

Climate Change in Irish Media

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ENVIRONMENTAL PROTECTION AGENCY

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Climate Change in Irish Media

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by

Dublin City University

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Executive Summary

As scientists, policymakers, environmental non-governmental organisations (NGOs) and climate activists seek to engage the public on climate change, it is important to first understand how climate change is communicated to the public via the media. Research indicates that public concern about climate change is largely derived from media consumption. However, assessing media coverage of climate change is not simply about the accumulation of content over time. Rather, it concerns the complex and evolving relationships between media production practices, scientific knowledge, policy agendas, and public understanding and engagement.

Although some large-scale comparative studies of international climate change coverage include Ireland, there are few in-depth studies of climate change across Irish media. This current report represents a systematic effort to map climate change coverage across Irish print, visual, broadcast and online media, and makes recommendations specific to Ireland regarding the public communication of climate change. To do so, the project draws on multidisciplinary expertise in computing and data science [Dublin City University (DCU) Insight Centre for Data Analytics], journalism (DCU Institute for Future Media and Journalism), science communication (DCU Celsius Research Cluster) and media studies (DCU School of Communications). The main findings are summarised below.

The pattern of Irish newspaper coverage of climate change broadly follows international trends, peaking during international climate change conferences and extreme weather events and falling when other pressing issues, such as politics and economics, dominate the news agenda. By European standards, overall coverage in Ireland is low, with *The Irish Times* affording the greatest volume of coverage among national newspapers. Across these newspapers, climate science is not contested to any great extent. However, climate change is predominately framed as a political or ideological game, emphasising the personalities or parties involved, rather than the extent of the challenge. The opportunity frame, which

portrays responses to climate change as opportunities for positive change, is weakly represented.

Scholars now recognise that images are a valuable tool for fostering engagement with climate change. An analysis of the images associated with climate change on *The Irish Times* website highlights the shifting cultural politics of climate change. A wide range of images links climate change to the practices of everyday life, but this apparent normalisation stands in contrast to the dearth of images linking climate change to topical news stories such as flooding and economic recovery. Moreover, images of farming and agriculture are rarely linked to climate change, even though agriculture is one of Ireland's major sources of CO₂ and non-CO₂ emissions.

Given the constraints of much commercial media across Europe, publicly funded broadcasters such as RTÉ would appear ideally placed to communicate climate change to the public. Prior to 2000, climate change was largely an invisible issue on RTÉ. Since then, there have been broad fluctuations in the volume of coverage. A range of high-profile international events, such as Live Earth, brought a sharp increase in RTÉ coverage in 2007. However, coverage fell significantly following the financial crisis and did not recover until the build-up to the United Nations (UN) Conference of the Parties in 2015. Much like newspaper coverage, the national broadcaster does not appear to follow a specific editorial climate change agenda, although some individual journalists do appear to focus attention on climate change from time to time.

On social media, climate change discourses are led by distinct influential groups, including the mainstream media, the NGO sector and the non-governmental sector. Although these groups dominate engagement during the high-profile UN Conference of the Parties, the presence of citizen-led and organised scepticism is also notable. In particular, we find a high volume of content linking to the US-based Heartland Institute indicating the capacity of “fake news” and misinformation to infiltrate online platforms.

1 Introduction

Anthropogenic climate change is one of the most severe issues facing humanity. The Intergovernmental Panel on Climate Change (IPCC, 2014: 8) has observed that the continued emission of greenhouse gases will cause further warming and increase “the likelihood of severe, pervasive and irreversible impacts for people and ecosystems”. Although the existence of climate change is supported by a large body of scientific evidence, a number of difficulties have been encountered in communicating this message. In particular, public understanding is hampered by the complexity of climate science and the long-term and gradual nature of the problem.

It is clear that public willingness to embrace the urgency of climate change action does not simply follow from scientific consensus. Rather, attitudes towards the need for climate action engage a broader set of ideas, attitudes and emotions about non-scientific spheres, such as morality, politics, economics and culture (Höijer, 2010; Norgaard, 2011). As such, public support for or opposition to climate action is likely to be influenced by the extent to which people deem climate change relevant to their everyday lives. As Robert Cox (2013: 2) argues, communication is of central importance because “the way we communicate with one another about the environment powerfully affects how we perceive both it and ourselves and, therefore, how we define our relationship with the natural world”.

Although people have been aware of climate change for some time, many have regarded it as a non-urgent and psychologically distant risk (van der Linden *et al.*, 2015: 758). However, since 2015, when the work for this report was undertaken, there has been an increase in the proportion of European citizens who perceive climate change as a serious problem; 74% of Europeans now recognise climate change as a serious problem (EC, 2017). In Ireland, climate change competes with a wide range of issues that have more immediate impacts on daily life. In recent years, Ireland emerged from a deep financial recession but has ongoing crises in areas such as health and housing. Moreover, the implications of the UK’s withdrawal from the European Union (EU) loom large

over the political and public landscape. In this context, climate change struggles to gain recognition as a pressing issue of national concern.

Research shows that public concern about climate change is largely derived from mass media consumption (Carvalho, 2010; Painter, 2013). Consequently, the mass media may be conceptualised for its agenda-setting function whereby the media have the capacity to “focus our attention and influence our perceptions of what are the most important issues of the day” (McCombs 2004: 1). Norgaard (2009: 38) identifies three steps required of the mass media to effect a change in public opinion about climate change: first, the news media is required to “portray a sense of seriousness of the problem”; second, the media needs to “communicate that climate change can and should be solved”; and, third, the media needs to “give accurate messages about effective responses”.

However, although researchers may like to prescribe what the media should do, it is important to recognise that climate change, as a subject of media attention, presents a number of difficulties for the norms, routines and formats of news production. News media typically value stories that are novel and immediate, but climate change is a long-running story and, from a news producer’s perspective, the story does not change substantially. Moreover, the news media are in a period of financial crisis, which limits resources for coverage of complex stories such as climate change. The challenge then is to move beyond merely criticising media coverage to find effective measures for climate change communication that are practical for the news media to adopt and that serve the needs of the public. To develop a clear picture of what effective climate change coverage might look like, it is first necessary to understand how climate change is currently covered, framed and discussed across Irish media.

To date, there have been few studies examining climate change coverage in Ireland. Some large-scale comparative studies of international coverage include Irish media but this is usually limited to *The Irish Times*. Since 2004, the Media and Climate Change Observatory has monitored press coverage

across six continents through a content analysis of 50 newspapers, including *The Irish Times*. Similarly, Schmidt *et al.* (2013) examined coverage in 27 countries using *The Irish Times* to assess Irish coverage.

This current report is important because it represents a systematic effort to map climate change coverage

across the Irish media landscape. To do so, it draws on the multidisciplinary expertise of computer and data scientists, science and environmental communications researchers and journalism researchers. The report identifies Irish coverage trends across print, broadcast and online media and makes recommendations, specific to Ireland, to improve coverage and understanding of climate change.

2 International Climate Change Communication Research

2.1 Introduction

The study of climate change communication is a multidisciplinary research area. Nevertheless, existing studies fall into a number of distinct analytical approaches, which are derived from long-established research agendas within the broader study of media and communication. These frameworks include issue attention cycles; the political economy of media; news organisation and routines; discourse and issue framing; and cultural representations. Although there are significant differences in the thinking behind each approach, as well as in their associated methodologies, these frameworks share a broad underpinning in the idea that media influences or shapes public perceptions of an issue.

Empirical studies into climate change media coverage have primarily been conducted on the assumption that coverage can be related to levels of public understanding and concern. The reporting of anthropogenic climate change did not emerge as a research agenda until the late 1980s, although there were sporadic efforts to assess the reporting of environmental issues before this time. Most of the empirical research into climate change media coverage has been conducted in developed countries, particularly the USA and UK, with studies of coverage in developing countries emerging only from the late 2000s onwards. In addition, research has predominately focused on “quality” print media (newspapers). More recently, researchers have begun to consider a broader range of news media, as well as popular culture representations.

2.2 Media Coverage

Broadly summarising the literature on news coverage, studies find significant variations in the levels of attention and prominence afforded to climate change. Differences are also noted between US and European reporting, with a tendency towards controversy and scientific uncertainty in US coverage. The framing of climate change is influenced by the ideological outlook of individual media outlets, the institutional norms of media production, and wider social and political

contexts. This means that assessing media coverage of climate change is not simply about the accumulation of content over time, but about the complex and evolving relationships between media production practices, scientific knowledge, policy agendas, and public understanding and engagement.

Many studies of climate change coverage have been influenced by Anthony Downs’ (1972) work on “ecology issue attention cycles”, which predicts that peak levels of attention and concern will decline when the costs of solutions to environmental problems become apparent. In the resulting “post-problem phase”, the issue may occasionally return to public attention but not at peak levels of concern. A number of longitudinal studies concur with Downs’ prognosis (Semujju, 2013; Lopera and Moreno, 2014), although others indicate that attention cycles may be “culturally constructed” as the coverage trends in some countries do not reflect Downs’ cycle (Brossard *et al.*, 2004).

More generally, studies find that climate change coverage was sparse prior to the late 1980s and has since progressed through periodic increases and decreases (Boykoff and Boykoff, 2004; Carvalho and Burgess, 2005). In a Finnish context, Jari Lyytimäki (2011) has identified four phases of climate change coverage between 1990 and 2010: definition, maturation, hype and levelling off. In particular, it has been noted that climate change is often pushed down the news agenda, or “crowded out”, by economic and foreign affairs news (Djerf-Pierre, 2012). Consequently, a decline in coverage in the early 1990s is attributed to the economic downturn and the 1990 Gulf War, a pattern replicated in relation to the 2003 Iraq War and the 2008 economic crisis.

Peaks in coverage are attributed to specific intergovernmental and international reports, such as Intergovernmental Panel on Climate Change (IPCC) reports, as well as dramatic weather events such as floods and heatwaves (Carvalho and Burgess, 2005). Within Europe, increased coverage in 2009 is linked to two events: the leaked emails of scientists at the University of East Anglia’s Climatic Research Unit and the United Nations (UN) Climate Change Conference in Copenhagen. Overall, the marked

increase in coverage in the mid- to late 2000s, corresponding with Lyytimäki's (2011) hype phase, has since declined sharply internationally (Schmidt *et al.*, 2013). However, although mass media coverage has fallen significantly, there is some indication that coverage has increased in online networks (O'Neill and Boykoff, 2011).

2.3 Media Political Economy

A political economy approach to news media examines how structures of ownership and financing influence media coverage. In light of the increasingly globalised concentration of media ownership, political economy highlights how the unequal distribution of media power favours corporate interests. Consequently, researchers identify the political economy of news media as a structural barrier to developing an adequate response to climate change (Anderson, 2009; Norgaard, 2009). For example, the influence of corporate interests on climate change reporting has been studied in terms of denialist coverage by corporate outlets such as Fox News (McKnight, 2010) and in terms of public relations efforts to greenwash, de-legitimise or downplay climate science (Linder, 2006; Fernando *et al.*, 2014).

Political economy approaches are also used to examine the economic pressures manifest within media organisations. For newspapers in particular, declining readership figures and increased competition for advertising revenue have led to staffing cutbacks and reduced budgets for science and technology reporting (Boykoff and Yulsman, 2013). Consequently, many journalists have become more reliant on pre-packaged information from public relations professionals and news agencies (Anderson, 2009). This is significant as Kris Wilson (2009) reports that climate change coverage is more accurate when it is written by dedicated environmental or scientific reporters using scientific sources. The downsizing of newsrooms and the time and resource pressures on journalists mean that climate change is often communicated by journalists who "have little experience with the nature of scientific work, scientific publication, the statistical interpretation of scientific findings, the positive importance of scientific disagreement or even the concept of peer review" (McIlwaine 2013: 48).

2.4 Media Sources

Within the evolving attention cycles of climate change, there have been notable shifts in the principal actors used as sources to frame climate change stories. In the 1980s, scientists were the principal sources of news stories and climate change was primarily framed as a scientific topic. Scientists were then superseded by political actors, who came to shape the climate change agenda in the press (Carvalho and Burgess, 2005). Since the 2000s, the appeal of celebrity has also been identified as a significant source of media coverage, most notably in relation to visual coverage (Smith and Joffe, 2009). However, celebrity interventions are found to be "a double-edged sword", promoting awareness but detracting from the complexity of the issue (Anderson, 2011).

As climate change entered the mainstream in the 2000s, it became increasingly politicised and contested by a range of actors including scientists, sceptics, politicians, non-governmental organisations (NGOs), celebrities, industry interest groups and citizens. The media profile of climate change sceptics has been the focus of much research, particularly in the USA (Antilla, 2005; Whitmarsh, 2011; Boykoff, 2013). Studies indicate that climate change sceptics continue to have disproportionate visibility, particularly through conservative media outlets (Boykoff, 2013; Elsasser and Dunlap, 2012). The visibility of sceptics was found to peak at the time of the 2009 UN summit in Copenhagen (Gavin and Marshall, 2011). In this regard, Joe Smith (2005) argues that experts need to be more active as both critics and sources of news.

2.5 Media Organisations and News Routines

Researchers identify journalists as pivotal stakeholders for climate change reporting (Mormont and Dasnoy, 1995; Harbinson *et al.*, 2006; Boykoff and Mansfield, 2008; León and Erviti, 2013). The study of news media organisational norms and routines is conducted to ascertain how the dynamics of production shape media coverage. As news media production is strongly aligned to the political process, politicians rather than scientists have been a primary source of climate change stories (Boykoff and Boykoff, 2007). In a British context, Joe Smith (2005) has assessed

how the practical requirements and concerns of news production need to be addressed for more effective climate change coverage. These requirements include journalistic norms of novelty, newsworthiness and dramatisation. For example, a Spanish study of television news production perspectives found that coverage is influenced by the lack of “attractive” new images to accompany reports (León and Erviti, 2013).

A pivotal issue highlighted in the literature is the journalistic norm of balance, whereby reporting is deemed impartial or balanced when it gives equal space or credence to opposing sides of a story (Hiles and Hinnant, 2014). Critics argue that the journalistic norm of balance gives rise to a false sense of debate, or lack of consensus, among climate scientists while simultaneously lending weight to climate change sceptics (Boykoff, 2007). The norm of balance gives rise to a frame of “duelling scientists”, which provides news coverage with “a dramatic dose of disagreement” in place of the lack of news “novelty” emerging from international climate conferences and scientific reports (Boykoff and Boykoff, 2007: 1200).

Studies find that climate change reporting is also influenced by the level of knowledge and understanding possessed by individual journalists (Jones, 2012; McIlwaine, 2013) and by the ideological orientation of individual media outlets, which is manifest in their editorial stance (Carvalho, 2007; Blanco Castilla *et al.*, 2014). More recently, research indicates that newsrooms are beginning to devise appropriate standards of objective reporting for addressing climate change (Hiles and Hinnant, 2014).

2.6 Discourse and Issue Framing

The study of media discourse and issue framing examines how subjects are discussed and defined in a particular way, which gives rise to a characterisation or naturalisation of certain problems and solutions. For example, the language used to describe climate change has been studied to ascertain how it limits or supports certain possibilities for action and creates a sense of scientific certainty or uncertainty (Antilla, 2005; Makwanya, 2008; Bailey, 2014; Collins and Nerlich, 2016). In his pioneering study of the language used to describe environmental policy, Maarten Hajer (1996) identified the emergence of an “ecological

modernisation” discourse, which stressed the benefits of environmental policy for modernising the economy and stimulating technological innovation. Such language studies further relate to work examining how the language used by scientists impacts on public perceptions of a complex issue (Howe, 2009). Researchers note that the use of war and health metaphors to describe biofuels and geoengineering technologies is likely to shape levels of receptiveness among the public and policymakers (Delshad and Raymond, 2013; Luokkanen *et al.*, 2014).

The media framing of climate change is both episodic and thematic, with episodic framing linked to a particular newsworthy event, such as a conference or summit, and thematic framing taking the form of a conceptual characterisation. Much of the existing literature has been concerned with thematic framing. Some of the major conceptual frames identified in the literature include risk and fear; scientific certainty/scepticism; climate change impacts and consequences; collective identity for response; and climate responsibility and justice (see Nisbet, 2009). Studies indicate that these discourses have evolved over time and carry varying inflections in different national or cultural contexts.

The media framing of scientific certainty or uncertainty about climate change has been the subject of much research. Many studies affirm that climate change coverage has not reflected the scientific consensus, with US network news and the UK tabloid press highlighted for their noted divergence (Boykoff and Mansfield, 2008). Between 1995 and 2004, the duelling scientists frame was found in 53% of climate change articles in the US prestige press and in 70% of US television reports (Boykoff and Boykoff, 2007). By the mid-2000s, there were some indications of more balanced coverage of climate science (Boykoff, 2007). However, a recent study of UK coverage of the IPCC Fifth Assessment Report found that, although some outlets such as *The Guardian* frame climate change as “settled science”, others, such as the *Daily Mail*, continue to utilise an “uncertain science” frame (O'Neill *et al.*, 2015). Frames of uncertainty result in “substantial and growing public doubt about the anthropogenic cause and scientific agreement about the role of anthropogenic greenhouse gases in climate change” (Anderegg *et al.*, 2009: 107). In addition,

Wendy Bacon and Christopher Nash (2012) suggest that the question of impact, particularly in relation to fossil fuel industries, continues to be treated in an ambiguous way.

Fear and risk frames are most prevalent in news media reporting and are also reflected in broader cultural representations of impending catastrophe or apocalypse. Some authors argue that such frames are counter-productive as they potentially have a paralysing or disempowering affect (O'Neill and Nicholson-Cole, 2009). Similarly, Pralle (2009: 786) argues that "problems that have no solutions attached to them are less likely to make it onto governmental and decision agendas. The public is also less likely to worry about problems when they feel there's nothing to be done about them." As an alternative, researchers examine how frames of "climate responsibility", ranging from individual to corporate and global responsibility, can stimulate a more progressive response (Cerutti, 2010; Szerszynski, 2010).

In terms of a collective response to climate change, the framing of identity has been a significant consideration. For example, a study of Swedish press coverage revealed a tendency to frame climate change in terms of "us" in the EU versus "them" in the USA (Olausson, 2010), whereas, from the perspective of a developing nation such as India, polarising frames of "us" in the global South versus "them" in the global North are found to obscure the complexity of international responsibilities (Billet, 2010). These divisions further relate to concerns about the way that climate change victims are framed as distant "others" (Farbotko, 2005).

2.7 Visual Representations

Over the past few years, there has been growing recognition that visual representations of climate change have been neglected within the research agenda (Doyle, 2012; Schneider, 2012; Hansen and Machin, 2013). At a psychological and cultural level, Richard Doherty identifies the need for tools to address and reduce the conceptual distance between humans and nature towards the development of "ecological citizenship" (Lester and Cottle, 2009a). Visual representations speak to the "cultural imagination" of climate change and include those images accompanying news reports, as well as

environmental and ecological representations in art, photography, literature and film.

Studies indicate that visual depictions of climate change are dominated by representations of causes and consequences, including iconic images of polar bears, Arctic sea ice and smoke stacks. Alternative images of mitigating actions, such as climate protests and renewable energy, are less common (O'Neill and Smith, 2014). In an effort to move "beyond polar bears" (Manzo, 2010), there have been interesting initiatives examining innovative visual representations of science. These include efforts to create aesthetic engagements with data simulations and interactive online visualisations (Hohl, 2011; Sheppard *et al.*, 2011, 2013; Pettit *et al.*, 2012).

