Game of frames: the competition to establish the dominant framing of climate change among journalists, ministers and political advisors

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<u>Dedication</u>

This work is dedicated to my wife Fran and my daughter Grace. To Fran, thank you for your support, and your belief in this project. To Grace, thank you for helping me keep it in perspective.

"Once you have eliminated the impossible, whatever remains, however improbable, must be the truth." Sherlock Holmes, *The Sign of Four,* 1890.

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Abstract

This research is concerned with the competition between various actors – journalists, government ministers and their advisors – to establish the dominant framing of climate change during a particularly eventful period of Irish political history, during which the Green Party was in government and Ireland underwent a dramatic financial crisis. Three levels of analysis are presented: a content analysis to determine levels and trends in media attention for climate change; a frame analysis to uncover journalistic framings, and analysis of interviews with environmental journalists, government ministers and media advisors. The findings of these analyses are then discussed in relation to the dynamics of framing and theories of agenda systems. The explanatory power of the mediated issue development model proposed by Nisbet and Huge (2006) is also assessed in relation to Ireland's media coverage of climate change.

Ireland's media coverage of climate change is framed in predominantly political terms, while economic frames, frames emphasising the scientific consensus and frames foregrounding the moral and ethical aspects of the topic are also strongly represented. Sceptic arguments are not present in the coverage to any great degree, are largely confined to the opinion section and consist of dismissive and sarcastic references rather than substantive arguments.

The frame competition emerges as a complex process in which government ministers attempt differing communications strategies: one minister emphasised a responsibility frame, while the other foregrounded economic and opportunity framings. Journalists, however, were constrained by news values and their journalistic culture and preferred political framings. These political framings stopped short of implicating the existing political and economic structures in creating climate change, but favoured ecomodern perspectives and solutions emphasising efficiency and techno-managerial solutions.

More recent Irish media coverage of climate change has focused on constituent issues such as waste, water, energy efficiency and transport, thus further de-politicising the issue.

The concluding remarks include recommendations for best practice in covering and communicating about climate change, including the necessity of employing specialized environment correspondents, the need to tailor news subsidies in a strategic manner, and the advisability of employing flexible framing strategies. The role of journalists as political media advisors is also assessed.

Chapter 1 - Introduction

"Continued emission of greenhouse gases will cause further warming and long-lasting changes in all components of the climate system, increasing the likelihood of severe, pervasive and irreversible impacts for people and ecosystems." – IPCC 5th Assessment Report, Synthesis Report, Summary for Policymakers, November 2014

"We have the means to limit climate change. The solutions are many and allow for continued economic and human development. All we need is the will to change, which we trust will be motivated by knowledge and an understanding of the science of climate change." – R. K. Pachauri, Chair of the IPCC. November 2, 2014.

"Climate change is not a priority for Ireland." – Taoiseach (prime minister) Enda Kenny, briefing to journalists, COP21, Paris, November 30, 2015.

1.1 Introduction

This thesis is concerned with investigating the extent and nature of Ireland's print media coverage of climate change between 2007 and early 2016, with examining the framing strategies of the journalists who authored much of this coverage, and the politicians and media advisors who sought to contribute to, increase or influence it.

In this chapter, I intend to set out briefly why such a project is worthwhile, and to set my research in context. I also state in which respects this project comprises an original contribution to knowledge of media coverage of climate change, and reflect on my role as a practitioner-scholar to carry out such research. Finally, an explanation of how the remaining chapters of the thesis are organised is given.

This research takes as a starting point a disparity between the findings of climate science and institutional and political responses (Moser and Dilling, 2004; Nerlich, 2010; Schäfer *et al.*, 2014). The varied social responses to the challenge of climate change, from those who contend it "changes everything" (Klein, 2014) to those who maintain it is "the greatest hoax ever perpetrated…" (Inhofe, 2012), is also of interest to scholars of media coverage of climate change. Such scholars, myself included, are motivated to examine the media's role in amplifying and interrogating such perspectives.

This scholarly interest is based on several aspects of the media's role and influence in society. The first relates to a long-standing research area in media studies: the agenda-setting power of the media to influence public perceptions of salience (McCombs and Shaw, 1972; McCombs, 2004; Weaver, 2007; Van Aelst and Walgrave, 2011). Agenda-setting argues that the more media coverage is devoted to an issue, the more important the public perceives the issue to be. Thus, levels of media attention for climate change are important because they can move the issue to the top of the public's agenda and lead to pressure on governments to act (Newell, 2000).

