CORA Cork Open Research Archive
Cartlann Taighde Oscailte Chorcaí

| | |
|---|---|
| Title | Transforming public participation and catalysing change |
| Authors | Moriarty, Róisín;Daly, Hannah |
| Publication date | 2023-12-01 |
| Original Citation | Moriarty, R. and Daly, H. (2023) 'Transforming public participation and catalysing change', in Moriarty, R., O'Mahony, T., Stefaniec, A. and Boucher, J. L. (2023) Ireland's Climate Change Assessment Volume 4: Realising the benefits of transition and transformation. Johnstown Castle, Co. Wexford, Ireland: Environmental Protection Agency, pp. 184-200. Available at: https://www.epa.ie/publications/monitoring--assessment/climate-change/irelands-climate-change-assessment-volume-4.php (Accessed: 13 March 2024) |
| Type of publication | Report |
| Link to publisher's version | https://www.epa.ie/publications/monitoring--assessment/climate-change/irelands-climate-change-assessment-volume-4.php |
| Rights | © 2023, Environmental Protection Agency. |
| Download date | 2026-10-30 10:42:36 |
| Item downloaded from | https://hdl.handle.net/10468/15673 |

UCC
University College Cork, Ireland
Coláiste na hOllscoile Corcaigh




8

# Transforming Participation and Catalysing Change

## Key messages

System change is necessary so that individuals can lead low-carbon and resilient lives, as opposed to individuals taking responsibility for changing their behaviour. However, individuals participating in collective action play a role in changing systems.

Policies and measures need to be perceived as fair and work to reduce inequalities if the public are to engage with and support the disparate change required to act on climate change and biodiversity loss.

Inclusive public participation in policymaking is a key enabler of climate action and can increase social trust. Empowered communities can drive change at a local level, which can drive and reinforce broader societal shifts.

Change is not happening fast enough. Catalysts can augment the speed, scale and depth of change and overcome inertia within the system. Catalysts include leadership, social movements, litigation and culture.

Children and young people have been instrumental in catalysing change and keeping climate action on the political agenda. Through social movements and litigation, they have reframed climate action, or the lack thereof, as a social justice and intergenerational human rights issue.

## 8.1. Introduction

There are high levels of knowledge and awareness of, and engagement with, climate change in Ireland, with the vast majority of people supportive of climate action and in agreement that it should be a priority for the Irish government (Leiserowitz et al., 2021; Timmons and Lunn, 2022). The great majority of people in Ireland also recognise the benefits of adapting to climate change, especially as the cost of damages caused by the changing climate are much higher than the cost of investment needed to achieve transformation (European Commission, 2021). Climate change and lack of climate action, mitigation and adaptation is a source of anxiety for many (Hickman et al., 2021; Leiserowitz et al., 2021; Reville, 2021; Timmons and Lunn, 2022).

However, there is a disconnect between the desire for change and change. One reason for this disconnect is that people do not have the 'bandwidth' to act on climate. For many, there are other, more immediate issues, including, but not limited to, housing, cost of living, health, work and family issues. This will impact their capacity to act. Rising inequality, for example, disproportionally impacts the most vulnerable members of Irish society, leaving them even less able to act. For people with limited capacity, action on climate needs to translate into tangible benefits and opportunities in their everyday lives before they can devote resources to it.

Public participation can enhance both ambition for climate mitigation and the transformative potential of adaptation (Cattino and Reckien, 2021). Inclusive and broad-based participatory approaches to policymaking enhance social trust and are a key enabler of climate action (Creutzig et al., 2022). Higher social trust in combination with inclusive participatory processes act to reduce inequalities (Drews and van den Bergh, 2016). Equal treatment enhances social trust and enables inclusive and participatory policy (Rothstein, 2011). Climate action is influenced by social norms, that is what people think about what other people commonly do, think or expect (Creutzig et al., 2022). People do not want to make sacrifices if others are not making sacrifices also (Lunn, 2022). Policies to change collective behaviour are more acceptable if they are fair (Clayton, 2018). In Ireland, studies related to the regressive nature of carbon taxes (Tovar Reaños and Lynch, 2019, 2022), forced car ownership (Carroll et al., 2021) and how electric vehicle grants privilege high-income individuals (Caulfield et al., 2022) show that some policies are not equitable and that poorer and more vulnerable individuals and households are at a disadvantage. If the public are to embrace the disparate change necessary to act on climate change, inequality is one area that will need to be addressed.

Public perception of climate change is now considered an important variable in explaining the evolution of emissions pathways, with the potential to limit warming to the end of this century (Moore et al., 2022). The Irish public (young and old, rural and urban) understands that climate change is caused by humans and that it is a serious problem, and the large majority are worried about it and want more done about it, especially by government (Timmons and Lunn, 2022). Less well understood is how to get people to engage with and embrace the changes necessary to cut emissions and adapt to climate change (Lunn, 2022). Climate action is a collective action problem. This volume highlights the challenge of changing, transforming systems, so that individuals can live low-carbon and resilient lives through their engagement with those systems, as opposed to the individuals themselves changing their behaviours (Lunn, 2022). Individuals working together and taking collective actions, including voting and cumulative reductions in home energy use, is part of how systems evolve.

The news media in Ireland has a role to play in shaping public perception on climate change and enabling change. However, it is not yet best placed to give the public the information it needs because of a lack of resources invested in climate and environmental action and the range of expertise required to cover these areas.

Education has the power to give people the knowledge, skills and values that are required to become agents of action and resolve the global challenges of today (UN Secretary-General, 2012; Arbeiter and Bučar, 2020). A core component of the National Dialogue on Climate Action is communication and education to create awareness and understanding of climate change, so while the government and the public sector provide an example by taking a lead on climate action, the public, all of society, can assist in delivering on Ireland's climate ambition.

While climate ambition, particularly related to climate mitigation, in Ireland has increased from the national mitigation plan through successive climate action plans, policies and measures to reduce emissions and adapt to climate change are not being implemented on the scale, speed or depth necessary. Catalysts will be necessary to provide an impetus for the advancing action serving to overcome inertia, motivating individuals and organisations to act (New et al., 2022). Catalysing conditions help focus attention and augment decision making and allocation of resources, both financial and social (New et al., 2022). Catalysts of change can take several forms and include leadership, social movements and litigation.

## 8.2. Public participation

Participatory processes allow citizens to take part in decision making and provide an impetus for change (Council of Europe, 2023). Policies and initiatives that act to mitigate and adapt to climate change are, for the most part, designed and managed by people outside the communities where they are implemented (Dey De Pryck and Elias, 2023). Effective public participation gives people with a stake in an issue, but little power to influence it, an active role in the decision-making process (Arnstein, 1969; Nyhan et al., 2022). Citizens, communities and individuals are brought together to deliberate, participate, inform, collaborate, intervene or oppose issues that concern them as part of this process (Fischer, 2000; Mullally et al., 2022). Working in partnership with communities to foster inclusion in participatory processes can lead to fairer and more sustainable outcomes according to the needs, desires and strengths of the community (Dey De Pryck and Elias, 2023). A focus on inclusion ensures that marginal groups, including women and the poorest individuals and households, have their say on what is prioritised at local level, as they are often the groups that bear the brunt of climate impacts and actions to mitigate and adapt to climate change (Nyhan et al., 2022; O'Neill et al., 2022).

Enhanced climate action is one reason to encourage and develop public participation in decision making, but there are other constructive outcomes. Participation in climate action can combat anxiety and hopelessness in adults and young people (Schwartz et al., 2022). With the proper information and support, more people could be empowered to act (Boland, 2022). If transformation is to be achieved, it will require the structures, processes and knowledge that help to promote and enable climate action and the societal transformation that accompanies it (Revez et al., 2019)

### 8.2.1. Community engagement

More open and transparent dialogue is needed to explore tensions between local and national priorities to develop well-informed policy. This would necessarily be a two-way process as co-benefits are not always guaranteed. There will be instances where higher-level policy decisions can be aligned with local needs, but there will also be trade-offs and difficult issues that need to be resolved. It is only since March 2022 that the formal public consultation process, the primary way in which people can input on key policies like the climate action plan (see Volume 2, section 8.3.3), includes local stakeholder engagement at its core through the National Climate Stakeholder Forum and local authority climate action plans. These events are beginning to deliver a two-way flow of information. A standout example of public participation in the



policymaking process is the Citizens' Assembly (see section 8.2.2 and Volume 2, section 8.3.3). While there is a clear pathway for the Citizens' Assembly to inform policymaking through the Joint Oireachtas Committee on Climate Action, in terms of changing policy there have been only two notable successes: the Climate Act 2021 and an increase in carbon tax. Moreover, it is well established that climate/energy issues are highly complex and context dependent (Devine-Wright, 2022), and thus require more locally rooted deliberations.

McGookin et al. (2022) developed energy scenarios for the Dingle Peninsula and highlight the importance of aligning climate action and community development goals. However, this research found that many of the issues raised in the community meetings were either instances where central national policies (e.g. compact growth) clash with local priorities (e.g. need for housing in remote areas) or interests of the community lacking policy support (e.g. anaerobic digestion). They thus call for "new forms of collaboration throughout the policy process, having an honest conversation about the difficult decisions to be made and aligning national objectives with local needs" (McGookin et al., 2022). Similarly, following a review of the current energy sector governance structure in Ireland, Torney (2018) points to the need for a stronger framework to enhance "the two-way flow of information between local communities, national policymakers and other stakeholders".

In February 2023, the first strand of the Community Climate Action Programme was launched, which is designed to resource local authorities to engage with communities to promote and assist in the scale up of community climate action (DECC, 2023). The National Dialogue on Climate Action plans to model deliberative workshops with populations vulnerable to transition on the creative techniques used in the Imagining2050 project (Mullally et al., 2022). It could also support the creation of fora like the Belfast Climate Commission (Queen's University Belfast, 2021), and these techniques could be employed when drafting local authority climate action plans. Codema, as part of the Zero Together project, plan to run a mini-public on Dublin's energy transition in 2024 (Codema, 2022). Bringing these discussions to the local authority level can facilitate more meaningful discussions on local issues than would be possible in a national forum, and, importantly, making a link between the outcomes/outputs of discussions to actions or objectives within county/city developments or local authority climate action plans may greatly enhance community buy-in for the plans. These will need to be carefully managed deliberations, as there is a clear tension between the need for rapid renewable energy deployment and the time required to facilitate community participation in decision making (Newell et al., 2022). As highlighted by Boyle et al. (2022a), when discussing the role out of large-scale energy infrastructure like overhead pylons, "Transparency is a vital factor for successful engagement with clarity needed around what is open for consultation and what is not". The move from a fossil fuel-based system to renewable energy system is not up for debate. However, exactly what shape the new energy system takes should be agreed with a diverse range of stakeholders from across national, regional and local levels.