2.8 Online Media

The research methodologies of media and communication studies were primarily developed to address the mass media system. However, the impact of digital and social media have fundamentally realigned the media environment. Nevertheless, two-thirds of research into climate change coverage in the past decade has focused on print media, with only 16% focusing on online media (Schäfer and Schlichting, 2014). Recently, there has been a shift in focus from climate change coverage per se to the broader question of information flows (Crow and Boykoff, 2014). As climate change coverage in the news media has been shown to be largely event driven, researchers have begun to examine whether online platforms, including citizen-led and science-led initiatives, provide more sustained coverage. For NGOs and citizen- and science-led initiatives, online narrowcasting allows them to maintain more control over the message and to provide greater levels of information and, therefore, potentially greater engagement.

More recently, social media have been theorised for their potential to "supplant traditional mass media as the leading information source and agenda setter for audiences in the digital age" (Grzywinska and Borden, 2012: 133). For climate change communication specifically, the interactivity and inclusivity of social media offer "individuals a platform where there is an equality of opinions and agenda setting" (O'Neill and Boykoff, 2011: 241).

In contrast to the agenda-setting and gate-keeping functions characteristic of the institutional mass media, social media enable the “campaigning voice” of agenda building (McIlwaine, 2013). Recent studies have examined the use of hashtags and the formation of “issue networks” on the microblogging platform Twitter (Seegerberg and Bennett, 2011; Pearce *et al.*, 2014; Tegelberg *et al.*, 2014), whereas YouTube videos have been studied for the user comments they generate about science (Shapiro and Park, 2015) and about politics (Uldam and Askanius, 2013).

2.9 Conclusion

As research on climate change communication has proliferated, the methodologies and theoretical frameworks employed by researchers have expanded and diversified. The major methodologies and frameworks discussed above are indicative of how the research field has evolved and provide context for understanding the rationale behind the studies undertaken in this project. Similarly, international findings provide an important point of comparison for research findings on Irish media coverage of climate change.

3 Irish Media and Climate Change

3.1 Coverage Trends

Mass media outlets, whether through newspapers or broadcasters, continue to have a profound influence on the form and content of Irish public debate. Although Irish media coverage of climate change has been a neglected area of academic inquiry, a distinct field of research is now emerging. Existing studies confirm that Irish patterns of media coverage reflect broad international trends, but overall coverage is low compared with European standards (Fox and Rau, 2016). A study of newspaper coverage in three national newspapers (*Irish Examiner*, *Irish Independent* and *The Irish Times*) between January 2008 and June 2013 identified a sharp decline in press coverage of climate change after 2009 (Mullally *et al.*, 2013). The same study found that coverage levels across 13 provincial titles were low. These findings align with the international trends identified in a study of 27 countries (Schmidt *et al.*, 2013), which found that a gradual increase in national newspaper coverage builds until 2009 and steeply declines thereafter.

Across Irish national newspapers, *The Irish Times* is responsible for the highest levels of coverage, with just under 500 articles published in 2009 (Mullally *et al.*, 2013). The *Irish Examiner*, in contrast, published fewer than 200 articles and the *Irish Independent* just over 100 for the same time period. As *The Irish Times* is the newspaper chosen to represent Irish coverage in international comparative studies, it is notable that the newspaper is an outlier in terms of Irish coverage. Coverage in regional newspapers follows more varied fluctuations, with peak coverage reflecting just 24 articles in a year. As Irish media coverage of climate change remains low by European standards, it perhaps reflects a broader and historical “blind spot” (Sterne and Trench, 1994) regarding Irish media coverage of science and technology.

Research carried out for this project confirms and extends the work of Mullally *et al.* (2013) by examining newspaper coverage up to 2015. The Climate Change in Irish Media (CCIM) search tool, constructed by the Dublin City University (DCU) Insight Centre for Data Analytics, was used to recover all stories mentioning the words “climate change”, “global warming” or

“greenhouse effect” in Irish print media. The results show that coverage peaks around international events. The first major peak in coverage coincides with the controversial 2009 UN Conference of the Parties (COP) in Copenhagen; this was followed by a sharp decline in coverage. Although coverage levels recover prior to the 2015 UN COP in Paris, they do not return to 2009 levels. McNally (2015) also identifies a post-economic crash decline in newspaper coverage, from a pre-crash level of 27% to a post-crash level of 10%.

The steep decline in coverage may be attributed to a number of factors, including disillusionment among communication stakeholders (including journalists) regarding the slow progress of climate negotiations (Schmidt *et al.*, 2013); the deepening international financial crisis (Djerf-Pierre, 2012); and the financial difficulties faced by the news media industry and associated staffing pressures in newsrooms (Boykoff and Yulsman, 2013), including a reduction in specialist correspondents (Hansen, 2011).

In a study of RTÉ coverage over a 2-year period, Cullinane and Watson (2014) conclude that climate change reporting and debate are largely overlooked by the national broadcaster. Although RTÉ One’s flagship current affairs programme, *Prime Time*, has occasionally discussed climate change at length (notably in 2008, 2009 and 2014), climate change does not feature consistently as a newsworthy topic. Comparing climate change coverage across Irish news outlets, Cullinane and Watson (2014) note that RTÉ failed to provide any coverage for 30 major national and international climate change stories during the 2-year period under study. In this regard, it is also notable that RTÉ’s environment correspondent filed a number of reports on climate change conferences between 2001 and 2010. However, when the correspondent left his position in 2010, he was not replaced until 2014, when the position of joint agriculture and environment correspondent was formed. Severe cuts in newsroom funding and resources has therefore meant that the reporting of environmental issues, including climate change, has become “once again relegated to the margins of public debate” (Fox and Rau, 2016: 5).

3.2 The Nature of Climate Change Coverage

Irish media coverage of environmental topics, including climate change, tends to concentrate on the local or national level. Often, the wider environmental context is left unreported. For example, coverage of the extensive flooding in 2009 and 2014 primarily focused on local impacts and concerns. These events were rarely linked to global causes such as climate change. Nor were the immediate impacts and responses contextualised in terms of projected increases in extreme weather events and rising sea levels (Fox and Rau, 2016). The Irish media emphasis on the local over the global may, in part, reflect Ireland's electoral and political system, with its privileging of local, constituency-oriented politics (O'Leary, 2011).

Conversely, *RTÉ News* coverage of climate change is typically presented through an international lens that renders both national and local aspects of the issue invisible. Referring to coverage on *RTÉ News Six One*, Cullinane and Watson (2014: 16) note that coverage is tied to major international conferences and reports and is presented as an issue for international, rather than national, politics. The central role that international conferences and reports play in Irish media coverage, and the consequent replication of a top-down technocratic framing, is also noted in other studies (see McNally, 2015; Wagner and Payne, 2017). The continued segregation of inter-related topics – such as extreme weather events, energy resources and economic recovery – and the continued segregation of global and national responses inhibit the development of robust public debate on climate change in Ireland and contribute to the marginalisation of the issue. For example, as Cullinane and Watson (2014) highlight in their *RTÉ* study, a major oil discovery off the Cork coast was discussed purely in terms of prospective economic benefits, without consideration of the environmental impacts or Ireland's obligation to reducing emissions.

As the news media are heavily tied to developments in the political sphere, the influence of political events on climate change coverage is noteworthy. As a partner in the coalition government, the Green Party played a

central role in framing climate change as a regulatory issue. However, when the party failed to get any of its members elected in the 2011 general election, its legitimacy as a media source declined (Fox and Rau, 2016; Wagner and Payne, 2017). The succeeding Fine Gael/Labour government (2011–2016) pushed the environment down the political agenda, notably pushing back against Ireland's EU 2020 agricultural emission targets on the grounds that Ireland's agricultural sector is a "special case" (Gibbons, 2016). More broadly, Mullally (2016) notes that arguments about "salvation and sustainable agriculture" are a particular feature of Irish climate change debates. By identifying Irish farming output as a remedy for world hunger, the rhetoric of sustainable agriculture emerges as a counter-narrative to "anti-farmer" critiques of agricultural emissions (Mullally, 2016).

In general, Irish news media reflect a "reformist approach" (Hulme, 2009) to climate change (see McNally, 2015; Wagner and Payne, 2017). Possibilities for change are conceived narrowly within the prevailing institutional and economic paradigm. This approach assumes that the existing social, political and economic order, with its "growth-centric hierarchy" (Fox and Rau, 2016), is capable of adapting to mitigation needs as required. Moreover, Mullally *et al.* (2013) note that political and business sources are often privileged over civil society and environmental sources.

3.3 Conclusion

A distinct field of research is now emerging on Irish media coverage of climate change and wider environmental issues. Existing studies indicate that coverage is at best sporadic across a small number of outlets. In line with international trends, Irish coverage is easily crowded out by other stories and there exists a general failure to make important connections between environmental, current affairs and topical news stories. Moreover, climate change reporting, and the public debates that flow from media reporting, are negatively impacted by the influence of the cultural, political and economic paradigm in which news media operate.

4 Archiving Irish Media Coverage of Climate Change

4.1 Introduction

To facilitate the research, the DCU Insight Centre for Data Analytics created a centralised multimodal archive of Irish media coverage about climate change. The archive interface and associated tools formed the primary portal for subsequent analyses of media coverage. The archive includes (1) a textual database of print media output and relevant website archives, as well as related back-end systems and interfaces; (2) an image database and analysis tools; and (3) a corpus of social media texts. Because of copyright and licensing, it is not possible to make these data publicly available.

4.2 The Textual Database

The Irish print media dataset was retrieved from LexisNexis, a service accessible through DCU's library subscription. LexisNexis provides a database of searchable global news articles since 1980 and covers 65 Irish national, regional and local newspapers, including *The Irish Times*, *Irish Independent* and *Irish Examiner*, from 1992 to the present. Four main search terms – “climate change”, “global warming”, “greenhouse effect” and “greenhouse gas” – were suggested by domain experts as the search keywords for building a corpus of Irish print media output on climate change. Almost 20,000 results were retrieved from LexisNexis using these search parameters.

Content from relevant Irish websites was also archived. These websites included, inter alia, environmental NGOs, charities and political parties. To capture climate change communication on these websites over time, a freely available tool created by the Internet Archive, the Wayback Machine, was used to identify archival web data. Crawling software was developed to capture full-text and image content from the selected websites over three time periods. Time periods preceding Irish general elections (2002, 2007, 2011) were selected as the temporal parameters on the basis that general elections are regularly occurring events and represent a period in which various interest

groups, including political parties, NGOs and activists, communicate their concerns and priorities on salient political issues (Carter *et al.*, 2018). This process resulted in the archiving of 16,269 unique website pages.

Combining the print and website archival data, a centralised and searchable database and web interface was created to facilitate analysis. The integrated system is based on the Apache Solr open-source searching server platform and is stored on a local server at DCU. The system facilitates keyword searches across both corpora and generates additional statistics showing the volume of results per publication/website.

4.3 Image Gathering and Tool Development

An image corpus was generated from *The Irish Times* by applying a HTML image-scraping technique to the already-gathered LexisNexis corpus. This generated a total of 303 images featured on *The Irish Times* website between 2013 and 2015. A bespoke Java-based desktop image analysis tool was developed to facilitate analysis. The tool enables researchers to import images from the corpus or other sources and find similar images, using the Google image similarity search system, and generate textual statistics based on the contextual use of language found on web pages using the similar images.

4.4 Social Media Data

Social media data from the microblogging platform Twitter were obtained via VICO Research to support analysis of online participation and discussion surrounding the three most recent UN climate change COPs: COP19 in Warsaw, COP20 in Lima and COP21 in Paris. Data were collected for a period of 85 days surrounding each 12-day conference using the relevant hashtags and topical areas to focus the search parameters. This resulted in a corpus of almost 3 million tweets. A training

set of tweets was manually coded by project researchers to train machine learning algorithms to detect sentiment across the corpus. Sentiment was coded on the basis of whether a tweet reflected a positive or a negative view of the political process at the COP. The VICO Research interface supported analysis of Twitter users, temporal volume, hashtags and sentiment, with further analytical support from Dr Derek Green (UCD).

4.5 Broadcast Data

Broadcast television data were obtained from RTÉ Archives using an archival keyword search for the terms “climate change” and “global warming”, generating a total of 922 programme records. To facilitate analysis of television coverage vis-à-vis weather events, weather alerts data were obtained from Met Éireann.

5 Newspaper Coverage of Climate Change

5.1 Introduction

Print media coverage of climate change has important agenda-setting effects for the public and policymakers. It also has agenda-setting effects on other media, especially television. Furthermore, the agenda-setting effect of print media coverage lasts longer than that of other media (McCombs and Shaw, 1972; McCombs, 2004). However, media coverage of climate change has been found to be informationally biased (Boykoff and Boykoff, 2007) and to reflect the political and economic worldview of newspaper proprietors (Carvalho, 2007). Print media have also given a disproportionate amount of coverage to climate sceptics (Painter and Gavin, 2015). The ways in which newspaper coverage of climate change is framed are important in influencing public engagement with the issue (Nisbet, 2009; Robbins, 2015). This study is therefore valuable in mapping out levels of media attention on climate change in Ireland and in analysing the framing of such coverage.

5.2 Volume of Media Coverage

As noted above, the pattern of climate change coverage in Irish newspapers broadly follows international trends: it peaks at times of international conferences, after the publication of IPCC reports and during extreme (international) weather events. However, levels of coverage in Ireland are generally low by European standards (Figure 5.1). A comparative study of coverage in 27 countries showed that climate change coverage in *The Irish Times*

between 1996 and 2010 peaked at about 4% of total news coverage (Schmidt *et al.*, 2013: 1242); a study from UCD, meanwhile, showed that coverage in *The Irish Times* and the *Sunday Business Post* breached the 4% barrier in the run-up to the UN COP15 in Copenhagen in December 2009 and coverage in the *Irish Independent* reached almost 2% of that paper's total news coverage at the same time (Wagner and Payne, 2017: 9).

For the purposes of this report, every story in Irish national publications containing climate change-related keywords was downloaded to the CCIM search tool from the LexisNexis database. Certain limitations to the LexisNexis dataset for Ireland must be acknowledged. For instance, the *Evening Herald's* contents are recorded for less than a year and the *Irish Examiner* and the *Sunday Business Post* records do not begin until 8 months after the beginning of this study's time frame. In the case of the *Irish Daily Mail*, data are available only from February 2012 onwards. The data for the *Sunday Tribune* cease in February 2011, when the paper ceased publication. Thus, at the beginning of the time frame under consideration, in January 2007, data are available from *The Irish Times*, *Irish Independent*, *Sunday Independent* and *Sunday Tribune*. By August 2007, data from the *Sunday Business Post* and the *Irish Examiner* become available. Although these gaps in the data are a weakness of the study, the dataset nonetheless is the most comprehensive possible, given the incompleteness of the LexisNexis database (Table 5.1).

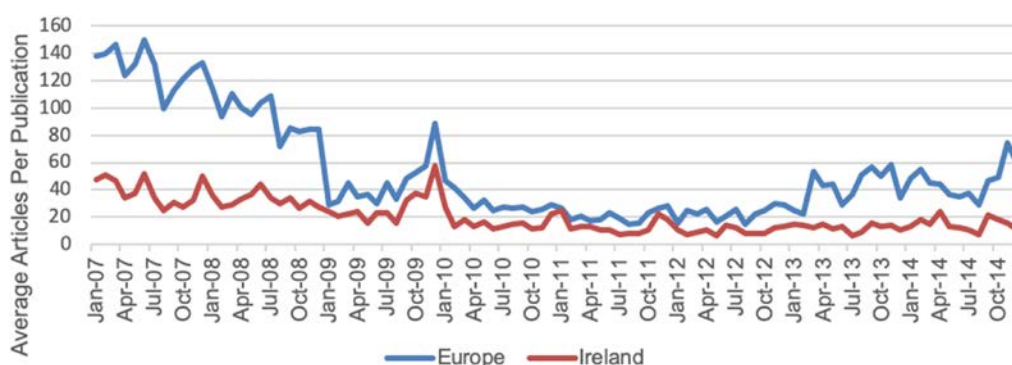


Figure 5.1. Levels of Irish and European newspaper coverage of climate change (2007–2015).

Stories containing the words “climate change” or “global warming” or “greenhouse effect” were collected using the CCIM search tool. These totals were divided by the number of newspaper titles represented to give an average number of stories per publication (Figures 5.2–5.4). These data were compared with the data for European newspapers maintained by the Cooperative

Institute for Research in Environmental Sciences (CIRES) research group at the University of Boulder. It should be noted that the CIRES dataset for Europe is heavily UK centric. The papers tracked by CIRES for Europe are *The Times* and *The Sunday Times*, *The Sun*, *The Observer*, *The Guardian*, the *Daily Mail* and the *Mail on Sunday*, the *Daily Mirror* and

Table 5.1. Date ranges for Irish national newspaper data available via the CCIM search tool

Title	Dates available
<i>Evening Herald</i>	February 2008–January 2009
<i>Irish Daily Mail</i>	February 2012–present
<i>Irish Examiner</i>	August 2007–present
<i>Irish Independent</i>	July 2006–present
<i>The Irish Times</i>	June 1992–present
<i>Sunday Business Post</i>	August 2007–present
<i>Sunday Independent</i>	October 2006–present
<i>Sunday Tribune</i>	September 2001–February 2011

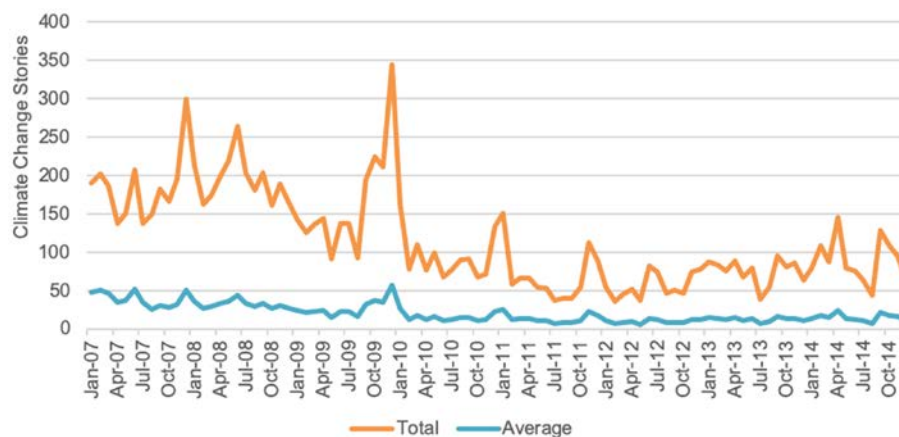


Figure 5.2. Irish newspaper coverage of climate change and associated terms (2007–2015): total and average number of stories.

