public in Scotland on the most appropriate ways for the Scottish Government to engage them on climate issues?

The overall aim of the study was to compare findings with the principles set out in the PES and identify any lessons that could enhance the delivery of the PES going forward.

1.2 Approach

The research was carried out between September 2024 and January 2025. It involved three strands:

1. **A desk-based evidence review** to identify public engagement activities and examples of best practice
2. **Stakeholder interviews** exploring views from a range of practitioners and specialists involved in public engagement to complement the evidence review
3. **Focus groups** with members of the public to understand their views on how the Scottish Government should approach public engagement on climate change.

1.3 Findings

The research showed that there is no single best way to engage the public on climate change. Public engagement should use multiple and varied contexts, scales, activities, depths of engagement, approaches and intervention points.

A number of different examples of best practice on climate change public engagement were identified, grouped under three broad categories:

- **Communication and education.** This includes large-scale communication campaigns, information packs, door-to-door canvassing, broadcast, social media campaigns and educational activities. Much of the best practice on communication and education is already captured in the PES. This includes the need to be inclusive and accessible, to communicate with different audiences in different ways, to use trusted messengers, and to use messaging that highlights the relevance to individuals and the practical actions they can take.

- **Deliberative engagement and co-design.** This includes a wide range of participatory activities designed to help people to take part in decision-making processes. The PES has been developed with the good practice principles of participation in mind in line with the Scottish Government's Participation Framework and the Open Government approach. The findings highlight best practice that aligns with many of the PES principles such as being participative, inclusive, open and transparent. The findings also highlight areas for consideration in the implementation of these types of activities as part of the PES, as outlined below.

- **Creative activities.** This includes public engagement using art, digital tools, games, virtual reality and other creative approaches**.** Generally, the evidence supports the effectiveness of creative interactive engagement methods for a variety of outcomes.

However, creative forms of engagement are not explored in detail in the PES and could therefore be an area for greater focus going forward.

1.4 Implications for the PES

To help identify next steps, the key lessons from this research were presented in two groups:

- **Areas in which the content of the PES already aligns with best practice, and which should be continued**: Themes such as inclusion, transparency and evidence-based approaches are all principles for the PES and were all identified in this research as important features of public engagement. This suggests that the Scottish Government's approach is already in line with some of the public engagement best practice happening in other places.

- **Areas that are not currently included or not outlined in detail in the PES**. These approaches, grouped below under the three overarching objectives of the PES, should be considered for the remainder of the PES.

Understand (Communicating climate change)

- On messaging, ensure that climate change is framed in a way that is relevant to the lives of individuals and communities, reflects the context (cultural, political, geographic and others) and is focussed on practical actions for individuals.

- As well as using positive messaging, do not shy away from conveying the negative consequences of inaction on climate change. While there is a potential conflict between those two directions, the overall sentiment was that governments should be honest about the realities and associated risks of climate change, but also convey positive, practical actions that the public can adopt.

- When conveying the message, the research has identified the characteristics of (e.g. being authentic, sincere, kind, honest, credible) and types of people (e.g. naturalists, healthcare professionals, scientists) who are considered trusted messengers, and those that are not. It also highlights the benefits of exploring different approaches such as the use of visual communication and humour.

- Take measures to build collective efficacy such as using messaging that emphasise social norms, shared beliefs and a sense of community. Examples of this include sharing testimonials, photos and videos of citizens taking action, or hosting competitions, quizzes and user-generated content on social media.

- In education settings, encourage and enable approaches that foster collaboration and co-design with learners. Further explore opportunities for workforce training on technical aspects of climate change.

Participate (Enabling participation in policy design)

- Demonstrate that the public have been listened to and that action has been taken as a result of their participation**.** This was a strong theme in the general public focus groups and they considered it a high priority for future public engagement. It is important to be clear on and convey how the public are having an influence on decisions, be transparent about how those decisions are being acted upon and keep the public updated on progress towards outcomes. Take lessons from the Irish Citizens Assembly and the permanent climate assembly in Brussels which have established mechanisms for ensuring feedback for participants, helping hold decisions makers to account. Think carefully about who is involved in deliberative, co-design and other participatory processes. As part of the design of the processes, consider how best to draw on people's local knowledge and lived experience.

- Encourage active forms of participation to help engage people in different ways. This can include approaches such as citizens' science, which involves the public directly in data collection and other research activities, and participatory budgeting, which has a clear link between the public's involvement and the decisions being taken as a result.

- Explore the use of digital and creative tools to help share findings from deliberative and co-design approaches with a wider audience.

- Explore the use of creative activities. Some of these approaches, such as gaming and virtual reality, are still relatively new in the literature so would benefit from further exploration and testing before being used more widely.

Act (Encouraging action)

- Making climate change relevant to people's lives and conveying why their actions are important**.**

- Give people autonomy by supporting co-production and co-creation processes**.** These approaches can help give the public a say in the way they engage and ownership over outputs or recommendations. This can foster a sense of empowerment and help legitimise the process.

- Integrate public engagement into policy decision making. This includes responding meaningfully to the outputs and recommendations of public engagement and clearly communicating with the public about how their engagement links with the policy process.

- Take measures that help boost collective efficacy. This includes using messaging that emphasise social norms, shared beliefs and a sense of community. Promoting a sense of ownership of engagement outcomes and recommendation can also support feelings of self and collective efficacy.

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2 Introduction

2.1 Background

Public engagement is a central component of the Scottish Government's commitment to reaching net zero by 2045 and delivering on the ambitions of the updated Climate Change Plan. A commitment to public engagement is also part of the Scottish Government's National Adaptation Plan and its approach to planning for a Just Transition to net zero.

In 2021, the Scottish Government published the Public Engagement Strategy for Climate Change (PES), which underscores the importance of widespread participation and engagement in order to drive the transformational change needed to reach net zero. The PES sets out a holistic, systemic approach to public engagement with the aim of building a mandate for long term societal change. The overall vision of the PES is that: "Everyone in Scotland recognises the implications of the global climate emergency, fully understands and contributes to Scotland's response, and embraces their role in the transition to a net zero and climate ready Scotland."

The PES is guided by three strategic objectives:

- **Understand:** Communicating climate change. People are aware of the action that all of Scotland is taking to tackle climate change and understand how it relates to their lives.
- **Participate:** Enabling participation in policy design. People actively participate in shaping just, fair and inclusive policies that promote mitigation of and adaptation to climate change.
- **Act:** Encouraging action. Taking action on climate change is normalised and encouraged in households, communities and places across Scotland.

Monitoring and evaluation of the PES is being carried out using a multi-stranded approach. As well as annual reporting against key national indicators and evaluating individual public engagement programmes, the Scottish Government committed to an interim review of the PES at the midway point of delivery in 2024. The midpoint review consists of various elements being delivered by the Scottish Government, including a stakeholder survey and evaluations of activities undertaken as part of PES delivery to date. This report presents findings from research conducted by Ipsos and the Centre for Climate Change and Social Transformations (CAST), which complements the Scottish Government's own evaluations. Outside of Scotland, whilst there are many examples of government-led or government-supported public engagement interventions, there are few occasions where these have been evaluated. Therefore, the monitoring and evaluation aspect of the Scottish Government PES is somewhat unique.

2.2 Research aims

ClimateXChange and the Scottish Government commissioned Ipsos and CAST to conduct research into the role of government in public engagement and ways to improve Scottish Government's engagement approach. Specifically, the research aimed to address the following questions:

1. What does recent thinking and research suggest are the most effective roles and practical actions a government such as the Scottish Government can take to successfully engage the public on climate change and deliver the aims of the PES?

2. What lessons can be learned from approaches taken by comparative governments internationally to improve delivery of the aims and activities of the PES?

3. What are the views of the Scottish public on the most appropriate ways for the Scottish Government to engage them on climate issues?

The overall aim of the study was to help understand how well various aspects of the strategy have been working in practice so far and identify any lessons that could enhance the delivery of the PES going forward.

2.3 Method

The research involved three strands, outlined below. A more detailed methodology can be found in Appendix A.

1. **Desk based evidence review** – assessing existing national and international evidence published between 2020-2024 of climate and environment-related public engagement activities and examples of best practice as part of answering the first two research questions.

   Most evidence focused on activities engaging people around broad 'climate' or 'environment' issues, although some were focused on specific topics within these areas. The range of activities identified in the evidence review fell into three main categories, which are each explored in detail in the remainder of this report: communication and education; deliberative engagement and co-design; and creative activities. Note that these categories are broad and there is a lot of overlap between them. See Appendix A for more detail on the scope and limitations of the evidence.

2. **Six stakeholder interviews** – exploring views from a range of practitioners and specialists involved in public engagement on climate change, to complement the evidence review.

3. **Four general public focus groups** – to answer the third research question and understand the public's views on how the Scottish Government should approach public engagement on climate change in future.

   Focus groups were shown four case study examples of public engagement activities in different parts of the world. These included: a public health campaign on the impacts of climate change on children's health; a carbon footprint food tracking app; a climate coalition working on plans for offshore wind in their local area; and a citizen science project measuring air quality. More detail on each of these is included in Appendix B.

2.4 Types of public engagement activities identified

The range of activities identified in the evidence review fell into three main categories, which are outlined in detail in chapters 3, 4 and 5:

1. **Communication and education:** Large-scale communication campaigns, information packs, door-to-door canvassing, e-mail campaigns, radio messages, news broadcasting, social media posts, single message testing (videos, images, pure text), menus, posters. Education included school classes, university modules/lectures, curriculum changes, challenges, gamification, inquiry-based learning (where the learners choose which questions to investigate), writing reflections, argumentation training, apps, cooking classes, nature-based workshops, community action groups, training for particular professions, farmer field schools, peer discussions.

2. **Deliberative engagement and co-design**: Climate assemblies, global assembly, mini-publics, advisory councils, climate commissions, participatory planning, participatory budgeting, participation in decision-making, stakeholder engagement workshops, stakeholder collaboration, citizen science, virtual engagement, gamification.

3. **Creative activities**: Art, interactive theatre, digital games, board games, role-play, escape rooms, virtual reality, simulations, gamified places, mobile devices/apps, social media, internet of things (IoT), artificial intelligence (AI), interactive informational exhibits, plogging, photovoice, environmental events.

2.5 How to read this report

The report brings together findings from all strands of the research (the evidence review, stakeholder interviews and focus groups). Rather than setting out the findings under each of the three research questions, they are presented thematically, reflecting the cross-cutting nature of the findings. This means that findings from the evidence reviews, stakeholder interviews and focus groups are presented together within each thematic section. Where findings are specific to just one strand of research, this is stated.

Chapters 3 to 5 focus on specific types of public engagement, grouped by theme. Chapter 6 brings together strategy-level findings that relate across different types of engagement. At the end of each chapter (or sub-section within the chapter) reference is made to how the findings relate to the PES.

Due to the volume of studies reviewed, rather than citing studies individually, these are given within the text via numerical references. Click these to view the full study details in the bibliography (for example [1], [2], [3]).

3 Communication and education

This section outlines findings related to public engagement that were categorised as "communication". This included large-scale communication campaigns, information packs, door-to-door canvassing, broadcast and social media campaigns, and more. It also covers forms of engagement classed as "education", as these had similar findings to those related to communication.

The examples and lessons covered here tend to fall under either the 'Understand' and 'Act' objectives of the PES. Climate communication campaigns are often focused on increasing knowledge, awareness and pro-climate attitudes and behaviours. There are few examples of climate messaging designed to engage people in decision-making or other participatory processes, or to communicate the outcomes of such processes. Similarly, most literature around education focuses on increasing knowledge and awareness, and there was very little evidence on the impact of education on participation or behaviour. Lessons for the 'Participate' objective are covered elsewhere in this report.

Source: Public Engagement Strategy

Findings below are outlined in relation to the type of messaging, the means and channels of conveying the message, and the needs of the audiences. Findings related to education initiatives specifically are included at the end.

Key messages

- Use multiple methods and channels, because different types of communication work for different people.
- Tailor communications to the audience and test content with your target audience before rolling it out at scale.

- Design communications to be personal, dynamic and engaging – content should be relevant to people's lives and appeal to their values and emotions.
- Trial the use of health frames and health professionals as trusted messengers.
- Fear-based messaging can be effective, but should be paired with practical solutions-focused messaging.
- For educational interventions, give learners some autonomy over the process.
- Incorporate environmental education into school/university curricula.

3.1 Messaging

3.1.1 Appeal to people's values and emotions

Climate inaction is often rooted in emotional responses and structural/practical barriers. Therefore providing facts and data alone is usually insufficient to inspire changes in attitudes or behaviour [1], [2], [3], [4]. This isn't always the case – for example, information provision has been found to increase support for wind turbine developments [5] and intention to adopt pro-climate actions [6], [7], [8], [9], [10]. Supporting claims with scientific information can lend credibility. However, technical information generally works best for people already knowledgeable about and supportive of climate action [11]. Therefore, climate communications should aim to also be personal, dynamic and engaging, appealing to people's values and emotions and fostering a sense of efficacy, hope and community [12], [13], [14]. It should also be accompanied by wider structural support to enable action.

Stakeholders echoed this finding from the literature, stressing the valuable role of messages that connect climate change with things people already care about.

> "One of the few good things about climate change is that it's so all encompassing that everybody has a direct and real stake in the outcome… If your kid has asthma, you should care about climate change. If you like chocolate, you should care about climate change. If you're a person of faith, you should care about climate change. If you love your country and your cultural heritage, you should care about climate change. And 1001 other reasons… **As communicators, our job is to figure out how to connect the dots between climate change and the people, places and things that people already love**." (Stakeholder – climate communicator).

There are a number of tactics that communicators can use to ensure climate messages resonate with people's values and emotions, as outlined in the sections below.

3.1.2 Make it relevant to the audience

Making climate change relevant to audience's lives gives them a concrete reason to care on a personal level. Climate communicators should reduce the perceived temporal and spatial

distance of climate change by highlighting immediate and local climate impacts. Research shows that emphasising the 'here and now' of climate issues increases support for climate mitigation policies, sustainable behavioural intentions and perceptions of climate threats [3], [15], [16], [17], [18], [19], [20], [21], [22]. Although see Section 3.1.3 for more information on how communications framing could change depending on the psychological distance of the issue being discussed.

Tactics to reduce psychological distance include using real-time and historical data to illustrate the effects of climate change [12]; framing costs of climate impacts per household instead of at a national level [18], [23]; highlighting links to iconic local places such as the Great Barrier Reef in Australia [22], and local issues, such as pollution [20]; and platforming local people's individual experiences of climate change and climate solutions [24]. Additionally, major events, like global climate summits or environmental disasters, can anchor climate change in the present day [14]. Additionally, connecting climate change to local issues, impacts and values increases relevance.