Community participation in the form of community energy within Ireland is primarily facilitated through SEAI's Sustainable Energy Community network, which provides grants for preparing an energy masterplan and a baseline energy estimate for an area, and carries out building energy improvements as a group, alongside appointing a local expert to act as a mentor and intermediary. Two key weakness in the programme have been the reliance on volunteer time and the limited focus on building improvements (see Volume 2, section 8.3.4). The new Renewable Electricity Support Scheme (RESS) has some exciting prospects to improve on this. First, SEAI now have a dedicated support process for community energy projects, which offers up to €180,000 in grant aid over the development process from initial feasibility study to project delivery (SEAI, 2023). Second, every new development must now contribute €2 per megawatt hour (MWh) to a community benefit fund. This will see a significant transfer of money to community groups, which can fund climate and sustainability projects. For the RESS-1 auction in 2020, the 476MW onshore wind and 796MW solar PV projects will see €4.5 million contributed each year over a period of approximately 15 years (DECC, 2021). Moving towards achieving significantly increased targets of 5 gigawatts (GW) set out for 2030, there will be substantial funding coming through the benefit fund. With some coordination effort from the local authorities, it would give communities the opportunity to action the projects developed through the climate action plan forums. Related research on enhancing onshore wind capacity shows that early and enhanced participation of individuals, including the opportunity to invest in projects, and better understanding of financial benefits, can lead to greater acceptance (Le Maitre et al., 2023; Sirr et al., 2023). Work by NESC (2014) highlighted that a different approach to community engagement around community energy, particularly wind energy, would be necessary. Elements of this work can be seen in how the state, researchers and public bodies, such as SEAI, engage with communities on energy today.

There are 300 Connected Hubs across the country, offering remote workspaces (see section 3.3.2.3). Building on the example of the Dingle Creativity & Innovation Hub, which is the key local actor in the Dingle Peninsula 2030 project (see Box 8.1), if the remit of all hubs was to be expanded to include supporting the creation of new climate and sustainability developments, then it could have a huge impact nationwide (Watson et al., 2021d). A key benefit of channelling the work through the hubs is that they already have an existing legal structure, which is needed for securing funding. Many community groups do not

get beyond early development stages due to the difficulty in setting up a more formal non-profit or cooperative entity.

It should be noted that the SEAI's Sustainable Energy Community Programme has developed a network of 800 Sustainable Energy Communities across Ireland. This programme engages with communities across Ireland, raising awareness of actions that people can take, from understanding their energy bills and how renewable technologies work to how to retrofit their home and tracking their carbon and energy impacts, to take the right individual action and share learnings on collective action. Engagement[47] activities and supports are provided to augment existing community efforts and have inspired a wider network of communities to take action. The Energy Master Plan[48] addresses building improvements and provides a process and register of opportunities that assesses which projects will return the greatest impact and carbon reduction for the community. It also demonstrates what is possible for communities, depending on the actions that volunteers can take on. The SEAI also funds energy research, development and demonstration projects to better understand how community engagement can enhance wind energy roll-out, enable social acceptance and achieve social licence. Research suggests that familiarity, awareness and lived experience of wind farms are all important contributors to local acceptance (Le Maitre et al., 2023).

## Box 8.1 Dingle Peninsula 2030/Corca Dhuibhne 2030

Expert contribution from Connor McGookin.

Established in 2018, Dingle Peninsula 2030 (or Corca Dhuibhne 2030) is an innovative multi-partner initiative (Watson et al., 2020). The initial phase (2018–2021) involved Ireland's electricity distribution system operator (ESB Networks), researchers from MaREI, the Science Foundation Ireland Research Centre for Climate, Energy and Marine, and local non-profit organisations supporting enterprise (Mol Teic/Dingle Creativity & Innovation Hub) and community development (North East West Kerry Development Programme). The core goal of the project was to work with the local community, schools, businesses and farmers to explore, support and enable the broader societal changes emanating from the energy transition.

Over the 3 years a wide range of energy and community engagement initiatives were coordinated by this partnership (Watson et al., 2021c), these include:

- developing the Dingle Peninsula Energy Master Plan (McGookin et al., 2020b);
- trials with five ambassadors and other local participants of home energy monitors, solar PV, heat pumps and electric vehicles (Boyle et al., 2021b, 2021c);
- developing a 'climate hack' programme in local secondary schools (McGookin et al., 2020a);
- initiating a pilot Farm Ambassador Programme, to increase agricultural sustainability and productivity;
- completing a feasibility study for an anaerobic digester (XD Consulting, 2020; Watson et al., 2021a);
- training 10 local energy mentors to support people with home energy improvements (Watson et al., 2021b);
- delivering community meetings on the Peninsula, to develop a plan for a sustainable future (McGookin et al., 2021, 2022; Ó Caoimh and McGookin, 2021).

Critically, it has spawned other local efforts. Although the initial focus of the partnership was on energy

[47] https://www.seai.ie/community-energy/sustainable-energy-communities/

[48] https://www.seai.ie/community-energy/sustainable-energy-communities/join-the-sustainable-ener/

projects, a wide range of new initiatives emerged as community members became engaged in the process. There are now ongoing initiatives across energy, transport, agriculture, education, tourism and employment, in what Boyle et al. (2021a, 2022b) coin the 'diffusion of sustainability', the most notable of which is the dairy farming sustainable energy community, with roughly 120 farmers, brought together by ESB Networks and farming ambassador, Dinny Galvin. This demonstrates the value of supporting local champions (Box 8.1, Figure 1).



Box 8.1 Figure 1 Dingle and surrounds. Photo credit: Mossie Donegan, 2021.

## 8.2.2. Citizens' assemblies

The use of citizens' assemblies and similar deliberative processes has become an increasingly prominent element of climate governance in recent years. Research published by the OECD in 2020 pointed to a 'deliberative wave' that has been building since the 1980s, and has gathered pace since 2010 (OECD, 2020). Proponents of deliberative democracy have drawn attention to its particular suitability for shaping responses to climate change (e.g. Stevenson and Dryzek, 2014; Blue, 2015). Niemeyer (2013) points to the potential for deliberative forums to produce stronger environmental policy outputs, with participants facilitated in considering the interests of non-human agents and taking a long-term view. Willis et al. (2022) highlight the role that deliberative democratic approaches can play in addressing some of the difficulties that democracies face in tackling climate change, including short-termism, the incorporation of scientific and expert evidence in policymaking and the influence of powerful political interests in political decision making.

Over the past decade, Ireland has played a pioneering role in the use of citizens' assemblies for a variety of issues, including prominently on the topics of marriage equality and the repeal of the Eighth Amendment. In the autumn of 2017, a citizens' assembly deliberated on the question of 'How the state can make Ireland a leader in tackling climate change'. Comprising 99 citizens selected through stratified random sampling and chaired by retired Supreme Court Justice Mary Laffoy, it deliberated over two weekends and formulated a set of recommendations that were considerably more far-reaching than many anticipated (Devaney et al., 2020a, 2020b). These recommendations were in turn considered by a specially created Joint Oireachtas Committee on Climate Action, which laid the basis for cross-party consensus on increasing the carbon tax and

amending the Climate Change and Low Carbon Development Act 2015 (Torney et al., 2020). Harris (2021) notes, however, that the citizens' assembly failed to adequately include the voices of young people and future generations in deliberations. In 2022, a separate Citizens' Assembly on Biodiversity Loss was established by the Oireachtas. It published its final report in March 2023. In parallel, a separate Children and Young People's Assembly on Biodiversity Loss met over two weekends in autumn 2022 and produced a separate and complementary set of recommendations.

In recent years, a wider set of mainly European countries have implemented citizens' assemblies on climate change at a national or subnational level (Smith, 2023). As practice has grown, research and evidence on these deliberative processes has grown in parallel. A central finding of this literature is that evolving practice has differed across countries and there has not been a coalescing around a particular model. Smith (2023) points to variation in terms of the commissioning body, the task and mandate, the level of resources and time allocated, and the commitment to respond by policymakers. Cherry et al. (2021) note that the ways in which climate assemblies are designed and run shapes, in important ways, the outcomes and recommendations, which are a product of both the input citizens receive and the perspectives of the citizens themselves. In particular, a distinction is made in the literature between climate assemblies that are shaped in a top-down manner by their initiators, and those where more scope is given to the citizen themselves to define the agenda and proceedings. The former design can lead to better integration into the broader policy system, but comes at the cost of empowerment of the participations (Cherry et al., 2021; Elstub et al., 2021; Torney, 2021).

Recent literature has begun to focus more centrally on legacy, impact and institutionalisation of climate assembly. Comparing six national-level climate assemblies, Boswell et al. (2023) find significant variance in terms of how these processes are integrated into wider systems of democratic decision making. Giraudet et al. (2022), focusing on the French national Citizens' Convention for Climate, call for a strengthening of the ways in which government commit to follow-up on recommendations from climate assemblies. Smith (2023) calls for institutionalisation and embedding of climate assemblies in wider governance processes. Ultimately, however, as Willis et al. (2022) argue, citizens' assemblies "cannot be expected to compensate for the wider deficiencies of political systems". They point to the need to "foster a more 'deliberative system,' which creates the political conditions for deliberation, not just within the confines of deliberative mini publics (DMPs) but across the political system as a whole".



### 8.2.3. National Dialogue on Climate Action

Participation in climate dialogues supports climate mitigation and adaptation action (Bruckmeier and Tovey, 2009; Rotter et al., 2013; Prutsch et al., 2018). These dialogues raise awareness and identify unanticipated trade-offs in policymaking, improving the quality of policies by incorporating knowledge from stakeholders (Rotter et al., 2013; Prutsch et al., 2018).

The National Dialogue on Climate Action is a forum for engagement and collaboration between citizens, stakeholders and the government, with a focus on participatory forums to allow the public to participate in developing climate policy and empowering action at local and national levels (Nyhan et al., 2022). It is composed of four parts: (1) raising awareness for climate change, (2) engaging with citizens, especially those who belong to groups that do not normally have a say in climate policy, to have their views reflected in policy development related to climate action, (3) improving climate literacy to support better decision making and (4) a programme of social and behavioural research supported by qualitative and quantitative behavioural research studies and an advisory group of leading academics (DECC, 2022). This programme includes Climate Conversations, national engagement events, sector-specific engagement events, a National Youth Assembly on Climate, a National Climate Stakeholder Forum, National Climate Conversations on Local Actions, and the EPA Climate Conference, Climate Lecture Series and Support Workshops (DECC, 2022).

To strengthen trust in climate communications from government and enhance climate action, the National Dialogue on Climate Action will work with the Climate Communications Coordination Committee to enhance the evidence base that informs strategic communication across all departments to improve climate literacy and give the public accurate information (DECC, 2022).

Nyhan et al. (2022) examine international best practice for facilitating participation in climate action and assess the National Dialogue on Climate Action, providing guidelines that support the ongoing development of long-lasting participation in climate action dialogues in Ireland. This work also identifies the major challenges associated with both the theory and the practice of climate dialogues, including (1) the need for more nuanced methodologies and refined indicators for understanding the interactions between beliefs, values, perception, knowledge and behaviour in the face of climate changes, (2) the need for international evidence, including research from the Global South and (3) the need for not only to support climate justice through inclusive and fair climate action but to also give those individuals and communities that are vulnerable, marginalised and under-represented a voice in developing climate policy (Nyhan et al., 2022).

So far, participation in and outcomes from National Dialogue on Climate Action and citizens' assemblies have helped to build social trust and new coalitions while legitimising action on climate and biodiversity (Devaney et al., 2020b). They have also created a positive feedback in the formulation of climate policy (Creutzig et al., 2022; IPCC, 2022). In Ireland and internationally, the implementation of inclusive and effective participatory processes to support climate action remains a major challenge (Nyhan et al., 2022).

## 8.3. News media

The media has a key role to play in Ireland's transformation to a low-carbon society and economy. The news media are the most widely used sources of information relating to climate change for Irish people. The Irish media are more trusted that other sources, and environmental coverage is popular with Irish audiences (Murrell et al., 2022). So, "whether the news media want this or not, they tend to be their country's primary destination for people who would like to learn more about the climate crisis" (Blau, 2022). Furthermore, the Commission for the Future of Media recognised the media's role in communicating about climate change, biodiversity and sustainability, and noted that the media "had the potential to accomplish far more" (Future of Media Commission, 2022). The report of the Joint Oireachtas Committee on Climate Action also recognised the role of the media in 'climate leadership' and suggested the introduction of quotas to ensure consistent levels of coverage in public service media (Houses of the Oireachtas, 2019).