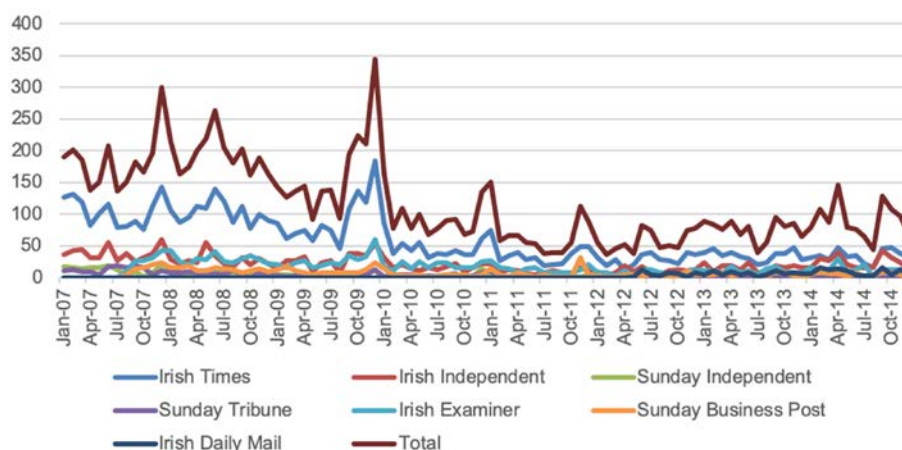


Figure 5.3. Irish newspaper coverage of climate change and associated terms (2007–2015) by title.

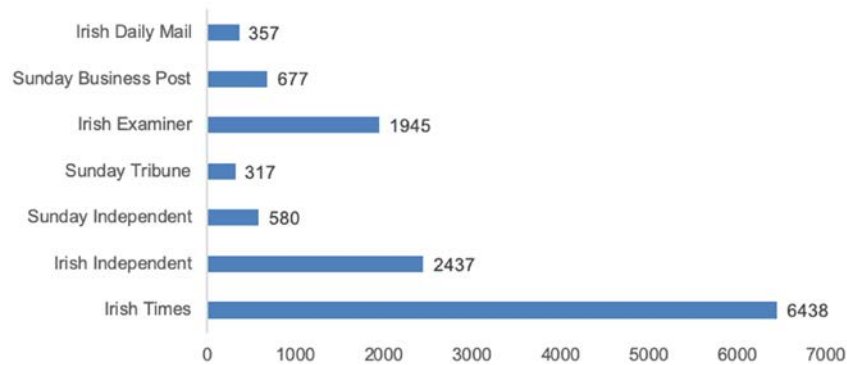


Figure 5.4. Total number of climate change stories and associated terms (2007–2015) per title.¹

Sunday Mirror, *The Daily Telegraph* and *The Sunday Telegraph*, the *Financial Times*, the *Independent*, *The Scotsman* and *The Scotsman on Sunday* (all UK), *El Pais* (Spain), *The Irish Times* (Ireland) and the *Sofia Echo* (Bulgaria).

5.3 Media Framing of Climate Change

Measurement of the levels of media attention for climate change is a single and rather blunt measure of the issue's salience in a particular territory. Many scholars have concluded that a deeper analysis of the content of such coverage is required. Some of these approaches – critical discourse analysis, frame analysis, various analyses based on the scholarship of journalism studies, journalism practice, science communication and normative theories of the media – have been outlined in Chapter 2.

For this report, a frame analysis of a representative sample of climate change stories from the Irish media was conducted. First, every story mentioning climate change from January 2007 to December 2015 in eight Irish national newspapers ($n=12,563$) was downloaded using the CCIM search tool. The sample was reduced by excluding articles of fewer than 500 words ($n=6778$). Every 10th climate change story was selected ($n=678$) and the entire text of each story was then analysed for the presence of certain frames.

Framing analysis is a common analytical framework for analysing socially constructed concepts. Framing studies are particularly prevalent within media and communication science (see Anderson, 2009, for

an overview) and political science (Chong and Druckman, 2007). Framing is the most frequently used theory in leading journals in the field (Bryant and Miron, 2004). Framing's founding text is *Frame Analysis: An Essay on the Organisation of Experience* by Erving Goffman (1974) and the approach has its origins in sociology. Goffman used framing as a metaphor for "the organisation of information in everyday life" (Bowe *et al.*, 2014: 158). According to Entman (1993: 53, emphasis in original), to frame "is to select some aspects of a perceived reality and make them more salient in a communicating text, in such a way as to promote a particular problem definition, causal interpretation, moral evaluation, and/or treatment recommendation for the item described". Framing "refers to an inevitable process of sense-making in order to give structure and meaning to the world outside" (Kitzinger, 2007: 134). Frames are: "organising principles that are socially shared and persistent over time, that work symbolically to meaningfully structure the social world" (Reese, 2007: 150, emphasis in original). Gamson and Modigliani (1989) and Chong and Druckman (2007) define a frame as a central organising idea for making sense of an issue.

There is no such thing as unframed information; according to Matthew Nisbet (2009: 15), it is an "unavoidable reality, especially when applied to public affairs and policy". Drawing on the work on several scholars, Nisbet (2009) suggests a typology of frames applicable to climate change, including social progress; economic development and competitiveness; morality and ethics; scientific and technical uncertainty; Pandora's box/Frankenstein's

¹ Note that the data available for different newspapers vary. This figure is for illustrative purposes only. See Table 5.1 for date ranges for each title.

monster/runaway science; public accountability and governance; middle way/alternative path; and conflict and strategy. Meanwhile, Saffron O'Neill and her colleagues use a similar typology for their analysis of frames used in legacy and social media coverage of the IPCC's Fifth Assessment Report (AR5). These include settled science; uncertain (and contested) science; political or ideological struggle; disaster; opportunity; economics; morality and ethics; role of science; security; and health (O'Neill *et al.*, 2015).

A recurring criticism of framing relates to the way that frames are operationalised. Often, scholars devise individual framing typologies rather than trying to link their research to existing studies in the same area. As Reese (2007: 151) puts it: "Authors often give an obligatory nod to the literature before proceeding to do whatever they were going to do in the first place". Others believe that a replicable set of frames is desirable, or at least to be attempted, while letting more deductive frames suggest themselves from the material (Tankard, 2001; Nisbet, 2010). For this report, we have used several established frames applicable to climate change, while allowing others to emerge from

the texts under analysis. For a detailed overview of the frame typology, see Appendix 1.

5.4 Dominant Frames in Irish Coverage

Our analysis shows that the political or ideological contest frame is by far the most dominant frame in Irish national print media coverage of climate change in the period under study, accounting for 24% of frames present (Figures 5.5 and 5.6). Within this frame, climate change is presented as a game – a strategic contest between actors. It gives rise to an emphasis on "winners" or "losers" while stressing the opposition between the personalities (or parties) involved. Consequently, the extent of the challenge posed by climate change, and the possible mitigation or adaptation strategies available to combat it, are diminished in reporting.

Nevertheless, it is notable that the "settled science" frame is prevalent in Irish newspaper coverage. This means that Irish reports largely accept the reality of climate change and the need for action to alleviate its

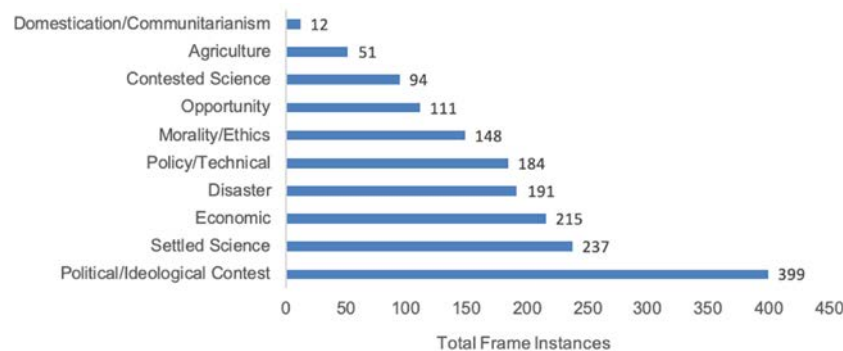


Figure 5.5. Prevalence of climate change frames in Irish newspapers.

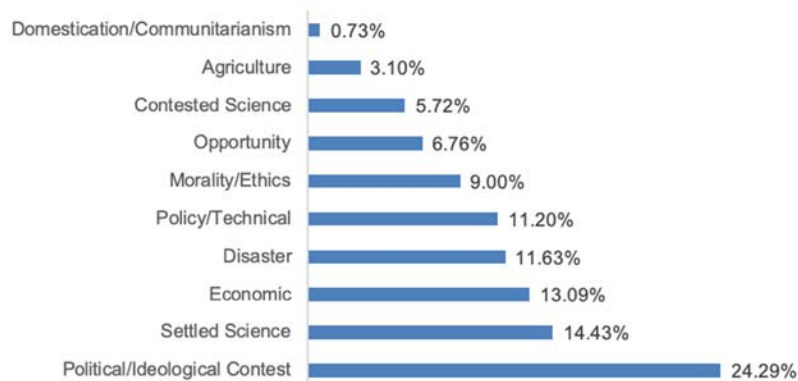


Figure 5.6. Climate change frames in Irish newspapers: percentage per frame.

impacts. The counter-frame, “contested science”, was not present to any great extent and most instances are attributable to a small number of regular newspaper columnists who adopt contrarian views.

Given the locally focused and clientelist nature of Irish politics, it might be expected that the “domestication” frame would be prominent in media coverage. Within the “domestication” frame, climate change is presented as a national, rather than a global, problem. Exponents of the “domestication” frame emphasise the national and might suggest that Ireland, whose contribution to global emissions is small (even though per-capital emissions are high), can do little to combat climate change and should therefore make little or no effort to reduce emissions. Yet, this frame is relatively rare in Irish newspapers, accounting for just 0.73% of all frames (see Figures 5.5 and 5.6).

Regarding the presence of specific frames in individual newspaper titles (Figure 5.7), it can be seen that the *Irish Daily Mail* had the highest instance of the “contested science” frame, with 16.67% of its coverage contained in this frame, and also recorded the highest figure for the “morality/ethics” frame (22.22%). Meanwhile, the *Sunday Independent* favoured the “political/ideological contest” frame (29.17%) and the “disaster” frame (20.83%). The “settled science” frame was most common in *The Irish Times* (16.43%), in which the “political/ideological contest” frame also featured strongly (24.49%).

The *Evening Herald* was excluded from this analysis as data from this title are available for only a short period (February 2008–January 2009) of the time

frame studied. The “domestication/communitarian” frame was also omitted from this analysis as it accounted for 0.73% of frames, a total of 12 instances, over the period studied.

5.5 Conclusion

We have shown that Irish print media coverage of climate change largely reflects international trends in that it rises and falls in conjunction with international events and extreme weather events. However, Irish coverage is lower than in the parts of Europe covered by the CIRES dataset. As a proportion of total news coverage, it hovers between 4% (*The Irish Times* and *Sunday Business Post*) and 2% (*Irish Independent*) (Wagner and Payne, 2017: 9). Our analysis of media attention for climate change shows that *The Irish Times* has covered the topic more extensively than any other publication, but that the *Irish Independent’s* coverage has increased in recent times, with the level of coverage at *The Irish Times* falling. This may be related to the fact that the *Independent* group has an active environmental correspondent whereas *The Irish Times* has none (at the time of writing).

The framing of climate change in the Irish print media is dominated by the political and ideological contest frame. Here, there appears to be a difference between coverage in Ireland and that by other territories. For example, in French and Dutch coverage, a “consequences” frame is most prevalent (Dirikx and Gelders, 2010); the UK and US coverage is dominated by settled and contested science frames, although the political and ideological struggle frame is strongly present as well (O’Neill *et al.*, 2015); and Norwegian

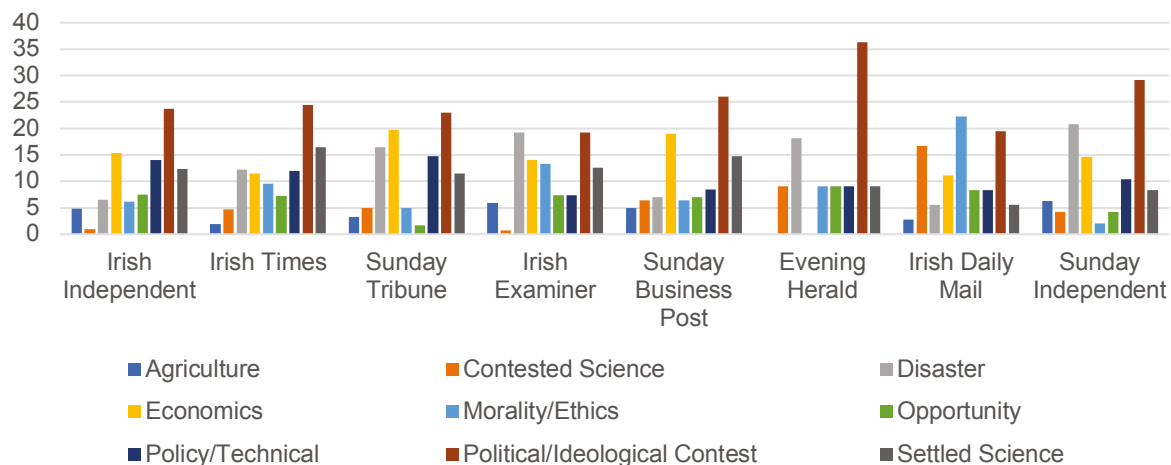


Figure 5.7. Climate change frames as a percentage of total frames by title.

coverage strongly features a domestication frame (Eide and Ytterstad, 2011).

The opportunity frame, which portrays climate change as offering a chance for positive change, is weakly represented, accounting for 6.76% of frames present. The contested science frame is also present at relatively low levels (5.72%). However, the settled science frame, in which climate change is acknowledged as real and requiring urgent action, is strongly present (14.43%). It is possible to argue from this evidence that the Irish media portray climate change as a real problem requiring immediate action, but are unsure what that action should be.

When it comes to how individual newspaper titles frame climate change, the *Irish Examiner* appears to have the most balanced coverage in that it records the lowest level for the contested or unsettled science frame (0.74%), with the other frames quite evenly

represented. The *Sunday Independent* would appear to have a less balanced range of coverage, with strong representations of negative frames (disaster: 20.83%) and alienating frames (political struggle: 29.17%) and low levels of frames that resonate with readers and promote engagement with the topic (morality and ethics: 2.08%; opportunity: 4.17%).

It has been shown that frames matter for public engagement with an issue (Nisbet, 2009) and that frames that render the issue remote from readers, for example the disaster frame, policy or technical frames, the strategy frame, have less success in engaging the public. However, frames that evoke a more emotional response from readers, such as the morality and ethics frame, have greater success in increasing public engagement. The challenge for those engaged in climate change communication is to change the framing of the issue in the media from the political or ideological struggle frame to a more resonant framing.

6 Visual Coverage of Climate Change

6.1 Introduction

Although the academic study of climate change visuals is a relatively recent development, scholars now recognise that images are a valuable tool for fostering engagement with climate change. The value of images is threefold. First, images aid cognitive processing because they are easily comprehensible and can thereby stimulate engagement with and recall of accompanying textual content (Nicholson-Cole, 2005; Hannigan, 2006). Second, images provoke emotional and affective responses by promoting lines of identification with visual subjects (Leiserowitz, 2005; Smith and Joffe, 2009; Höjjer, 2010). This is especially valuable for climate change as the long-term, gradual nature of the problem renders it a remote issue for much of the public. Third, images occupy a central role in the economy of media attention by influencing the news stories that people choose to read (Quinn *et al.*, 2007) and the content they choose to share with peers in social networks (Duggan, 2013).

Although images are valuable in principle for communicating climate change, there is considerable disagreement about which kinds of images are most effective and for whom. In this context, the CCIM study aimed to classify Irish news media images of climate change and to gauge the potential effectiveness of these images for Irish audiences. This was achieved through a content analysis of images linked to articles mentioning climate change in *The Irish Times* and a subsequent focus group study with Irish environmentalists.

6.2 Irish News Media Images of Climate Change

A visual content analysis was undertaken of images attached to news stories about climate change in *The Irish Times*. Content analysis is useful to provide a “background map” (Bell, 2001) of climate change imagery and to identify which images are given prominence and which images are absent or rare. A corpus of 290 images, published on *The Irish Times* website between January 2013 and June 2015, was

generated by identifying articles mentioning climate change in a LexisNexis search and applying a HTML image-scraping technique to extract associated images from *The Irish Times* website.

Each image was categorised into one of eight content types based on the dominant subject of the image. Studies of climate change imagery in news media typically rely on various subjective classification frames such as impacts, causes, solutions, tradition, modernity, nature, industrial, people, protests and contested science (see Lester and Cottle, 2009b; Smith and Joffe, 2009; O'Neill *et al.*, 2013). However, a preliminary review of *The Irish Times* dataset indicated that many images fall across these non-exclusive categories. To overcome this, the images were coded for their content rather than their frames. In the parlance of visual media studies, the coding is based on the primary denotative level of meaning rather than the connotative and ideological levels of meaning, which may vary according to the viewer. This, we suggest, allows for a clearer understanding of what visual content is linked to climate change in Irish media. The eight content categories utilised in this study were:

1. agriculture and food (sustainable food, agribusiness, farming);
2. animal kingdom (mammals, fish, birds);
3. topical events (protests, climate summits, campaigns, unusual weather);
4. iconography (earth/globe, setting sun);
5. landscapes (Arctic ice, lush/barren fields);
6. people (celebrities, community leaders, politicians, scientists);
7. technology/energy (renewable energy, fossil fuels); and
8. other (stock images of buildings, money, clip art).

Figure 6.1 shows the breakdown of the image corpus into the content categories.¹ The two most prominent

¹ Images in the “other” category (9%) indicate the use of stock imagery to reference money, financial markets and buildings such as research institutes and houses of parliament.

subject categories, “people” and “technology and energy”, constitute over half of all images, at 35% and 17%, respectively. Representing just 1% of all images, the iconography of the setting sun and blue earth, which typified earlier representations of climate change (Doyle, 2007), has largely fallen out of use. At 7%, the number of images referencing topical events is surprisingly low. In particular, there is a significant lack of images referencing topical Irish events such as flooding and economic recovery. Although international drought and flooding are visually linked to climate change, the widespread flooding in Ireland in 2014 is not. This absence is important because climate change and associated environmental issues are most likely to penetrate the public sphere when they “piggyback” on dramatic real-world events (Ungar, 2014).

At the same time, the dataset highlights the normalisation of climate change as a subject of media attention. By including all news content, including lifestyle and arts articles, the dataset reveals how the canvas of climate change imagery extends beyond

stereotypical images of polar bears and melting ice caps to encompass more prosaic references to everyday life. Across arts and lifestyle content, climate change is “anchored” (Hoijer, 2010: 718) in familiar spheres of everyday life concerning, for example, leisure, recreation, consumption and travel. For example, a set of images depicting a llama and a man in a luxury wool coat are linked to a lifestyle article – “Journey of a \$50,000 coat” (Noonan, 2014) – which highlights how waste from the textile industry breaks down as methane and contributes to climate change.