> "One of the big things that we see across the developed world, including the United States, is that many people who… basically accept that climate change is real, nonetheless still think of it as distant… Distant in time – that the impacts aren't going to be felt for a generation or more, so maybe this is a problem for their grandkids. Or distant in space – this is about polar bears or maybe some developing countries, but not my country, not my community, not my friends, not my family, not me. And as a result… **it just becomes one of a hundred other issues that's out there… people don't understand why this needs to be a priority**." (Stakeholder interview, climate communicator).

Focus group participants also stressed the importance of communicating about climate change that was relatable and relevant to their local contexts.

> "**[It] makes people get more involved in it if they have a personal link** and see, you know, the personal impact that it can have on people." (Focus group participant)

Participants generally preferred messaging that focused on more "tangible" impacts of climate change that are currently impacting on communities in Scotland, compared to more abstract, hypothetical scenarios. They suggested using examples such as crop failures, food prices, extreme weather, and health impacts to convey the current relevance of climate change to them.

They also highlighted the need for communication to convey the role of the individual as part of a wider societal transformation. There was some scepticism expressed around the need for individual behaviour change relating to certain aspects of climate change. For

example, participants questioned how much impact reducing their carbon footprint would have and questioned the need to save water in Scotland.

> "I also feel like you would always have that thing in the back of your mind where you would think, **in the whole scheme of things, like, what does me watching my food miles really do** when there's, you know, there's airplanes going over the head every day?" (Focus group participant).

There was a sense that comprehensive, clear explanations and transparency around why people are being asked to make changes are needed to build understanding and trust.

3.1.3 Think about the framing

When trying to engage people on climate change, environmental arguments can be effective [7], [25], [26], [27], [28]. Discussions focusing on maintaining 'balance with nature' are particularly well received [14], [24], [28] and adaptation may be a less polarising topic than mitigation [24]. However, non-environmental frames that talk to other values, goals and issues can also be effective [29], [30].

Research shows that presenting climate change in terms of its impacts on health, safety and wellbeing can be effective [1], [14], [24], [26], [31], [32], [33], [34], with heat risk a possible entry point to climate conversations [24]. Equally, activating communal and societal goals such as social protection, unity, care, national security, scientific or economic development and global leadership may be a good tactic [28], [35], [36]. Other effective frames that resonate with many groups include 'impacts on future generations' [24], [35], [37], [38]; 'maintaining freedom and choice' [26], [39]; and 'avoiding waste' [26], [40]. That said, communicators should also clearly articulate their one takeaway message to avoid confusing audiences with multiple topics [41].

Example: Health framing experiment in the UK [34]

A study by Wolstenholme and colleagues tested messaging interventions with UK students. Every morning and evening for two weeks, participants received messages via an automated private chat on Facebook Messenger on the positive impacts of eating less red and processed meat. The messages either highlighted the benefits to people's health (e.g. reducing the likelihood of developing cancer, heart disease or becoming obese), the environment (e.g. reducing excessive land use, deforestation or the release of greenhouse gases), or both, with a different benefit being highlighted each day. Participants were also reminded to try not to eat more than two portions of red and processed meat each week.

The study found that providing information about the health and/or environmental impacts of eating meat caused students to reduce their red and processed meat consumption during

the intervention and one month later. In other words, pro-climate behaviour can be encouraged without talking about climate change.

Some frames work better for particular groups. For example, 'living well locally' resonates with rural communities [39]; 'morality and justice' works well with left-wing groups [1], [32]; and 'responsibility and patriotism' works better with conservatives [1]. Evidence around the effectiveness of economic framing is mixed [25], [27], [36]. Interestingly, frames also vary in their ability to boost behavioural intention depending on the psychological distance of the issue being discussed. When talking about impacts that are psychologically close (concrete and spatially near), communicators should use efficacy framing (highlight the feasibility of solutions). For psychologically distant impacts (abstract and spatially far away), risk framing (highlighting the negative impacts of climate change) is more effective [15]. Given that there is no one 'best' way to talk about climate change, communicators should use multiple different frames and recognise the need to balance tailoring messages to the audience with avoiding polarising language [34], [42].

> "In general **[climate change] has been framed as a scientific story. And it is… but this issue is so much bigger than that**. It's a real estate story, it's a health story, it's an arts and culture story. Every traditional beat of the news media should be engaged with the climate connections."
> (Stakeholder – climate communicator).

The importance of framing was also clear in the focus groups. Reflecting on one of the case study examples used in the focus groups (the Make it Better campaign, described in Appendix B and shown in Figure 1 below) participants felt that associating climate change with negative impacts on children's health was a powerful message and one which would encourage people to consider how they could mitigate those impacts.

Figure 1: Example of health-framing of climate change communication. Images of three climate-related health impacts were shown with pictures of children at risk from heat-related illnesses, along with the campaign's tagline. Source Canadian Journal of Public Health

On framing, participants also felt that climate change discourse can be political and, at times, controversial topic and felt that care should be taken to avoid misinformation in climate change communications.

3.1.4 Make climate change a 'human' issue

Telling personal stories about climate change (involving relatable people and familiar places) enhances audiences' emotional response, increasing engagement, climate belief and risk perceptions, and making the effects more persistent [19], [32], [41], [43], [44]. This holds true for conservative and moderate groups [43]. Communications can also make climate change feel more 'human' by emphasising social norms, shared beliefs and a sense of community – these can boost collective efficacy, policy acceptance and behaviour change [19], [38], [45], [46], [47], [48], [49], [50]. Tactics include sharing testimonials and photos of citizens taking action, or hosting competitions, quizzes and user-generated content on social media [51]. Importantly, norm-based messaging should be relatable and authentic – it can backfire if overly authoritative or formal [17], [22], [24], [36], [41], [44].

> "**The other critical element is storytelling**… [our radio show plays] short first-person narratives of people who are talking about how climate change matters to them and likewise what they are doing to solve it… These stories feature the voices of people from every walk of life… And what we see in our research results is that those kinds of stories work really well, because suddenly people can realise this is not just a problem for China to solve or the UN to solve, which is so removed from people's lives. **This is about how people just like them – who dress like them, talk like them, have similar values – [are getting involved with climate change].**" (Stakeholder – climate communicator).

Example: Bristol City Council Climate Action Stories (source: Bristol Climate Hub website)

This initiative by Bristol One City displays multiple features of good climate communication. A series of 30 short videos, produced by Bristol City Council, tells the stories of a diverse range of Bristolians doing things they enjoy which are also good for the climate. For example, two members of a boxing club share how they're reducing plastic waste and litter in their gym, while a mother discusses the benefits of walking her children to school instead of driving them.

The videos make the issue of climate change relatable and personal by discussing local issues and including a diverse range of groups. The videos also normalise pro-climate behaviours, by showing that people are already taking (and benefitting from) climate action.

Bristol City Council and partners use these films in social media campaigns and displayed them on screens in key public spaces during COP26 and again in summer 2022. They have had lots of positive feedback on the videos from citizens, including underrepresented groups, and partner organisations.

3.1.5 Use positive, but honest, messaging

Fear-based messaging that highlights the risks and negative impacts of climate change can capture people's attention and elicit emotional responses [1], [22], [34], [40], [52]. It can be useful for increasing knowledge, but over time can be disengaging and may come across as disingenuous [1], [17], [38], [53]. Positive messaging that highlights our capacity to tackle climate change is important for boosting efficacy and empowerment [1], [4], [14], [17], [19], [20], [22], [24], [29], [33], [41], [47], [51], [53], [54], [55]. Therefore, communicators should platform the opportunities that climate change presents to build a better world, the pro-climate actions already being adopted by others, and the co-benefits already being realised by climate action. But they should also acknowledge the risks and uncertainties of climate change, as well as the fact that solving climate change will require some change to life as we know it.

> "**We've done a pretty good job helping [people] understand the seriousness and the gravity of the problem, but we have not done a good job helping them understand what the solutions are**… I get so frustrated with the argument I sometimes hear within the climate community: either 'let's scare the bejesus out of people and that's going to motivate them' or 'no, no, don't talk about all that doom and gloom stuff, only talk about solutions'. No, **it's not an either or, it's a both**." (Stakeholder – climate communicator).

Providing practical, actionable steps that people can take to tackle climate change increases intention to undertake pro-environmental action [9], [14], [19], [27], [29], [33], [53], [56]. Which types of pro-climate behaviour are best to promote is beyond the scope of this report but some studies suggest that it could be useful to encourage 'small'/'easy' actions first, to create a snowball effect that leads to political engagement [57], and to provide time-oriented goals, such as 'can you limit your red meat intake to two portions per week in January?' [9]. Additionally, efficacy can be fostered by using language that is communal ('we' rather than 'you') and motivational ('start/grow/support' rather than 'don't/stop') [14], [22].

Focus group discussions also revealed a need for a balance between positive and negative messaging. On the one hand, there was a view that shocking, fear-based messaging is needed to make people pay attention and ensure the public understand the serious nature of climate-change issues. Participants referenced what they perceived to be effective messaging around the dangers of smoking or the Covid-19 pandemic. This framing was seen as an effective way to demonstrate the serious impacts of climate change, with a suggestion that people may be even more receptive to this type of messaging post-pandemic.

> "For people to take stuff seriously when it comes to the news, you have to kind of scare them a little bit. With Covid that is exactly what happened." (Focus group participant).

At the same time, there was a desire for more information around solutions and positive actions that participants could take. Participants stressed that when negative impacts of climate change were shared (for example the negative health impacts highlighted in the Make It Better campaign case study – see 5.3), specific guidance was needed around what exactly people could do.

> "I know that, for a lot of young people my age, people struggle with having money for clothes and stuff. And so they always resort to SHEIN or Teemu or things like that, which are absolutely awful for the environment. So I think **putting an emphasis on alternatives [is important]."** (Focus group participant).

However, there was a strong feeling that public engagement on climate change issues should avoid "lecturing" people, as this causes them to feel guilty about their lifestyle choices. Rather than focusing solely on individual responsibility, participants felt that communications should also acknowledge the role of companies and governments in contributing to and combatting climate change. Highlighting the need for both individual and systemic action was also flagged as good communications practice in the literature [23], [56].

3.1.6 Relevance for the PES

The importance of messaging is referred to throughout the PES, including commitments to ensuring messaging is evidence-based, easy to engage with, and accessible. The PES also refers to engaging with people's values, identities and concerns. It is part of the PES principle of ensuring an evidence-based approach.

The literature and focus groups both support these aspects of the PES and provide insights into how they can be delivered. It was clear that, ideally, future messaging would be supported by evidence, appeal to people's personal values and emotions, and be made relevant to people's lives. The PES also acknowledges the importance of helping people to see their individual actions within the context of the bigger picture, and that they are not

tackling climate change alone. Focus groups findings in particular support this view, as participants highlighted a sense of uncertainty around how much impact their own actions would have.

The merits of both positive and negative, or fear-based, messaging were discussed in the literature and in the focus groups. While there is a potential conflict between those two directions, the overall sentiment was that governments should be honest about the risks and uncertainties of climate change, but also convey positive, pro-climate actions and practical actions that the public can adopt. These findings support the principle underlying the PES, that it will take a positive approach that outlines a vision for climate action that promotes the many benefits. This is described in the PES as a way of combatting climate distress. However, given the findings that a balance between both positive and honest messaging can be effective, this suggests that the PES should not necessarily shy away from conveying the negative consequences of climate change.

3.2 Conveying the message

3.2.1 Use trusted messengers

Building trust is important for climate communicators, especially when trying to reach vulnerable groups. It takes time to build trust, and it is much easier to lose it than gain it [58], [59]. In order to become a trusted messenger, communicators should be authentic, human, sincere, down to earth, kind, reliable, honest; show empathy and passion; and demonstrate their credibility [1], [20], [58].

There are certain people who are already trusted by the public. These include: naturalists and nature conservation charities [58]; healthcare professionals [1], [32], [33], [41], [42], [59]; parental groups [1]; scientists, academic experts, environmental specialists and weather presenters [11], [12], [17], [41], [42], [59]; elders [12], [53]; and people with lived experience of the issue on which they are speaking [41]. Other examples include community leaders, non-governmental organisations (NGOs), educators, experts and impartial facilitators [1], [4], [12], [19], [23], [26], [28], [30], [53], [54], [55], [60], [61], [62], [63], [64], [65], [66], [67], [68], [69]. In general, the public is less trusting of activists and elites (celebrities or prominent figures) [1], [17], [19], [58], although there are some exceptions (e.g. David Attenborough is trusted across audience groups) [70]. Again, different groups trust different messengers. People are more likely to trust and engage with local people [6], [12], [17], [21], [23], [33], [42] and in-group members. For example, one study found meat-eaters were more likely to accept a call to reduce their meat intake from other meat-eaters, versus from vegans [71].

> "[Tourism workers] are one of the best messengers [to communicate about the impacts of climate change on coral reefs], because they're the

> people that access and see these impacts firsthand. Their lives depend on the reef. I have a friend who [takes tourists scuba diving] in the southern Great Barrier Reef, which was the worst hit area earlier this year for the bleaching…He's made a climate talk, with **really clear calls to action**." (Stakeholder – climate campaigner and outreach organiser).

It can also be useful to have multiple messengers from a diversity of backgrounds, including experts, lay public and people from marginalised groups [1], [29].

3.2.2 Make it visual

Visual communication can promote learning and participation. Techniques such as images, graphs, diagrams, infographics, illustrations, interactive displays and pen portraits (fictional characters that represent different sections of the population) can make complex information more accessible, personal (see section 3.1.4 on making climate change a 'human' issue) and memorable [12], [32], [39], [41], [59], [63], [72], [73], [74], [75], [76]. More collaborative approaches might include partnering with local communities, architects and designers to produce visualisations of the future [77]. Videos have also been found to be highly emotionally engaging and can increase people's knowledge, risk perception, collective efficacy and government-related efficacy [10], [41], [42], [78]. Additionally, rather than relying on technical language (such as describing increases in CO_2 emissions), communicators should use figurative expressions (such as "the planet is heating up" or "the pollution produced is equivalent to that from 10 car journeys") [17], [79].

As with written and verbal communications, visual climate communications should aim to make climate change relevant and 'human'. For example, images should show real people (not staged scenarios) [63] and local impacts (clearly linked to climate change) [63], [72], [80]. Visuals should be emotionally salient, reflecting the severity of the topic and highlighting people's vulnerability [24], [59], [72], [80]. For example, in one study images of people suffering from respiratory illness due to air pollution were found to be effective for communicating the health impacts of climate change, because they caused participants to feel more vulnerable and susceptible towards the issue. However, images of 'problems' should be paired with those of solutions, to promote action alongside urgency [63], [72], [77]. Images depicting air pollution [72] may be particularly salient. However, protest imagery can be alienating [1]. Again, as with other forms of communication, videos should be short, relatable and easy-to-understand [10], [41], [42].