However, at a time when there is a demand among Irish audiences for climate coverage, and when climate policy is nearing the top of the political agenda, the media industry is not well placed to perform its normative roles (The Irish Times, 2021; Future of Media Commission, 2022), and environmental journalists struggle to cover such a complex and wide-ranging area with diminishing resources (Gibbons, 2020; Robbins and Wheatley, 2021; Robbins, 2022). When it comes to research into Irish media coverage of climate change, the field is 'in its infancy' (Fox and Rau, 2016). While the EPA has funded several media-focused research projects (for instance Morgan, 2017; Culloty et al., 2019; McNally, 2020), much of the existing research has been carried out by individual academics. Such research, as exists, has found that levels of coverage in Ireland follow the same patterns as elsewhere, rising steeply during COP conferences and around the release of IPCC reports, but fading away sharply in between these events (Robbins, 2019b). The Irish Times publishes the largest number of climate

stories (Schmidt et al., 2013), but the Irish Independent and Irish Examiner are closing the gap (Robbins, 2019b). RTÉ's coverage has been found to be 'low and sporadic' (Cullinane and Watson, 2014), but has improved more recently (Robbins, 2019c).

Irish coverage tends to present climate change in terms of party political in-fighting, and emphasise the cost of climate action. Most coverage does not challenge existing political or economic systems and has been characterised as constituting a "weak form of eco-modernism" (Fahy, 2020, p. 132). Outright climate denial is not present to a great extent in Irish coverage (Robbins, 2017), although more insidious 'discourses of delay' (Lamb et al., 2020) have been identified more recently (Pringle and Robbins, 2022).

Irish media coverage of the broad topic of climate change from 1997 to 2012 reproduced a narrow ideological worldview (Wagner and Payne, 2015), while Irish media characterisations of low-carbon transition from 2000 to 2013 showed a need for greater carbon literacy among journalists and policymakers (McNally, 2015). Irish coverage of flooding in 2009 and 2014 did not reflect changing policies (Devitt and Neill, 2017), and coverage of the 2018 drought under and misrepresented the role of climate change (Augustenborg et al., 2022). Journalists and ministers frame climate change in reflexive rather that strategic ways (Robbins, 2019a), and reporters face a range of challenges reporting in this complex and fast-moving area (Gibbons, 2020; Robbins and Wheatley, 2021).

When it comes to Irish audiences, again there are large research gaps. The Broadcasting Authority of Ireland-funded Reuters Digital News Report for Ireland (Murrell et al., 2022) tracks audience demand for climate coverage and attitudes to media approaches. Recent findings suggest that audiences prefer media outlets to take a stand in favour of climate action, suggesting a more activist, or at least critical advocacy, stance from environmental journalists and documentary makers. Other audience research (McNally, 2020) found that focus group members had negative perceptions of climate action and low awareness of major players in societal debates around climate change.

Regarding the environmental sustainability of the media sector, the Broadcasting Authority of Ireland (now Coimisiún na Meán) has been at the forefront, establishing a Broadcasting Sustainability Network and publishing a sectoral sustainability roadmap. The independent TV and film sector has also worked on measuring and reducing its environmental impact through Screen Greening, a unique initiative involving broadcasters, funders, regulators and filmmakers. The Commission for the Future of Media recommended that the Broadcasting Authority of Ireland's network be expanded to include the entire media sector.

The Irish media sector is struggling to cover climate change to the extent that would fulfil its traditional roles of informing the public, acting as a watchdog and holding authorities to account, and more recent roles, such as curation, convening publics and interpretation. The author's training engagements with the sector indicate that environmental literacy levels are low, despite recent initiatives by the Broadcasting Authority of Ireland, the Irish Examiner, Bauer Media and RTÉ. The sector is willing to play its part in transformative change (Williams, 2021), but may have to be supported to do so effectively[49].

## 8.4. Education

Education can be transformative and an enabler of change (Arbeiter and Bučar, 2020). Transformative education is not a new idea (Mezirow, 1978) and involves a deep structural shift in how individuals perceive and interpret themselves and the world around them (O'Sullivan et al., 2002). In the face of climate change and other persistent issues, including inequality, poverty and racism, transformative education aims to move past knowledge attainment to develop the values, attitudes and skills that are necessary to achieve sustainable development (Yonemura, 2015). Transformative education also helps individuals to develop an understanding and anticipation of change, develop critical and systems thinking, manage uncertainty, and develop values, empathy and an appreciation of empathy that helps them to find solutions to climate change and other challenges (Arbeiter and Bučar, 2020).

A key element of transformative education is education for sustainable development[50]. Education for sustainable development is a holistic, participatory and action-orientated approach to education that puts the learner at the centre (Waldron et al., 2020). This approach has the potential to be transformational, as it includes collective action and systemic

[49] Resources and recommended readings: Brereton (2022), Media and Climate Change Observatory, University of Colorado (MeCCO, n.d.) and Robbins et al. (2020).

[50] Education for sustainable development is one key element of transformational education. Other elements include (1) education for human rights, (2) education for gender equality, (3) education of peace and non-violence, (4) global citizenship education and (5) education for appreciation of cultural diversity and culture's own contribution to sustainable development after Arbeiter & Bučar (2020).

change. In Ireland, the focus thus far has been on individual- and school-level behaviour, with the more transformative elements, such as addressing economic growth and consumerism, as underlying causes of climate change and environmental degradation, and the importance of taking collective political action, receiving far less attention (Waldron et al., 2020). Teachers and other educators are under-resourced and may be reluctant to engage in climate change issues (Waldron et al., 2019, 2020)

Universities have a role to play in climate action through education and research and in helping society navigate climate change (McCowan et al., 2021), catalyse social change and demonstrate climate justice (Kinol et al., 2023). While many universities are prioritising sustainability in response to the Paris Agreement and the UN SDGs (Soini et al., 2018; Sinden, 2021), and are making significant efforts to change their operations, campuses and engage with local communities, it is only a partial transformation (McCowan et al., 2021). While there is recognition that a systemic approach is necessary to make the shift to sustainability (ALLEA, 2020), there is no standard approach for integrating sustainability, and initiatives outweigh strategies and policies (Shawe et al., 2019). Research on sustainability in Irish universities includes work on climate action planning within University College Cork (Quinlivan and Dunphy, 2023), universities as 'living labs' or testing grounds for national sustainable transformations (Horan et al., 2019) and mapping of sustainability policies and initiatives (Shawe et al., 2019).

The Department of the Environment, Climate and Communication has adopted a three-pronged approach to climate literacy through education: (1) a formal approach through education for sustainable development, (2) an informal approach through programmes such as Green Schools and GAA Green Clubs and (3) a non-formal approach that brings sustainable practices into workplaces, for example, with a diffuse impact on employee climate literacy. The SEAI also engage with schools in Ireland, supporting teachers and pupils on how to save energy at home and at school. There is no research available to assess whether or not these approaches have the potential to deliver transformative change in these areas, but it important to learn by doing and then adapting the process to enhance outcomes.

## Box 8.2 Culture and climate change

Expert contribution from Nessa Cronin.

What does transformational eco-social change look like? As writer Eva O'Connor (2023) has recently argued, "We all know the science is out there, but the thing about art is that it can inspire people to take positive action and give them hope". Culture in its broadest sense can help us connect with and critically imagine different ecological futures by enabling us to navigate and narrate solutions for the kind of nation we wish to build in the next 100 years and beyond. In brief, culture can help bridge the policy gap between climate ambition and climate action.

In 1954, The Hague Convention adopted the Convention for the Protection of Cultural Property in the Event of Armed Conflict under the auspices of the United Nations Educational, Scientific and Cultural Organization (UNESCO; UNESCO, 1954). Since that time, the position of national cultural heritages has been primarily focused on cultural protection and conservation, with the creation of risk registers in relation to the future preservation of heritages under threat. In relation to climate change, culture is often referenced in terms of the risk of the negative impact of climate change on national cultural heritage (from loses to our museums, archives and galleries to our natural and built environments). In recent years, more attention has been given to the role of culture, not just as a repository of heritage or expression of social values but indeed as an active agent of social change, with increasing attention been given to what role art and culture can play in relation to the ecological challenges of this century (Cronin, 2020, 2022).

Building on UNESCO's Universal Declaration on Cultural Diversity in 2001, 'culture' was recognised as the fourth pillar of sustainable development by the World Congress of United Cities and Local Governments (UCLG) in Mexico City in 2010. The UCLG shared the vision that culture should be added alongside the economic, social

and environmental sustainability pillars. Since then, the cultural pillar has fallen off the environmental agenda and has remained largely invisible in policy documents on sustainability, which have tended to focus more on scientific and technological solutions to the crisis.

If cultural vitality in its broadest sense is recognised and acknowledged as the fourth pillar of sustainability, then any policy initiatives in relation to environmental change that fails to take into account the importance of the cultural realm will only have very limited success in the future (Fitzgerald, 2018; Till, 2020). As Neumayer and Joly (2021) have argued, a focus on scientific solutions and the "relative neglect of the social sciences, humanities and arts is at the very core of why the transition to sustainability has been slow and shaky and, most importantly, may eventually fail".

In 2017, the Creative Ireland Programme was established to promote culture, creativity and wellbeing across all sections of Irish society. The initiative incorporated creative climate action as a key theme and has continued to support creative programmes that are seen as catalysts for more vibrant, healthy, inclusive and sustainable communities. However, this needs to go further, with cultural considerations integrated within all climate policies and infrastructural funding and supports to close the policy gap as identified by Neumayer and Joly (2021).

Following on from UNESCO's and UCLG's recommendations, culture should be recognised as core societal infrastructure, critical to closing the climate ambition/action gap. It is key to ensuring more inclusive community engagement, which will assist with social cohesion when climate politics come under increasing pressure in future decades. As core societal infrastructure, culture needs to be integrated across all policy considerations, government departments and initiatives in relation to climate action and sustainable development. As an expression of identity, culture is a key agent of transformational eco-social change (Box 8.2, Figure 1).



Box 8.2 Figure 1 Drowned Galway's Storm Surge Long Walk, Hope it Rains/Soineann nó Doineann, as part of Galway's 2020 European Capital of Culture. Source: Photomontage by Joe Lee; design by Ríonach Ní Néill, 2020.

## 8.5. Catalysts of change

While enabling conditions make action on climate change and biodiversity loss more feasible and effective, catalysing conditions can precipitate action (Ara Begum et al., 2022). Catalysing conditions emerge when 'game-changing circumstances become present' and accelerate climate action (New et al., 2022). This is an emerging but important area of research with the capability to accelerate and augment climate action, with clear and world-leading examples taking place in Ireland.

### 8.5.1. Individual and collective action

The urgency and enormity of action required if climate change and biodiversity loss are to be tackled is beyond the response of any one individual. This is especially true as an individuals' opportunities to participate and engage in climate action is structured by systemic factors (Chapstick and Whitmarsh, 2022). However, system change is ultimately brought around through the collective action of individuals, so to pit individual change against systemic change is a false dichotomy that forces focus to either extreme (Chapstick and Whitmarsh, 2022). This is not to suggest that the responsibility or obligation for action rests solely with citizens (Akenji, 2014), governments can show leadership by setting the conditions of the system that would allow citizens to lead low-carbon and adaptive lifestyles (Akenji et al., 2021). Individuals interacting with the people around them during the course of their everyday lives are an important component of rapid social transformation (Rapid Transition Alliance, 2021; Chapstick and Whitmarsh, 2022).