6.2.1 People

Reflecting the news media tendency towards personalisation, the “people” category is by far the largest subject category and, within this category, politicians receive the greatest amount of visual coverage, at 46% (Figure 6.2). These include Irish government ministers and international politicians, particularly US and EU leaders. Community leaders (19%) include high-profile climate change figures

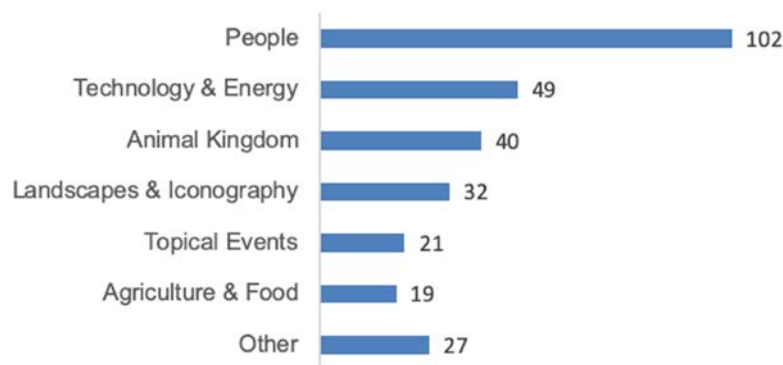


Figure 6.1. Climate change image categories, *The Irish Times* 2013–2015 ($n=290$).

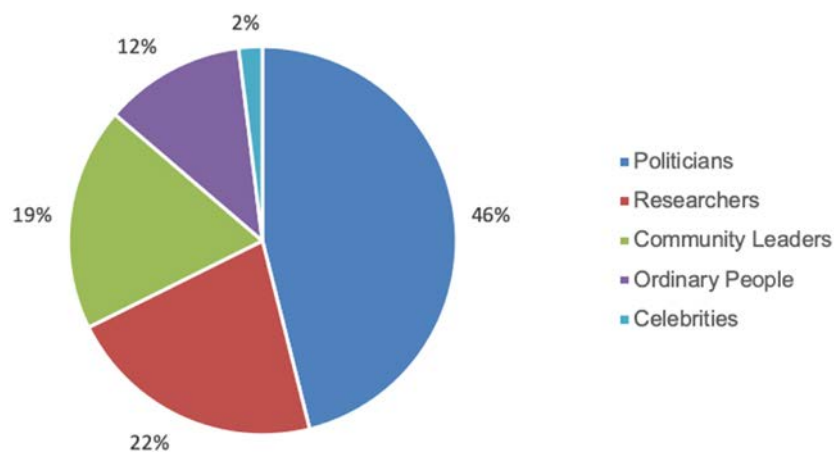


Figure 6.2. Breakdown of the “people” category ($n=102$).

such as Mary Robinson and Naomi Klein, as well as Irish artists and writers. Whereas the former are linked to articles explicitly about climate change, the latter are often linked to articles in which they simply mention that climate change is an issue that they are concerned about. Scientists and researchers (22%) include Irish and international figures from the disciplines of Arctic and marine biology, conservation science and climate science. Whereas most scientists, such as Professor John Sweeney, articulate a settled position on climate science, other authoritative scientific figures are more ambiguous, most notably the physicist Professor Freeman Dyson, who has publicly questioned the validity of climate change models. Images of citizens (12%) further indicate the normalisation of climate change as an issue of public concern. These citizen images are linked to articles in which school children, university students, farmers and voters discuss climate change as a pressing concern. For example, a headline image of a hazelnut farmer accompanies an article entitled “Get cracking and grow some nuts” (Magan, 2013), in which Irish fruit and nut cultivation is discussed in terms of the uncertainties of climate change and future energy supplies. Contrary to findings elsewhere (Smith and Joffe 2009), celebrities are not a visual driver of climate change coverage in *The Irish Times*. Although it could be argued that figures such as Naomi Klein and Mary Robinson take on a celebrity status of sorts, only one entertainment celebrity, Bob Geldolf, appears in the dataset.

6.2.2 Technology and energy

The causes of climate change are typically illustrated with images of fossil fuel-dependent technologies

(Figure 6.3). Such images account for 74% of all images in this category and predominantly encompass stock images of smokestacks, car exhausts and air travel. Images of fossil fuel-dependent transport are particularly pertinent in Ireland as transport is a significant source of Irish CO₂ emissions. However, in terms of stimulating support for climate change mitigation measures, stock images of car exhausts are likely to be psychologically less effective than images of traffic congestion because the former represents a valued object of personal ownership whereas the latter links climate action to a collective experience of frustration (Corner *et al.*, 2015). Images depicting renewable energy and climate change mitigation (14%) appear far less frequently. Moreover, over half of all renewable/green technology images depict wind energy. Although wind farms appear to function as visual shorthand for renewable energy in *The Irish Times*, the use of wind energy images is likely to provoke polarising responses given the ongoing controversies surrounding the construction of wind farms in Ireland. Other renewable/green technology images in the dataset emphasise green business and innovation, including Irish developments in carbon-neutral concrete and solar energy, as well as international business developments such as Siemens’ “sustainable city” and Tesla cars.

6.2.3 Animal kingdom

Images of polar bears stranded on sea ice have become the iconic symbol of climate change. However, of the 40 animal kingdom images in the dataset, only two depict Arctic mammals, indicating a shift away from some clichéd imagery. Almost half of

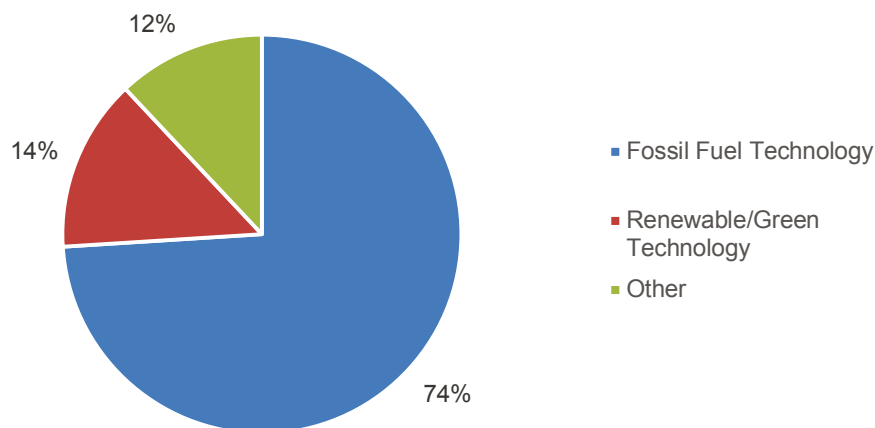


Figure 6.3. Breakdown of the “technology and energy” category (n=49).

the images in this category depict native Irish wildlife. As noted above, the value of images for climate change communication lies partly in the capacity to guide viewers through complex information processing and to promote information recall. The repeated use of localised Irish imagery in *The Irish Times*, then, potentially plays a significant role in making climate change a proximate rather than a distant concern. To a large extent, the prominence of native species in the dataset reflects the work of journalist Dick Ahlstrom, the recently retired *Irish Times* science editor, who frequently wrote about Irish wildlife and conservation. The inclusion of artistic representations of Irish wildlife is also notable. For example, a series of images depicting the wildlife drawings of Gordon D'Arcy complements an article entitled "Nature and 'narture': plugging children into their environment" (Woodworth, 2014), in which D'Arcy argues that children should not be introduced to nature through the lens of climate change; rather, the love of nature should come first. Here, D'Arcy articulates a key argument about environmental literacy, which was also advanced by participants in the focus group, discussed in section 6.3. Other images in the animal kingdom category are more topical, highlighting how declining fish stocks and the increased presence of jellyfish in Irish waters are linked to climate change.

6.2.4 Landscapes

Although images of polar bears have largely fallen out of use, images of Arctic ice remain iconic symbols of climate change, accounting for 17% of all landscape imagery in the dataset. More generally, images of pollution and damaged landscapes account for 40% of the images in this category. Beyond melting ice sheets, images of environmental damage reference smog-soaked Chinese cities as well as Irish stripped peatland and gorse fires. However, Doyle (2007) argues that the repeated use of impact images may instil a sense of defeatism in viewers because they depict climate change as something that has already happened. Consequently, she argues, the power of photography to inspire action may come too late. In this context, the additional inclusion of unspoiled landscape imagery is significant as these images reinforce the idea that there is still something left to protect. In *The Irish Times* dataset these images include picturesque vistas of forests, lakes and rolling farmlands.

6.2.5 Agriculture and food

Apart from the rich cultural importance of farming in Irish society, agriculture is one of Ireland's major industries and a chief source of Ireland's CO₂ emissions. Yet, only 19 images link agriculture and food production to climate change and a number of these images reference farming in other countries. Only one image – depicting mechanical slurry spreading – references the negative environmental impacts of Irish farming. Reflecting Mullally's (2016) identification of the "salvation" narrative of sustainable agriculture, the remaining images are broadly positive, depicting farmers' markets and including generic images of food and crops.

6.2.6 Topical events

As noted above, the number of images linking climate change to topical events is surprisingly low. In part, this reflects an international tendency for climate change to be "crowded out" by more immediate and proximate news stories. In particular, the absence of images referencing topical Irish issues such as flooding or local planning is notable. Although images of flooding in other countries are linked to climate change, only one image in the dataset links flooding in Ireland to climate change. The remaining images in this category primarily depict media photo calls for local or national environmental initiatives, as well as relatively small-scale Irish environmental protests such as anti-fracking protests. Interestingly, the climate visuals study (Corner *et al.*, 2015) indicates that protest images carry little resonance beyond those who self-identify as activists. The same study found that non-activist audiences are more responsive to protest images featuring people directly affected by the environmental issue. Regarding climate change in Ireland, this finding presents a dilemma for climate change activists because their efforts to act on behalf of people in other countries and in anticipation of future impacts in Ireland may be interpreted as "inauthentic" gestures.

6.3 Focus Group Study

As a first step towards exploring how Irish audiences interpret climate change images, a focus group study was conducted with 15 environmental researchers and activists in June 2016. The perceptions of those

already actively engaged with climate change are an important starting point for understanding the value and contribution of climate change images because those already engaged with climate change are forerunners in bridging the gap between climate science and climate action (Moser and Dilling, 2011). Moreover, in the online culture of content sharing, they are the people most likely to spread and promote visual content about climate change among their peer networks.

The design of the focus group was adapted from the climate visuals study (Corner *et al.*, 2015) by Climate Outreach, one of Europe's leading climate communication organisations. Participants were shown sets of images drawn from *The Irish Times* dataset (see Appendix 2) and asked to rank the image categories and sets of images within these categories in terms of their "importance for conveying the urgency of climate action – whether at a global, national or local level – to an Irish audience". Participants then collectively discussed the reasons for their choices. Participant responses were assessed in terms of their perceptions of image salience (the extent to which particular images are associated with climate change); efficacy and engagement (the extent to which particular images are likely to inspire action); values (the values conveyed by particular images); and affect and identification (the levels of emotional impact and identification associated with particular images). Figure 6.4 provides an indication of participants'

preferred subject categories based on the top three categories selected by each participant.

The focus group findings indicate that devising standard visual references for Irish, or indeed any, audiences is deeply problematic. Even among a rather homogeneous group of Irish environmentalists, there are considerable discrepancies in their ideological and affective responses to the same images. For example, a stock image of geese flying past wind turbines was read positively as an indication that wind farms are compatible with wildlife and negatively as an indication that wind farms are threatening to birds.² Similarly, participants strongly disagreed about the kinds of agricultural images that might be resonant for Irish audiences.

In terms of communicating the salience of climate change, there was clear consensus regarding the value of Irish and international flooding imagery. Although the animal kingdom category ranked low overall, participants indicated a strong preference for images of Arctic mammals rather than native Irish species. Principally, this preference was explained in terms of the easily understood association between polar bears and melting ice caps. Although some participants championed images of Irish species, such as the golden plover, others argued that most members of the public would not recognise this bird. Reflecting the argument advanced by artist Gordon D'Arcy, mentioned above, it would appear that efforts to visually link climate change to Irish nature suffers

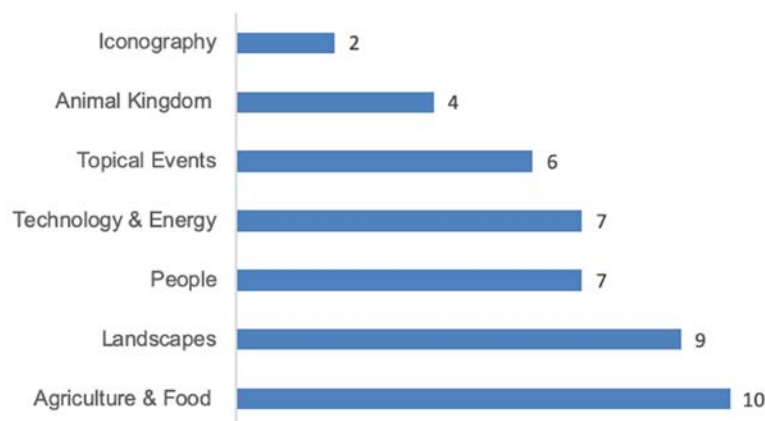


Figure 6.4. Focus group participants' most preferred subject categories for conveying "the urgency of climate action – whether at a global, national or local level – to an Irish audience"

² An online image search revealed that this image has been used to illustrate articles arguing for and against wind farms.

from a broader, cultural lack of environmental literacy. Moreover, participants noted that large furry mammals, such as polar bears, are highly affective for humans whereas many of the native Irish species that are the subject of conservation concerns – such as moths, bats and toads – do not carry the same level of emotional or affective appeal.

As a wide-ranging global issue, climate change can overwhelm people's sense of personal efficacy (Kerr and Kaufman-Gilliland, 1997). Regarding images that might inspire action on climate change, participants generally agreed that images of politicians are unlikely to resonate with audiences. Others argued that images of national and international protests are important as they convey the scale of the global movement to act on climate change. More generally, participants believed that the issue would gain greater prominence in Ireland if there was a notable figurehead with wide audience appeal, such as a sports star. Participants were also divided regarding the value of protest images; for some participants, protest images highlight the capacity of ordinary people to take action, whereas other participants thought that protesters might be easily dismissed by the general public.

In terms of values, participants ranked “agriculture and food” as the most important category. However, the image sample was criticised for failing to convey environmental values. In particular, participants highlighted the disconnection between food production and consumption. In place of stock agriculture imagery, they suggested that images of factory farms and battery hen cages would be more likely to prompt a reflection on food values. Images of green business and technology entrepreneurs were criticised for implying that there is a simple market-led solution to climate change. Contrary to concerns that fearful representations of climate change are counterproductive (O'Neill and Nicholson-Cole, 2009), participants felt that Irish audiences need to be faced with alarming images of climate change causes and impacts. Moreover, in reference to an image of stripped Irish peatland, there was general agreement that there needs to be more coverage given to environmental destruction in Ireland.

6.4 Conclusion

In terms of stimulating engagement, scholars recognise the need to use images that make climate change meaningful in the context of everyday life by avoiding abstract and clichéd messages (Doyle, 2012; Parham, 2015). Although coverage in *The Irish Times* rarely presents climate change as an existential crisis for society, the broader canvas of images linked to articles referencing climate change does highlight the growing relevance of climate change throughout all aspects of our daily lives. By looking at a broad set of images beyond hard news, we can attain a fuller conception of the visual landscape in which climate change is referenced, discussed and understood. Here, we can see the normalisation of climate change, as visual references are diffused across broad areas of coverage including arts, lifestyle and community coverage. The images appeal to clear social contexts, such as how we spend our leisure time, how we organise our towns and cities and how we impact the countryside and seashores.

Yet, climate change is rarely visually linked to the most pressing issues of national concern, such as flooding, housing or economic recovery. Tellingly, images of agriculture, as an industrial sector, are also largely absent. This suggests that climate change has infiltrated the broad background of national debate but is easily crowded out by other issues. As O'Neill (2013: 12) notes, “the visualisation of climate change is in itself political, as the repetition and normalisation of particular visual frames (or their absence) manifests and enables (or withholds) power from particular groups or voices”. Regarding the effectiveness of particular images for Irish audiences, the small-scale focus group with Irish environmentalists indicates that there is unlikely to be any “one size fits all” approach for visual climate change communication. Nevertheless, there would seem to be clear issues around environmental literacy and the capacity to link what happens in Ireland to what is happening elsewhere. Further audience studies would be useful if only to clarify the contradictions and differing interpretations provoked by climate change and environmental communication.

7 Television Coverage of Climate Change

7.1 Introduction

Because of its visual immediacy and authoritative presentation, television programming has long been thought to have a powerful effect on public opinion (Iyengar and Kinder, 1987). However, in contrast to print media, comparatively few studies examine television coverage of climate change (Gavin and Marshall, 2011). Existing studies tend to focus on US television (Boykoff, 2008) and the prevalence of climate scepticism in television news (Painter and Ashe, 2012). As the inadequacies of commercial media coverage of climate change are widely noted (Boykoff and Boykoff, 2004, 2007), public service broadcasters appear ideally placed to communicate broad aspects of climate change (Debrett, 2017). In Ireland, RTÉ has a statutory public service broadcasting remit that is partly supported by an annual licence fee. Developing on an RTÉ Audience Council report entitled *Irish Public Service Broadcasting and the Climate Change Challenge* (Cullinane and Watson, 2014), this portion of the research aimed to establish the long-term trends of RTÉ's engagement with climate change and to identify the extent to which climate change is linked to topical issues such as flooding.

7.2 Methodology

Access to historical records of climate change-related programming was obtained through liaison with RTÉ Archive staff. The archive was searched using the keyword terms "climate change" and "global warming", which are the standard search terms for analyses of climate change media coverage (see, for example, McAllister *et al.*, 2016). Archive queries using these keywords were run in October 2015 and subsequently in February 2016 to incorporate data from the period of the UN COP in December 2015. In total, data capture covers a period of 27 years from 1989 to 2015. The initial keyword search generated 922 programme records, 607 for "climate change" and 315 for "global warming".

Although keyword searches are a straightforward means of identifying the baseline coverage of climate change, it is important to note that there are a number of limitations. First, only explicit references to the predefined keywords are captured. Any subtle engagement with climate change using alternative nomenclature, such as "greenhouse gas", is omitted. Second, the accuracy of the search is distorted somewhat by variations in archival practices over time and across programmes. For example, RTÉ Archive metadata varies from including full programme transcripts to including brief synopses of programmes and programme segments. Third, the accuracy of the data is potentially distorted by the presence of duplicate records, arising when a news topic is repeated across multiple news bulletins, and by the presence of content that was not broadcast, such as content archived from external news agencies.

To mitigate the weaknesses of the source data, inclusion criteria were applied. Only records in which "climate change" or "global warming" is referred to within the programme content were included. Through a process of manual inspection, duplicates (including repeats) and false positives (including unbroadcast material) were excluded. Repeat records in which no substantial changes were observable were combined into one record. Repeat records in which substantial changes were observable – such as extended duration, additional interviews or additional reportage – were counted as separate records. This assessment was made on the basis of reviewing the metadata and, when available, the source audiovisual material. Following the application of the inclusion criteria to the source data, 777 distinct records were identified.

To facilitate subsequent analysis, the following data were recorded for each discrete record: date of broadcast, programme genre, and programme or segment title if available. The categories for classifying programme genre include news, current affairs, factual, young people's programming and other. For the purposes of counting, the unit of analysis was the individual news item for news programmes and the programme as a whole for other genres.