3.2.3 Trial the use of humour

Emerging evidence suggests that humour could offer a unique way to engage audiences on climate change by catching their attention, breaking taboos, and helping people cope with the psychological weight of the topic. Methods like cartoons, memes, satirical shows and live performances can encourage people to interact with content (including online), as well

as increase their belief in and understanding of environmental issues [81], [82]. That said, evidence regarding humour's ability to stimulate behaviour change is mixed and there are concerns that taking a humorous approach to climate change may trivialise the issue [81], [82]. Communicators should therefore test humour-based approaches with their target audiences.

Example: Climate Science Breakthrough (source: initiative website)

This initiative produces videos in which climate scientists are paired with comedians who 'translate' climate science into emotional, shareable and actionable formats. It's a great example of using humour to make climate information more accessible and engaging. According to Climate Science Breakthrough's own research, their videos make 87.5% of viewers more likely to take climate action.

3.2.4 Think about the medium/channel

Communications campaigns are most effective when they use multiple mediums (e.g. website, e-mails, social media, posters, flyers, community bulletins, meetings, events, word-of-mouth, TV, radio, newspaper, slogans, icons), including a mix of grassroots and top-down, formal and informal, and digital, creative and traditional methods [3], [8], [10], [12], [21], [32], [83]. This finding was echoed in focus groups, in which participants believed a variety of methods of sharing information would be required to meet the needs of different groups of people, covering both online and offline approaches. It is also advisable to communicate regularly and consistently [14], [17] and put messages where people will naturally see them, without having to seek them out – for example, in schools, supermarkets, doctor's surgeries and on Google maps or TV shows [41].

Example: Information packs to reduce household energy consumption [7].

In a field study in Belgium, households were provided with information packs about how to reduce their energy use. Packs included information on the monetary and/or environmental consequences of saving energy; neighbourhood energy consumption data (broken down by house size); guidance on how to interpret kWh as a unit of energy use; testimonials from citizens who successfully reduced energy consumption; energy-saving advice (adapted to each season); links to further resources; and physical tools (e.g. radiator bleeder, energy saving tip stickers for household appliances and a meter reading chart).

Over the three-year study period, households who received information packs reduced their gas consumption more than households who didn't receive the packs. The effect was particularly strong in high-consuming households. These packs follow several principles of good climate communication – the information was highly accessible (by being delivered directly to households rather than requiring people to seek it out); the packs included a

variety of different types of content; and the content included practical advice and tools, rather than only highlighting the problem of climate change.

The evidence suggests that people still value communication via traditional methods, such as news media, TV and radio (especially in rural communities) [6], [62], [84]. Additionally, face-to-face and community-based communication is well received, especially by older people and rural communities [12], [21], [39], [85].

Social media can also be an effective way to reach a large audience (particularly young people) in an informal, relatable way [12], [16], [17], [18], [51], [66], [68], [83], [86], [87], [88], [89], [90], [91], [92], [93], [94]. Exposure to sustainability-related content on social media has been found to increase individuals' sustainability-related knowledge, fear of climate change, subjective norms, pro-environmental attitudes, perceived behavioural control, behavioural intent, and actual behaviour [51]. Social media may be a particularly effective way to engage with young people [52], [68], [83], [88], [91], [93], [94]. That said, communicators should be wary not to overwhelm people with information [93] or to narrow the focus to topics that are highly (socially) contagious but less impactful regarding fighting climate change (e.g. plastic pollution) [40]. Digital communication methods (such as texts and e-mails) are less effective for deep communication but could be useful for delivering information and alerts [27], [74].

> "[To reach out to youth] social media is our best friend." (Stakeholder – Advocacy and engagement organisation).

In focus groups, participants felt that sharing information online, including on social media, can be an effective way to reach a large number of people and younger age groups in particular. Rural participants also highlighted the importance of using social media for those living in rural areas in Scotland, who may not regularly pass through towns or villages where they might see posters or leaflets. At the same time, participants thought that certain people are not able or comfortable spending time online. Therefore, more traditional communication channels were suggested such as printed materials, TV, radio or newspapers (particularly local stations/publications), and information sent by post. They felt that social media campaigns bring benefits, such as using hashtags to gain traction and providing opportunities for people to more easily engage with, share and interact with the information that is posted.

Finally, embedding climate communications in entertainment (e.g. films, TV shows, podcasts and live performances) shows promising initial results in terms of boosting climate awareness, attitudes and action [10], [51], [95], [96], [97]. It is important that the entertainment aspect takes priority, to avoid being boring or 'preachy' [95], [96], [97]

3.2.5 Relevance for the PES

As part of the 'Understand' objective, the PES includes a commitment to using a range of communication challenges, including both traditional and digital channels. This research supports the need for this multi-pronged approach, to help ensure the messaging is accessible and has wide appeal.

The PES acknowledges the needs to use trusted messengers and describes these messengers as individuals and organisations working to engage the public, from small local groups up to stakeholders delivering national campaigns. The evidence review has provided some further insights into who are considered trusted messengers, and their characteristics. The type of organisation, and what principles they stand for, are therefore both important considerations when partnering with these messengers on public engagement.

Some of the specific means of communication highlighted in the evidence are also referenced in the PES. This includes the use of storytelling, as part of the Scottish Government's efforts to lead the way in developing and promoting climate conversations as a means of sharing views and improving climate literacy. The PES also refers to power of the arts to help the public to understand and visualise the potential impacts of the climate change. The findings suggest that these different channels should continue to be used to communicate and education on climate change. Humour is not specifically mentioned in the PES and is one of the more emerging strands in the evidence review. This is potentially an area for further testing and development in the next stages of the PES.

3.3 Responding to the audience

3.3.1 Tailor communications to the audience and context

> "That's a crucial question for any, especially national, strategy… no country has the resources to do everything. **You've got to be strategic. This is why you start with audience analysis**… You've got to first get very clear about exactly what it is you're trying to accomplish. Then figure out who's the audience… Then figure out the best way to reach them." (Stakeholder – climate communicator).

As has been highlighted, different groups and people respond differently to climate communications materials. The evidence is emphatic that the choice of framing, language, messenger and medium must consider the audience and context. For example, responses vary according to many different factors:

- Cultural context: In 'individualistic nations like the UK (that value self-sufficiency, personal achievement and competition), emphasising the individual gains made by taking climate action is effective [47].
- Religion: Linking climate change to 'creation' works well with Muslim, Jewish and Christian faith groups, but not as well with Hindu and Buddhist groups [1].

- Political ideology: Liberals respond better to expert knowledge and participatory engagement, whereas moderates and conservatives prefer hearing from lay people with direct experience of climate change [98].
- Level of engagement with climate change: Factual/scientific information and messengers are better received and more likely to boost climate beliefs and support for mitigation policies among people already knowledgeable and concerned about climate change [11], [41]. However, these people don't need to be convinced that climate change is a problem, they mostly want to hear about the steps they can take to solve it [99]. For groups 'in the middle' (cautious but not fully engaged), communicators should highlight the relevance of climate change through simple, clear, repeated messages from a range of trusted sources [41], [99]. Doubtful groups are more likely to negatively appraise climate change materials, so highlighting widely accepted contributions of science to society (e.g. vaccinations) [11] and using non-climate frames [41], [99] may be effective. That said, non-climate frames can also be interpreted as 'propaganda' [41].
- Climate attitudes and beliefs also vary with location (rural versus urban) [18], [39], [99]; income [39]; (dis)ability [39]; degree of experienced climate impacts [18]; age [1], [27], [39], [73]; and gender [73], [100].

3.3.2 Make it accessible

Accessibility was a common theme across the literature and the focus groups. An overarching principle in the literature is the importance of making climate communications accessible to a wide range of people [3], [13], [21], [22]. Information should be concise and easy to understand [27]. For example, communicators should focus on one key message, consistently communicated; use a limited number of statistics, ensuring those that are used are clear and memorable; avoid technical language, jargon and acronyms; and provide contextual/explanatory information for any maps and diagrams [7], [12], [17], [33], [41]. Communication materials should also be shared in multiple languages, including local languages, via a variety of media channels, and be sensitive to the cultural, social and accessibility needs of different audiences [1], [12], [17], [23], [29], [33], [59], [63].

3.3.3 Relevance for the PES

These findings on understanding the audience are closely in line with the content of the PES and some of its central messages. Under the action of "ensuring accessibility", the PES states that communication should include a variety of channels to reach different audiences in ways that are most appropriate and engaging for them.

While findings align with the PES, the evidence review provides some further considerations for understanding the audience and ensuring accessibility. In particular, ensuring

communication is sensitive to cultural, political, religious, geographical and other contexts is an area not explored in detail in the PES.

3.4 Education

3.4.1 Use a range of approaches to inform and educate

The evidence found that in some instances information provision alone can increase environmental knowledge and lead to further positive outcomes. This is most likely to happen when the information is simple and action-based. For example, providing simple guidelines about climate friendly food choices can increase people's ability to choose climate friendly products in easy product choice situations [9].

However, generally didactic presentation of information is more effective when combined with other methods, preferably interactive ones. Such methods include: art activities [101]; challenges and competitions [102], [103]; gamification [104], [105]; inquiry-based learning [106], [107], [108], [109]; cooking classes [110], [111]; projects [112], [113]; argumentation training [114], [115], [116]; writing reflections [104]; farmer field schools [117], [118], [119], [120]; tree planting [121]; experiential learning [116], [122]; and group exercises and discussions [123], [124], [125]. One notable project took portable aquaponic pods to schools to engage pupils in food production and foster learning about sustainability, climate change and healthy eating [126]. Effective interventions often use multiple combined approaches.

Example: Interactive learning intervention in UK schools [127]

An activity-based educational intervention was embedded into the curriculum of Year 9 classes in two schools in the UK. It used a range of interactive approaches, including student-led inquiry, drawing flowcharts/maps, discussions and quizzes. As a result of engaging with the intervention, students developed a stronger understanding of the causes and effects of global warming. This supports the use of engaging, collaborative methods in climate education.

3.4.2 Tailor to the audience and context

As with communications campaigns, multiple studies highlighted the importance of tailoring educational interventions to the audience and local environment [117], [128], [129], [130], [131]. One way this can be accomplished is through designing interventions which focus on applying global issues to local contexts and issues [125].

3.4.3 Enable learners to be co-creators

Effective educational interventions that increased environmental knowledge/awareness often took a collaborative approach. This includes staff-student collaborations and student-

led projects [108], [132]; training local community members or action groups to deliver non-formal education [133], [134]; and co-developing toolkits with key stakeholders [135].

> "The workshop is kind of like a menu…every group has different baseline knowledge. So, if you'd like to dig into [specific topics], we can totally go into that. But if all you need to know is that [climate change is] bad and here's what we can do, we can start there as well. And most people go for the second option… I guess **you're giving them that autonomy. You're not just lecturing at them**." (Stakeholder – climate campaigner and outreach organiser).

3.4.4 Support systemic change

The literature emphasised the need for change beyond individual interventions. Several studies outlined that environmental issues could be better embedded in school and university curricula [130], [136], [137], [138], [139]. Key points to consider here include defining the aim of climate change and sustainability education; involving educators and students in developing change; incorporating sustainability education across different elements of the curriculum (and linking these up); and making education place-based and grounded in real-world contexts and issues [130], [138]. However, some schools do not have adequate resources (including funding and time) to implement initiatives that can effectively educate students [126], [140], so these are areas where the Government could lend support. Ledwell and colleagues [63] also highlight how climate change education can empower communities to be better able to adapt to environmental impacts and argue for similar programmes (that focus on developing the skills and knowledge needed for climate adaptation and resilience) among the adult workforce.

3.4.5 Relevance for the PES

One of the PES actions is to *embed climate change within formal education*. It includes a commitment to supporting climate change education, for example by implementing the Learning for Sustainability action plan and working with the Teach the Future campaign. The evidence review findings provides insights into the types of approaches that would work best, particularly in terms of the type and style of information provision and the opportunities for collaboration and co-creation.

Training is not currently part of the PES, therefore the findings suggest that further exploration of opportunities for upskilling young people and workers would be a valuable addition.

3.5 Summary

The evidence is clear that following good communications principles is essential for successful public engagement on climate change. Much of the research supports known 'best practice' for communicating about climate change, but there are also some emerging new areas of opportunity. A common theme is that there is no single 'best' way of communicating about climate change. It is therefore important to use multiple methods and test communication campaigns and messages with your audience before rolling them out at scale [12], [33], [41], [141].

Findings from the evidence review and the focus groups have highlighted that much of the best practice on communication and education is already captured within the PES. This includes the need to be inclusive and accessible, to communicate with different audiences in different ways, to use trusted messengers, and to use messaging that highlights the relevance to individuals and the practical actions they can take.

As well as endorsing various elements of the PES, the findings also provide insights into areas for further consideration for the remainder of the PES period. These include:

- On **messaging**, ensure that climate change is framed in a way that is relevant to the lives of individuals and communities, reflects the context (cultural, political, geographic and others) and is focussed on practical actions for individuals. As well as using positive messaging, do not shy away from conveying the negative consequences of inaction on climate change.

- When **conveying the message,** the research has identified the characteristics of (e.g. being authentic, sincere, kind, honest, credible) and types of people (e.g. naturalists, healthcare professionals, scientists) who are considered trusted messengers, and those that are not. It also highlights the benefits of exploring different approaches such as the use of visual communication and humour.

- In **education** settings, encourage and enable approaches that foster collaboration and co-design with learners. Further explore opportunities for workforce **training** on technical aspects of climate change.

- Take measures to build **collective efficacy** such as using messaging that emphasise social norms, shared beliefs and a sense of community. Examples of this include sharing testimonials, photos and videos of citizens taking action, or hosting competitions, quizzes and user-generated content on social media.

The lessons outlined in this chapter can be applied across many aspects of climate change messaging, but are particularly relevant for the following PES actions:

- Develop and implement our public communications approach to ensure people understand Scotland's climate ambitions and the policies that will be required to reach them
- Collaborate with key delivery organisations to ensure information reaches key audiences, including through initiatives such as Climate Week
- Working with Adaption Scotland and others to provide consistent messaging that makes clear the impact of climate change locally, nationally and globally
- Support trusted messengers to promote climate literacy
- Embed climate change within formal education
- Use marketing and communications activity to ensure that households understand the changes needed to help Scotland get to net zero.

4 Deliberative engagement and co-design

This section outlines the findings related to public engagement that are categorised as "deliberative engagement" and "co-design" approaches.

The examples and lessons covered here relate to the 'Participate' objective of the PES.

There is a wide range of activities that fall under the deliberative engagement and co-design banner and huge variation in how the same activities are delivered in different settings. Participatory activities such as these are all about getting people to take part in decision-making processes. Therefore, they mainly contribute to the 'Participate' objective.