Individual action is one of the best ways for society to change policy, as it helps develop cooperation and collective action, which are key to bringing about the broader sociocultural and political changes that make social transformation possible (Hackel and Sparkman, 2018; Chapstick and Whitmarsh, 2022). People are social creatures who follow the cues of the people around them, family, friends, neighbours, colleagues and the wider community (Latane and Darley, 1968). For example, people are more likely to install solar panels on their home if their neighbours have done so (Bollinger and Gillingham, 2012). To achieve sustainable development, people will need to change the food they eat, the way they travel and how they use energy at home and at work, all in a short period of time. If changes in behaviour are substantial, sustained and wide-ranging in ways that help tackle climate change, then new social norms begin to emerge (Hackel and Sparkman, 2018). If an individual acts to reduce the harm that is caused by greenhouse gas emissions, by not flying, eating meat or driving, for example, that harm, and the grave threat of climate, begins feel real to others (Hackel and Sparkman, 2018). Individual action, particularly bigger and more inconvenient changes, can convince others, but those changes can spill over in the lives of the individual, as other areas, such as voting, fall in line with their convictions (Hackel and Sparkman, 2018). Such changes in behaviour also provide a signal to the market that incentivises businesses to provide alternatives and reduce cost. One example is the expanding market in non-meat products or meat alternatives (Creutzig et al., 2022).

Individuals acting sustainably are leading by example and this behaviour is perceived as normal faster than it would be without individuals leading the way. This shows others that (1) action is possible, (2) people they know are doing it, making it less unusual and (3) there is a possibility that the world is headed in a new direction (Hackel and Sparkman, 2018). Not everyone who is affected by climate change can act or is represented in decision making. Active concerned citizens help to shape and promote solutions and they also show policymakers that policy can be implemented, and this helps to speed up public buy-in (Willis, 2018). When there is a sense that the change is gaining momentum, changes can occur faster.

Leading by example is a collective act, as it influences attituded and behaviour (Westlake, 2022). Individuals leading by example can change group behaviours (Liu and Hao, 2020). Role models, particularly those in leadership roles, can become more credible and effective advocates by practising sustainable behaviours in their own lives and within the organisations where they work (Kraft-Todd et al., 2018). There is also evidence that suggests that leaders who lead by example are thought to be more "trustworthy, ethical, likeable; and as caring more about climate change, believing it's more serious, and being more knowledgeable about it" (Westlake, 2022). Wealthy investors can prioritise strategic action to divest in fossil fuels and invest in carbon-neutral technologies (Creutzig et al., 2022). Policymakers can catalyse change though agenda setting and coalition building that drive decision making forward to progress action on climate change and biodiversity loss (Petridou and Mintrom, 2021; New et al., 2022). Professionals (e.g. engineers, urban planners, teachers and researchers) can work to change professional standards (Creutzig et al., 2022). Consumers, especially those in the top 10% in terms of income, can reduce consumption, reducing their emissions and inspiring others to do the same (Creutzig et al., 2022; see Box 1.1).

People equipped with the right information can organise and apply political pressure (Creutzig et al., 2022) and signal to politicians that there is both a need and a readiness to change, and that there is wider support for action on climate or biodiversity. Ireland's citizens' assemblies have demonstrated to politicians that there is broad-based support for action

on climate and biodiversity loss, even if it costs individuals more (see section 8.2.2; Devaney et al., 2020b). So far, policy development does not appear to be as progressive as the recommendations from the citizens' assembly.

Individual behaviour change at scale, brought about through systemic change and enabling people to make to make low- and zero-emissions decisions as part of their everyday lives (see Chapter 5), can deliver climate change mitigation, stabilising global temperature at lower levels and reducing the reliance on carbon dioxide removal, while increasing wellbeing (Niamir et al., 2018; Creutzig et al., 2022; Gaur et al., 2022; Jackson et al., 2022).

## 8.5.2. Social movements

Faced with the entrenched status quo of political and economic systems, and the vested interests of fossil fuel and animal agriculture, there has been a proliferation of civil society climate-related social movements around the world (Claeys and Delgado Pugley, 2017; Denton et al., 2022; New et al., 2022). These movements act as catalysing agents, accelerating climate action, and underpin system change (Creutzig et al., 2022; IPCC, 2022; New et al., 2022). They achieve political change through policy advocacy, policy research and by creating space within politics to develop new strategies and for climate champions to emerge (Caniglia et al., 2015; Babiker et al., 2022).

Social movements frame climate issues in a way that brings the public on board, mobilising resources, human and financial, that sustain collective action and increasing internal and external pressures that enable political change (Creutzig et al., 2022). For example, Fridays for the Future, School Strike 4 Climate and Schools Climate Action Network, through direct action and a focus on climate justice, moved climate action from a technical policy discussion to one that engaged the Irish public emotionally (Gold, 2020). Post-Paris, there has been a coming together[51] of national (urban-based) environmental groups, like Friends of the Earth, with local (rural-based) environmental groups, like Love Leitrim, universities and church groups, who, alongside members of the opposition, supported new Teachtaí Dála (a member of the lower house of the Oireachtas or Irish Parliament) to bring forth two successful private members bills, resulting in the Petroleum and Other Minerals Development (Prohibition of Onshore Hydraulic Fracturing) Act 2017 (Irish Statute Book, 2017) and the Fossil Fuel Divestment Act 2018 (Irish Statute Book, 2018), both successful challenges to the fossil fuel industry In Ireland (Gold, 2020). From 2018, Extinction Rebellion and Fridays for the Future brought focus to the dual crisis of climate change and biodiversity loss. Through peaceful, direct action and civil disobedience, Extinction Rebellion staged disruptive events in Dublin and Cork. School children staged weekly school strikes outside Leinster House since December 2018 and participated in global strikes, with some drawing up to 4 million protestors. The weekly strikes act to underline the urgency of climate change and biodiversity loss, while disruptive action highlights the need for transformational change. Social movements, such as One Future (2020) coordinated by Friends of the Earth and Stop Climate Chaos, have enabled groups of adults and children to participate and demand faster and fairer climate action.

Shuman et al. (2021) note that peaceful gatherings and petitions, that conform to social norms, can win over those who are sympathetic; however, it is disruptive protests, including civil disobedience, strikes and boycotts, that have been shown to be effective if changes in policy are required. Protests that result in disruption put direct pressure on policymakers, who may be opposed or ambivalent to the changes being suggested, to deliver the type of change that will halt the disruption. Demonstrating clear goals and positive and constructive intentions, while escalating the pressure put on policymakers, is also necessary if protestors are to be successful. Research suggests that disruptive protests by Just Stop Oil in the UK have not had a negative impact on climate policy and have increased interest among the public in participating in similar action (Özden and Glover, 2022).

The involvement of children and young people, a group not associated with exercising their political rights, in climate-related social movements (Daly, 2022) is significant, and it reflects their frustration, conviction and how they think differently. They see action on climate change and biodiversity loss as a climate justice and intergenerational issue. They understand the unfairness of the pain and suffering inflicted on the most vulnerable peoples around the world and the disastrous legacy that they and future generations will inherit. Beginning with school strikes, children and young people then moved their protest to the courtroom (Daly, 2022). They shifted the focus of national and international human rights law from human-centric and procedural to one that brings the relationship between people and the environment to the fore (Daly, 2022). While it is difficult to understand the effects of this change so far, it has the potential to be transformative (Daly, 2022).

[51] A step change in the approach to environmental movements in Ireland. For a fuller account of civil society environmental- and climate-related social movements in Ireland, see Leonard (2008) and Gold (2020).

As a core part of the National Dialogue on Climate Action, the Department of the Environment, Climate and Communications engages with the community and voluntary sector, for example Green Schools[52] and GAA Green Clubs[53]. It also supports the work of environmental and youth social movements, including the Irish Environmental Network, a network of environmental NGOs, and Ireland's Environmental Education and Youth Organisation (ECO-UNESCO), which work to conserve the environment and empower young people. While the engagement and support of the department is essential, it could be leveraged further through cross-sectoral collaboration in conjunction with leaders in the policy realm.

These movements are important, as they increase public awareness of and engagement, at home and abroad, with climate and biodiversity issues (Thackeray et al., 2020). How social movements catalyse action on climate is not yet sufficiently understood. Further research is necessary and it is important to investigate how change resulting from social movements can become lasting, equitable and accountable (Editorial, 2022).

## Box 8.3 Social tipping points as a catalyst of change?

A tipping point is when a small change causes a large, abrupt and potentially irreversible change with cascading effects (Lee et al., 2021). While much is understood about tipping points in the natural sciences, for example the possible collapse of the Greenland or West Antarctic ice sheets, and possible shut down of the Atlantic Meridional Overturning Circulation (see Volume 1, section 8.3.1; Lee et al., 2021), within the social sciences it is yet to be determined if social tipping points are a distinct type of social change (Otto et al., 2020; Milkoreit, 2022) and how they relate to regime shifts and critical transitions (Folke et al., 2004; Scheffer, 2009) or transformations (Gunderson and Holling, 2002; Olsson et al., 2014). There are examples from the social sciences of the success of mass non-violent movements that overthrow governments when they mobilised 3.5% of the population (Chenoweth and Stephan, 2011). Another study looks at the relationships between people and how a committed minority of 25% can change the behaviour of the population at large (Centola et al., 2018). The empirical evidence to support social tipping points, in relation to climate action, which unlike the examples above is not a single-issue problem, but the lens through which all other issues need to be viewed, is lacking and it is unclear at what level a critical mass will be achieved.

The idea of social tipping points, that the actions of small group of people, could result in much wider participation appeals to both policymakers and general audiences. One reason for this is because it is widely recognised that societal transformation is necessary to address climate change and biodiversity loss (Winkelmann et al., 2022). What is not clear is how this transformation can be achieved fast enough to remain on a pathway consistent with 1.5°C. While there is not enough evidence to gauge how close a social tipping point, or perhaps more correctly how close transformation is (Milkoreit et al., 2018), the idea inspires people to keep the pressure up, which persuades policymakers to investigate all opportunities and take advantage of all the choices available. It cannot be known which choice will make a difference or which small change will lead to the cascade that results in a dramatic change in our social systems. There is a strong possibility that tipping points and the form that they take may be identified in hindsight only. Moving forward towards transformational change requires that the pressure to act and to take advantage of opportunities that promote and accelerate a pathway to sustainability, wellbeing and equity remains high.

[52] https://greenschoolsireland.org

[53] https://greenclubs.gaa.ie



## 8.5.3. Litigation

Climate change litigation is being used by individuals and organisations to drive the speed and scale of climate action in influencing policy and changing how companies behave (Setzer and Byrnes, 2019; Bouwer and Setzer, 2020; O'Neill and Alblas, 2020; New et al., 2022). The majority of cases have been brought against governments, but companies with high emissions are also being pursued to reduce their emissions and pay for adaptation measures, and account for loss and damage (Setzer and Byrnes, 2019; Setzer and Vanhala, 2019). Litigation is driving companies and investors to take serious consideration of the management and disclosure of risks associated with climate impacts (New et al., 2022). Improvements in attribution of climate change events is broadening liability (IPCC, 2019a, 2019b; New et al., 2022). Claims based on human rights are a feature of climate change litigation and, while they have not always been successful[54], courts are becoming more receptive to this framing (Peel and Osofsky, 2018).