7.3 Coverage of Climate Change

The results indicate the virtual invisibility of climate change on RTÉ between 1989, when the first reference to “global warming” is recorded, and 2000, when references gradually increase. The distribution per keyword (Figure 7.1) also reveals a much higher preponderance of references to “climate change” (557 programmes), more than double the number of references to “global warming” (220 programmes). In 2005, there is a significant uptake in coverage; references to “climate change” rise to 33 from just five references a year earlier. Since then, references to “climate change” have consistently exceeded references to “global warming”, although use of both terms fluctuates in parallel.

Post 2005, three distinct phases of coverage are observable. Coverage increases sharply in 2007, with a fivefold increase in the number of references to “climate change” and more than a twofold increase in the number of references to “global warming”. Coverage remains relatively high for 2 years before falling sharply in 2010, a return to 2005 levels. Coverage falls again in 2012, returning to levels not seen since the early 2000s, before recovering steadily between 2013 and 2015. These broad fluctuations are consistent with existing studies of *RTÉ News* programming (Cullinane and Watson, 2014) and with McAllister *et al.*'s (2016) extensive study of European newspaper coverage, which used the same keyword methodology.

What might account for the substantial variations in the television attention cycle? The sharp upward trend from 2006 is probably attributable to high-profile international coverage, including the release of *An Inconvenient Truth* (Guggenheim, 2006), the

awarding of the 2007 Nobel Peace Prize to Al Gore and the IPCC, the Live Earth campaign in 2007 and the highly publicised build up to the 2009 UN COP in Copenhagen. Between 2006 and 2009, there are 17 programme records referencing Al Gore. These include clips from *An Inconvenient Truth*, original interviews, excerpts from his speeches and coverage of campaign launches, including campaigns launched in association with Irish public figures such as Mary Robinson and Bono. Notably, Al Gore's high-profile status transcends news coverage to include items on daytime, arts and religious programming. Post 2009, there are only two references to Al Gore, both in 2013, when he attended an international conference in Dublin that explored the link between climate change and malnutrition.

The news media's receptiveness to Al Gore may be partly attributable to his credentials as a high-profile US politician. Scholars of journalism have long argued that news media runs parallel to politics such that journalists index the political views espoused by leading politicians, political parties and governments (see Bennett, 1990). This thesis is also relevant in the context of the Green Party's role in government between 2007 and 2011. Following Bennett, the heavy defeat of the Green Party in the 2011 general election, in which the party lost all of its parliamentary seats, signals to journalists that Green Party views are not a significant part of the political landscape. Although archive results do indicate the fall-off in coverage once the Green Party leave power, it is difficult to verify the cause purely through archive results, particularly as the fall-off corresponds with the decline of climate change coverage internationally and the crowding out of climate change by the global financial crisis.

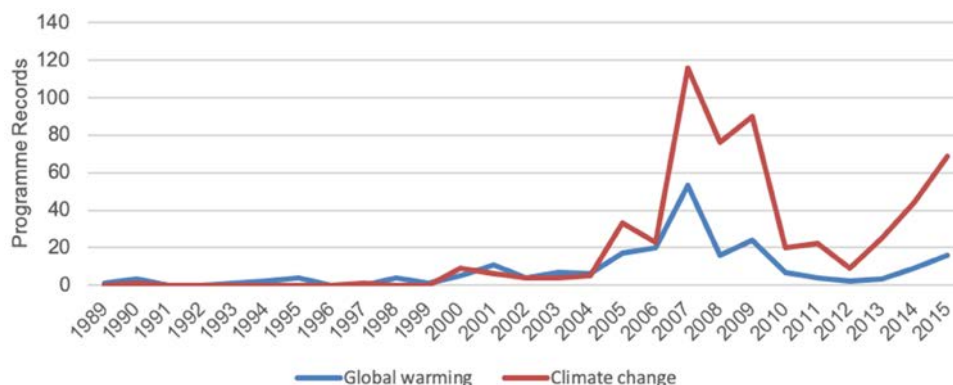


Figure 7.1. Distribution of keyword references over time (n=777).

No international public figure has replaced the pivotal role of Al Gore in RTÉ's climate change coverage. However, John Sweeney, professor of climatology at the National University of Ireland, Maynooth, is the most frequently cited source in the records, referenced over 30 times between 2002 and 2015. Although many of these references are short clips and repeated clips, some are more substantial. During the period of peak coverage, Professor Sweeney makes the crossover to lighter programming when he appears on an afternoon chat show. In line with the general fall-off in climate change coverage, Professor Sweeney is rarely cited between 2010 and 2013. As he would normally be called on to offer expert insight into international climate change developments, his absence from the archive in this period is indicative of the minimal coverage given to climate change between 2010 and 2013.

The momentum created during the 2007–2009 period of international climate change campaigning appears to have been severely diminished by the noted failure of the 2009 UN COP and by the implications of the 2007–2008 global financial crisis. As the latter exposed Ireland to deep banking and fiscal crises, with significant social and political consequences, climate change appears to have been pushed off the agenda in favour of more immediate concerns. The subsequent recovery of climate change coverage is possibly attributable to the relative stabilisation of the Irish economy, as well as the highly publicised anticipation of successful negotiations at the 2015 COP.

Internal factors are also likely to influence patterns of coverage. As RTÉ's environment correspondent between 2001 and 2010, Paul Cunningham regularly reported on climate change, including coverage of major summits and conferences, as well as special reports on climate change impacts across the world. However, the role of environment correspondent was left vacant for 3 years until George Lee was appointed as joint agriculture and environment correspondent in 2014. Moreover, the new dual role is somewhat paradoxical as the agriculture sector is the single largest contributor to greenhouse gas emissions in Ireland. The introduction of a new current affairs programme, *Morning Edition*, appears to partially account for increased coverage in 2014. Presented by Keelin Shanley, *Morning Edition* regularly featured reports about international climate change events, but

the programme ceased broadcasting in November 2014.

In terms of the distribution of coverage across programme genres, news broadcasts account for almost two-thirds of all references to climate change and global warming. Figures 7.2 and 7.3 provide a breakdown of genre references to "global warming" and "climate change", respectively, across the time period 1989–2015. The high volume of news coverage may be partially explained by the recurring frequency of news broadcasts. In contrast to standard news programming, coverage in factual and current affairs programming is much lower. Within the current affairs genre, there is a significant disparity between keywords, generating only 8% of global warming records but 16% of climate change records. Conversely, factual programming comprises 11% of global warming references but only 5% of climate change references. Interestingly, children's news and young people's programming contributed 16% of global warming references and 12% of climate change references.

Figure 7.4 illustrates the relative distribution of programme genres and programme segments referencing "climate change" over the period 2000–2015. The period of analysis begins in the year 2000 as there are insufficient programme records matching the inclusion criteria before this date. With the exception of coverage in 2012, news items make up the majority of all climate change coverage. Young people's programming (combining children's news and dedicated young people's programming, including entertainment programming) vies with current affairs for the second most populous category. In fact, coverage on young people's programming exceeds current affairs coverage in a number of years, most notably in 2009. Climate change in factual programming remains marginal across the period analysed. This would seem to imply that, although climate change is referenced as a news story, it is not afforded the analytical depth of factual programming. This is surprising as RTÉ broadcasts a large volume of factual programming, including independently produced documentaries and series such as *Eco Eye*.

7.4 Weather and Flooding Coverage

In a study of RTÉ television news coverage of climate change over a 2-year period, Cullinane and

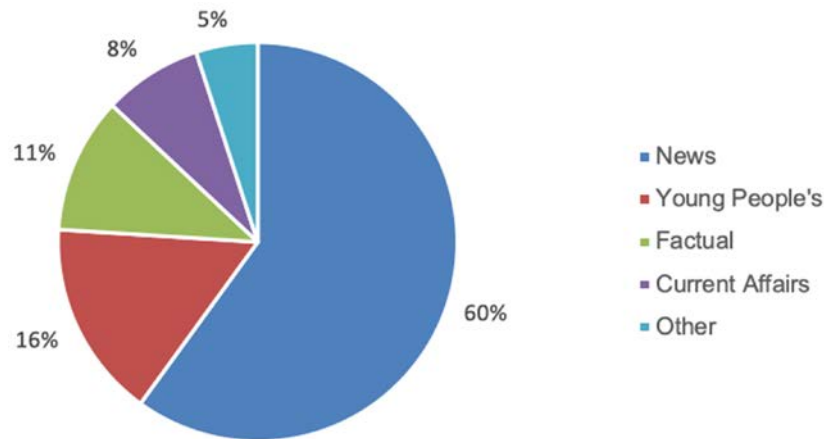


Figure 7.2. “Global warming” by genre (n=220).

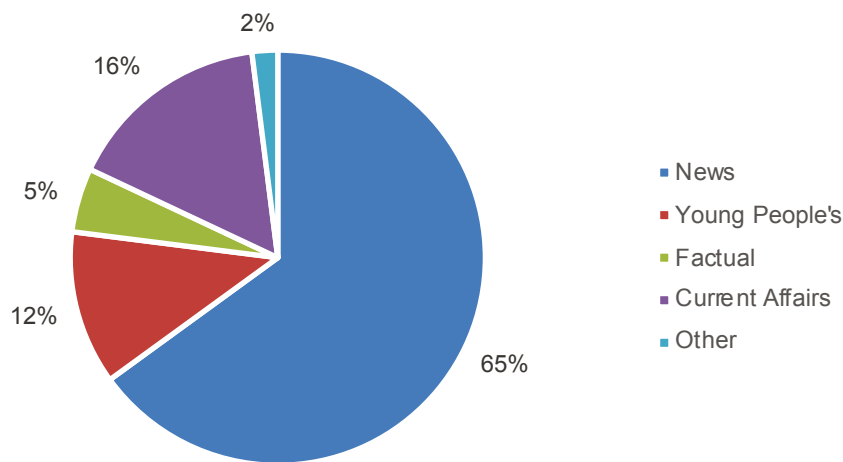


Figure 7.3. “Climate change” by genre (n=220).

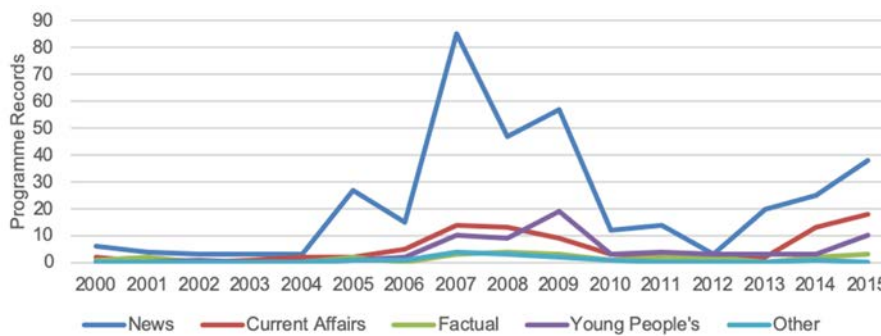


Figure 7.4. “Climate change” keyword genre distribution by year, 2000–2015 (n=555).

Watson (2014) found that the reporting of national and international weather events rarely made any connection between weather events and climate change. To facilitate further analysis in this area, weather alerts data was obtained from Met Éireann for the period 2004–2015. As Met Éireann adopted a new colour-coded system for weather warnings in 2012, two distinct sets of severe weather data were

recorded: 75 under the old system and 172 under the new system. In Figure 7.5, these are shown separately as green (old system) and purple (new system) lines. There are relatively few severe weather warnings prior to 2013, followed by a sharp increase in severe weather warnings. Although these increase correlate somewhat with the increase in television coverage of climate change, further analysis indicates that severe

flooding in Ireland is rarely linked to climate change after 2009.

As shown in Figure 7.6,³ there are 34 programme records linking climate change/global warming to flooding between 1995 and 2015 (see Appendix 3 for a synopsis of these programme records). The earliest reference in 1995 concerns a Dublin conference organised by the environmental group Earthwatch to consider whether recent flooding across Europe and in the west of Ireland could be the result of global warming. In the years that follow, there are only sporadic references linking flooding to climate change. In 2006, RTÉ's environment correspondent Paul Cunningham delivers a series of reports about the link between climate change and severe weather, including flooding. Cunningham's reports are notable for linking significant international events to possible impacts in Ireland. For example, a "Special Report on Climate Change from Greenland" (20/10/2006) explicitly links melting Arctic ice to increased winter

flooding in Ireland. Between 2006 and 2009, 21 items link climate change to flooding. These include coverage of reports by the Environmental Protection Agency (EPA), European Commission, UN and Irish Academy of Engineering, which articulates the need to develop adequate measures to mitigate increased flooding arising from climate change. After 2009, few news items make the link between severe flooding and climate change. However, there are two factual programmes addressing the issue in this period. To mark RTÉ's 50th anniversary, the documentary *Weather Permitting* (22/07/2012) examined the history of Irish television weather forecasting and included a segment on "climate change and its impact on Irish lives". In 2014, a three-part series, "*Creedon's Weather: Four Seasons in One Day*", followed John Creedon "on a journey to find out everything he can about the Irish weather". Episode 3 (24/09/2014) examined climate change, rising sea levels and Ireland's vulnerability to flooding.

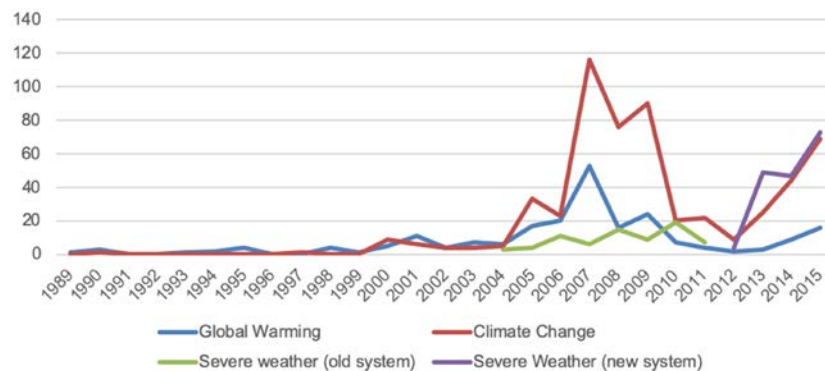


Figure 7.5. Climate change programming references and severe weather alerts, 2004–2015.

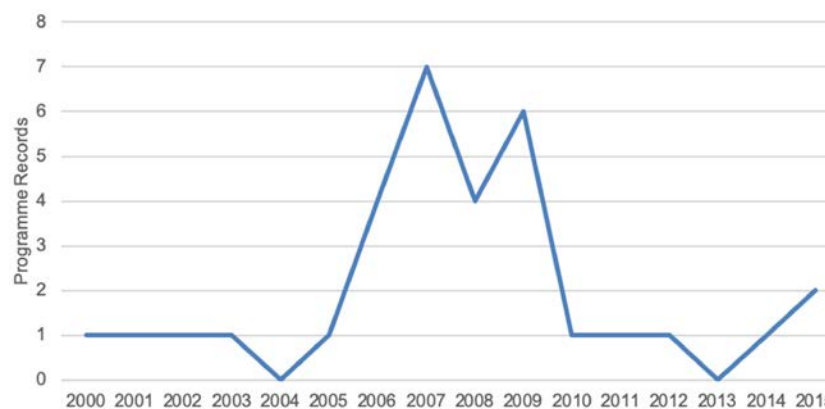


Figure 7.6. Programme records linking flooding to climate change or global warming (n=34).

3 These results exclude broadcasts of Leaders' Questions, Oireachtas Report and third-party agency reports.

7.5 Conclusion

Despite the recent changes brought by digital technologies, television remains one of the most accessible and influential platforms for informing and engaging audiences regarding the pressing issues of public concern. However, climate change is generally regarded as a difficult topic for broadcasters to cover. Peak coverage, driven in part by the high-profile status of Al Gore and celebrity events, saw coverage spill over from news into lifestyle, arts and religious programming. Yet, the sharp fall-off in coverage post

2009 suggests that the issue failed to resonate with programme makers in Ireland and elsewhere. Findings indicate that Irish television coverage is broadly in line with international patterns of attention. However, the influence of internal RTÉ factors is notable, given the 3-year absence of a dedicated environmental correspondent. Moreover, the decline in news references to climate change and severe weather is surprising as Ireland has experienced severe storms and flooding in recent years and RTÉ factual programming has placed emphasis on the weather and its impact on Irish life.

8 The Mediation of Climate Change on Social Media

8.1 Introduction

Since the advent of the web in the 1990s, online communication has been theorised for its capacity to reinvigorate public participation and political activism. More recently, social media have been theorised for the potential to “supplant traditional mass media as the leading information source and agenda setter for audiences in the digital age” (Grzywinska and Borden, 2012: 133). In contrast to the agenda-setting and gate-keeping functions characteristic of mass media institutions, social media enable the campaigning voice of agenda building (McIlwaine, 2013) by offering “individuals a platform where there is an equality of opinions and agenda setting” (O’Neill and Boykoff, 2011: 241). However, structural equality of access does not necessarily translate into an equality of participation. Regarding Twitter, Cha *et al.* (2010) identify the key role played by highly active tweeters who act as opinion leaders and gain visibility through popularity (followers), valued content (retweets) and reputation (mentions). Consequently, Twitter gives rise to a dynamic interplay between ordinary individuals and influential opinion leaders.

To understand how this dynamic relates to the mediation of climate change, this portion of research aimed to identify the dominant voices and sentiment on Twitter during three UN COP conferences: COP19 (Warsaw), COP20 (Lima) and COP21 (Paris). Although Twitter is not the most popular social network worldwide, it has a significant impact on public communication and debate. In part, this arises from two key structural features of the platform: the fact that all messages (tweets) are public by default and the conventional use of hashtags to categorise individual tweets within a thematic network. Twitter hashtags enable ad hoc and disparate publics to form around specific issues and events (Bruns and Burgess, 2012), often in opposition to mainstream or elite framing. Through real-time participation in a hashtag network, such as #COP20, various social, political, corporate and citizen actors compete strategically to frame public issues and agendas. For example, in their study

of COP15 protests, Segerberg and Bennett (2011: 204) note that #COP15 emerged independently of organisations and was “used prolifically by various actors across several languages and locations for various purposes”. These characteristics, coupled with the large user base of some 350 million people, make Twitter a rich data source for examining the mediation of climate change.

8.2 Methodology

In much of the existing research on Twitter, the key units of analysis focus on Twitter’s built-in features, including hashtags, tweets, retweets and mentions; for a comprehensive overview of Twitter analysis metrics see Bruns and Stieglitz (2013). For this study, the hashtag is the primary unit used to identify relevant tweets. English-language tweets containing the relevant hashtags (#COP19, #COP20 and #COP21) were collected through a third-party company (VICO Research) for three UN COP conferences. The collection period began approximately 2 months prior to the opening of each conference and ended approximately 1 month after the conclusion of each conference. To conduct a sentiment analysis on the three datasets, the following question was chosen for measurement: “Does this tweet reflect a positive, neutral or negative sentiment towards the political process at COP?”. A machine-learning classifier was trained by manually coding over 8000 tweets and testing for intercoder reliability (alpha score: 0.85). Subsequent analysis was conducted using the VICO Research interface to extract data analytics.