Source: Public Engagement Strategy

However, they also enhance climate knowledge and awareness, and promote behaviour change and support for climate solutions/actions [133], [134], [142], [143], [144]. Furthermore, they can lead to antecedents to pro-climate behaviour, including feelings of trust, community, ownership, empowerment, self-efficacy and stewardship over the local environment [92], [145], [146], [147]. Therefore, deliberative and co-design activities can also support the 'Understand' and 'Act' objectives of the PES.

For this chapter, a summary of the relevance of these findings for the PES is provided at the end of the chapter, rather than after each sub-section.

4.1 Who is involved

4.1.1 Be inclusive

Deliberation and co-design activities should involve a diverse range of people, including traditionally marginalised groups such as young people, ethnic minorities and those who are less physically able. Organisers could use purposive recruitment to gather an approximately representative group of participants or identify key stakeholders affected by the issue [53], [148], [149]. They could also support people facing financial, temporal, spatial or physical restrictions by providing compensation, child- or elder-care, support with logistics, a dedicated helper, and options to engage virtually [28], [150], [151]. Particular attention should be paid to the barriers faced by marginalised communities [152], [153], [154]. Additionally, internal dynamics should be well managed to ensure that all participants feel welcome and able to contribute [28], [29], [77], [150]. This includes organisers and facilitators reflecting on their own assumptions, being conscious of people's differing values, and as getting to know participants' motivations for engaging in a project [148], [155].

> "**What I think is really powerful about [citizens] assemblies is getting that diversity in one room** and talking across different communities... learning together, deliberating together, crafting recommendations together… I think that's really unusual and really hard to replicate in any other way." (Stakeholder – climate assemblies expert).

It is also important to combine diverse sources of information, including local knowledge, indigenous knowledge, lived experience and scientific expertise [55], [156]. Local people are best positioned to monitor and solve local problems [148], [157], [158], [159] and bringing together groups that don't usually work together can foster new perspectives and ideas [147], [159], [160], [161].

> "By the time the government takes action, the divers and the fishermen have seen it. But they don't have a channel of communication, [so they feel like] the government doesn't listen to them... So I would advise to **[listen to] the observers, the person in the forest that sees that the trees are dying are those who live in the forest**." (Stakeholder – Public engagement delivery organisation).

This finding was echoed among focus groups participants. They highlighted the need for public engagement activities to be promoted in an inclusive way so that everyone with a potential stake in the topic was aware of how they could be involved. This was particularly thought to be the case to reach people who may not actively seek out opportunities to share their views and avoid only recruiting people who are already very engaged in climate change issues or have strong views about particular subjects. One participant shared frustrations about having recently missed out on attending a climate change-related event

in their local village due to not being aware of it until after it had occurred. This was despite being 'active' online.

Participants also stressed that it was important not to overwhelm people with too much information in advance of an engagement event, and to make sure people feel welcomed and understand that their contributions are valuable.

> "**It's about making sure that people don't feel that because it's a climate advocate [and] they're going to know a lot more** […] it doesn't mean that their opinion is of greater importance than the person who's living in that community." (Focus group participant).

Focus group participants felt that, to encourage views from a diverse range of people (beyond those already interested in the topic), public engagement practitioners should reassure the public that any lack of knowledge or prior involvement in discussions about climate change is not a barrier to taking part.

4.2 Content and format of engagement

4.2.1 Tailor to the audience and context

The literature emphasises that deliberative and co-design activities are not 'off the shelf' solutions. Organisers and facilitators should consider the local environmental issues; political, social and economic context; and participants' demographics. For example, people in countries where citizen participation in democracy is high will likely expect a more involved approach. Power relations between the people in the room are also important, as social divisions and tensions can be barriers to participation, especially on a local scale [143], [154].

4.2.2 Make it accessible

In focus groups, participants felt that using a variety of different engagement methods – both online and offline – would help to make these types of engagements more accessible. For example, to ensure the accessibility of face-to-face engagement events, participants suggested holding these in places that were easy for participants to get to and in physically accessible buildings. They also noted a need for convenient timings, taking into account different schedules. Participants felt that online engagement, such as through video platforms or apps, could help encourage participation from those unable to attend an in-person activity. However, they also noted the risk of digital exclusion and that these tools are not accessible to everyone. A balance between offline and online methods was therefore seen as necessary.

4.2.3 Support active and innovative forms of participation

Focus group participants felt that giving the public the opportunity to get directly involved in activities would help to make the topic of climate change more engaging and impactful for them. For example, they welcomed the citizen science approach demonstrated in one of the case studies, in which volunteers helped to collect data as part of a study on air quality in Buenos Aires (see 7.3). Participants felt that taking an active part in data collection in this way would make people more interested in the findings compared to having simply been told about them.

> "If you get involved with something […], you're more interested in what the results come back than if you didn't get involved with it in the first place." (Focus group participant)

There was support for including a level of active engagement even in relation to information campaigns where possible. For example, in the Make It Better case study campaign (see Appendix B), the public were encouraged to sign a pledge and this was praised for being "at least [the] start of doing something". However, concerns were raised about asking participants to do too much and the risk of "volunteer fatigue". Similarly, others stressed the need for engagement to be easy, especially if it was taking place over a longer period of time.

Enjoyment in participatory processes has been linked to increased awareness and behaviour change [143]. Therefore, practitioners could employ creative methods of engagement, such as art, visioning exercises and even field trips, which are generally well received by participants [62], [162].

> "There were a couple of juries which banned PowerPoint, which I thought was really funny, and there was one classic one where you had a climate scientist on the floor building a graph with Lego blocks to show the cumulative growth [of emissions]. And that really stuck in people's heads." (Stakeholder – climate assemblies expert).

Digital tools (such as mobile phone apps – see the Floop app example in Appendix D – websites and social media) are also increasingly available. These may be less effective for in-depth deliberation and discussion, but could be useful for capturing and sharing information with a large audience (for example, in citizen science or quick consultation activities) [163].

Example: People's Plan for Nature, UK (source: expert interviewee)

This project, led by three environmental organisations (the WWF, RSPB and National Trust), used a participatory process to develop a plan of action for protecting nature in the UK. The organisations collaborated with an assembly of 100 people from across the country, who met over four weekends to discuss nature-related issues and put together recommendations

for action. The approach was blended – i.e. involved meeting face to face (for the first and last weekend), as well as digitally (for the second and third weekend). This combination made the process accessible, and the timing of the in-person sessions meant that people were able to get to know each other at the start of the process and then produce recommendations collectively at the end.

4.2.4 Give participants autonomy

Promoting a sense of ownership and empowerment among participants supports feelings of self and collective efficacy, legitimises the process and increases acceptability of solutions [156], [164], [165], [166]. This can be achieved by giving participants control over the agenda and activities, and giving the public ownership of outputs or recommendations [144], [152], [167]. Interestingly, there may be no difference in perceived acceptability of solutions when participants are given full control or partial control (i.e. some expert input remains) [156].

> "It's about the dynamic. We ran an assembly years ago with experts...they give their presentation and then they sit at the top [of the room] and the citizens ask their questions. It looks a bit like Question Time. And that is…basically pandering to the expert status of the people at the top. So what we did in the next one was ... got the citizens to think about their questions and the experts moved around the tables… [**citizens] were in control of what they asked** and if they wanted to move on to the next question, it was completely up to them**, completely changed the dynamics."** (Stakeholder – climate assemblies expert).

Some participatory processes have divided participants into groups to cover more topics in depth, but this may mean participants don't feel ownership over recommendations they were not involved in [167]. Another caveat to be aware of is that while bottom-up control over framing and design increases citizen input and creativity, it may also lead to less feasible policy options [69].

Example: Citizen science and co-policy design in the ClairCity Project [143]

This project engaged people across six European regions around air pollution and carbon emissions. It involved a variety of activities that gave residents a sense of ownership and control over the process. For example, participants used apps to monitor their own transport habits, emissions production and emissions exposure. A crowdsourcing process also gathered lived experiences and policy ideas. Residents involved in the project found it enjoyable and reported increased understanding of air quality. 74% of those surveyed indicated that they would make a behaviour change to improve air quality.

4.2.5 Create a supportive atmosphere

To ensure participants feel comfortable, activities should be conducted in informal, familiar places. For example, the literature cited locations such as coffee shops, community centres and participants' homes [66].

> "It's very important where you meet your focus group. I don't call everybody to the city to come to a focus group meeting. We go to the comfort zone. **It's very important to be where the people are comfortable, [so they can] express themselves**." (Stakeholder – public engagement delivery organisation).

Additionally, practitioners should explicitly communicate that participants' contributions are valued [148], [168] and given enough time to cover topics in depth and discuss ideas fully. Participants' privacy should be respected [153] and issues surrounding data handling and ethics should be taken seriously [148], [149]. Further, to promote credibility and legitimacy, deliberative processes should be transparent and well-communicated [169], [170].

Echoing the literature, focus group participants suggested that there should be opportunities for people to speak in small groups or with others one-to-one (to reduce anxiety around speaking in groups).

4.2.6 Consider practical issues

Planning ahead is crucial in ensuring the success of deliberation and co-design interventions. A clear remit and goal should be set in advance [171]; policymakers and facilitators should be sufficiently trained [77]; proper resources and funding should be provided [171]; and, ideally, tools that can be used in different contexts and at different scales should be employed [172]. Where participants act as data collectors – for example, in citizen science projects – organisers should ensure that the data collection method is congruent with the data analysis plan [148].

It is also important to enable initiatives to self-reflect and learn from each other. For example, useful actions include conducting pilots [147], [171]; gathering feedback from participants [168]; and sharing evidence, evaluations and failures with wider networks and organisations [148], [169], [173].

4.3 Impacts of the engagement

4.3.1 Engage meaningfully with outputs and recommendations

Alongside lessons relating to the delivery of individual deliberation and co-design activities, a common finding across the literature, interviews and focus groups was the need to respond meaningfully to outputs and recommendations. When these are ignored, engagement activities can appear tokenistic. This may call into question the legitimacy of

participatory processes (in the eyes of participants and policymakers) and reinforce conflict within the involved communities [174], [175], [176].

Responding to, acting on and monitoring the implementation of recommendations should be seen as part of the participatory process and factored into the plan and budget [153], [164], [169], [177], [178], [179], [180]. Generally, integrating the outcomes of participatory activities into policy is easier when these are government-led. However, such interventions are also more likely to be perceived as 'box-ticking exercises' designed to give commissioners legitimacy [181].

To ensure decision-makers respond meaningfully to participatory processes, organisers should get buy in early on from actors that will be affected by the outcomes [166]. There should be a core policy team that is responsible for taking recommendations through the policy process, preferably involving officials from multiple departments and the core government, not just climate teams. Decision-makers should avoid merely assigning individual recommendations to the appropriate government departments for action, but also respond to the wider context, ethos and vision of participatory outputs. Additionally, the response process should be transparent to participants – participants should be told from the outset how their efforts will be acknowledged [148], [168], [182] and be regularly updated on how recommendations are being implemented [1], [30], [60], [61], [65], [66], [67], [169], [182].

> "How are we going to follow up on [climate assemblies] in a way that does justice to what the assembly members have done? We're so obsessed by the citizen engagement bit that we don't focus enough on getting the structures around it right… I think we kind of go – 'oh, that's the participation there'. Actually, the participation is all of it… **Don't deliver an assembly unless you are sure you understand what the follow up is going to be."** (Stakeholder – climate assemblies expert).

Example: Irish Citizens Assembly (source: expert interviewee and EPA report)

In the Irish Citizens' Assembly, 99 citizens deliberated on how Ireland can become a leader in tackling climate change. The process produced 13 recommendations which were more radical than many expected. A strength of the process was that a specific all-party parliamentary committee – the Joint Oireachtas Committee on Climate Action (JOCCA) – was set up to respond to the recommendations (via a published report). JOCCA's report gave the recommendations momentum and ended up significantly shaping the Government's Climate Action Plan to Tackle Climate Breakdown.

Example: Permanent climate assembly in Brussels (source: expert interviewee)

The permanent climate assembly in Brussels has a small committee of ten diverse citizens who spend a year working with the municipality after each deliberation cycle. This involves a new group of people each time and they have the right to ask for any information they want. The municipality is required to say after three months, what it's going to do, and after a year what it's done. While permanent assemblies will not always be possible and appropriate, this example highlights a practical approach to ensuring that engagement is built into decision making and that participants are kept close to the outputs and recommendations.

Another activity to consider is green participatory budgeting, where local people get together to decide how funds will be spent on environmental initiatives. This was flagged by one of our expert interviewees as a useful local-level participatory activity, that is less traditional than climate assemblies and garners involvement from a wide range of people.

> "**Participatory budgeting (PB) is one of the few participatory processes where the people who get involved can very directly see how their contribution then results in resources being mobilised** to take action, to fund projects, to reform a service, to start a new initiative, or to channel resources in a new direction… It's a more proactive and co-produced type of engagement. It's not just led by the local authorities, it's a partnership with a number of community organisations and third sector organisations. Green PB, I think, is a real opportunity that should play a central role in the public engagement strategy." (Stakeholder – public policy and engagement expert).

Example: Green participatory budgeting in Lisbon, Portugal [23]

Lisbon's green participatory budgeting programme empowers citizens to use part of the City Council's budget each year for projects that make the city more sustainable, resilient and environmentally friendly. It is open to everyone in the municipality of Lisbon over the age of 16 and engagement is hybrid, with in-person events for discussion and debate alongside web-based platforms for voting and proposal submission. Winning projects are integrated into the City Council's Plan of Activities and Budget and then implemented. Evidence suggests that citizens are actively engaged in Lisbon's PB process and that this leads to the commissioning of sustainability-related projects.

4.4 Summary and relevance for the PES

Deliberation and co-design activities often lead to high levels of satisfaction among participants and can deliver benefits for the local community and those facilitating engagement [145], [183]. They are effective at engaging the public in climate change and crucial for bringing a topic onto the public stage [145], [184], [185]. However, practitioners should be aware that solutions that come out of participatory processes may not be ambitious enough to meet climate targets [171] and data gathered by citizens without expert input may be of poor quality [87].

The PES has been developed with the good practice principles of participation in mind, in line with the Scottish Government's Participation Framework and the Open Government approach. The findings highlight some of the best practice which align with many of the PES principles such as being participative, inclusive, open and transparent. The findings also highlight areas for consideration in the implementation of these types of activities as part of the PES. These include:

- When designing these engagement approaches, thinking carefully about who is there and how best to draw on local knowledge, lived experience and other types of expertise.
- Encourage active forms of participation such as citizens' science techniques, which involve the public directly in research, and approaches such as participatory budgeting which have a clear link between the public's involvement and the decisions.
- Explore the use of digital and creative tools to help share findings from deliberative and co-design approaches with a wider audience.
- From the beginning, build in ways of measuring and demonstrating the impact of the engagement process. Take lessons from the Irish Citizens Assembly and the permanent climate assembly in Brussels which have established mechanisms for ensuring feedback for participants, helping hold decisions makers to account.