While it is difficult to quantify or understand the impacts in terms of emissions reductions, climate change litigation has the power to be transformative (Setzer and Byrnes, 2019). In domestic courts across the globe, there is a general increase in cases and a strong interventionist trend is emerging (Estin, 2016, White and O'Callaghan-White, 2021; Wonneberger and Vliegenthart, 2021). The majority of cases have been in the USA (Setzer et al., 2022; see Figure 8.1). A similar trend is emerging in Europe, with cases having been filed in more than half of European countries between 1993 and 2022 (Setzer et al., 2022; see Figure 8.1). While policy choices are for governments, courts are intervening to ensure that, where the law mandates action, policy and plans comply (O'Neill and Alblas, 2020; White and O'Callaghan-White, 2021). The Urgenda Climate Case against the Dutch Government, in 2015, was the first case in the world in which citizens established that their government was legally required to reduce emissions to prevent dangerous climate change (Urgenda, 2019). This case was transformative in two ways: first it lead to a significant increase in in the level of emissions reductions required at national level (White and O'Callaghan-White, 2021), and second it catalysed climate change litigation around the world, through making new arguments and tools available for litigants to challenge governments over insufficient climate policies (Maxwell et al., 2022).

[54] During the Climate Ireland Case, human rights was recognised in the Irish High Court but not in the subsequent ruling of the Irish Supreme Court (Kelleher, 2020; White and O'Callaghan-White, 2021).

In Ireland, the Supreme Court ruled that there was insufficient information, particularly in relation to agriculture, in the National Mitigation Plan 2017 (DCCAE, 2017) to show how targets would be achieved, and that there was a lack of transparency with regard to the level of information provided to the public (White and O'Callaghan-White, 2021). The ruling from Climate Case Ireland (Clarke, 2020) was a 'decisive moment' (Kelleher, 2020) and acted as a catalyst for greater government action on climate change (White and O'Callaghan-White, 2021). Ongoing and increasing scrutiny of government, through court action, makes climate action an issue that policymakers in Ireland consider beyond the electoral cycle (White and O'Callaghan-White, 2021). Successful and unsuccessful cases also highlight the level of public concern, increase public discourse and transparency, and signal to policymakers the growing consensus and support for climate among the public, keeping climate on the agenda (White and O'Callaghan-White, 2021).

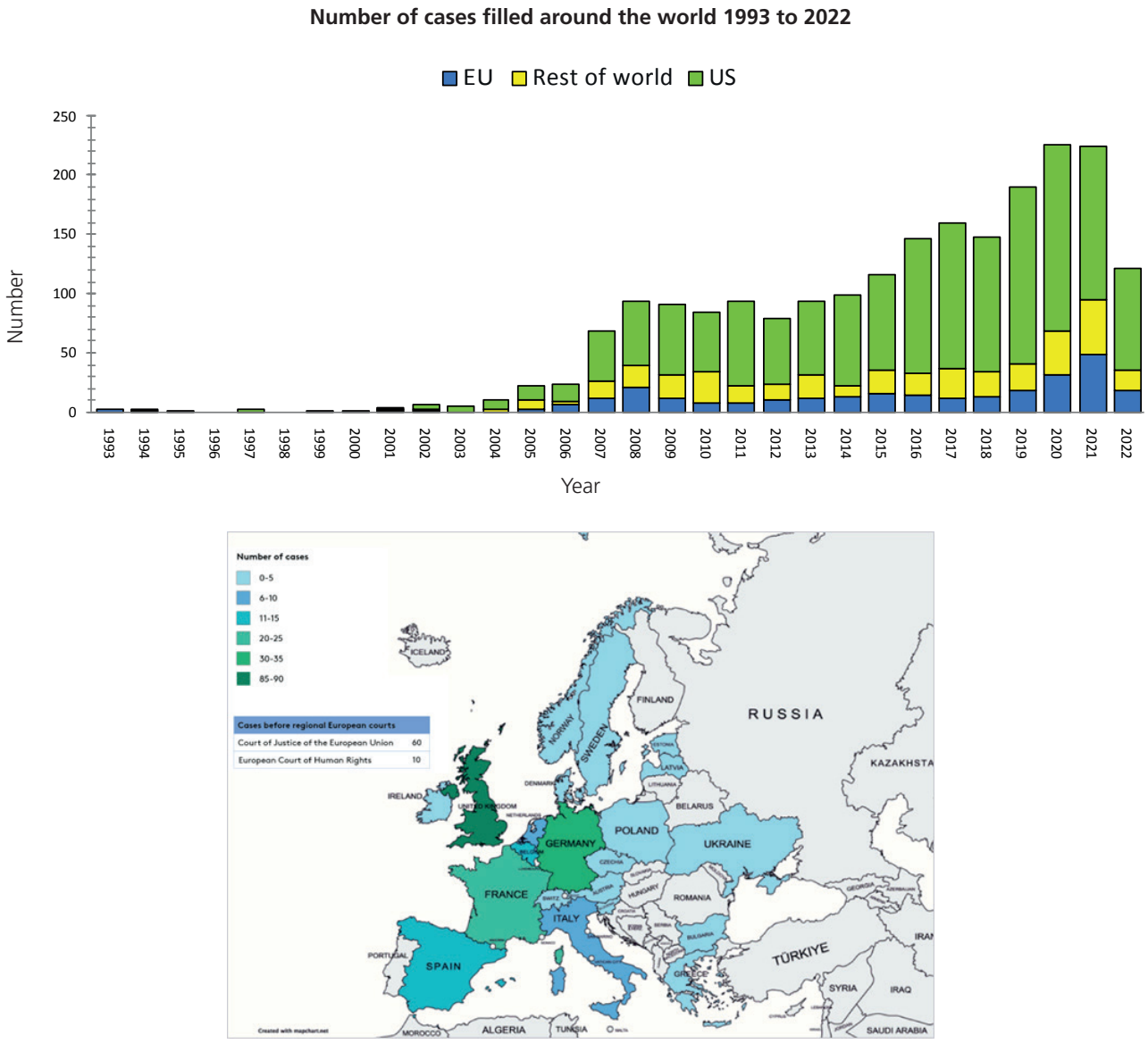



Figure 8.1 Top: the number of cases filed around the world between 1993 and 2022. Bottom: a map of cases filed in a European jurisdiction between 1993 and 2022. Source: Adapted from Setzer et al. (2022).

## 8.6. Research gaps

**Equity.** While research suggests that some climate change policies and measures in Ireland are inequitable, research is required to ensure that both existing and future policies and measures are equitable on multiple levels, including national, regional, place based and sector specific, to ensure wider engagement in these actions.

**Role of media in enabling climate action.** While it has been acknowledged that the news media in Ireland have the potential to play a role in enabling transformative change, more research is required to understand the actions necessary if this goal is to be achieved. Social media has not been addressed as part of this chapter, but its role in influencing climate change and biodiversity loss narratives needs further study (Pearce et al., 2019).

**Education for sustainable development.** Transformative change through education for sustainable development has been a basis for curriculum development in Ireland; however, the more transformative aspects of this approach are not being taught. Research is required to better understand the barriers to incorporating these elements, along with other elements of education for sustainable development, because these are key areas of education for children and young people, as they face the enormous challenges of the current and future impacts of climate change and biodiversity loss and are tasked with finding solutions to problems that they have 'inherited'.

**Removing silos in research to catalyse change.** The value of culture, arts and humanities in enabling action on climate change and biodiversity loss is briefly addressed in Box 8.2. If culture and arts act as the bridge between ambition and action, inspiring people to act and offering people hope for the future, through solutions narratives, then it is necessary that culture is integrated alongside climate and biodiversity actions. Culture, arts and the humanities need to be embraced as solutions to these crises. STEM subject areas dominate the research and funding landscape for climate change and biodiversity loss. One major challenge ahead is to bring expertise from arts, humanities and social sciences together with STEM expertise to enhance action. Changes within the research and funding landscape will be necessary to support researchers to step outside their silos to work together to find better solutions, solutions that can close the gap between ambition and action.

**Human, social and system-level interactions.** Research related to understanding of the interactions between individual, collective (social) and systems as drivers of change and their importance in enabling transformative change is only beginning, but is an important area for future research (Creutzig et al., 2022).

**Catalysts of change.** Further research is required on how social movements catalyse change, particularly change that is long lasting, equitable and accountable. Similarly, the threshold for social tipping points for climate action are not yet understood. Action on climate change is not a single-issue topic, as opposed to the smoking ban or the plastic bag tax, and more research is necessary to understand both where the threshold of social tipping points related to climate action are and how to get to those tipping points faster.



# References

Wagner, P. and T. Ylä-Anttila (2020). 'Can policy forums overcome echo chamber effects by enabling policy learning?' Evidence from the Irish climate change policy network.' *J. Public Policy* 40(2): 194–211. https://doi.org/10.1017/S0143814X18000314

Weaver, S. et al. (2019). *Overview of National Climate Change Advisory Councils*. Finnish Climate Change Panel.

Wyns, A. (2023). 'COP27 establishes loss and damage fund to respond to human cost of climate change.' *Lancet Planet. Health* 7(1): e21–e22.

Zeitlin, J. et al. (2019). 'Introduction: the European Union beyond the polycrisis? Integration and politicization in an age of shifting cleavages.' *J. Eur. Public Policy* 26(7): 963–976.

## Chapter 8

Akenji, L. (2014). 'Consumer scapegoatism and limits to green consumerism.' *J. Clean. Prod*. 63: 13–23.

Akenji, L. et al. (2021). *1.5-Degree Lifestyles: Towards a Fair Consumption Space for All*. Hot or Cool Institute.

ALLEA (2020). *A Snapshot of Climate Change Education Initiatives in Europe*. All European Academies.

Ara Begum, R. et al. (2022). 'Point of departure and key concepts.' In *Climate Change 2022: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* (Pörtner, H.O. et al., eds.). Cambridge University Press. https://doi.org/10.1017/9781009325844.003

Arbeiter, J. and M. Bučar (2020). *Transformative Education: Bridging Education for Change*. Bridge 47. https://www.bridge47.org/sites/default/files/2021-07/1_transformative_education_0.pdf

Arnstein, S. R. (1969). 'A ladder of citizen participation.' *J. Am. Inst. Plan*. 35: 216–224.

Augustenborg, C. A. et al. (2022). 'Insights from the 2018 drought in Ireland's broadsheet media.' *Environ. Commun*. 16(4): 445–457.

Babiker, M. et al. (2022). 'Cross-sectoral perspectives.' In Climate Change 2022: Mitigation of Climate Change. Contribution of Working Group III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change (Shukla, P. R. et al., eds.). Cambridge University Press. https://doi.org/10.1017/9781009157926.014

Blau, W. (2022). 'Climate change: journalism's greatest challenge'. Medium. https://wblau.medium.com/climate-change-journalisms-greatest-challenge-2bb59bfb38b8#:~:text=This%20issue%20of%20false%20balance,often%20understate%20just%20how%20much

Blue, G. (2015). 'Public deliberation with climate change: opening up or closing down policy options?' *Rev. Eur. Comp. Int. Environ Law* 24: 152–59.

Boland, L. (2022). ' "Dismal" and "inadequate" climate education must be tackled, students and teachers say.' The Journal. https://www.thejournal.ie/climate-education-strategy-schools-5667296-Jan2022/

Bollinger, B. and K. Gillingham (2012). 'Peer effects in the diffusion of solar photovoltaic panels.' *Market. Sci*. 31: 900–912.