8.3 Overall Levels of Engagement

Table 8.1 indicates the total number of tweets and account holders present in each COP dataset. Whereas COP19 and COP20 reflect relatively similar levels of participation, there is a fivefold rise in Twitter activity during COP21. This intensified interest is likely to be a reflection of the widespread

anticipation that the COP21 negotiations would result in a binding agreement. Although the average number of tweets per author increases only marginally, from 3.7 tweets per author in 2013 to 4.2 tweets per author in 2015, the volume of tweets by the most prolific accounts increases significantly. Over an 85-day period, the most prolific accounts for COP19 and COP20 post 248 and 381 tweets respectively. By COP21, the most prolific account is responsible for 3276 tweets over the same time period. Considering the temporal distribution of tweets (Figure 8.1), peak activity is unsurprisingly concentrated during the conference periods, followed by a steady decline. For COP21, this decline is more

immediate and appears to reflect the emergence of a new hashtag denoting the Paris Agreement.

8.4 Stakeholder Analysis of Twitter Users

In terms of promoting a climate change agenda, different stakeholder groups privilege distinct concepts and discourses. For example, there are distinct articulations of climate change within the spheres of science (Sarewitz, 2004), media (Boykoff and Boykoff, 2007; Carvalho, 2007) and politics (Bäckstrand and Lövbrand, 2006). To examine the representation of different stakeholders on Twitter, the researchers

Table 8.1. Total number of tweets and twitter accounts

	COP19	COP20	COP21
Conference	Warsaw 2013	Lima 2014	Paris 2015
Conference period	11/11/13–23/11/13	01/12/14–12/12/14	30/11/15–11/12/15
Data collection period	28/08/13–21/12/13	18/10/14–08/01/15	16/10/15–31/01/16
Hashtag	#COP19	#COP20	#COP21
Total tweets	374,715	418,718	2,292,727
Total accounts	100,357	106,178	548,062

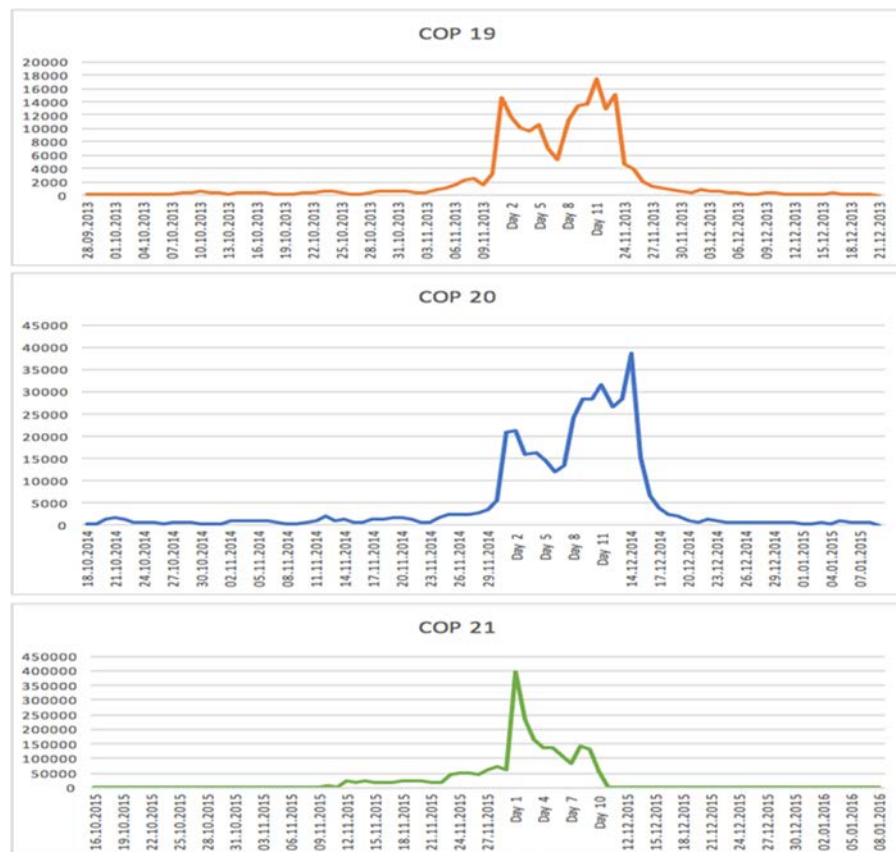


Figure 8.1. Temporal tweet distribution: COP19, COP20 and COP21.

identified the most engaged account holders for each COP. Engagement was defined in three areas: most prolific accounts, most retweeted accounts and most mentioned accounts. With some overlap across the datasets, this produced a list of 286 Twitter accounts, which were then categorised into the following thematic groups:

- advocacy: NGOs, environmentalists, campaign networks;
- intergovernmental: UN, World Bank, World Health Organization (WHO);
- news media: news media outlets, journalists;
- politics and policy: politicians, government departments, policy organisations/think tanks;
- science: scientists, research institutions and networks, specialist science media;
- sceptics/vested interests: sceptics, fossil fuel bodies;
- other: green business, banks.

Figure 8.2 shows the thematic breakdown of the most engaged Twitter accounts across the three conferences. Advocacy (41%) is by far the largest group, encompassing high-profile NGOs such as Oxfam and Greenpeace, famous environmentalists such as Leonardo DiCaprio and a broad base of individual climate change campaigners. The significant presence of the news media (17%), particularly individual journalists, indicates the enduring role of media professionals in mediating public events. Intergovernmental accounts (14%) encompass numerous UN divisions and are almost as prominent as accounts representing politics and policy (16%). Science accounts (7%) include some

research institutions and a few individual scientists. The presence of sceptics and vested interests (4%) indicates that climate change deniers are highly active during COP conferences.

To better understand different patterns of stakeholder engagement, Tables 8.2–8.4 highlight the most prolific accounts, the most mentioned accounts and the most retweeted accounts, respectively, for each conference. When possible, account names are capitalised to facilitate reading. The most prolific accounts (see Table 8.2) are primarily the work of advocacy individuals and small organisations. Although most accounts are the work of advocates, the presence of highly active sceptics is noteworthy. The most prolific account during COP21 is a sceptic who primarily posts links emanating from the Heartland Institute and its rival climate conference, the Heartland Institute's 10th International Conference on Climate Change, which ran concurrent with COP21.

Considering the most mentioned accounts (see Table 8.3), intergovernmental accounts are dominant. Political accounts, such as those representing the presidents of the USA and India, are also notable. Here, we seem to find the subject of advocates' appeals, that is, in urging a particular course of action, advocates direct attention towards key decision-making powers.

The most retweeted accounts (see Table 8.4) are the most varied group, which includes high-profile celebrities (Leonardo DiCaprio), scientists (astronaut Scott Kelly), climate campaign groups (Al Gore's Climate Reality) and news media (*Democracy Now!*). Although the mentioned accounts appear to indicate

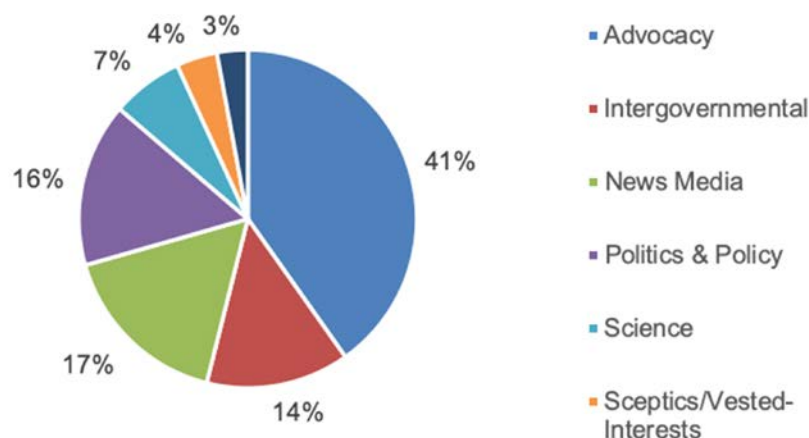


Figure 8.2. Categories of most engaged accounts across COP19, COP20 and COP21 (n=268).

Table 8.2. Most prolific accounts during COP conferences

COP19	COP20	COP21
TheEarthNetwork (advocacy)	NiliMajumder (advocacy)	TheClimateCult (sceptics/vested interests)
JohnLundin (advocacy)	Ineeshadv (advocacy)	NiliMajumder (advocacy)
YOUNGOretweet (Intergovernmental)	JohnLundin (advocacy)	ClimateRetweet (advocacy)
Tan123 (sceptics/vested interests)	TheEarthNetwork (advocacy)	COP21_news (intergovernmental)
Gerfingerpoken (sceptics/vested interests)	Tan123 (sceptics/vested interests)	vkumar03160145 (advocacy)
NiliMajumder (advocacy)	GrnConservatism (sceptics/vested interests)	JohnLundin (advocacy)
HealthyPlanetUK (advocacy)	DuyckS (advocacy)	Ineeshadv (advocacy)
Matt_Ros (advocacy)	Saleemulhuq (advocacy)	TheEarthNetwork (advocacy)
MarkPlackett1 (advocacy)	Drrimmer (advocacy)	enkidu_g (sceptics/vested interests)
ClimateDepot (sceptics/vested interests)	ActOnClimate (advocacy)	Ecosising (advocacy)

Table 8.3. Most mentioned accounts during COP conferences

COP19	COP20	COP21
UN_ClimateTalks (intergovernmental)	UN_ClimateTalks (intergovernmental)	UNFCC (intergovernmental)
Yebsano (advocacy)	LimaCOP20 (intergovernmental)	COP21 (intergovernmental)
Guardian (news media)	UNEP (intergovernmental)	UN (intergovernmental)
CFigueres (intergovernmental)	Greenpeace (advocacy)	NarendraModi (politics and policy)
Avaaz (advocacy)	ClimateReality (advocacy)	POTUS (politics and policy)
IPCC_CH (intergovernmental)	UN (intergovernmental)	CFigueres (intergovernmental)
IPCCnews (intergovernmental)	CFigueres (intergovernmental)	Greenpeace (advocacy)
UNEP (intergovernmental)	DemocracyNow (news media)	UNEP (intergovernmental)
UN (intergovernmental)	ClimateGroup (advocacy)	COP21en (intergovernmental)
COP19cmp9Warsaw (intergovernmental)	WWF (advocacy)	COP21_News (intergovernmental)

Table 8.4. Most retweeted accounts during COP conferences

COP19	COP20	COP21
UN_ClimateTalks (intergovernmental)	UN_ClimateTalks (intergovernmental)	UNFCC (intergovernmental)
UNEP (intergovernmental)	ClimateReality (advocacy)	UN (intergovernmental)
LeoDiCaprio (advocacy)	UNEP (intergovernmental)	Greenpeace (advocacy)
DemocracyNow (news media)	Greenpeace (advocacy)	COP21_News (intergovernmental)
UN (intergovernmental)	DemocracyNow (news media)	UNEP (intergovernmental)
IPCCnews (intergovernmental)	LimaCOP20 (intergovernmental)	ClimateReality (advocacy)
Greenpeace (advocacy)	ClimateGroup (advocacy)	WEF (intergovernmental)
CHedegaardEU (politics and policy)	WWF (advocacy)	AllScienceGlobe (science)
Oxfam (advocacy)	Oxfam (advocacy)	COP21en (intergovernmental)
WMOnews (intergovernmental)	JimHarris (politics and policy)	StationCDRKelly (science)

the focus of advocates' appeals, the retweeted accounts appear to function as endorsements of valued climate change sentiments. In terms of news media, it is interesting to note that *Democracy Now!*, a relatively small and independent US news outlet, is the most prominent news outlet in the dataset.

8.5 Hashtag Analysis

Table 8.5 shows the 20 most used hashtags for each conference. As would be expected, the dominant hashtags across each conference relate to the specific event (e.g. #cop19), the organisers (e.g. #UNFCCC),

Table 8.5. Most popular hashtags during COP conferences

COP19		COP20		COP21	
Hashtag	Trend	Hashtag	Trend	Hashtag	Trend
#cop19	116,515	#cop20	230,941	#cop21	1,491,076
#ipcc	54,976	#climate	48,233	#climatechange	210,680
#climate	40,237	#climatechange	35,975	#climate	101,679
#climatechange	25,803	#lima	12,861	#paris	48,182
#unfcc	15,320	#cop20lima	12,637	#cop21paris	44,100
#warsaw	6732	#unfccc	12,400	#climateaction	42,362
#ar5	6694	#climateaction	10,661	#actonclimate	34,328
#haiyan	4722	#limacop20	7441	#climatemarch	27,455
#telltheclimatetruth	4620	#adp	7106	#lpaa	22,084
#debateisover	4180	#paris2015	5607	#earthtoparis	19,633
#auspol	3675	#peru	5146	#changeclimatechange	16,890
#glfcop19	3112	#cdnpoli	3638	#killerpalm	15,859
#globalwarming	2843	#climatejustice	3324	#gocop21	14,049
#environment	2622	#adp2014	2756	#actionday	13,104
#un	2181	#auspol	2753	#energy	12,439
#coal	2057	#cop21	2706	#renewables	12,366
#cdnpoli	1923	#ipcc	2413	#cdnpoli	12,218
#adp	1861	#hagupit	2397	#auspol	12,043
#poland	1698	#gcf	2314	#go100percent	11,977
#colveremos	1697	#cop	2209	#adp2	11,072

and the over-riding subject (e.g. #ClimateChange). Beyond these, however, we can see the issues that were prioritised by the Twitter public, including public appeals (e.g. #ActOnClimate, #Go100Percent) and affirmations (e.g. #DebateIsOver); specific campaigns such as the environmental campaign against palm oil (#killerpalm); direct links to politics in Canada and Australia (#CndPoli, #AusPol); and links to topical weather events such as Typhoon Haiyan (#Haiyan), which devastated the Philippines during COP19. The presence of hashtags relating to Australian and Canadian politics is notable, indicating a highly vocal advocacy community from those countries.

8.6 Sentiment Analysis

A number of researchers have utilised Twitter as a means to assess attitudes towards climate change (Pearce *et al.*, 2014; O'Neill *et al.*, 2015). Following this lead, the researchers analysed the sentiment of tweets across each dataset using a machine learning algorithm. As COP conferences include a wide range of issues over an extended period of time, the focus of the study was narrowed to attitudes towards the

COP political process. This excluded positive or negative attitudes towards climate change generally. We might expect to find a significant increase in positive sentiment in the COP21 dataset given the prior expectation and eventual achievement of an agreement. However, between COP19 and COP21 (Figure 8.3), positive attitudes fall from 9% to 2%. Negative attitudes also fall between COP19 and COP21, from 12% to 5%. Rather than an increase in positive attitudes, we find an overall increase in neutral sentiment, from 79% during COP19 to 93% during COP21.

8.7 Conclusion

The mediation of climate change in mainstream media has been widely studied, but less is known about the role of social media. This research gap is significant because social media are an increasingly dominant source of news and information. Moreover, the discourses that resonate online may offer important indicators of wider attitudes towards climate change, including ground-up support for climate action. In this study, we find a highly active

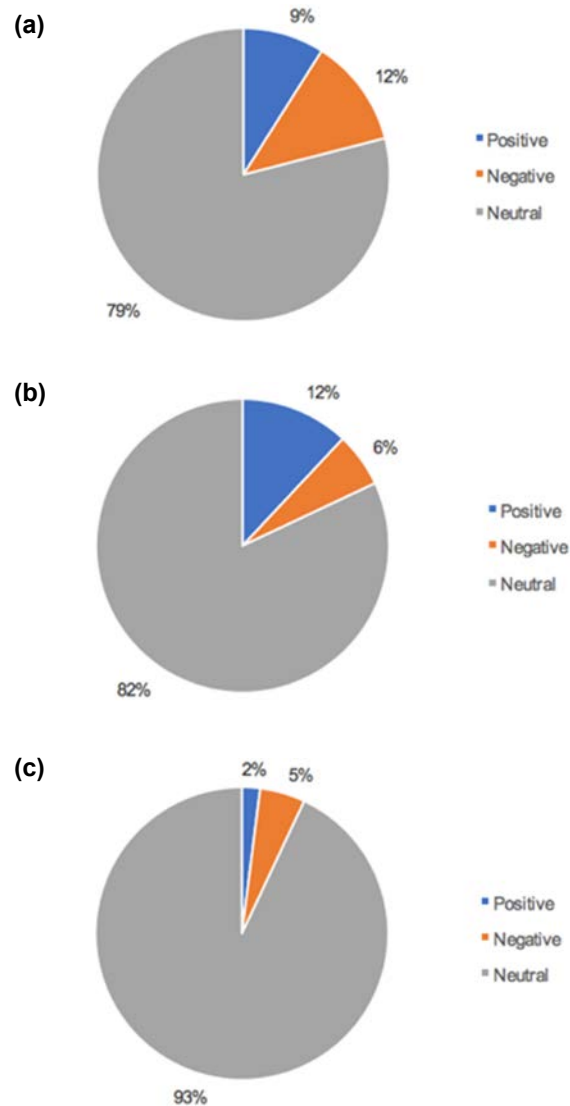


Figure 8.3. Analysis of sentiment towards the political process at COPs: (a) COP19, (b) COP20 and (c) COP21.

Twitter public for COP conferences, with over 2 million unique accounts engaged for COP21. In particular, Twitter appears to encourage extensive engagement from climate advocates, who use the medium, in part, to direct their messages to powerful international decision-makers and to endorse or promote the messages of high-profile environmentalist organisations and individuals. However, we also find evidence for an organised

effort to hijack #COP21 with alternative facts from climate sceptics. In this context, it would seem that the mainstream media will continue to play a significant role in verifying information and, more generally, news media are the second largest most-engaged group, behind advocates, during the COP conferences. Further analysis is required to fully appreciate these evolving dynamics of climate change mediation and engagement on social media.

9 The Politics of Communicating Climate Change

9.1 Introduction

Climate science, as with other sciences, cannot escape the political, as evidenced by 2017 efforts to downscale and silence the US EPA. To complement the primary research on media coverage, an important goal of this project was to identify a set of actions or principles that could potentially advance climate change communication across media, politics and societal discourses. The international studies cited throughout this report demonstrate significant gaps between media practices and routines, the expectations and suspicions of climate scientists and levels of public engagement and understanding (Bell, 1994; Boykoff and Boykoff, 2004, 2007; Brossard *et al.*, 2004; Carvalho and Burgess, 2005; Norgaard, 2009; Painter and Ashe, 2012; McAllister *et al.*, 2016). Irish research on these subjects is a small but growing field (see Murphy, 2010; Mullally *et al.*, 2013; Cullinane and Watson, 2014; McNally, 2015; Fox and Rau, 2016). Although researchers can point to flaws and gaps in coverage, it is also important to develop constructive criticism.

Although many researchers produce top-down guidelines for media practice, we believe a more fruitful approach follows the model of co-production among stakeholders, as advocated by the sociologist of science policy Helga Nowotny (Nowotny *et al.*, 2001). On this basis, the researchers aimed to develop Irish principles of climate change communication by workshopping best practice ideals with journalists,

NGOs and climate scientists. The context for this workshop includes the preceding studies of media coverage as well as a brief study, outlined below, of Irish political discourses.