The second relates to the normative role of the media in relation to informing the public. For many, climate change is an unobtrusive problem (Atwater, 1985 cited in Shanahan

and Good, 2000) which is experienced predominantly through the media (Anderson, 2011; Nelkin, 1987). Many scholars believe it is the media's job to act as society's watchdog, and to warn of impending risks and harm (Gil de Zúñiga and Hinsley, 2013), and the academy has been interested to establish whether the media are fulfilling this role with regard to climate change (Hiles and Hinnant, 2014). Concern over the transmission of relevant information regarding the findings of climate science via the media also connects with other scholarship regarding the communication of science in general, and whether the media is fulfilling its normative role in its treatment of other complex socio-scientific issues (Nisbet & Fahy, 2015).

A third reason why media coverage of climate change is of interest relates to the media's role in creating a "public sphere" (Habermas, 1989) in which societies can present and debate issues of common concern before arriving at agreed actions. Motivated actors engage in claims making in this sphere, and these may include citizens, lobbyists, non-governmental organisations, politicians and policy advocates, as well as the media. Often, it is here that a competition takes place to establish dominant narratives about certain issues

This thesis pays particular attention to a fourth reason: media coverage of climate change is of interest regarding *how* (and not just *how often*) it covers the issue. This "how" is revealed by the framing devices employed by journalists and other claims makers communicating about the issue. It is helpful here to give a brief definition of framing; the development of framing as a theory of media effects is considered in section 3.6, and the process by which a frame analysis of Irish print media texts about climate change was carried out for this thesis are explained and discussed in section 4.7. Framing is the

necessary process whereby information is presented so that the receiver understands and interprets it in certain ways. Framing is "the setting of an issue within an appropriate context to achieve a desired interpretation or perspective" (de Blasio and Sorice, 2013, p. 63). The origins of framing as a means of understanding communication lie in sociology, and framing was initially conceived as a means of organising "the information of everyday life" (Goffman, cited in Bowe et al 2012, p. 158). It became attractive to scholars of media because media frames – the elements of a story foregrounded by the journalist – were found to influence how audiences perceived certain issues. These media frames contained elements of problem definition, causal interpretation, moral evaluation and treatment recommendation (Entman 1993, p. 52).

The competition to establish a dominant narrative or perception in the public and media discourse is a key element of framing, and of various approaches to the dynamics of agenda systems. The framing of climate change is important, because certain frames encourage public engagement with the issue, while others discourage it, and some may promote sceptic attitudes towards mitigation or adaptation policies (Gavin & Marshall, 2011; Nisbet, 2009; Painter, 2011). Furthermore, framings may change over time as an issue progresses along a media trajectory, moving from one policy venue to another, becoming subject to claims making by diverse groups and these changes have implications for public and policy responses to the issue (Hilgartner and Bosk, 1988; Kingdon, 1995; Jones and Baumgartner, 2012). This examination of media framings is illuminated further through interviews with journalists, politicians and media advisors to give a multi-level analysis of climate change communication in Ireland during the timeframe under study.

1.2 The scientific context

The Fifth Assessment Report (AR5) of the United Nations Intergovernmental Panel on Climate Change (IPCC), published in November, 2014 makes it clear that "Continued emission of greenhouse gases will cause further warming and long-lasting changes in all components of the climate system, increasing the likelihood of severe, pervasive and irreversible impacts for people and ecosystems" (IPCC, 2014, p. 2) The series of reports that comprise AR5 make it clear that climate change is a serious threat requiring international action. At the time of writing, AR5 is the latest in a series of assessments of the effect of greenhouse gases (predominantly carbon dioxide, methane and nitrous oxide, although chloro-fluorocarbons and sulphur hexafluoride contribute to the greenhouse effect also) are having on the atmosphere. The first of these reports was published in 1990 and the others have followed every five, six, or (as in the case of AR5) seven years. The language concerning the anthropogenic contribution to climate change in the reports has become more definitive over time, with AR5 declaring that "warming of the climate system is unequivocal" (IPCC, 2014, SPM 1.1, p. 2) and that

> Anthropogenic greenhouse gas emissions have increased since the pre-industrial era, driven largely by economic and population growth, and are now higher than ever. This has led to atmospheric concentrations of carbon dioxide, methane and nitrous oxide that are unprecedented in at least the last 800,000 years. Their effects, together with those of other anthropogenic drivers, have been detected throughout the climate system and are *extremely likely* to have been the dominant cause of the observed warming since the mid-20th century. (Ibid., SPM 1.2, p. 4, emphasis in original).