The lessons outlined in this chapter are particularly relevant for the following PES actions:

- Build on Scotland's Climate Assembly to develop further deliberative approaches
- Continue to facilitate meaningful climate engagement conversations with people and audiences not currently engaged on the topic
- Develop our approach to ensuring key climate change policies exhibit the principles of Open Government through meaningful consultation and participation

5 Creative activities

This chapter details the final theme identified in the literature, where "creative" approaches to public engagement have been used.

Creative engagement methods have a variety of outcomes and can be used in any of the other activity categories already explored (communication, education, deliberation and co-design). Therefore, **creative interventions could contribute to all three of the PES objectives ('Understand', 'Participate' and 'Act').**

Source: Public Engagement Strategy

5.1 Art, exhibits and digital tools

5.1.1 Use art

Creating and working with art can increase environmental awareness and understanding [186]. It also facilitates reflection, critical thinking, empowerment and discussion, so is useful in participatory/deliberative processes [77], [90], [186]. Viewing climate change art – even virtually [78] – can enhance engagement, awareness, reflection and discussion [90], [187]. It also strengthens local/community identity [187] and cohesion [188], support for climate action [90] and sustainable behavioural intention [187].

Art exhibitions are particularly effective when they are collaboratively designed (by a diverse range of stakeholders), interactive, in public places and linked to local contexts, as they make people consider how climate change relates to their own lives [77], [90], [187], [189]. For example, exhibits could take place in squares, parks and streets, platform local stories and experiences, use local imagery and references, and engage local organisations.

Example: 'Floodlights', an art exhibit in Hull, UK about sea level rise and flooding [187]

'Floodlights' was a multi-media, interactive exhibit that involved a range of pieces, including large projections onto iconic local landmarks, interactive activities and soundscapes. The exhibit increased attendees' behavioural intention to take water and climate action, with engagement thought to be driven by emotional response, place-based attachment and civic pride. This highlights the potential role of interactive creative initiatives that are tailored to the local context in encouraging pro-climate behaviour.

Figure 2: Image of projections on buildings as part of the Floodlights exhibition. Source Absolutely Cultured project website

5.1.2 Use interactive information exhibits

Interactive information exhibits are stands or displays that incorporate activities such as posters, flash cards, infographics, models, digital or in-person games, live displays and sensory exercises. They are effective at increasing environmental knowledge and behaviour change intention [75], [190], [191]. They may do this by changing people's perceptions of how their peers think, feels and act in relation to climate action, as well as increasing people's confidence in taking action [191]. Such exhibits are interesting, engaging, memorable and enjoyable to people from a range of age-groups [189], [190]. They are also low-cost and easy to implement.

Interactive information exhibits should incorporate multiple activities which are playful, emotional, locally relevant and solutions-focused, but not present so much information that

viewers feel overwhelmed. Having well-trained facilitators and communicators on hand to support discussion and answer questions is useful. Additionally, there are considerations for presenting interactive data – for example, presentation approaches that mimic the form, material and colour of biological processes are intuitively understood, as are colour scales like red-green [75].

5.1.3 Use digital tools, but be aware of drawbacks

As highlighted in previous sections, digital tools may be useful in achieving certain aims in certain contexts. Digital tools have the capacity to support environmental education, communication, participation, behavioural intention and real-world behaviour change [87], [192], [193], [194], [195].

Virtual platforms are a relatively quick, easy and cheap way to connect with a wide range of people, which is especially useful for collecting data (e.g. for environmental monitoring or opinion polls) and disseminating information (e.g. early warnings during disasters). Further, digital reward systems and currencies, where users accumulate points for carrying out pro-environmental behaviours – e.g. 'Ant Forest' [194] and 'Greencoin' [193] – can promote real life behaviour change. Digital platforms should be interactive, customisable and easy to use. They should not only be used to connect policymakers with the public, but also to connect publics and stakeholders with each other and encourage collaboration, information-sharing and discussion.

> "**Digital has this capacity of reach... It has generated participants who wouldn't have come to face to face**. There were people who, for example, had long term sickness, who would actually dial in from their beds. There were people with anxiety, who wouldn't come to a face to face, but would do online." (Stakeholder – climate assemblies expert).

However, there are a number of caveats to be aware of regarding digital tools [87]. First, these are complex technologies that we don't yet fully understand – they can be unreliable and difficult to fix when things go wrong. They require practitioners and users to have technological skills, knowledge and resource, therefore aren't accessible to everyone. They are less effective for deep engagement and may only be as good as the original data or communications content that they share [87]. Additionally, technology use comes with risks and negative consequences, such as carbon emissions, technology dependence, mental disorders, preventing people developing traditional skills, job losses and breaches of user privacy and agency [87].

> **"**It can be a combination of both [online and offline], depending on resources and time. [**Offline] is very effective because the interpersonal nature, the chemistry**… That dynamic, you cannot get it online."
> (Stakeholder – public engagement delivery organisation).

Example: Environmental health app [195]

An app called AirRater was developed in Australia to encourage behaviours that protect health in response to environmental hazards.

The app enabled users to view information on multiple atmospheric health hazards in real time, view local environmental conditions, and track their personal symptoms.

Supporting the use of digital tools, most users valued the app's visual features (e.g. maps and location settings) and found the information easy to understand.

In focus groups, the use of virtual tools, such as video platforms or apps, was seen as making public engagement more accessible in certain situations. The former was seen as useful for including people in group discussions where there are travel limitations, such as for those living in rural areas. Participants specifically discussed the use of apps as a means of public engagement in the context of one of the case studies (the food carbon tracking app – see Appendix D and Figure 3). Among those who were familiar with using apps, this approach was seen as an easy and convenient way to engage. However, while these approaches could increase accessibility in some ways, participants acknowledged that they were not always easy for everyone to use. Concerns were raised around digital exclusion, and the difficulties of taking part in a group discussion at home if there are other people or distractions around.

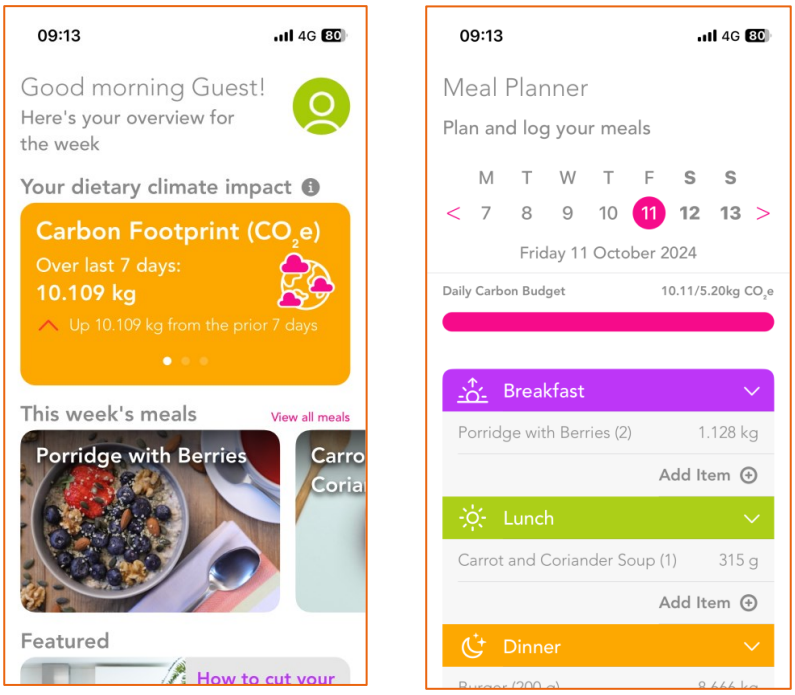


Figure 3: Floop a food carbon tracking app that was discussed in the focus groups.

5.2 Gaming, virtual reality and emerging approaches

5.2.1 Trial the use of games

There is promising evidence around the use of games for environmental public engagement, but there are caveats. Games have been found to support environmental risk perception [196]; reduced psychological distance [196], [197]; interest [198]; awareness and understanding [196], [198], [199], [200], [201], [202], [203], [204], [205], [206], [207], [208], [209]; efficacy and hope [196], [198], [199], [208]; emotional and affective engagement [196], [208]; feelings of urgency and responsibility [196], [208]; attitudes [210]; discussion, participation, collaboration and cooperation [77], [200], [201], [203], [209]; policy support [207]; behavioural intentions [196], [197], [207]; and sustainable behaviour change and emissions reduction [197], [199], [203], [204], [205].

Participants across a range of ages and groups have found games fun, interesting, engaging and accessible [196], [197], [198], [201], [204], [205], [206], [207], [208], [211]. Games can be used on a variety of topics and at a variety of scales (individual to community-level). Energy saving behaviours in households and offices show particular benefit from gamification [199]. Further, games may be very useful in educational settings as they foster experiential learning [77], [204], [205], which translates to real life settings [209]. Gamified places (where playful interactions are built into everyday activities) foster more active engagement and behaviour change as citizens gain a sense of ownership and community [203].

That said, research into climate change games is relatively new. The methods of evaluation are inconsistent and the results are not conclusive [212], [213], [214]. Benefits can be often short-term, with constant/repeated engagement needed for changes to be effective [199], [203], [210]. Further, games risk trivialising and commodifying the serious issue of climate change [203].

Example: Challenge-based game intervention between students [197]
Students at two universities competed on real-world behaviour change challenges, using a virtual platform to receive information, track their progress and view real-time scores. Participants enjoyed playing the game and it resulted in sustainable behaviour change and emissions reduction. The element of competition in this game was found to be particularly motivating for students.

Example: 'SuDSbury' board game [207]

A serious board game about sustainable drainage solutions (SuDS) increased players' knowledge, comprehension, awareness, behavioural intention and acceptance of SuDS interventions. Providing support for the use of games in climate engagement, players found the game fun and engaging, although they also highlighted that the experience would be improved if the game was more realistic.

Initial evidence suggests that climate change games are most effective when they are realistic (in look, narrative and activities), responsive and intuitive [194], [196], [201], [207], [208], [210], [212], [213]. A challenge or competition element makes games particularly engaging [197], [199], [204], [205], [206], [210], as does giving the player some sense of autonomy and control [194], [212]. When implementing games, practitioners should encourage players to be open to scientific evidence, even if it goes against their existing beliefs [198]. And in educational settings, games should be customisable, co-designed with educators and integrated into the existing workflow/curriculum [204], [205], [206].

5.2.2 Trial the use of (immersive) virtual reality

Immersive virtual reality (IVR) has been used in games but also in non-game-based interventions, such as visualisations. Evidence surrounding the effects of IVR is inconclusive, with meta-analyses having found mixed results [215]. Some studies find that IVR experiences can enhance efficacy, learning, behavioural intentions and (virtual and real-life) pro-environmental behaviour [196], [215], [216], [217], [218], [219]. IVR users have also reported greater feelings of presence, immersion, usability, engagement and emotion, compared to other engagement methods [196].

However, other studies find IVR has minimal effects on behavioural intention [219] or is as effective as other modes of delivery (e.g. computer-based, text with graphics) in fostering learning and other benefits [196], [202]. IVR may be particularly useful for visualising scenarios far away in time or place, that would be difficult, dangerous, expensive or environmentally damaging to visit in real life [217], [219]. Recommendations seem to be similar to those for game design – make experiences realistic, relevant and immersive [215], [216]. IVR should be used with caution to supplement other activities.

Example: Virtual fieldtrips [218]

Users travelled virtually to a national park and witnessed environmental destruction due to dietary choices. This immersive intervention was more effective than a virtual intervention which just presented information at increasing users' pro-environmental intentions, virtual pro-environmental behaviour and real life pro-environmental behaviour around food choices, including a week after the intervention. This suggests that the availability of virtual reality to transport people to another place is particularly valuable in climate change engagement.

5.2.3 Be aware of other methods

The literature highlighted a few other activities which have not been extensively researched but show some promising initial evidence. These include:

- **Interactive theatre** ('science shows' which are educational but also involve characters, narratives, engaging delivery, demonstrations and audience participation) can increase behavioural intention and are particularly well received by families and children [97], [220].
- **'Plogging'** (picking up litter while jogging, or doing another physical activity) can increase awareness of littering and the benefits of taking environmental action [221].
- **Photo voice activities** (where participants take photos and use these as a catalyst for discussion) can encourage environmental awareness, comprehension, sustainable behaviour change, community building, discussion and new ways of thinking [222].
- Attending **environmental events** such as beach cleans and birdwatching events can increase people's environmental concern, subjective norms (belief that other people are taking environmental action) and behavioural intention [86].

5.3 Summary and relevance to the PES

Generally, the evidence supports the effectiveness of creative interactive engagement methods for a variety of outcomes [68]. This may be because creative activities are intuitively understood, accessible and tap into people's emotions. Creative methods are also often well-received by participants.

Creative forms of engagement are not explored in detail in the PES. One of the activities outlined in the PES involves engaging through culture and heritage, and highlights that the arts act as a significant communication tool. However, specific uses of art and other creative

approaches are not explored in detail. Creative forms of engagement could therefore be an area for greater focus going forward.

The lessons outlined in this chapter can be applied across many aspects of climate change messaging, but are particularly relevant for the following PES actions:

- Collaborate with key delivery organisations to ensure information reaches key audiences, including through initiatives such as Climate Week
- Continue to facilitate meaningful climate engagement with people and audiences not currently engage on the topic
- Continue to champion and fund community-led climate action
- Utilise the potential of the arts, creativity and heritage to inspire and empower culture change.

6 Strategy-level findings

This section outlines findings that were relevant across all strands of public engagement activity, including strategy-level considerations identified in the literature. As these findings are broader that those in chapters 3 to 5, they are more closely related to the overarching principles of the PES, rather than specific actions.

6.1 Have a clear strategy linked to a vision for net zero

The evidence review was clear that having a national-level, government-led strategy on public engagement is important. Scotland is already leading the way by having a climate change public engagement strategy. The suggestions for what such a strategy should include mirror much of what is within the existing PES, however the findings serve as a reminder to ensure the strategy is support by sufficient resource, encourages cross-sector thinking, and is linked to a feasible vision for net zero.

Literature and stakeholder interviews suggest that an engagement strategy should coordinate large-scale activities and support local activities, over a sustained period of time [28], [55], [60], [66], [67], [68], [182], [223]. It should raise awareness, normalise climate action, invite people to shape decision-making and enable people to take action via structural support and behavioural approaches [4], [26], [30], [54], [57], [63], [69], [223].

> "Joining of the dots into a coherent system is so important. It's important to make effective use of public budgets and resources, to not burn people out and create more scepticism, and to **demonstrate that there is a … coherent system of different spaces that are complementary**… It's not

> about any single public engagement process. All of them have strengths and weaknesses. It's about their combination and their purpose." (Stakeholder - public policy and engagement expert).