Boswell, J. et al. (2023). 'Integrating citizen deliberation into climate governance: lessons on robust design from six climate assemblies.' *Public Admin*. 101: 182–200.

Bouwer, K. and J. Setzer (2020). *Climate Litigation as Climate Activism: What Works?* The British Academy.

Boyle, E. et al. (2021a). *Corca Dhuibhne/Dingle Peninsula 2030 Learning Briefs: Dingle Peninsula 2030 and the Diffusion of Sustainability*. https://dinglepeninsula2030.com/wp-content/uploads/2022/03/Learning-Brief-on-Diffusion-of-Sustainability_Final.pdf

Boyle, E. et al. (2021b). *Corca Dhuibhne/Dingle Peninsula 2030 Learning Briefs: ESB Networks' Dingle Project Ambassador Programme*. https://dinglepeninsula2030.com/wp-content/uploads/2022/03/Learning-Brief-Ambassador-Programme_Final.pdf

Boyle, E. et al. (2021c). *ESB Networks' Dingle Project: Activating Energy Citizenship through Collaboration, Participation, and Technological Trials*. https://www.marei.ie/wp-content/uploads/2022/07/Energy-Citizenship-Research-Report-Comp-1.pdf

Boyle, E. et al. (2022a). 'Flexibility & structure: community engagement on climate action & large infrastructure delivery.' *Energy Policy* 167: 113050.

Boyle, E. et al. (2022b). 'The diffusion of sustainability and Dingle Peninsula 2030.' *UCL Open Environ*. 4: e052.

Brereton, P. (2022). *Essential Concepts in Environmental Communication: An A-Z Guide*. Routledge.

Bruckmeier, K. and H. Tovey (2009). *Rural Sustainable Development in the Knowledge Society*. Routledge.

Caniglia, B. S. et al. (2015). 'Civil society, social movements, and climate change.' In: *Climate Change and Society: Sociological Perspectives* (Dunlap, R. E. et al. (eds.). Oxford University Press. pp. 235–268.

Carroll, P. et al. (2021). 'Identifying hotspots of transport disadvantage and car dependency in rural Ireland.' *Transp. Policy* 101: 46–56.

Cattino, M. and D. Reckien (2021). 'Does public participation lead to more ambitious and transformative local climate change planning?' *Curr. Opin. Environ. Sustain*. 52: 100–110.

Caulfield, B. et al. (2022). 'Measuring the equity impacts of government subsidies for electric vehicles.' *Energy* 248: 123588.

Centola, D. et al. (2018). 'Experimental evidence for tipping points in social convention.' *Science* 360: 1116–1119.

Chapstick, S. and L. Whitmarsh (2022). *Individual Action, Social Transformation. The Climate Book*. Allen Lane.

Chenoweth, E. and M. J. Stephan (2011). *Why Civil Resistance Works: The Strategic Logic of Nonviolent Conflic*t. Columbia University Press.

Cherry, C. E. et al. (2021). *Citizens' Climate Assemblies: Understanding Public Deliberation for Climate Policy*. The Centre for Climate Change and Social Transformations.

Claeys, P. and D. Delgado Pugley (2017). 'Peasant and indigenous transnational social movements engaging with climate justice.' *Can. J. Dev. Stud*. 38: 325–340.

Clayton, S. (2018). 'The role of perceived justice, political ideology, and individual or collective framing in support for environmental policies.' *Soc. Justice Res*. 31: 219–237.

Codema (2022). *Zero Together: A Roadmap for Dublin's Energy Transition*. https://www.citiesoftomorrow.eu/sites/default/files/documents/ROADMAP_DUBLIN_SD_FINAL.pdf

Council of Europe (2023). 'About participatory democracy.' https://www.coe.int/en/web/participatory-democracy/about-participatory-democracy

Creutzig, F. et al. (2022). 'Demand, services and social aspects of mitigation.' In *Climate Change 2022: Mitigation of Climate Change. Contribution of Working Group III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* (Shukla, P.R. et al., eds.). Cambridge University Press. https://doi.org/10.1017/9781009157926.007

Cronin, N. (2020). 'Environmentalities: speculative imaginaries of the Anthropocene.' In *Routledge International Handbook of Irish Studie*s (Fox, R. et al., eds.). Routledge. pp. 349–361.

Cronin, N. (2022). 'Climate change: perspectives from the arts and humanities.' Blog post, 7 January. Irish Humanities Alliance. https://www.irishhumanities.com/blog/arts-and-humanities-perspectives-on-climate-change/

Cullinane, M. and C. Watson (2014). *Irish Public Service Broadcasting and the Climate Change Challenge: Research Report and Findings*. RTÉ Audience Council.

Culloty, E. et al. (2019). *Climate Change in Irish Media*. Environmental Protection Agency, Ireland.

Daly, A. (2022). 'Climate Competence: youth climate activism and its impact on international human rights law.' *Hum. Rights Law Rev*. 22(2): ngac011.

DCCAE (2017). *National Mitigation Plan*. Department of Communications, Climate Action and Environment.

DECC (2021). *Renewable Electricity Support Scheme: Good Practice Principles Handbook for Community Benefit Funds*. Department of the Environment, Climate and Communications.

DECC (2022). *Climate Action Plan 2023. CAP23: Changing Ireland for the Better*. Department of the Environment, Climate and Communications.

DECC (2023). 'Minister Ryan announces €27 million for community climate action.' Press release, 2 February. Department of the Environment, Climate and Communications.

Denton, F. et al. (2022). 'Accelerating the transition in the context of sustainable development.' In: *Climate Change 2022: Mitigation of Climate Change. Contribution of Working Group III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* (Shukla, P. R. et al., eds.). Cambridge University Press. https://doi.org/10.1017/9781009157926.019

Devaney, L. et al. (2020a). *Deepening Public Engagement on Climate Change: Lessons from the Citizens' Assembly.* Environmental Protection Agency, Ireland.

Devaney, L. et al. (2020b). 'Ireland's Citizens' Assembly on Climate Change: lessons for deliberative public engagement and communication.' *Environ. Commun*. 14: 141–146.

Devine-Wright, P. (2022). 'Decarbonisation of industrial clusters: a place-based research agenda.' *Soc. Sci*. 91: 102725.

Devitt, C. and E. O. Neill (2017). 'The framing of two major flood episodes in the Irish print news media : implications for societal adaptation to living with flood risk.' *Public Underst. Sci*. 26: 872–888.

Dey De Pryck, J. and M. Elias (2023). 'Promoting inclusive facilitation of participatory agricultural research for development.' *Dev. Pract*. 33: 122–127.

Drews, S. and J. C. J. M. van den Bergh (2016). 'What explains public support for climate policies? A review of empirical and experimental studies.' *Clim. Policy* 16: 855–876.

Editorial (2022). 'A role for provocative protest.' *Lancet Planet. Health* 6: e846.

Elstub, S. et al. (2021). 'The scope of climate assemblies: lessons from the Climate Assembly UK.' *Sustainability* 13: 11272.

Estrin, D. (2016). *Limiting Dangerous Climate Change: The Critical Role of Citizen Suits and Domestic Courts – Despite the Paris Agreement*. https://www.cigionline.org/publications/limiting-dangerous-climate-change-critical-role-citizen-suits-and-domestic-courts/

European Commission (2021). *Special Eurobarometer 513 – Climate Change*. https://climate.ec.europa.eu/system/files/2021-07/report_2021_en.pdf

Fahy, D. (2020). 'Ecological modernisation, Irish-style: explaining Ireland's slow transition to low-carbon society.' In *Ireland and the Climate Crisis* (Robbins, D. et al., eds.). Palgrave Macmillan. pp. 131–148.

Fischer, F. (2000). *Citizens, Experts, and the Environment: The Politics of Local Knowledge*. Duke University Press.

Fitzgerald, C. (2018). 'Raising the shining, reflective shield: the urgent need for art and sustainability policy for Ireland.' The Hollywood Forest Story: An EcoSocial Art Practice. https://hollywoodforest.com/2018/05/10/raising-the-shining-shield-art-sustainability-policy-needed-urgently-ireland/

Folke, C. et al. (2004). 'Regime shifts, resilience, and biodiversity in ecosystem management.' *Annu. Rev. Ecol. Evol. Syst*. 35: 557–581.

Fox, E. and H. Rau (2016). 'Climate change communication in Ireland.' In *Oxford Research Encyclopedia of Climate Science* (von Storch, H. ed.). Oxford University Press. pp. 1–32.

Future of Media Commission (2022). *Future of Media Commission Report*. Department of Tourism, Culture, Arts, Gaeltacht, Sport and Media.

Gaur, A. et al. (2022). 'Low energy demand scenario for feasible deep decarbonisation: whole energy systems modelling for Ireland.' *Renew. Sustain. Energy Trans*. 2: 100024.

Gibbons, J. (2020). 'Public confusion, digital media, social media, and fake news in the United Kingdom and Ireland.' In: Routledge Handbook of Environmental Journalism (Sachsman, D. and J. Valenti, eds.). Routledge. pp. 188–202.

Giraudet, L. G. et al. (2022). 'Co-construction in deliberative democracy: lessons from the French Citizens' Convention for Climate.' *Humanit. Soc. Sci. Commun*. 9: 207.

Gold, L. (2020). 'The changing faces of the climate movement in Ireland.' In *Ireland and the Climate Crisis* (Robbins, D. et al., eds.). Palgrave Macmillan. pp. 269–285.

Gunderson, L. and C. S. Holling (2002). *Panarchy: Understanding Transformations in Human and Natural Systems*. Island Press.

Hackel, L. and G. Sparkman (2018). 'Reducing your carbon footprint still matters.' Blog post, 26 October. Slate. https://slate.com/technology/2018/10/carbon-footprint-climate-change-personal-action-collective-action.html

Harris, C. (2021). 'Looking to the future? Including children, young people and future generations in deliberations on climate action: Ireland's Citizens' Assembly 2016–2018.' *Eur J. Soc. Sci. Res*. 34: 677–693.

Hickman, C. et al. (2021). 'Climate anxiety in children and young people and their beliefs about government responses to climate change: a global survey.' *Lancet Planet. Health* 5: e863–e873.

Horan, W. et al. (2019). 'National sustainability transitions and the role of university campuses: Ireland as a case study.' In: *Sustainability on University Campuses: Learning, Skills Building and Best Practices* (Leal Filho, W. and U. Bardi, eds.). World Sustainability Series. Springer International Publishing. pp. 255–270.

Houses of the Oireachtas (2019). *Climate Change: A Cross Party Consensus for Action*.

IPCC (2019a). *Global Warming of 1.5°C: An IPCC Special Report on the Impacts of Global Warming of 1.5°C above Pre-Industrial Levels and Related Global Greenhouse Gas Emission Pathways, in the Context of Strengthening the Global Response to the Threat of Climate Change, Sustainable Development, and Efforts to Eradicate Poverty* (Masson-Delmotte, V., et al., eds.). Cambridge University Press. https://doi.org/10.1017/9781009157940

IPCC (2019b). *Climate Change and Land: An IPCC Special Report on Climate Change, Desertification, Land Degradation, Sustainable Land Management, Food Security, and Greenhouse Gas Fluxes in Terrestrial Ecosystems* (Shukla, P. R. et al., eds.). Cambridge University Press. https://doi.org/10.1017/9781009157988

IPCC (2022). 'Summary for policymakers.' In *Climate Change 2022: Mitigation of Climate Change. Contribution of Working Group III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* (Shukla, P. R. et al., eds). Cambridge University Press. https://doi.org/10.1017/9781009157926.00

Irish Statute Book (2017). Petroleum and Other Minerals Development (Prohibition of Onshore Hydraulic Fracturing) Act 2017. https://www.irishstatutebook.ie/eli/2017/act/15/enacted/en/html

Irish Statute Book (2018). Fossil Fuel Divestment Act 2018. https://www.irishstatutebook.ie/eli/2018/act/29/enacted/en/htm

Jackson, R. B. et al. (2022). 'Human well-being and per capita energy use.' *Ecosphere* 13: e3978.