9.2 Irish Media and Political Contexts

The discourses of climate change espoused by Irish political parties are an important consideration because journalism and political communication research has repeatedly affirmed that media coverage runs parallel to politics, such that journalists index the political views espoused by leading politicians, political parties and governments (see Bennett, 1990). More generally, the discourses of climate change put forward at the time of general elections are of particular interest because the power to determine future policies is at stake and because the different political parties have to engage with currents of popular opinion, including the agenda-building efforts of NGOs. Irish political party election manifestos were analysed using an adapted version of the Carbon Brief climate and energy tracker devised for the UK 2015 general election.

The volume of references to climate change in political party manifestos between 2002 and 2016 (Figure 9.1) broadly reflects wider patterns of media coverage: a steady increase in coverage gives way to a sharp fall-off following the 2007 economic crisis. Prior to

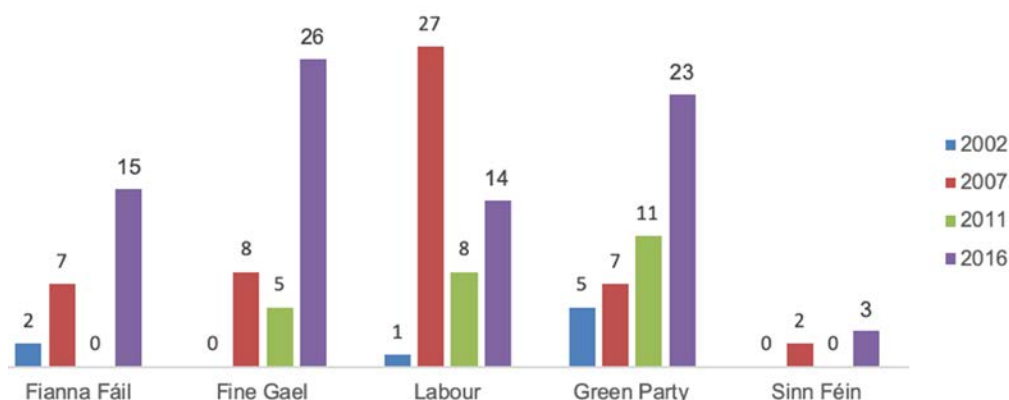


Figure 9.1. References to “climate change” and “global warming” in political party general election manifestos.

the 2002 general election, climate change received minimal attention in the manifestos of Fianna Fáil, Labour and the Green Party, whereas Fine Gael and Sinn Féin do not make any reference to the issue. By 2007, all parties have increased their policy references to climate change. The most notable change comes from the Labour Party, which increases the number of climate change references from one in 2002 to 27 in 2007, exceeding the coverage of all other parties combined. Ahead of Ireland's first post-austerity general election in 2011, references to climate change decrease across all political parties with the exception of the Green Party. Fianna Fáil and Sinn Féin make no reference to the issue and Labour Party references fall to just eight. By 2016, climate change has firmly returned to the political agenda, with more manifesto references than in any of the three preceding elections. However, climate change has not become an issue of any priority for Sinn Féin across the four most recent general elections.

Looking more specifically at the discourses of climate change in the 2011 and 2016 general election manifestos, we can see the shifting priorities across the parties. Prior to the 2011 general election, economic recovery is the most prominent theme discussed across the party manifestos and, perhaps unsurprisingly, references to climate change are discussed within the context of economics. In his pioneering study of the language used to describe environmental policy, Maarten Hajer (1996) identified the emergence of an ecological modernisation discourse, which stressed the benefits of environmental policy for modernising the economy and stimulating technological innovation. This is evident in the manifestos to some extent through references to green jobs and investment opportunities for renewable energy. Overall, by 2016 there is a marked development of climate change in Irish politics, with all parties referencing the importance of either switching to a low-carbon economy or reducing energy emissions. However, with the exception of the Green Party, many manifestos broadly promise to "introduce measures", without specifying what form these measures might take.

Although the 2011 Fianna Fáil manifesto does not directly reference climate change, it does devote a section to the possible economic benefits of a "green economy". In particular, it outlines a plan to develop a "green Irish Financial Services Centre", for the

management of carbon and green finance, in order to generate "high value employment and revenue growth in Ireland". By 2016, Fianna Fáil identifies climate change as "an existential threat" to our "moral and civic obligation to bequeath to future generations a better world". To this end, the party endorses establishing a Department of Climate Change and developing a "Green Deal" to improve energy efficiency through investment in e-cars and public transport. Nevertheless, the document does not set forth any tangible policies regarding climate change. Moreover, in endorsing Food Harvest 2020 and increased agricultural output, there is no acknowledgement that emissions from agriculture need to be tackled if the existential threat of climate change is to be addressed.

By 2016 Fine Gael includes an extensive section on climate change, energy and the environment. However, the language remains vague regarding key emissions areas. Although Fine Gael fully endorses the COP21 Paris Agreement, it promises to "control" rather than "reduce" emissions in agriculture. The party seems to be aware of what needs to be done to reduce Ireland's CO₂ emissions and transition to a post-carbon society, but does not appear to have a definitive plan to achieve these goals.

The Labour party recognises that "climate change is the biggest single challenge facing humanity" and its manifesto acknowledges the need to reduce emissions and move to a post-carbon society. However, like the others, it comes up short regarding a specific plan to achieve these goals. Labour lauds the party's previous efforts to enact climate change legislation and states that it is still committed to decarbonising Irish society. Indeed, there is zealous talk of investment, acceleration and promotion, but very little explicit analysis. The €1 billion "Green Infrastructure Fund", with which Labour intends to invest in clean public transport and energy efficiency projects, is very ambitious; however, again, no specific infrastructure is outlined.

Unsurprisingly, the Green Party has the most comprehensive policies on climate change, environmental protection, green energy, transport and agriculture, although does not specifically address emissions from the last sector. On climate change, the party proposes fast decarbonisation of the economy and binding sectoral targets. It even goes as far as to support the proposition of "ecocide ... a crime

against nature, humanity and future generations". The manifesto outlines policies on walking, cycling, motor transport and roads, as well as plans to close Moneypoint, the coal-burning plant, and three other peat-burning plants. The Green Party puts forward a discourse of sustainability, contextualising climate change within broader issues of energy security (peak oil) and food security. This is balanced, however, with an emphasis on economic opportunities (green jobs and green tourism).

Among the established parties, Sinn Féin's 2016 manifesto has the least number of references to climate change, although the 2016 manifesto is an improvement on the previous 2011 manifesto. The party states that it will "engage with climate change experts" on the best way to meet emissions targets, it will introduce measures to militate against climate change and it will support innovation in a green economy. Overall, however, the language is ambiguous. For Sinn Féin, the notion of environmental sustainability is used as a broad reference for economic growth and prosperity. The 2011 manifesto states that fair economic goals may be pursued "based on the principles of environmental sustainability", but it fails to specify what these principles are.

In political manifestos we find the co-existence of a strident rhetoric that recognises the grave need to address climate change and a general absence of clear plans to meet the challenge. Considering the role of the media, the relationship between media outlets and climate science, including climate scientists and advocates, has often become strained. In 2014, An Taisce, the government-funded environmental conservation body, supported leading Irish climate change expert Professor John Sweeney when he refused to join an RTÉ panel featuring an explicit climate change denier (An Taisce, 2014); An Taisce also imposed its own boycott of the RTÉ programme, *Prime Time* (An Taisce, 2014). In this regard, we may consider the *BBC Trust Review of Impartiality and Accuracy of the BBC's Coverage of Science* (BBC Trust, 2011), in which issues of false balance, scientists' expectations of media practice, and public engagement were considered. In this report, coverage was found to generally make clear distinctions between established scientific facts and opinion, although the report also identified the practical dilemma of retaining impartiality while

presenting incontrovertible evidence and avoiding false balance. RTÉ's *Programme-makers Guidelines* (RTÉ, 2002) are also clear on the importance of impartiality and objectivity and further emphasise the importance of avoiding extremes in debate. As foundational concerns among stakeholders, these issues were addressed at the CCIM workshop between media practitioners, climate scientists, policymakers and NGOs. As Irish civil society actors recently engaged RTÉ to begin knowledge exchange workshops for shared understandings on climate change coverage, it was timely and fortunate to include representatives from those civil society groups in the CCIM workshops.

9.3 Media Workshop

The workshop, facilitated by the researchers, took place in the Science Gallery Dublin at Trinity College Dublin on 13 December 2016, with representatives from news media (journalists covering environmental issues), academia (climate science and social science), environmental activism (Friends of the Earth) and a state body with the brief to promote conservation (An Taisce). For the workshop outline and agenda, see Appendix 4.

The workshop facilitators predefined a set of guiding questions, which aimed to address the concerns of various societal stakeholders:

- What do climate scientists and climate advocates want to achieve?
- What do journalists need to communicate climate change effectively?
- How can public information needs and market demands be reconciled?
- What do policymakers need to develop effective policies?

These overarching questions were presented in the workshop to identify the key communication needs operating within different stakeholder sectors. The key points in the workshop are represented below:

- Science and climate change advocacy:
 - need for scientific accuracy;
 - need for clearer public and media understanding of how science works and, consequently, why the scientific consensus on climate change is so robust;

- need for better understanding of the meaning of “uncertainty” in science and the potential misrepresentation of scientific uncertainty;
- need for proportionate understanding of climate change as a threat of unprecedented scale.
- Journalism and news media:
 - need to have stories that are adaptable to news formats, routines and practices;
 - need to develop ways of linking climate change to concerns that resonate with audiences;
 - need to be considerate of issues and sectors that may potentially be contrary to the expectations of climate advocates;
 - need to maintain journalistic integrity.
- Public engagement:
 - need for clear and relevant information;
 - need for inclusivity and opportunities to participate;
 - need for engaging communication styles, particularly in relation to complex science.
- Policymakers:
 - need for evidence presented in an accessible and understandable format;
 - need for clarity of evidence, and of purpose, from competing positions;
 - need for convincing rationale for forming policy;
 - need for policy proposals that can be clearly communicated.

Considering what a co-created framework for future climate change communication might look like, workshop participants agreed the following broad foundations:

- basic principles or ground rules for “best practice” communication;
- clarity regarding the short-/medium- and long-term implications of climate change and adaptation and mitigation measures;
- a forum to deal with various stakeholder issues that would also provide a space for feedback and discussion.

9.4 Co-developed Guidelines for Climate Change Communication

After detailed discussion of the above issues, workshop participants identified the following points as

ideals for the development of effective climate change communication:

- *Balance problems with solutions.* Balance understanding of the problem with understanding of possible solutions whereby the proposed solutions are realistic and do not lead to unrealistic expectations of a “fix”.
- *Balance impacts with action-based responses.* Balance understanding of climate change impacts with understanding of mitigating actions whereby people gain a sense of what can be achieved and what is being done.
- *Identify climate-change champions.* Identify knowledgeable and charismatic people with sufficient “star power” to engage the public on climate change in a clear and accessible manner.
- *Identify climate frames for different contexts.* Identify the importance of climate change for a range of relevant societal issues beyond the environment, for example health (see Nisbet, 2009), insurance or finance.
- *Contextualise the intergenerational dimension.* Contextualise the long-term nature of the problem, which will have its greatest impact on future generations.
- *Contextualise the triple bottom line.* Contextualise the crucial relationship between people, profit and the health of the planet whereby climate change is a risk multiplier with significant impacts across all parts of the economy and society.
- *Identify community-based actions.* Identify actions that convey what can and is being done at an individual or a community level, such as reducing meat intake, shopping locally and reducing car dependence.
- *Develop contextualised objectivity.* Without sufficient context, objectivity can obscure rather than clarify the nature of a given story, leading to false balance in reporting.
- *Develop multimedia storytelling.* Develop multimedia formats that are accessible and engaging for different audiences across different media platforms.
- *Encourage editorial responsibility.* Taking *The Guardian* as an exemplar, encourage editorial responsibility in the realisation of public service reporting and in challenging “false balance” and bias in climate change coverage.

9.5 Conclusion

In identifying the above ideals as principles for effective climate change communication, workshop participants identified the need to move climate change communication from a science-based story to

a social story. This means that, as scientific knowledge of climate change threats expands, an understanding of how to relate this knowledge to social contexts must expand in parallel. This is the challenge for social scientists, NGOs, policymakers and, above all, media producers.

10 Recommendations: Climate Change Communication

- Climate change communicators need to have a nuanced understanding of media political economy to develop effective communication strategies.
- Climate change communicators need to develop action-based and solution-based frames to balance discussion of climate change threats and impacts.
- Climate change communicators need to identify credible sources and experts who can clearly and engagingly convey aspects of the issue to a mass or non-expert audience.
- Climate change communicators need to develop a wide set of relevant frames in areas such as health and finance to elucidate the social significance of the issue.
- Climate change communicators need to make explicit links between the global, the national and the local by addressing, for example, issues relating to weather, flooding, local heritage and nature.
- Climate change communicators need to understand and convey the intergenerational impacts and responsibilities of climate change.
- Climate change communicators need to understand and work with the affordances of multimedia to engage different audiences.
- Climate change communicators need to establish and follow strong principles of ethical integrity and social responsibility.
- Climate change communicators must come from many domains, from the many climate sciences but also the worlds of media, politics, popular culture, finance, business and international law; some of these need to be “champions” for the cause and key influencers across domains.

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Abbreviations

CCIM	Climate Change in Irish Media
CIRES	Cooperative Institute for Research in Environmental Sciences
COP	Conference of the Parties
DCU	Dublin City University
EPA	Environmental Protection Agency
EU	European Union
IPCC	Intergovernmental Panel on Climate Change
NGO	Non-governmental organisation
UN	United Nations
WHO	World Health Organization

Appendix 1 Newspaper Framing Typologies

Frame	Contains
Political or ideological contest	References to summits, conferences and talks, to climate change as a political issue, to the stances on climate change of political parties or politicians, to political posturing in advance of climate talks, to political point scoring and jockeying for position on the issue of climate change, to assessments as to who is “winning” or “losing” in the political battle to implement climate policies, to the “game” of climate negotiation and to climate change as a battle between elites, and explicit references to a “left” versus “right” conflict regarding the implementation of climate policies
Policy or technical	References to measurements, records or assessments that are policy neutral and that do not suggest, recommend or imply any particular course of action
Morality or ethics	References to the moral imperative of dealing with climate change, to the impact of inaction on future generations, to climate change generally as a religious issue, to climate change as related to humanity’s stewardship of the planet and to the impact of climate change on those who have done least to cause it (climate justice), and explicit references to fairness, justice or equity
Opportunity	References to climate change as an economic or business opportunity, to positive impacts or consequences of climate change mitigation and adaptation, to economic benefits of energy efficiency, to strategic opportunities for Ireland in developing green technologies, to the benefits of reducing dependency on imported fossil fuels and to opportunities in replacing fossil fuel with renewables
Agriculture	References to the impacts of climate change on agriculture, to the contribution of agriculture to Ireland’s total emissions and reactions to suggestions that these emissions be reduced, to the cultivation of forestry as a carbon sink, to the reduction of meat in the human diet, to land use, to Common Agricultural Policy reform or talks and to food security
Settled science	References to the reality of climate change and to the necessity of doing something about it, to the science of climate change, to the publication of scientific reports (including IPCC reports), to the issuing of climate data, to specific ways in which individuals or governments can undertake mitigation or adaptation measures and to the measured impacts of climate change (e.g. flooding, rising sea levels, species depletion, crop failure, famine, temperature rise)
Contested science	References to climate change as not happening or being the result of natural causes, suggestions that any initiatives to mitigate climate change or to reduce individual or sectoral emissions are misguided, references that confuse weather and climate, references that suggest that the science of climate change is contested, references that suggest that climate scientists are in error or may change their minds, references that cite the University of East Anglia email theft as evidence of a conspiracy among climate scientists or references that contain dismissive or sarcastic dismissals of environmental campaigners or politicians
Disaster	References to climate change as an unavoidable disaster or as a looming apocalypse, to the catastrophic impacts of climate change (which do not contain references to the possibility of mitigating climate change or adapting to it or to a combination of both), to the impact of climate change on specific species, or parts of the world, and to exclusively negative economic impacts
Turf cutting	References to turf as a source of CO ₂ , to the banning of cutting turf on certain raised bogs and to the political campaign to reverse such a ban
Domestication or communitarianism	References to Ireland’s emissions as a percentage of global emissions, to Ireland’s emissions targets, to Ireland’s negotiating strategies in climate change talks, to the impacts of climate change on Ireland specifically, and references to any mitigation measures Ireland may take and its impact on global emissions
Economic	References to the economic cost of mitigation or adaptation, to market-based solutions to climate change, to entrepreneurial activity in the climate sector, to the effects of climate change on various areas of economic activities (car manufacturing, aviation, etc.) and to the cost of energy production

Appendix 2 Description of Focus Group Image Sets

- Agriculture and food:
 - honey bee on a sunflower;
 - supermarket shopping trolley;
 - mechanical slurry spreading;
 - food recycling bin;
 - grapevines;
 - farmer at a farmers' market.
- Landscapes
 - Irish farm land;
 - melting Arctic ice;
 - child sifts through a waste dump;
 - stripped Irish peatland;
 - powerful ocean waves;
 - coal mining;
 - coniferous forest.
- Animal kingdom:
 - breeding golden plover;
 - family of polar bears;
 - cabbage white butterfly;
 - frog;
 - caterpillar;
 - walrus sitting on melting ice, Chukchi Sea;
 - cat looking at a goldfish.
- People:
 - Mary Robinson, climate justice campaigner;
 - Bob Geldof, celebrity activist;
 - Naomi Klein, environmental activist;
 - Mohamed Nasheed, environmental activist;
 - community clean-up launch;
 - Freeman Dyson, physicist;
 - Greg Byrne and John Quinn, green tech innovators;
 - Alan Kelly, environment minister.
- Topical events:
 - Stop Climate Chaos IPCC report briefing;
 - 2014 flooding in Somerset, UK;
 - Global Day of Climate Action, Brazil;
 - climate summit;
 - Irish fracking protest;
 - EU meeting: 2030 Climate Energy Framework;
 - 2014 flooding in Cork, Ireland;
 - Irish Kyoto protest.
- Technology/energy: fossil fuels:
 - stacks of Irish peat;
 - natural gas graphic;
 - Moneypoint power station;
 - car exhaust;
 - oil refinery;
 - offshore oil platform;
 - nuclear power station.
- Iconography:
 - Amazon rainforest;
 - setting sun;
 - setting sun and smokestacks;
 - symbolic tree with roots;
 - Rodin's sculpture "The Thinker".
- Technology/energy: renewable energy:
 - wave power generator, Denmark;
 - Greenog Wind Farm, Co. Carlow;
 - flying geese and wind turbines;
 - solar power innovation;
 - wind turbines at sea.