A government public engagement strategy should be embedded in the national climate change strategy [67] and be properly resourced and funded. It should include a concrete, positive, feasible vision for net zero, that has been co-produced and consistently communicated [14], [23], [26], [28], [30], [54], [60], [67], [223]. It should encourage cross-sector thinking and discussion [67], as well as including sector-specific strategies for hard-to-decarbonise areas [223].

6.2 Build on and support existing public engagement initiatives

The literature and stakeholders highlighted the importance of acknowledging and building upon any public engagement work that is already being carried out. This includes mapping, linking up and giving a platform to small-scale, bottom-up initiatives. Stakeholders suggested that a role for governments could be to provide resources, funding, legal advice and networking opportunities to grassroots and community initiatives already taking place.

> "In some communities of place, there's very little social capital left to initiate [engagement or advocacy]. What happens there? Well, that's where the state needs to take the first step… What is needed is that kind of seed investment to get things going… **The role of the state is to create the spaces where those ideas and actions can be supported and invested in**." (Stakeholder – public policy and engagement expert).

Stakeholders also pointed out that not all relevant groups may describe themselves as 'climate' groups (e.g., they may fall under community engagement labels) and not all will want to engage in the same way.

6.3 Show strong leadership, be trustworthy and transparent

Several sources highlighted the importance of strong government leadership in building collective efficacy and trust [4], [17], [30], [54], [63], [69]. This not only means having ambitious climate targets and strong climate policies, but also 'leading by example' (government actors and departments behaving in line with their climate communications and policy). Platforming and supporting others' pro-climate behaviours is also considered part of strong leadership, as is leading international cooperation on public engagement (also referred to as Action for Climate Empowerment or 'ACE') [223].

Literature showed the importance of being honest about the engagement process and about the environmental issue being discussed, including the benefits, risks and areas of uncertainty [12], [53]. The importance of trusted messengers, who are referred to throughout the PES, was also clear from the literature. Building trust was also seen as

important among focus group participants. They felt it was important for the information shared as part of public engagement on climate change to be balanced and evidence-based, in order for people to make informed judgements on the issues. Similarly, they felt that there should be a neutral or balanced perspective among people running or speaking at public engagement events. There was some cynicism about the motivations of those that carry out public engagement, which can diminish trust in the process.

> "It depends on the answer [the commissioner] is chasing…. if they want something to go through, they'll find the people they want to sit on that meeting. It's very easy to buy the answer that you want." (Focus group participant).

Some felt that public engagement can be used to endorse a pre-determined point of view and that participants can be chosen because they already have a vested interest in the outcome. They gave examples of recent consultations on topics such as local transport or farming practices which they felt had a foregone conclusion.

To help built trust in the engagement process, focus group participants felt that the organisation responsible for implementing the findings should be transparent about the actions they are taking as a result and be held accountable for doing so.

> "**Once we agree, or the Government agrees, a plan… they have to be accountable**. So how do you make them accountable?...[Continually provide us with] an update on how [Scotland] is doing [on climate change targets] and how we're doing against other countries. Make it real for everyone." (Focus group participant).

This need for accountability was linked to a concern that organisations might change their minds about a decision or go back on what was agreed as part of the engagement. While this concern was largely framed in terms of private sector organisations overturning decisions due to commercial interests, it reflects a broader point about ensuring transparency about how findings from engagement activities have been acted upon.

6.4 Get the timing right

The research did not identify an optimum length or duration of public engagement, as this varies depending on the style, purpose and context of activities. However, literature did suggest that good public engagement should be conducted consistently over long periods of time. Even 'standalone' projects should give people the opportunity to stay involved and be updated after completion. This requires commissioners and practitioners to be proactive, organising engagement activities at the right time, for example well before legal obligations or public pressure necessitate it [1], [4], [12], [26], [28], [60], [66], [182]. People may also be particularly open to change during big life events (e.g. moving cities) and key societal moments (e.g. Covid-19) [69].

6.5 Embed public engagement in decision-making

A theme that emerged strongly in the literature and interviews was the importance of integrating public engagement within formal decision-making processes, in a co-ordinated way. Partly that means responding meaningfully to the outputs and recommendations of participatory activities and clearly communicating with the public about how engagement links with the policy process. But, broader than that, it also means viewing engagement activities not as isolated ad hoc events, but as part of an ongoing process that is systematically linked with decision-making [169]. For example, participants should be supported by permanent structures that enable them to hold decision-makers to account [179]. These could include permanent assemblies [173], invitations to government meetings and involvement in the implementation and monitoring of public engagement outputs.

> "I think that's the next frontier, making participation a way of everyday working." (Stakeholder – climate assemblies expert).
>
> "**What we are short on is on a public engagement that is more co-productive**, that puts as much emphasis on … that ongoing, more kind of co-productive relationship, I guess. And I think that's where the public engagement agenda in Scotland needs to move." (Stakeholder – public policy and engagement expert).

The evidence suggests that efforts should also be made to embed public engagement in the way government works, making it a 'reflex' for policy makers – i.e. something automatic, that happens as part of everyday operations [54], [55], [68], [182]. For example, public administrations should get a clear mandate from policy makers for using public engagement to inform policy and make public engagement an aim of new projects. Public engagement training could be provided to policy makers and their annual appraisals and promotions could consider involvement with engagement initiatives.

6.6 Demonstrate how the public's views have been acted on

The need for demonstrable outcomes from public engagement was a strong theme in the focus groups. Participants felt that, for engagement to be worthwhile, it needs to have a clear outcome and, ideally, result in real change. They stressed the importance of ensuring that the public feel that they are being listened to, as this creates a sense of empowerment.

> "It is really important to make sure that people thought their opinions were valued. So, **make sure that they're actually being listened to and take away the feeling of, like, powerlessness in the conversations**…If you're not in a position of power, it can be kind of difficult to make that happen." (Focus group participant).

There was some cynicism, however, about whether public engagement always leads to action. This criticism was not directed at one particular type of engagement or organisation,

but participants shared their own experience of local consultations or engagement activities that they felt had lacked impact. One example was a consultation about ferry services in island areas, during which participants felt concerns had not been listened to acted upon. This had created a sense of frustration and diminished trust in the organisation and the process. Another example was the hosting of COP26 in Glasgow, which was criticised for not having resulted in any meaningful change for the public.

> "A lot of these things, you can go to them, but does it make a difference? I've been to [consultation events] about the ferries and they just spout the company line and they go away. People get annoyed. Nothing happens." (Focus group participant)

> "COP26, there was so much hype around it but really, was there enough messaging that filtered through and made people want to make change?" (Focus group participant)

6.7 Summary and relevance for the PES

These findings provide lessons for the overall direction of the PES at a strategic level. They suggest that, for the remainder of the PES, consideration should be given to:

- Ensuring the PES is supported by sufficient resource, encourages cross-sector thinking, and delvers multiple approaches to engagement.
- Working through existing networks of organisations delivering engagement at a local, community and regional basis. Scottish Government's role in this respect could be as enabler and supporter of these public engagement activities, either through funding, advice, or other types of support.
- Leading by example. To demonstrate credibility and ensure the public trust in delivery of the PES, the Scottish Government could be transparent about what actions are being taken and why, showcase pro-climate behaviours, and be open about the role of public engagement activities and how the findings will be used.
- While there is no set guidance on when public engagement should take place, timing should be considered part of the overall approach to gaining trust and credibility. In practice this means engagement taking place early enough so that the findings can make a difference to a particular policy area.
- Making clear how the public's involvement will have an impact on decisions. Focus group participants were clear that the public should be reassured that they have been listened to and that their contributions have made a difference. Potential approaches could be to build this messaging into specific engagement activities at the beginning

(i.e. making clear what has already happened as a result of previous engagements), at the end (i.e. through follow-up communications after an initial exercise) or as part of an ongoing programme of communication from government. Lessons can be learned from countries such as Ireland and Belgium where citizens' assemblies have included formalised feedback processes.

7 Conclusions

The research showed that there is no single best way to engage the public on climate change. Public engagement should use multiple and varied contexts, scales, activities, depths of engagement, approaches and intervention points. Top-down approaches may be more effective at raising awareness at scale, but grassroots approaches lead to more meaningful engagement.

This research has identified a number of lessons for future public engagement on climate change that can inform future decisions related to the PES. These lessons are based on a combination of best practice examples in the evidence review and the views from focus groups with the general public. Of course, it will not be possible to do everything or to reach everyone. What can be achieved will be dependent on time, money and other resources, and choices will need to be made about what public engagement approaches to take and when. To help prioritise next steps, the key lessons from this research are presented in two groups:

- Firstly, the areas that are not currently included or not outlined in detail in the PES. These "newer" lessons could be prioritised for the remainder of the PES.

- Secondly, the areas in which the content of the PES already aligns with best practice, and which should be continued.

7.1 Areas for future consideration in the PES

The research has identified areas that are not referred to, or not outlined in detail, in the PES. These newer approaches could be taken into consideration for the remainder of the PES period. These are not presented in order of priority, but are grouped under the three strategic objectives of the PES to which they most closely relate.

Understand

- **Ensure that climate change messaging reflects the context of those it is aimed towards (including cultural, political and geographic factors) and is focussed on practical actions for individuals.** Linking with other, non-climate topics can help to engage the public on climate change. Framing it in terms of impacts on health, safety and wellbeing were seen as particularly effective.

- **Balance both positive and negative, or fear-based, messaging**. The merits of both these approaches were discussed in the literature and in the focus groups. While there is a potential conflict between those two directions, the overall sentiment was that governments should be honest about the risks and uncertainties of climate change, but also convey positive, practical actions that the public can adopt. This point was particularly relevant to communications campaigns but could also be applied to information conveyed through other communication channels and in educational settings.

- **When conveying the message, explore different approaches such as the use of visual communication and humour to convey information.** Humour is an area not specifically mentioned in the PES and is one of the more emerging strands in the evidence review. This is potentially an area for further testing and development in the next stages of the PES.

- **In education settings, encourage and enable approaches that foster collaboration and co-design with learners.** Examples in the literature included staff-student collaborations and student-led projects, training local community members or action groups to deliver non-formal education, and co-developing toolkits with key stakeholders.

Participate

- **Demonstrate that the public have been listened to and that action has been taken as a result of their participation.** This was a strong theme in the general public focus groups and they considered it a high priority for future public engagement. It is important to be clear on and convey how the public are having an influence on decisions, be transparent about how those decisions are being acted upon, and keep the public updated on progress towards outcomes. Potential approaches could be to build this messaging into specific engagement activities at the beginning (i.e. making clear what has already happened as a result of previous, similar engagements), at the end (i.e. through programming in follow-up communications after an initial exercise) or as part of an ongoing programme of communication from government.

- **Think carefully about who is involved in deliberative, co-design and other participatory processes**. As part of the design of the processes, consider how best to draw on people's local knowledge and lived experience.

- **Encourage active forms of participation to help engage people in different ways.** This can include approaches such as citizens' science, which involves the public directly in data collection and other research activities, and participatory budgeting, which has a clear link between the public's involvement and the decisions being

taken as a result. These approaches can complement other, more established engagement approaches such as citizens' assemblies.

- **Explore the use of creative activities.** Some of these approaches, such as gaming and virtual reality, are still relatively new in the literature so would benefit from further exploration and testing before being used more widely.

Act

- **Make climate change relevant to people's lives and conveying why their actions are important.** The research showed that climate change can seem a distant topic for some, and there is still some scepticism amongst the public about the difference that their individual actions can make to climate change targets.

- **Give people autonomy by supporting co-production and co-creation processes.** These approaches can help give the public a say in the way they engage and ownership over outputs or recommendations. This can foster a sense of empowerment and help legitimises the process.

- **Integrate public engagement into policy decision making**. This includes responding meaningfully to the outputs and recommendations of public engagement and clearly communicating with the public about how their engagement links with the policy process. More broadly it means viewing engagement activities not as isolated ad hoc events, but as part of an ongoing process that is systematically linked with decision-making.

- **Take measures that help boost collective efficacy.** Measures to build collective efficacy included using messaging that emphasise social norms, shared beliefs and a sense of community. Examples of this include sharing testimonials, photos and videos of citizens taking action, or hosting competitions, quizzes and user-generated content on social media. Promoting a sense of ownership of engagement outcomes and recommendation can also support feelings of self and collective efficacy.

7.2 Existing aspects of the PES that should continue

Overall, findings from this research support many of the principles, activities and initiatives within the PES. Themes such as inclusion, transparency, and evidence-based approaches are all principles for the PES and were all identified in this research as important features of public engagement. This suggests that the Scottish Government's approach is already in line with some of the public engagement best practice happening in other places.

The research highlights some key areas that the Scottish Government should continue to focus on in the delivery of the PES:

- **Have a clear strategy with multiple engagement approaches**. Scotland is already leading the way, not just in have the PES in place but also having a built-in process of monitoring and evaluation. The PES should continue to provide a clear and positive vision for the future and include multiple approaches, including co-ordinating large-scale engagement and supporting smaller local engagement. It could explore more creative innovative activities than those currently used, including strategy-level ideas such as an Open Climate Data Platform and cross-Government digital public engagement tools

- **Ensure communication is inclusive, wide-reaching and targeted to the audience.** Much of the best practice on communication and education is already captured within the PES. This includes the need to be inclusive and accessible, to communicate with different audiences in different ways and to use messaging that highlights the relevance to individuals.

- **Consider what makes a "trusted" messenger and use these to help convey relevant messages**. Clear and specific examples of trusted messengers were highlighted in the research (e.g. nature conservation charities, healthcare professionals, scientists, etc.). Specific groups aside, overarching characteristics that people trusted included sincerity, kindness, honesty, empathy, passion, and credibility. The type of organisation, and what principles they stand for, are therefore both important considerations when partnering with these messengers on public engagement.

- **Follow best practice on participatory approaches and how to remove barriers to engagement**. Continuing to follow best practice and learnings from previous engagements such as Scotland's Climate Assembly for deliberative and co-designed processes. This includes thinking carefully about who is there and how best to draw on local knowledge, lived experience and other types of expertise. In keeping with best practice engagement principles, the research highlighted the need to remove barriers to participation as much as possible. Particular attention should be paid to the barriers faced by marginalised communities and thinking carefully about how best to engage them.

- **Tracking and evaluating effectiveness.** As well as the ongoing evaluation that is written into the PES, this should also involve testing different interventions, measuring their impact, and sharing learnings with others

8 Appendices

Appendix A – Research methodology additional detail

A.1. Desk-based evidence review: Approach to identifying evidence

A desk-based review of evidence was carried out to identify public engagement activities and examples of best practice. The review was designed to primarily answer the first two research questions.