Justice Clarke (2020). Friends of the Irish Environment CLG AND the Government of Ireland, Ireland. and the Attorney General. https://ie.vlex.com/vid/friends-of-the-irish-847734616

Kelleher, O. (2020). 'A critical appraisal of *Friends of the Irish Environment* v *Government of Ireland*.' *Rev. Eur. Comp. Int. Environ. Law* 30: 138–146.

Kinol, A. et al. (2023). 'Climate justice in higher education: a proposed paradigm shift towards a transformative role for colleges and universities.' *Clim. Change* 176: 15.

Kraft-Todd, G. T. et al. (2018). 'Credibility-enhancing displays promote the provision of non-normative public goods.' *Nature* 563: 245–248.

Lamb, W. F. et al. (2020). 'Discourses of climate delay.' *Glob. Sustain*. 3: e17.

Latane, B. and J. M. Darley (1968). 'Group inhibition of bystander intervention in emergencies.' *J. Pers. Soc. Psychol*. 10: 215–221.

Le Maitre, J. et al. (2023). 'Empowering onshore wind energy: a national choice experiment on financial benefits and citizen participation.' *Energy Policy* 173: 113362.

Lee, J.-Y. et al. (2021). 'Future global climate: scenario-based projections and near-term information. In *Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* (Masson-Delmotte, V. et al., eds.). Cambridge University Press. https://doi.org/10.1017/9781009157896.006

Leiserowitz, A. et al. (2021). *Climate Change in the Irish Mind*. Yale Program on Climate Change Communication. Environmental Protection Agency, Ireland. https://www.epa.ie/publications/monitoring--assessment/climate-change/EPA-Climate-in-the-Irish-Mind-REPORT-19.pdf

Leonard, L. (2008). *The Environmental Movement in Ireland*. Springer.

Liu, C.-J. and F. Hao (2020). 'The impact of social and ecological factors on environmentally responsible behavior.' *J. Clean. Prod.* 254: 120173.

Lunn, P. (2022). *Opening Statement: Joint Oireachtas Committee on Environment and Climate Action*. https://data.oireachtas.ie/ie/oireachtas/committee/dail/33/joint_committee_on_environment_and_climate_action/submissions/2022/2022-11-29_opening-statement-prof-peter-lunn-behavioural-research-unit-esri_en.pdf

Maxwell, L. et al. (2022). 'Standards for adjudicating the next generation of Urgenda-style climate cases.' *J. Hum. Rights Environ*. 13: 35–63.

McCowan, T., et al. (2021). *Universities facing Climate Change and Sustainability*. Global University Leaders Council Hamburg.

McGookin, C. et al. (2020a). *Corca Dhuibhne /Dingle Peninsula 2030 Learning Briefs: Climate Hack*. https://dinglepeninsula2030.com/wp-content/uploads/2021/07/MaREI-Climate-Hack-April-2020_final.pdf

McGookin, C. et al. (2020b). *Corca Dhuibhne/Dingle Peninsula 2030 Learning Briefs: Energy Master Plan*. https://dinglepeninsula2030.com/wp-content/uploads/2021/07/Dingle-Peninsula-2030_Energy-Master-Plan-Learning-Brief.pdf

McGookin, C. et al. (2021). *Corca Dhuibhne/Dingle Peninsula 2030 Learning Briefs: Evidence-based Community Planning on Corca Dhuibhne*. https://www.marei.ie/wp-content/uploads/2021/07/Evidence-based-planning-Corca-Dhuibhne_V2.pdf

McGookin, C. et al. (2022). 'Doing things differently: bridging community concerns and energy system modelling with a transdisciplinary approach in rural Ireland.' *Energy Res. Soc. Sci*. 89: 102658.

McNally, B. (2015). 'Media and carbon literacy: shaping opportunities for cognitive engagement with low carbon transition in Irish media, 2000–2013.' *Razon y Palabra* 19(3): 91.

McNally, B. (2020). *Citizens 'Views of Climate Action in Ireland: Insights on Media Use, Trusted Sources and Perceptions*. Environmental Protection Agency, Ireland.

MeCCO (n.d.). 'Media and Climate Change Observatory.' https://sciencepolicy.colorado.edu/icecaps/research/media_coverage/index.html

Mezirow, J. (1978). *Education for Perspective Transformation: Women's Re-entry Programs in Community Colleges*. Columbia University Press.

Milkoreit, M. (2022). 'Social tipping points everywhere? – Patterns and risks of overuse.' *Wiley Interdiscip. Rev. Clim. Change* 14(2): e813.

Milkoreit, M., et al. (2018). 'Defining tipping points for social-ecological systems scholarship – an interdisciplinary literature review.' *Environ. Res. Lett*. 13: 033005.

Moore, F. C. et al. (2022). 'Determinants of emissions pathways in the coupled climate–social system.' *Nature* 603: 103–111.

Morgan, T. (2017). *Going Green Digitally ? Environmental Crisis, Consumption Patterns and the Evolving Role of Media*. Environmental Protection Agency, Ireland. https://www.epa.ie/publications/research/communicating-research/research-215-going-green-digitally-environmental-crisis-consumption-patterns-and-the-evolving-role-of-media.php

Mullally, G. et al. (2022). *A Roadmap for Local Deliberative Engagement on Transitions to Net Zero Carbon and Climate Resilience*. Environmental Protection Agency, Ireland.

Murrell, C., et al. (2022). 'Digital news report Ireland 2022.' https://reutersinstitute.politics.ox.ac.uk/digital-news-report/2022/ireland

NESC (2014). *Wind Energy in Ireland: Building Community Engagement and Social Support*. National Economic and Social Council.

Neumayer, E. and C. Joly (2021). 'Social sciences, humanities and arts, are critical for sustainability.' Times Higher Education Campus.

New, M. et al. (2022). 'Decision-making options for managing risk.' In *Climate Change 2022: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* (Pörtner, H.-O., et al., eds). Cambridge University Press. https://doi.org/10.1017/9781009325844.026

Newell, P. J. et al. (2022). 'Navigating tensions between rapid and just low-carbon transitions.' *Environ. Res. Lett*. 17: 041006.

Niamir, L. et al. (2018). 'Transition to low-carbon economy: assessing cumulative impacts of individual behavioral changes.' *Energy Policy* 118: 325–345.

Niemeyer, S. (2013). 'Democracy and climate change: what can deliberative democracy contribute?' *Aust. J. Politics Hist*. 59(3): 429–448.

Nyhan, M. et al. (2022). *Connecting People to Climate Change Action: Informing Participatory Frameworks for the National Dialogue on Climate Action (C-CHANGE).* Environmental Protection Agency, Ireland.

Ó Caoimh, B. and C. McGookin (2021). *Leathinis Corca Dhuibhne – Próifíl Dhéimeagrafach Agus Socheacnamaíocha [Dingle Peninsula – Demographic and Socio-Economic Profile]*. North, East and West Kerry Development.

O'Connor, E. (2023). 'How to save the planet with art.' *Sunday Times*, 18 June.

OECD (2020). *Innovative Citizen Participation and New Democratic Institutions: Catching the Deliberative Wave*. OECD Publishing.

Olsson, P. et al. (2014). 'Sustainability transformations: a resilience perspective.' *Ecol. Soc*. 19: 1.

One Future. (2020). 'One Future – Faster and Fairer Climate Action'. https://www.onefuture.ie/policy/

O'Neill, S. and E. Alblas (2020). 'Climate litigation, politics and policy change: lessons from Urgenda and Climate Case Ireland.' In *Ireland and the Climate Crisis* (Robbins, D. et al., eds.). Palgrave Macmillan. pp. 57–72.

O'Neill, S. et al. (2022). *Environmental Justice in Ireland: Key Dimensions of Environmental and Climate Injustice Experienced by Vulnerable and Marginalised Communities*. Irish Research Council and Community Law & Mediation.

O'Sullivan, E. et al. (2002). *Expanding the Boundaries of Transformative Learning: Essays on Theory and Praxis*. Palgrave Macmillan.

Otto, I. M. et al. (2020). 'Social tipping dynamics for stabilizing Earth's climate by 2050.' *Proc. Natl Acad. Sci. U.S.A*. 117: 2354–2365.

Özden, J. and S. Glover (2022). 'Disruptive climate protests in the UK didn't lead to a loss of public support for climate policies.' Effective Altruism Forum. https://forum.effectivealtruism.org/posts/YDtsGHmDJMsAWB7Wt/disruptive-climate-protests-in-the-uk-didn-t-lead-to-a-loss#:~:text=The%20disruptive%20protests%20by%20Just,public%20opinion%20on%20climate%20change.

Pearce, W. et al. (2019). 'The social media life of climate change: platforms, publics, and future imaginaries.' *Wiley Interdiscip. Rev. Clim. Change* 10.

Peel, J. and H. M. Osofsky (2018). 'A rights turn in climate change litigation? *Transnat. Environ. Law* 7: 37–67.

Petridou, E. and M. Mintrom (2021). 'A research agenda for the study of policy entrepreneurs. *Policy Stud. J*. 49: 943–967.

Pringle, A. and D. Robbins (2022). 'From denial to delay: climate change discourses in Ireland.' *Administration* 70: 59–84.

Prutsch, A. et al. (2018). 'Is the participatory formulation of policy strategies worth the effort? The case of climate change adaptation in Austria.' *Reg. Environ. Change* 18: 271–285.

Queen's University Belfast. (2021). 'Belfast Climate Commission.' https://www.belfastclimate.org.uk/about-belfast-climate-commission

Quinlivan, L. and N. Dunphy (2023). 'A mixed-methods approach to climate action planning.' *Int. J. Qual. Methods* 22: 160940692211501.

Rapid Transition Alliance (2021). *Is There Hope?* https://rapidtransition.org/wp-content/uploads/2021/11/8296_RTA_booklet_AW_digital-002.pdf

Tovar Reaños, M. A. and M. Á. Lynch (2019). *Distributional Impacts of Carbon Taxation and Revenue Recycling: A Behavioural Microsimulation*. Economic and Social Research Institute.

Tovar Reaños, M. A. and M. Á. Lynch (2022). *The Heterogeneous Effects of Carbon Taxation in Ireland*. Economic and Social Research Institute.

Revez, A. et al. (2019). *Innovative Methods of Community Engagement: Imagining2050*. Environmental Research Institute.

Reville, W. (2021). 'Tackling our high anxiety over climate change.' *Irish Times*, 21 October.

Robbins, D. (2019a). 'Climate change frame production: perspectives from government ministers and senior media strategists in Ireland.' *Environ. Commun*. 14: 509–521.

Robbins, D. (2019b). *Climate Change, Politics and the Press in Ireland*. Routledge.

Robbins, D. (2017). 'Denial or dismissal? Sceptic discourses on climate change in the Irish media.' Paper presented at the Mediating Climate Change Conference, University of Leeds, July 2017.