Appendix 3 Programme Records Linking Flooding to Climate Change

Programme and reporter/presenter	Date	Excerpt and reporter/presenter
<i>RTÉ News</i> : "Flooding could result from global warming", Carole Coleman	21/02/1995	"A conference in Dublin organised by the environmental group Earthwatch, has been told that the recent flooding across Europe and in the west of Ireland could be the result of global warming"
<i>RTÉ News</i> : "Climate conference opens in Berlin", Carole Coleman	28/03/1995	"A major UN conference aimed at halting global warming opened in Berlin with appeals for urgent action to ward off creeping ecological disaster". Includes footage of flooding
<i>Questions and Answers</i> , John Bowman	06/11/2000	Telephone poll question: "Do you believe that the current flooding is due to man-made climatic change?" (Result: yes 77%, no 23%). Question 1: "How much do the panel think the recent weather relates to climate change and do they think the government strategy is up to it?"
The state we're in: "Climate of change", Duncan Stewart	08/06/2001	"Looking at the recent and regular flooding all over the country, we see how climate change patterns are already gathering speed"
<i>RTÉ News</i> : "Report on long-term effects of global warming", Aileen O'Meara	21/02/2002	"As the worst of the recent weather recedes many people are left counting the cost of ruined homes and waterlogged land ... The bad news, however, is that such freak weather conditions may well become much more common"
<i>RTÉ News</i> : "Close-up report climate change", Tony Connelly	20/01/2003	"This year is expected to be the warmest on record, and scientists are warning of even more flooding than last year ... For tonight's close-up our Europe reporter Tony Connelly has travelled to Munich where the world's biggest re-insurance company has been assessing the impact of global warming and the implications for insurance cover"
<i>RTÉ News</i> : "New report on the likely impact of climate change on Ireland"	02/06/2005	"New report on the likely impact of climate change on Ireland has concluded there will be drier summers in the south-east and wetter winters in the north-west". Includes file flooding footage
<i>RTÉ News</i> : "Transport accounts for one third of Ireland's primary energy demand", Paul Cunningham	28/09/2006	"Al Gore's new film has re-focused attention on the dangers of climate change. And <i>Prime Time</i> has secured a new Environmental Protection Agency report which predicts temperatures rising, flooding and storm surges"
<i>RTÉ News</i> : "Special report on climate change from Greenland", Paul Cunningham	18/10/2006	"Ireland faces a dramatic increase in storm surges and flooding due to rising sea levels caused by the melting of the Greenland ice-sheet"
<i>RTÉ News</i> : "Special report on climate change from Greenland", Paul Cunningham	19/10/2006	File images of flooding
<i>RTÉ News</i> : "Special report on climate change from Greenland", Paul Cunningham	20/10/2006	"The melting ice will mean increased winter flooding in Ireland. The insurance industry is demanding government investment in flood protection, after paying out 175 million euro from the last four floods"
<i>RTÉ News</i> : "Report on measures to reduce greenhouse gas production here", Paul Cunningham	10/01/2007	"In the future, we can expect droughts, storm surges, flooding and coastal erosion"
<i>RTÉ News</i> : "Report warns of major climate change here – including winter storms", Paul Cunningham	15/03/2007	"The EPA estimates ... Winter rainfall will increase by as much as 17%, particularly in the west, leading to flooding"
<i>RTÉ News</i> : "Major UN climate change conference in Bangkok concludes", Paul Cunningham	04/05/2007	"Extreme weather conditions – like drought and flooding – will be the result of any inaction in reducing emissions by up to 85% over the next 40 years"
<i>RTÉ News</i> : "European Commission has warned of global warming", Mary Calpin	29/06/2007	"The European Commission has warned that the floods in Britain are a grim reminder of Europe's need to 'adapt or die' in the face of global warming."
<i>RTÉ News</i> : "35 feared dead after boat overturns on flooded Ganges", Ruth MacAvinia	06/09/2007	"A United Nations relief co-ordinator blamed global warming for the flooding and said that the risk of flooding would have to be assessed in a different way from now on"

Appendix 3 continued

Programme and reporter/ presenter	Date	Excerpt and reporter/presenter
<i>RTÉ News</i> : "Public campaign to eliminate water wastage is needed, report says", Paul Cunningham	27/09/2007	"The government has been warned it needs to urgently plan for the impact of climate change on water resources or it risks drinking water shortages and major flooding"
<i>RTÉ News</i> : "Report on the challenges posed by China's creeping desert", Margaret Ward	11/12/2007	"Asian countries are likely to be the main victims of climate change, whether from flooding or drought"
<i>RTÉ News</i> : "New report on climate change in Ireland published",	10/06/2008	"Higher rainfall and increased flooding in the west of Ireland is in line with previous reports from the Environmental Protection Agency"
<i>RTÉ News</i> : "Experts warn that climate change will bring more flooding in the future", Paul Cunningham	18/08/2008	"With experts warning that climate change will bring even heavier downpours in the coming years, our reporter Barry Cummins has been looking at Ireland's flood defences"
<i>RTÉ News</i> : "John Gormley denies water charges are imminent", Ray Colgan	25/08/2008	"After what's been a summer of torrential rain and flash flooding for many parts of the country, you might think that Ireland's water supply is something that we don't need to worry about. But the country's leading expert on climate change says it's about to become a very serious problem"
<i>RTÉ News</i> : "Dangers of flooding to be considered with planning applications", David MacCullagh	23/09/2008	"Flooding has become an increasing problem in this country, and the experts say it will get worse due to climate change"
<i>RTÉ News</i> : "Government urgently needs plan to deal with climate change here – EPA", Paul Cunningham	27/04/2009	"A new report . . . projects that summer rainfall will decrease by nearly 30% on the east coast, while significant flooding will affect western regions during wintertime"
<i>Nationwide</i> , Valerie Waters	04/11/2009	"Valerie Waters met Gavin Harte in Dublin, whose job it is to simplify the science of climate change for communities and individuals alike". Includes archive footage of flooding in Drumcondra in 2002
<i>RTÉ News</i> : "Home Briefs", Paul Cunningham	18/11/2009	"A new report on how Ireland can adapt to the impacts of climate change was published by the Academy of Engineers. Faced with risks of flooding, drought and power black outs, the report urges that government expenditure prioritises the delivery of critical infrastructure"
<i>RTÉ News</i> : "Weather – government urged to complete the work on flood barriers", Paul Cunningham	20/11/2009	"A new report was published urging government to act more decisively on tackling flooding and guarding infrastructure like reservoirs and power stations . . . that's because climate change is coming and we have to prepare"
<i>RTÉ News</i> : "Weather – Taoiseach meets with emergency co-ordination committee", Mary Calpin	21/11/2009	"As parts of the south and west remain on high alert this evening with more rain and high winds, the Taoiseach has said that local emergency plans are working well". Includes footage of Professor John Sweeney
<i>RTÉ News</i> : "Lecture on climate change held at TCD", Ailbhe Conneely	25/11/2009	"While there isn't any immediate answer to the relentless rain and floods over the past week, most fingers are pointing at climate change. At Trinity College tonight, the Honourable President of Oxfam International Mary Robinson and Patrick Lameck broached the subject". Includes footage of recent flooding in Ireland
<i>RTÉ News</i> : "Miscellaneous – recent bad weather means higher insurance premiums", John Kilrairie	25/02/2010	"There are climate change sceptics. The Irish Insurance Federation is not one of them. It says weather events are becoming more frequent and more severe". Includes archive flooding footage
<i>RTÉ News</i> : "The Dead Sea has shrunk by 30% in just 20 years", Paul Cunningham	03/01/2011	"While Australia struggles to cope with the flooding disaster in Queensland, experts in other parts of the world are concerned that global warming will exacerbate the growing problem of water shortages"
<i>Weather Permitting</i> , Damien O'Reilly	22/07/2012	A documentary about our weather and its TV forecasters. Includes examination of "climate change and its impact on Irish lives"
<i>Creedon's Weather: Four Seasons In One Day</i> , John Creedon	24/09/2014	John Creedon talks about climate change, rising sea levels and what parts of Ireland will be vulnerable to flooding
<i>News2Day</i> , Ciaran Mullooly	11/12/2015	"Well flooding can be one of the downsides of climate change so fortunately it looks like a global deal to try to prevent further climate change will be agreed at the UN talks in Paris tomorrow"
<i>The Week In Politics</i> , Aine Lawlor	13/12/2015	"Welcome to <i>The Week in Politics</i> , a week when local flooding underlined the urgent need for the climate deal in Paris". Includes footage of flooding and UN climate talks

Appendix 4 Media Workshop Outline and Agenda

Time	Agenda
10.00–10.15	Welcome: Welcome and introductions of facilitators and participants; introduction to what this workshop is trying to achieve
10.15–10.30	Where we are now – media reporting: Review of current state of media reporting on climate issues in Ireland and internationally (Dave Robbins)
10.30–11.00	Why is climate change so difficult to cover as a news story? Discussion led by Dave Robbins, facilitated by Padraig Murphy
11.00–11.30	Round table: Discussion/brainstorming on the challenges of reporting climate change, with a focus on the practices and conventions of news media
11.30–11.45	Coffee break
11.45–12.30	Round table (continued from above)
12.30–12.45	Outcomes: What issues have been identified?, How can the media, activists and other stakeholders work together towards better climate change reportage? Development of an agreed set of principles and protocols
12.45–1.00	Concluding remarks: Proposals for follow-up actions

AN GHNÍOMHAIREACHT UM CHAOMHNÚ COMHSHAOIL
Tá an Gníomhaireacht um Chaomhnú Comhshaoil (GCC) freagrach as an gcomhshaoil a chaomhnú agus a fheabhsú mar shócmhainn luachmhar do mhuintir na hÉireann. Táimid tiomanta do dhaoine agus don chomhshaoil a chosaint ó éifeachtaí díobhálacha na radaíochta agus an truaillithe.

Is féidir obair na Gníomhaireachta a roinnt ina trí phríomhréimse:

Rialú: Déanaimid córais éifeachtacha rialaithe agus comhlionta comhshaoil a chur i bhfeidhm chun torthaí maithe comhshaoil a sholáthar agus chun díriú orthu siúd nach gcloíonn leis na córais sin.

Eolas: Soláthraimid sonraí, faisnéis agus measúnú comhshaoil atá ar ardchaighdeán, spriocdhírthe agus tráthúil chun bonn eolais a chur faoin gcinnteoireacht ar gach leibhéal.

Tacaíocht: Bimid ag saothrú i gcomhar le grúpaí eile chun tacú le comhshaoil atá glan, táirgiúil agus cosanta go maith, agus le hiompar a chuirfidh le comhshaoil inbhuanaithe.

Ár bhFreagrachtaí

Ceadúnú

Déanaimid na gníomhaíochtaí seo a leanas a rialú ionas nach ndéanann siad dochar do shláinte an phobail ná don chomhshaoil:

- saoráidí dramhaíola (*m.sh. láithreáin líonta talún, loisceoirí, stáisiúin aistrithe dramhaíola*);
- gníomhaíochtaí tionsclaíocha ar scála mór (*m.sh. déantúsaíocht cógaisíochta, déantúsaíocht stroighne, stáisiúin chumhachta*);
- an diantalmhaíocht (*m.sh. muca, éanlaith*);
- úsáid shrianta agus scaoileadh rialaithe Orgánach Géinmhodhnaithe (*OGM*);
- foinsí radaíochta ianúcháin (*m.sh. trealamh x-gha agus radaiteiripe, foinsí tionsclaíocha*);
- áiseanna móra stórála peitril;
- scardadh dramhuisce;
- gníomhaíochtaí dumpála ar farraige.

Forfheidhmiú Náisiúnta i leith Cúrsaí Comhshaoil

- Clár náisiúnta iniúchtaí agus cigireachtaí a dhéanamh gach bliain ar shaoráidí a bhfuil ceadúnas ón nGníomhaireacht acu.
- Maoirseacht a dhéanamh ar fhreagrachtaí cosanta comhshaoil na n-údarás áitiúil.
- Caighdeán an uisce óil, arna sholáthar ag soláthraithe uisce phoiblí, a mhaoirsiú.
- Obair le húdaráis áitiúla agus le gníomhaireachtaí eile chun dul i ngleic le coireanna comhshaoil trí chomhordú a dhéanamh ar líonra forfheidhmiúcháin náisiúnta, trí dhíriú ar chiontóirí, agus trí mhaoirsiú a dhéanamh ar leasúchán.
- Cur i bhfeidhm rialachán ar nós na Rialachán um Dhramhthrealamh Leictreach agus Leictreonach (DTLL), um Shrian ar Shubstaintí Guaiseacha agus na Rialachán um rialú ar shubstaintí a ídionn an ciseal ózóin.
- An dlí a chur orthu siúd a bhriseann dlí an chomhshaoil agus a dhéanann dochar don chomhshaoil.

Bainistíocht Uisce

- Monatóireacht agus tuairisciú a dhéanamh ar cháilíocht aibhneacha, lochanna, uisce idirchriosacha agus cósta na hÉireann, agus screamhuisc; leibhéil uisce agus sruthanna aibhneacha a thomhas.
- Comhordú náisiúnta agus maoirsiú a dhéanamh ar an gCreat-Treoir Uisce.
- Monatóireacht agus tuairisciú a dhéanamh ar Cháilíocht an Uisce Snámha.

Monatóireacht, Anailís agus Tuairisciú ar an gComhshaoil

- Monatóireacht a dhéanamh ar cháilíocht an aeir agus Treoir an AE maidir le hAer Glan don Eoraip (CAFÉ) a chur chun feidhme.
- Tuairisciú neamhspleách le cabhrú le cinnteoireacht an rialtais náisiúnta agus na n-údarás áitiúil (*m.sh. tuairisciú tréimhsiúil ar staid Chomhshaoil na hÉireann agus Tuarascálacha ar Tháscairí*).

Rialú Astaíochtaí na nGás Ceaptha Teasa in Éirinn

- Fardail agus réamh-mheastacháin na hÉireann maidir le gáis cheaptha teasa a ullmhú.
- An Treoir maidir le Trádáil Astaíochtaí a chur chun feidhme i gcomhair breis agus 100 de na táirgeoirí dé-ocsaíde carbóin is mó in Éirinn.

Taighde agus Forbairt Comhshaoil

- Taighde comhshaoil a chistiú chun brúnna a shainaitheint, bonn eolais a chur faoi bheartais, agus réitigh a sholáthar i réimsí na haeráide, an uisce agus na hinbhuanaitheachta.

Measúnacht Straitéiseach Timpeallachta

- Measúnacht a dhéanamh ar thionchar pleananna agus clár beartaithe ar an gcomhshaoil in Éirinn (*m.sh. mórfheallanna forbartha*).

Cosaint Raideolaíoch

- Monatóireacht a dhéanamh ar leibhéil radaíochta, measúnacht a dhéanamh ar nochtadh mhuintir na hÉireann don radaíocht ianúcháin.
- Cabhrú le pleananna náisiúnta a fhorbairt le haghaidh éigeandálaí ag eascairt as taismí núicléacha.
- Monatóireacht a dhéanamh ar fhorbairtí thar lear a bhaineann le saoráidí núicléacha agus leis an tsábháilteacht raideolaíochta.
- Sainseirbhísí cosanta ar an radaíocht a sholáthar, nó maoirsiú a dhéanamh ar sholáthar na seirbhísí sin.

Treoir, Faisnéis Inrochtana agus Oideachas

- Comhairle agus treoir a chur ar fáil d’earnáil na tionsclaíochta agus don phobal maidir le hábhair a bhaineann le caomhnú an chomhshaoil agus leis an gcosaint raideolaíoch.
- Faisnéis thráthúil ar an gcomhshaoil ar a bhfuil fáil éasca a chur ar fáil chun rannpháirtíocht an phobail a spreagadh sa chinnteoireacht i ndáil leis an gcomhshaoil (*m.sh. Timpeall an Tí, léarscáileanna radóin*).
- Comhairle a chur ar fáil don Rialtas maidir le hábhair a bhaineann leis an tsábháilteacht raideolaíoch agus le cúrsaí práinnfhreagartha.
- Plean Náisiúnta Bainistíochta Dramhaíola Guaisí a fhorbairt chun dramhaíl ghuaiseach a chosaint agus a bhainistiú.

Múscailt Feasachta agus Athrú Iompraíochta

- Feasacht chomhshaoil níos fearr a ghiniúint agus dul i bhfeidhm ar athrú iompraíochta dearfach trí thacú le gnóthais, le pobail agus le teaghlaigh a bheith níos éifeachtúla ar acmhainní.
- Tástáil le haghaidh radóin a chur chun cinn i dtithe agus in ionaid oibre, agus gníomhartha leasúcháin a spreagadh nuair is gá.

Bainistíocht agus struchtúr na Gníomhaireachta um Chaomhnú Comhshaoil

Tá an ghníomhaíocht á bainistiú ag Bord lánaimseartha, ar a bhfuil Ard-Stiúrthóir agus cúigear Stiúrthóirí. Déantar an obair ar fud cúig cinn d’Oifigí:

- An Oifig um Inmharthanacht Comhshaoil
- An Oifig Forfheidhmithe i leith cúrsaí Comhshaoil
- An Oifig um Fianaise is Measúnú
- Oifig um Chosaint Radaíochta agus Monatóireachta Comhshaoil
- An Oifig Cumarsáide agus Seirbhísí Corparáideacha

Tá Coiste Comhairleach ag an nGníomhaireacht le cabhrú léi. Tá dáréag comhaltaí air agus tagann siad le chéile go rialta le plé a dhéanamh ar ábhair inní agus le comhairle a chur ar an mBord.

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Climate Change in Irish Media



Authors: Eileen Culloty, Alan Smeaton, Jane Suiter, Padraig Murphy, Pat Brereton, Dian Zhang and Dave Robbins

The climate change in Irish media project represents a systematic effort to map climate change coverage in Ireland. Research indicates that public concern about climate change is largely derived from media consumption.

Some large-scale international studies have included Ireland, but there have been few in-depth studies of climate change across Irish media. This project investigated coverage trends across print, broadcast and online media in order to make recommendations for climate change communicators. The research was undertaken by a multidisciplinary team from the Insight Centre for Data Analytics; the Dublin City University (DCU) Institute for Future Media and Journalism; and the DCU Celsius Research Cluster.

Identifying Pressures

Media coverage of climate change is influenced by an evolving set of relationships between media production practices, scientific knowledge, policy agendas, and public understanding and engagement. In Ireland, media coverage of climate change has broadly followed international trends. Between 2007 and 2015, newspaper coverage peaked during international climate change conferences and extreme weather events and fell when other pressing issues, such as politics and economics, dominated the news agenda. Moreover, there is a dearth of visual communication linking climate change to topical news stories such as flooding, economic recovery and agriculture. Prior to 2000, climate change was largely an invisible issue for the public broadcaster. Since then, the volume of coverage has fluctuated. Coverage fell significantly following the financial crisis and did not recover until the build-up to the United Nations Conference of the Parties in 2015. On social media, climate change discourses are led by distinct influential groups, including the mainstream media, the non-governmental organisation (NGO) sector and international political actors.

Informing Policy

The research offers a greatly improved understanding of media coverage of climate change in the Irish context. In addition to research publications, the key findings have informed actions on sustainability in Irish media production, the development of educational programmes on climate change media and policy, and contributions to national research committees. The research has also facilitated engagement with media and NGO stakeholders in order to co-produce a set of recommendations for climate change communicators.

Developing Solutions

The project identified a number of recommendations for climate change communicators. It outlines the need to develop a nuanced understanding of media practices and production norms across different types of media. Moreover, effective communication within the media sphere will benefit from the identification of credible sources and experts who can clearly communicate to a non-expert audience while also elucidating the relevance of climate change across a range of national and international contexts.