A systematic search of academic literature was carried out on Scopus and Google Scholar, using pre-agreed search terms and parameters. This was supplemented with searches of relevant grey literature using Overton, OECD Library, World Cat and organisational websites. Inclusion criteria for the review were agreed in advance. All literature was written in English and published in 2020 or later (since a previous ClimateXChange study in 2020 that explored public engagement on climate change). The review included examples relevant to all three aspects of the PES objectives ('Understand', 'Participate' and 'Act'). It focused as much as possible on sources that evaluated public engagement, to shed light on the question of "how to do good public engagement?" This included empirical studies, case studies, evidence reviews, and lessons drawn from relevant theory.

A total of 292 sources were reviewed, 236 of which were academic and 56 of which were grey literature.

A.2. Desk-based evidence review: Types of evidence reviewed

The evidence review highlighted a wide range of public engagement activities. Most of these engaged people around broad 'climate' or 'environment' issues. But some focused on more specific topics, including adaptation, consumption, waste, diet, transport, energy, justice, health, land use, nature, ocean sustainability, water management, sea level rise, geoengineering and carbon capture and storage (CCS).

The evidence had a global reach, but rich 'Western' regions such as the UK, Europe and North America dominated. Public engagement interventions covered a range of scales (from local to multi-country) and timeframes (from single sessions to multi-year projects). Audiences were generally citizens or residents, but some initiatives targeted particular groups (e.g. healthcare professionals, students, farmers, rural communities, young people).

Whilst there are many examples of government-led or government-supported public engagement interventions, there are few occasions where these have been evaluated. Therefore, as this review only included sources that evaluated public engagement activities, most of the interventions were academic or NGO-led rather than government-led.

A.3. Desk-based evidence review: Quality and limitations of evidence

There was a substantial amount of evidence that evaluated public engagement interventions, including those with pre- and post-measurement designs. However, evaluation was often over short periods of time, in artificial settings and involved self-report data, limiting the applicability of findings. Additionally, Scotland is one of very few countries to have a public engagement strategy on climate change. Therefore, while there is evidence regarding how to effectively conduct climate change public engagement activities, there are limited occasions where a (national) climate change engagement strategy has been evaluated. Strategy-level reflections tends to be suggestive, based on relevant theory, rather than on practice.

It is also important to point out that links between variables such as engagement, awareness, attitudes and behaviour are complex. Notably, many studies measured behavioural intention, which is an important antecedent of behaviour but does not automatically lead to behaviour change.

A.4. Desk-based evidence review: Types of public engagement

The range of activities identified in the evidence review fell into three main categories:

1. **Communication and education:** Large-scale communication campaigns, information packs, door-to-door canvassing, e-mail campaigns, radio messages, news broadcasting, social media posts, single message testing (videos, images, pure text), menus, posters. Education included school classes, university modules/lectures, curriculum changes, challenges, gamification, inquiry-based learning (where the learners choose which questions to investigate), writing reflections, argumentation training, apps, cooking classes, nature-based workshops, community action groups, training for particular professions, farmer field schools, peer discussions.

2. **Deliberative engagement and co-design**: Climate assemblies, global assembly, mini-publics, advisory councils, climate commissions, participatory planning, participatory budgeting, participation in decision-making, stakeholder engagement workshops, stakeholder collaboration, citizen science, virtual engagement, gamification.

3. **Creative activities**: Art, interactive theatre, digital games, board games, role-play, escape rooms, virtual reality, simulations, gamified places, mobile devices/apps, social media, internet of things (IoT), artificial intelligence (AI), interactive informational exhibits, plogging, photovoice, environmental events.

These categories are broad and there is a lot of overlap between them – for example, creative methods were used in educational and participatory interventions; communication principles were referenced in all activity types. There were also some sources that took a

more top level (rather than activity-specific) approach, discussing general principles for doing good public engagement or ideas for developing and implementing a public engagement strategy.

Regarding the PES objectives, there was a lot of overlap across different types of activity, with many sources relating to more than one objective. There were some trends – for example, literature around deliberation and co-design activities tended to focus on 'participate', while education literature often focused on 'understand'. However, overall, links between activities and PES objectives were not clear cut.

A.5. Stakeholder interviews

Interviews were conducted with six stakeholders, representing public engagement practitioners and specialists. These interviews were designed to complement the evidence review, and explored views on public engagement best practice and lessons for future public engagement for governments like the Scottish Government. Stakeholders with the following roles and from the noted locations represented different types of organisations involved the climate change public engagement space:

- Climate communicator (USA)
- Climate assemblies expert (Europe)
- Climate campaigner and outreach organiser (Australia)
- Public engagement delivery organisation (Seychelles)
- Climate advocacy and engagement organisation (Europe)
- Public policy and engagement expert (UK)

The stakeholders were identified by the research team at Ipsos and CAST based on the team's existing knowledge of the sector. The mix of stakeholders was chosen to reflect different types of involvement in public engagement on climate change, different international locations and different topic specialisms. The list was agreed with ClimateXChange and the Scottish Government in advance. Interviews were conducted by phone or video, following a semi-structured discussion guide.

A.6. General public focus groups

Focus groups were carried out with members of the Scottish public to help address the third research question. The broad aim of the focus groups was to understand the public's views on what good public engagement on climate change looked like, and how the Scottish Government should approach public engagement on climate change in future.

Four focus groups were carried out, each with seven or eight participants and each lasting 90 minutes. A mix of online and in-person focus groups were used, to help cater to different

needs and accessibility requirements. Each group was designed to be broadly representative of the population (in terms of age, gender, working status, and disability or health condition) with certain groups intentionally over-represented to ensure adequate representation (those from ethnic minority groups and 16-24 year olds).

Participants were recruited by telephone via a specialist recruitment agency. A screening questionnaire was used to ensure their eligibility for the research and to meet the demographic quotas. A summary of each group is provided in Figure 1.

Figure A1 – Focus group summary

Group	Date	Format and location	No. of participants
1	15/10/24	Online, participants all from remote rural[1] locations	7
2	17/10/24	In person, Perth	8
3	22/10/24	In person, Glasgow	7
4	23/10/24	Online, participants from accessible rural locations	7

Focus groups were structured around a topic guide designed by the research team and agreed with ClimateXChange and the Scottish Government in advance. As part of the discussions, participants were shown examples of public engagement on climate change in the form of international case studies that had been identified in the evidence review. These are referred to throughout the report. Discussion guides and stimulus materials used in the focus groups are shown in Appendices C and D.

[1] Based on the Scottish Government's 2020 urban rural classification https://www.gov.scot/publications/scottish-government-urban-rural-classification-2020/

Appendix B – Case studies of public engagement

During the focus groups, participants were presented with four case study examples of previous public engagement activities from different parts of the world. While their views on each case study informs the main report, a summary of views on each is included here.

1. Make It Better campaign

The Make It Better campaign was run by the Ontario Public Health Association to raise awareness of the health impacts of climate change for children. Information was shared via social media, on a dedicated website, and through local public health professionals. People were able to sign a pledge on the website, committing to taking action.

Positives:

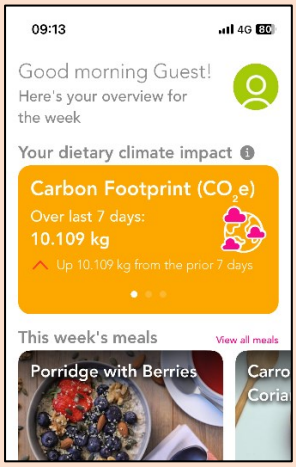
- Topic seen as relevant – a current issue that lots of people will relate to
- Subject seen as relatively uncontroversial for most people
- Topic seen as serious and 'hard hitting'
- Hashtag to boost reach

Concerns:

- Digital exclusion
- Pledges insubstantial/easily ignored
- Not 'dramatic' enough to capture attention and 'cut through the noise'
- Would need to be more information about actions to take to be effective

"[The campaign] makes [climate change impacts] very tangible […] like, how does it affect us right now, right here? And it really joins the dots a bit."

2. Carbon footprint food tracking app: Floop



Floop is a free app that allows people to track the carbon footprint of the food they buy. Developed by a private UK company, Floop's features include meal logs, target setting, and suggested recipes.

Positives:

- Easy and convenient to use an app
- Liked that it has multiple features
- Potential to compare or compete

Concerns:

- Too much hassle
- Digital exclusion
- Needs promotion to people who wouldn't think to look for it
- Focus on individual lifestyle choices and making people feel guilty
- Would make food shopping expensive
- Not always a wide choice for consumers (especially in rural areas)
- Preference for carbon labelling on packaging instead
- Distrust of how politicians would use data from this type of app
- A feeling that apps are commercial - not associated with public bodies
- Wariness around in-app purchases

"It's just too much faffing about […] I try not to buy anything that's travelled too far […] but something like this, I just could not be bothered."

3. Maine's climate coalition

This was a partnership, including labour unions, climate groups and advocates, who worked together develop plans for how offshore wind energy should be put in place in Maine. They met with community groups, including those who opposed windfarms, and government officials. The plans they developed informed a new bill brough in by the government.

Positives:

- A "ground up" approach
- Driven by organisations without a vested interest in making a profit
- Diverse stakeholders – e.g. unions will consider jobs not just the climate
- Inclusion of opposing viewpoints
- Created a significant impact

Concerns:

- Lack of involvement of ordinary members of the public
- Risk of only those with strong views being included
- Climate specialists may cause public to feel underqualified to share views
- Sounds like a big time commitment

"It wasn't just, you know, one government official saying, this is what I want, or, you know, or one private company. [It] came from the ground up."

climatexchange

Scotland's centre of expertise connecting climate change research and policy

4. Citizen's science air quality project

A team at a university in Buenos Aires ran workshops with students to build air quality sensors. They put out an open advertisement for volunteers, who attached the sensors to their bikes for 7 weeks. The data collected was used to produce a city-level visualisation of air pollution.

Positives:

- Community given the chance to get involved and make a difference
- Brings people together, builds networks, could lead to further action
- People would be more interested in the findings/the topic
- Gets people active
- Concept could work well via different mediums, e.g. data collection apps

Concerns:

- Demanding – risk of volunteer fatigue
- Public may not collect accurate data
- Not clear what the impact would be, it's just a data gathering exercise
- Topic of air pollution – some negative associations e.g. potential for ULEZ
- Bikes not suitable for all people/areas

"[People] are actually allowed to get involved more than just [sharing] thoughts […] it'll certainly feel so much more like they are [making an impact]."

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Appendix C – Discussion guides for focus groups

1. Introduction – 18.00 (3-5 mins)

Aim: to set expectations and cover ground rules

Thank you for joining us today. My name is …. and I work for Ipsos, an independent research company.

Today we are going to be discussing the best ways to engage the public in conversations relating to climate change.

This research has been commissioned by ClimateXChange, Scotland's centre of expertise on climate change, on behalf of the Scottish Government. The Scottish Government is interested in finding out how people feel about the ways the public have been involved in discussions about climate change in the past, and how best to engage with the public in future. The research involves group discussions (including this one) with people across Scotland, as well as looking at other research that has already been carried out in Scotland and other countries about what works well when engaging people in climate change issues. It is looking at ways that people are informed about climate change, how they are encouraged to take part in discussions about climate change, and how they are encouraged to take action.

The findings from this research will be used by ClimateXChange and the Scottish Government to understand what might work well to engage with people about climate change in future. So your input is really valuable and we really appreciate you joining us.

Firstly- a brief overview of how the discussion will work:

- *Explain that the discussion will last until 7.30 pm*
- *Cover general housekeeping, videos on, mobile phones on silent*
- **FOR IN PERSON GROUPS:** *cover practicalities e.g. toilets/exits*
- **FOR ONLINE GROUPS**: *if connection drops in online groups – text moderator/wait for moderator to return SHARE MOBILE [redacted]*

Before we begin, I would like to…

- stress that there are no right or wrong answers – we are just interested in understanding your views
- reassure you about anonymity and confidentiality. Ipsos is fully compliant with the Market Research Society Code of Conduct. No information about individuals will be passed on to anyone outside the research team

- note that there's a lot to cover, so I may move you on from time to time
- ask if you could respect each other's viewpoints and speak one at a time
- give you the option of writing down your thoughts on a post-it or in the chat if you would like to
- request permission to record the discussions to assist with our analysis and reporting

CHECK FOR CONSENT TO RECORD

3. Warm up - 18.05 (5-7 mins)

TURN ON RECORDER

Let's start off with some introductions. It would be great to have everybody introduce themselves and let us know what you would usually be doing this evening if you weren't taking part in this discussion?

GO ROUND EVERYONE

4. Discussion 1: Awareness and experiences of public engagement on climate change – 18.10 (10 mins)

Aim: Get an understanding of experiences and views on public engagement generally.

As you heard, we are interested in how the Scottish Government and other organisations communicate with people about climate change.

Firstly, what kind of issues come to mind when you think about climate change?

PROMPT if needed: What sorts of words or phrases come to mind when you hear that term?

What aspect of climate change would you say you have heard most about?

- PROBES (ONLY USE IF NECESSARY): How about the ways in which we might respond to climate change and how it impacts our lives day-to-day, e.g.
    - The way we get around?
    - The way we heat our homes?
    - The types of food we produce and eat?
    - Other things, such as clothes, that we buy?
    - The way we handle our waste?

What sorts of ways would you say the public can be involved in discussions and have their say about climate change issues?

- Any examples they can think of?

Before today, have you taken part in activities where you shared your views on issues relating to climate change? (E.g. this might have been a public meeting, a consultation, attending an event)

IF NO: **Have you shared your views on other topics, for example about changes in your local area, how public spaces are used, or public transport?**

- IF YES TO EITHER:
  - **What did this involve?**
  - Why did you get involved?
  - How did you find this? **What worked well/less well?**
  -
- IF NO TO BOTH: **Do you think you would have liked to have taken part in something like this?**

5. Discussion 2: What is 'good' public engagement? 18.20 (15 mins)

Aim: to develop understanding of what public engagement is, some key approaches used, and explore expectations about what would characterise a successful engagement. These principles will then be applied to their 'review' of detailed examples in the next section.

Getting involved in these conversations and having your say about climate change in the ways we've been discussing can be described as "public engagement". This slide summarises what we mean be that:

SHARE SLIDE WITH DEFINTION OF PUBLIC ENGAGEMENT & EXAMPLES

So when we talk about public engagement, we mean a range of ways that raise our awareness and understanding of an issue, enable us to participate in decision making, and encourage people to take action.