Robbins, D. (2019c). 'RTÉ's climate change coverage was a masterclass.' *Irish Independent*, 23 November.

Robbins, D. (2022). *Statement to the Joint Oireachtas Committee on Environment and Climate Change*. https://data.oireachtas.ie/ie/oireachtas/committee/dail/33/joint_committee_on_environment_and_climate_action/submissions/2022/2022-11-29_opening-statement-dr-david-robbins-director-of-the-dcu-centre-for-climate-and-society_en.pdf

Robbins, D. et al. (eds) (2020). *Ireland and the Climate Crisis*. Palgrave Macmillan.

Robbins, D. and D. Wheatley (2021). 'Complexity, objectivity, and shifting roles: environmental correspondents march to a changing beat.' *Journalism Pract*. 15: 1289–1306.

Rothstein, B. (2011). *The Quality of Government: Corruption, Social Trust, and Inequality in International Perspective*. University of Chicago Press.

Rotter, M. et al. (2013). *Stakeholder Participation in Adaptation to Climate Change – Lessons and Experience from Germany*. https://www.umweltbundesamt.de/sites/default/files/medien/461/publikationen/climate_change_12_2013_stakeholder_participation_in_adaptation_to_climate_change_bf_0.pdf

Scheffer, M. (2009). *Critical Transitions in Nature and Society*. Princeton University Press.

Schmidt, A. et al. (2013). 'Media attention for climate change around the world: a comparative analysis of newspaper coverage in 27 countries.' *Glob. Environ. Change* 23: 1233–1248.

Schwartz, S. E. O. et al. (2022). 'Climate change anxiety and mental health: environmental activism as buffer.' *Curr. Psychol*. 42: 16708–16721.

SEAI (2023). *Enabling Framework for Renewable Energy Communities – Financing Renewable Energy Community Generation Projects*. Sustainable Energy Authority of Ireland.

Setzer, J. and R. Byrnes (2019). *Global Trends in Climate Change Litigation: 2019 Snapshot*. Grantham Research Institute on Climate Change and the Environment and Centre for Climate Change Economics and Policy, London School of Economics and Political Science.

Setzer, J. and L. C. Vanhala (2019). 'Climate change litigation: a review of research on courts and litigants in climate governance.' *Wiley Interdiscip. Rev. Clim. Change* 10.

Setzer, J. et al. (2022). *Climate Litigation in Europe*. Grantham Research Institute on Climate Change and the Environment and Centre for Climate Change Economics and Policy, London School of Economics and Political Science.

Shawe, R. et al. (2019). 'Mapping of sustainability policies and initiatives in higher education institutes.' *Environ. Sci. Policy* 99: 80–88.

Shuman, E. et al. (2021). 'Disrupting the system constructively: testing the effectiveness of nonnormative nonviolent collective action.' *J. Pers. Soc. Psychol*. 121: 819–841.

Sinden, C.K. (2021). Incorporating Sustainability into the Academic Institution. *J. Undergrad. Res*. 14(1).

Sirr, G. et al. (2023). 'An analysis of the factors affecting Irish citizens' willingness to invest in wind energy projects.' *Energy Policy* 173: 113364.

Smith, G. (2023). *Climate Assemblies: Emerging Trends, Challenges and Opportunities. A Report of the Knowledge Network on Climate Assemblies*. https://knoca.eu/app/uploads/2023/05/KNOCA_2023_Climate-assemblies_emerging-trends-challenges-and-opportunities.pdf

Soini, K. et al. (2018). 'Universities responding to the call for sustainability: a typology of sustainability centres.' *J. Clean. Prod*. 170: 1423–1432.

Stevenson, H. and J. S. Dryzek (2014). *Democratizing Global Climate Governance*. Cambridge University Press.

Thackeray, S. J. et al. (2020). 'Civil disobedience movements such as School Strike for the Climate are raising public awareness of the climate change emergency.' *Glob. Change Biol*. 26: 1042–1044.

The Irish Times Group (2021). 'Submission by The Irish Times Group to the Future of the Media Commission January 2021.' https://www.readkong.com/page/submission-by-the-irish-times-group-to-the-future-of-the-3586398

Till, K. E. (2020). *Learning to Live Well: Staying with the Trouble. Earth Writings: Bogs, Forests, Fields and Gardens*. Cassagh Press and Department of Geography, Maynooth University.

Timmons, S. and P. Lunn (2022). *Public Understanding of Climate Change and Support for Mitigation*. Economic and Social Research Institute.

Torney, D. (2018). *Enabling Decarbonisation: A Study of Energy Sector Governance in Ireland* Environmental Protection Agency, Ireland.

Torney, D. (2021). 'Deliberative mini-publics and the European Green Deal in turbulent times: the Irish and French Climate Assemblies.' *Politics Gov*. 9: 380–390.

Torney, D. et al. (2020). 'Ireland's Citizens' Assembly on Climate Change: institutional pioneership by a climate laggard?' In *Climate Governance Across the Globe: Pioneers, Leaders and Followers* (Wurzel, R. K. et al., eds). Routledge. pp. 217–234.

UN Secretary-General (2012). Global Education First Initiative: The United Nations Secretary-General's Initiative to Ensure Quality, Relevant and Transformative Education for Everyone. United Nations.

UNESCO (1954). Convention for the Protection of Cultural Property in the Event of Armed Conflict. United Nations Educational, Scientific and Cultural Organization.

Urgenda (2019). 'The Urgenda Climate Case against the Dutch Government.' https://www.urgenda.nl/en/themas/climate-case/

Wagner, P. and D. Payne (2015). 'Trends , frames and discourse networks : analysing the coverage of climate change in Irish newspapers.' *Irish J. Sociol*. 2: 1–24.

Waldron, F. et al. (2019). 'Geographical process or global injustice? Contrasting educational perspectives on climate change.' *Environ. Educ. Res*. 25: 895–911.

Waldron, F. et al. (2020). 'Climate change education in Ireland: emerging practice in a context of resistance.' In *Ireland and the Climate Crisis* Robbins, D. et al., eds.). Palgrave Macmillan. pp. 231–248.

Watson, C. et al. (2020). *Corca Dhuibhne/Dingle Peninsula 2030: Our Sustainable Future*. https://www.marei.ie/wp-content/uploads/2020/08/Dingle-Peninsula-2030-Brochure.pdf

Watson, C. et al. (2021a). *Anaerobic Digestion on the Dingle Peninsula*. https://www.marei.ie/wp-content/uploads/2021/12/AD-on-Dingle-Peninsula-Learning-Brief.pdf

Watson, C. et al. (2021b). *Corca Dhuibhne/Dingle Peninsula 2030: The Community Energy Mentor Training Course.* https://www.marei.ie/wp-content/uploads/2021/12/The-Community-Energy-Mentor-Training-Course_Final.pdf

Watson, C. et al. (2021c). *Corca Dhuibhne/Dingle Peninsula 2030 Learning Briefs: The Value of Collaboration*. https://www.marei.ie/wp-content/uploads/2021/12/The-Value-of-Collaboration-Learning-Brief.pdf

Watson, C. et al. (2021d*). Corca Dhuibhne/Dingle Peninsula 2030 Learning Briefs: Lessons Learnt and Recommendations for Policy and Practice*. https://www.marei.ie/wp-content/uploads/2021/11/Lessons-Learnt-and-Recommendations-for-Policy-and-Practice_Final.pdf

Westlake, S. (2022). *The Power of Leading by Example with High-impact Low-carbon Behaviour: Emulation, Trust, Credibility, Justice*. PhD thesis. Cardiff University.

White, A. and L. O'Callaghan-White (2021). *Taking Governments to Court Climate Litigation and Its Consequences*. https://www.iiea.com/images/uploads/resources/Taking-Governments-to_Court_1.pdf

Williams, J. (2021). 'How RTÉ News is covering climate change.' RTÉ News. https://www.rte.ie/news/analysis-and-comment/2021/0726/1237408-climate-change/

Willis, R. (2018). 'How Members of Parliament understand and respond to climate change.' *Sociol. Rev.* 66: 475–491.

Willis, R., et al. (2022). 'Deliberative democracy and the climate crisis.' *Wiley Interdiscip. Rev. Clim. Change* 13: 759.

Winkelmann, R. et al. (2022). 'Social tipping processes towards climate action: a conceptual framework.' *Ecol. Econ*. 192: 107242.

Wonneberger, A. and R. Vliegenthart (2021). 'Agenda-setting effects of climate change litigation: interrelations across issue levels, media, and politics in the case of Urgenda against the Dutch government.' *Environ. Commun*. 15: 699–714.

XD Consulting (2020). *Feasibility Study on Anaerobic Digestion for the Dingle Peninsula*. https://dinglepeninsula2030.com/projects/energy/bioenergy/bioenergy-anerobic-digestion-feasibility-study/

Yonemura, A. (2015). 'Promoting a transformative education through Global Citizenship Education (GCED) and Education for Sustainable Development (ESD) in sub-Saharan Africa.' Paper presented at the Post-2015 Education Agenda Regional Conference, UNESCO Dakar.

## Chapter 9

AICBRN (2020). *Leveraging Ireland's R&D for Successfully Tackling the Climate and Biodiversity Emergency*. All-Island Climate and Biodiversity Research Network.

ALLEA (2022). *Towards Climate Sustainability of the Academic System and Beyond*. All European Academies.

Boasson, E. L. and M. Tatham (2023). 'Climate policy: from complexity to consensus?' *J. Eur. Public Policy* 30: 401–424.

CCAC (2021). 'Letter to Minister Ryan, 25 October 2021.' Climate Change Advisory Council. https://www.climatecouncil.ie/media/climatechangeadvisorycouncil/Final%20Letter%20to%20Minister%2025.10.21.pdf

DECC (2022). *Climate Action Plan 2023. CAP23: Changing Ireland for the Better*. Department of the Environment, Climate and Communications.

DFHERIS (2022). *Impact 2030: Ireland's Research and Innovation Strategy*. Department of Further and Higher Education, Research, Innovation and Science.

EPA (2023a). *EPA Environmental Science to Policy Seminar 2022 – Seminar Reflections Paper*. Environmental Protection Agency, Ireland.

EPA (2023b). *Ireland's Greenhouse Gas Emissions Projections 2022–2040*. Environmental Protection Agency, Ireland.

Howarth, C. et al. (2020). 'Building a social mandate for climate action: lessons from COVID-19.' *Environ. Resour. Econ*. 76: 1107–1115.

Jordan, A. et al. (2022). 'The political challenges of deep decarbonisation: towards a more integrated agenda.' *Clim. Action* 1: 6.

Kinol, A. et al. (2023). 'Climate justice in higher education: a proposed paradigm shift towards a transformative role for colleges and universities.' *Clim. Change* 176: 15.

Leiserowitz, A. et al. (2021). *Climate Change in the Irish Mind.* Yale Program on Climate Change Communication. Environmental Protection Agency, Ireland. https://www.epa.ie/publications/monitoring--assessment/climate-change/EPA-Climate-in-the-Irish-Mind-REPORT-19.pdf

McGeown, C. and J. Barry (2023). 'Agents of (un)sustainability: democratising universities for the planetary crisis.' *Front. Sustain*. 4.

Murphy, M. P. (2023). *Creating an Ecosocial Welfare Future*. Policy Press.

NESC (1997). *A Framework for Partnership – Enriching Strategic Consensus through Participation*. National Economic and Social Council.

NESC (2023). *Just Transition in Agriculture and Land Use*. National Economic and Social Council.