There are lots of different examples of public engagement. Later this evening we will look at a few of this in detail, but for now I've shown on the slide here some of the main types. You may or may not have heard of these, but they include:

- **Communication campaigns** raise awareness about a topic, with information shared in range of ways such as through websites, social media, advertising, other media channels and public events.
- **Organised group discussions**, where members of the public are invited to come along (either in a room, or online like we are tonight) to discuss their views about a particular issue or topic. There is usually a limit to the number of people that are asked to attend these discussions, and they are usually on a set date and time.
- **Public meetings**, or drop in events, where the public can come along and have their say about topic. The difference between this and organised group discussions is that in a public meeting anyone that wants to can attend, whereas with organised groups there are usually some criteria used to decide how many and what different types of people can attend.
- **Open online consultations**, where you can submit ideas or feedback on an issue, via a website
- And then the final one, you may have heard some of these terms like **Citizens Assemblies or Citizens Forums**. These are like the organised group discussions, but are typically bigger, so 50 to 100 people at each meeting, and usually run over several days or weekends. But we'll say more about those later.

- **Why do you think organisations would choose one type of public engagement over another?**
  - PROBE**:** What sorts of considerations do you think they would have in mind when deciding what approach is best?

Now that we've seen what public engagement is and some of the ways it can be done, I'd like you each take a few minutes and think about the following question:

What would 'good' public engagement look like to you? (5 MINS)

IN-PERSON GROUPS: Could you please pair up with the person next to you and do this together? Write down your thoughts on post-it notes and then we can put them all on the flipchart. [Suggest which pairings to avoid confusion, include group of 3 if odd number]

ONLINE GROUPS: Note down your thoughts, and then I'll ask everyone to share this, and I'll write it all d own on my [slides/screen].

FOR ALL:
Try to think about public engagement about climate change issues specifically, as that is what we are most interested in.

- There are no right or wrong answers here, we just want to hear any views at all
- You could think about things like:
  - who organises the public engagement,
  - what information is shared with the public,
  - how this information is shared and with who?
  - whether members of the public get involved,
  - how those people are selected/invited,
  - what people are asked to do etc.

PROBE EACH PAIR ON REASONS FOR THEIR ANSWERS.

- **Would good public engagement be the same no matter what the organisers of the engagement are trying to achieve?**

- **And final question before we take a quick 5 minute break, what would 'bad' public engagement look like then? Would it just be the opposite of the things you have listed under 'good', or would it be anything else?**

BREAK 18.35 – 18.40 (5 mins)

Case Study examples – 18.40 (45 mins)
Aim: to test views on different types of public engagement on climate change in more detail, by examining specific examples identified in the literature review. As well as getting views on these specific examples, the aim is to get to some of the underlying views on what they consider important in terms of future public engagement.

So far we have been talking about how and why people get involved in decisions about climate change, and what 'good' public engagement would look like. I'd now like us to talk about that in a bit more detail, by looking at some examples of how this has been done in the past.

There are a few examples we are going to talk through, and we'll show some information on screen to summarise what they involved. After each one, I'll stop and ask for your views. Really what we are interested in here is how you feel about the way the public have been engaged in each example – you might think they are good examples, you might not, but any opinions are welcome.

SHOW THE FOLLOWING 4 METHOD EXAMPLES AS IDENTIFIED IN THE EVIDENCE REVIEW. HAVE POWERPOINT SLIDES SUMMARISING EACH ONE (INCLUDING IMAGES).

SPEND 10 MINUTES ON EACH CASE STUDY. ORDER OF THE EXAMPLES WILL BE ROTATED BETWEEN FOCUS GROUP, SO THAT EACH GROUP STARTS WITH A DIFFERENT ONE.

FACILITATOR NOTE – IF ASKED, THERE ARE NO SET PLANS FOR THE SCOTTISH GOVERNMENT TO IMPLEMENT THESE ACTIVITIES IN SCOTLAND, BUT SIMILAR ACTIVITIES HAVE TAKEN PLACE HERE. STRESS THAT THE AIM OF THESE EXAMPLES IS TO UNDERSTAND IF THERE ARE ANY ELEMENTS OF THEM THAT THEY PARTICULARLY LIKE OR DISLIKE, RATHER THAN TO DECIDE WHETHER THE SCOTTISH GOVERNMENT SHOULD PUT THESE SPECIFIC IDEAS IN PLACE.

Order to show examples in each group			
Group 1 (online)	**Group 2 (Perth)**	**Group 3 (Glasgow)**	**Group 4 (Online)**
Example 1	Example 2	Example 3	Example 4
Example 2	Example 3	Example 4	Example 1
Example 3	Example 4	Example 1	Example 2
Example 4	Example 1	Example 2	Example 3

FOR EACH EXAMPLE, PROBE ON:

- Immediate thoughts/reactions?
- What are the positives about this example? And negatives? (REFERRING BACK TO THEIR IDEAS FOR WHAT 'GOOD' ENGAGMENT LOOKED LIKE)

SPECIFIC PROBES FOR EACH EXAMPLE:
Example 1: Make It Better campaign:
How did you feel about….

- The link between climate change and health?
- The way information was share with the public?
- How easy or difficult it would be to find out about this?
- That this was targeted at parents, caregivers and health professionals?
- What is missing? How could it be better?
- What would you do if you saw this campaign?

- **What if the Scottish Government or another public agency had a similar campaign – how would you feel about that?**
- Would it make a difference who was delivering the campaign?
- Would you do anything differently if you saw a campaign this like from the Scottish Government? Why/why not

Example 2: The food carbon app:
How did you feel about….

- The link between climate change and food?
- The fact that this was an app?
- How easy or difficult it would be to get involved in this?
- How easy or difficult it would be use?
- What is missing? How could it be better?
- What would you do if you saw this app?
- **What if the Scottish Government or another public agency had an app like this – how would you feel about that?**
- Would it make a difference what organisation launched the app?
- Would you do anything differently if you saw something like this from the Scottish Government? Why/why not

Example 3: Main's climate coalition
How did you feel about….

- The types of groups that were involved – labour unions, environmental groups and climate advocates?
- The amount of time and input they gave i.e. meetings with each other, meetings with government, working up plans?
- How easy or difficult it would be for members of the public to get involved in this?
- What is missing? How could it be better?
- What if this sort of activity was happening in your area – would you get involved? Why/why not?
- **What if the Scottish Government or another public agency was encouraging groups to get together and develop plans like this – who would you feel about that?**
- Would it make a difference what organisation led this sort of programme?
- Would you do anything differently if you saw something like this being organised by the Scottish Government? Why/why not
-

Example 4: Measuring air quality
How did you feel about….

- The way they recruited volunteers through an open advertisement?
- The number of people involved?
- What people were asked to do?

- The fact that the volunteers were asked to contribute to the research by going out and collecting data?
- How easy or difficult it would be to get involved in this?
- What is missing? How could it be better?
- **What if the Scottish Government or another public agency was encouraging people to take part in an activity like this – who would you feel about that?**
- Would it make a different what organisation led the activity?
- Would you do anything differently if you saw something like this being organised by the Scottish Government? Why/why not

Feedback and wrap up – 19.25 (5 mins)

We're getting to the end of the discussion now, so I just have a few more questions

- From the examples we discussed, what are the most positive things that stand out for you?
- What would ideal future public engagement on climate change look like?
- If you could tell the Scottish Government one thing about how best to engage with the public in future what would be it be?

Thanks very much everyone for sharing your thoughts on these examples of public engagement, it's been really interesting and useful to hear.

- Are there any final points anyone wants to add?
- Any final questions?

EXPLAIN INCENTIVES AND NEXT STEPS. THANK AND CLOSE.

Appendix D – Stimulus for focus groups

The stimulus for the focus groups took the form of six Powerpoint slides. For accessibility reasons, the content of these slides has been formatted into Word. Therefore, please note that this information looks slightly different to how it was displayed in PowerPoint, although it is as close as possible.

D.1. Content of stimulus slide 1 of 6 – Background information

Public engagement

A range of approaches that help to raise the public's awareness and understanding of an issue, enable us to participate in decision making, and encourage us to take action. For example…

Communication campaigns

Organised group discussions

Public meetings

Open online consultations

Citizens' Assemblies

D.2. Content of stimulus slide 2 of 6 – What is good public engagement to you?

What would 'good' public engagement look like to you?

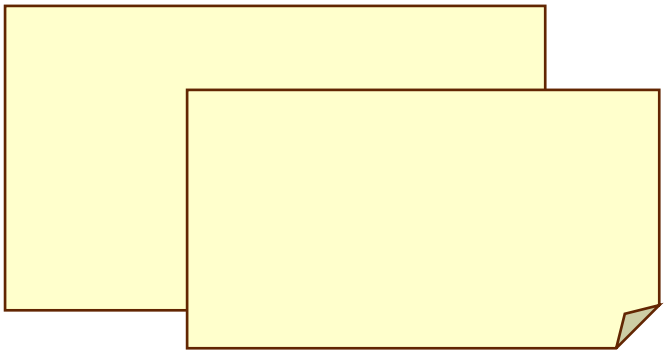


Figure D.3. Content of stimulus slide 3 of 6 – Make It Better Case Study

Make It Better campaign

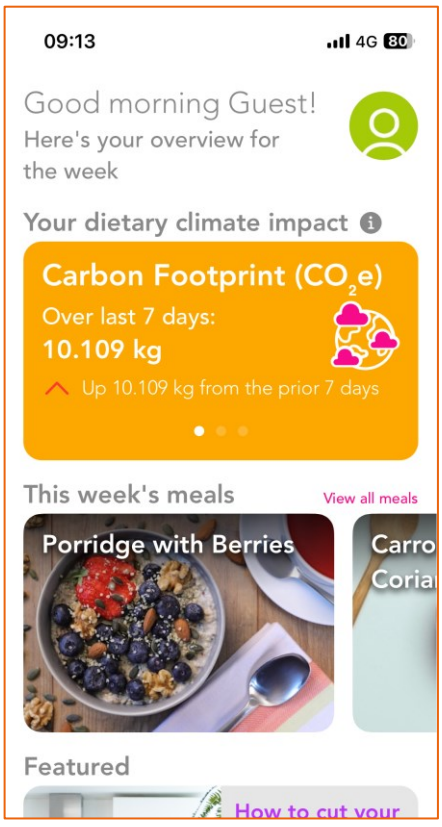
- A campaign by the Ontario Public Health Association to address the health impacts of climate change.
- It aimed to inform people about the health-related risks of climate change for children (Lyme disease, asthma, heat-related illness).
- It provided tools and information to help parents, caregivers, health professionals and community members take actions that would help reduce the health risks of climate change.
- Information was shared by the Public Health Association over social media (using #MakeItBetter), on a dedicated website, and through local public health professionals.
- People were asked to:
    - Sign the #MakeItBetter pledge (meaning they supported the campaign were committed to taking action)
    - Keep themselves informed by learning more about how children's health is impacted by climate change
    - Share what they had learned with other people
    - Discover ways to combat climate change and its impacts and take actions.

Three climate-related health impacts illustrated with pictures of children at risk from heat-related illness, Lyme disease, and asthma

Figure D.4. Content of stimulus slide 4 of 6 – Food carbon app case study

Food carbon app

- "Floop" is a free app which tracks the carbon footprint of our food
- It was founded by three individuals who formed the company, based in the UK.
- It aims to bring attention to our carbon footprint and encourage people to eat more sustainable food.
- Users can download the app, log their daily meals and it calculates the carbon footprint of each meal. It also allows you to set targets for how much you want to reduce your carbon footprint by, and provides recipes and meal plans.
- The app includes information about the research that has been used to develop the app.
- Note that a number of other apps that calculate the carbon impact of food have been tested and/or launched elsewhere.



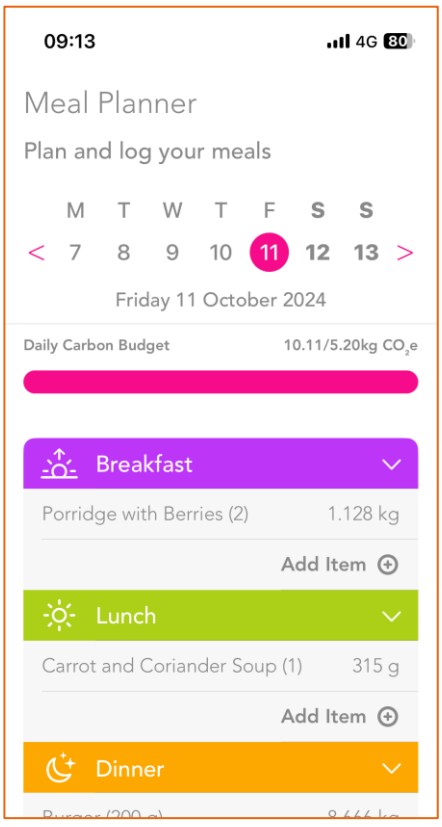


Figure D.5. Content of stimulus slide 5 of 6 – Maine's climate coalition case study

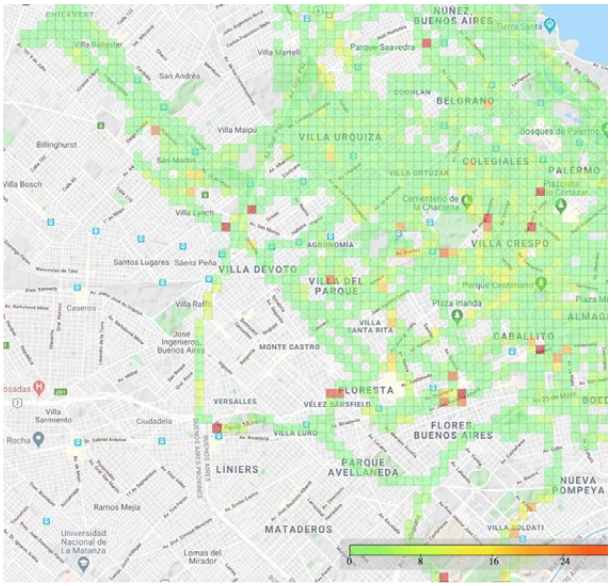
Maine's climate coalition

- A partnership in Maine, USA, that worked together to help inform local policies in relation to offshore wind energy.
- A number of labour unions, environmental groups and climate advocates came together and formed a partnership to push for the development of offshore windfarms in their area. Their view was that offshore wind could address climate change by creating clean energy and create jobs by building a new industry in the area.
- They met and worked together several times to develop plans for how offshore wind energy should be put in place. As well as meeting with each other, they met with various community groups, including those that opposed windfarms and various government officials.
- The plans they developed were shared with government and helped to inform a new bill that sets out how offshore wind should be put in place.

Figure D.6. Content of stimulus slide 6 of 6 – Measuring air quality case study

Measuring air quality

- A team at a university in Buenos Aires, Argentina, set out to understand the differences in air quality across different parts of the city.
- They ran workshops with 80 students where they built air quality sensors and learnt about the impact of air quality on health.
- They then put out an open advertisement for volunteers and recruited 20 people. These volunteers collected data on changes to air quality in the city by carrying the air quality sensors on their bikes for 7 weeks.
- Each volunteer regularly uploaded their data to an open platform. The data was then used to produce a city-level visualisation of air pollution (see image on right).
- Since then they launched similar air quality pilots in other cities in Argentina in partnership with local authorities.



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