The Summary for Policymakers issued by the IPCC in tandem with the AR5 Synthesis Report in 2014 begins with a description of "observed changes" in the global climate: "The atmosphere and ocean have warmed, the amounts of snow and ice have diminished

and sea levels have risen." These changes have led to "widespread impacts on human and natural systems." The Summary outlines the IPCC's projections for future warming under a number of different emissions scenarios. The IPCC undertook "multi-model mean projections" to arrive at several climate scenarios, called "representative concentration pathways" or RCPs. For example, under RCP 2.6 (which envisages dramatic emissions reductions and adaptation measures), warming is kept below the widely accepted tipping point of 2 degrees Celsius, sea level rise is stabilised and rainfall pattern is relatively unchanged. However, under RCP 8.5 (which envisages emissions continuing to rise at current rates), there is a dramatic reduction in rainfall in the middle latitudes (-10 to -20 per cent), a dramatic increase in rainfall in the northern and southern latitudes (up to + 50 per cent) and temperature increases of up to 9 degrees Celsius by 2100. (IPCC 2014: 12).

The Assessment Reports of the IPCC are representative of a broad scientific consensus on the anthropogenic contribution to climate change. The National Academies in the United States have also confirmed the human influence in rising levels of CO_2 and other greenhouse gases (GHGs) (Brand, 2010, p. 15). A study of 11,944 scientific papers on climate change published between 1991 and 2011 showed that between 97.1% and 97.2% of scientific literature which expressed a position on the origins of climate change endorsed the existence of anthropogenic global warming, and described the number of papers rejecting the consensus on anthropogenic global warming as a "vanishingly small proportion of published research". (Cook et al 2013: 1). This has led some to describe the current geological period, previously known as the Holocene, as the "Anthropocene", due to the increasing impact of humans on the planet (Crutzen, 2006; Steffen, Crutzen and McNeill, 2007).

Ireland has contributed to, and been affected by, global warming. During the period 1995-2005, the country witnessed changes in settlement patterns, deteriorating environmental quality and considerable expansion of transport, waste and water usage. (Pape et al 2011: 29). Indeed, Ireland recorded "the highest percentage increase of greenhouse gas emissions from the transport sector of any EU state during the period 1990-2003". (Flynn 2007: 58). Provisional measurements show that Ireland's total greenhouse gas emissions for 2016 amounted to 61.19 million tonnes of CO2 equivalent (Mt CO2eq) (EPA Ireland, 2017) and Ireland is one of only 12 parties to the United Nations Framework Convention on Climate Change (UNFCCC) to show an increase in total aggregate anthropogenic emissions of greenhouse gases between 1990 and 2015 (UNFCCC, 2017). Ireland's per capita emissions are relatively high; the country is the third highest per capita emitter in the EU (Ó Fáharta, 2016). This elevated per capita figure is largely due to the distorting effect of emissions from the agriculture sector, which is expected to account for over 45% of Ireland's non-ETS emissions by 2020. Ireland is required by the EU to reduce its non-ETS emissions by 20% (as measured against 2005 levels) by 2020. (Environmental Protection Agency, 2014). It is expected to miss the 2020 target by a wide margin (Climate Change Advisory Council, 2017b; Melia, 2017). In addition, Ireland is, at the time of writing, involved in EU-wide negotiations regarding an Effort Sharing Regulation which will set emissions targets for 2030. (Environmental Protection Agency, 2014). Ireland has been criticised for adopting a negotiating position aimed at reducing the ambition of the 2030 targets. (O'Sullivan, 2017b)

Meanwhile, the impacts of climate change are beginning to be felt in Ireland, with increased rainfall, fewer frost nights and more frequent flood events (Environmental Protection Agency 2009; McElwain & Sweeney, 2007; Sweeney, 2000), with

implications for Ireland's agriculture (Sweeney *et al.*, 2003, 2007), fisheries (Pinnegar et al, 2017), and economy (Flood, 2012; Government of Ireland, 2017).

Since the publication of AR5, the findings of climate science suggest that the models used by the IPCC have underestimated the rate of warming and the extent of impacts (Harrison et al., 2016; Stern, 2016). However, political responses to climate change have been largely inadequate (Giddens, 2009), and it is considered that even the international agreement to reduce global emissions arrived at in Paris in December 2015 may not include sufficient measure to keep global warming to below 2C (Anderson & Peters, 2016a, 2016b).

1.3 The policy context

The policy response to climate change in Ireland has been slow, leading to the suggestion that Ireland is a "laggard" when it comes to climate policy (Torney & Little, 2017). On September 30 and October 1, 2017, Ireland's Citizens' Assembly[1] (an exercise in deliberative democracy in which 100 citizens consider social issues) considered the topic of "How the State can make Ireland a leader in tackling climate change". The Citizens' Assembly meeting was the most recent in a range of climate-related publications and initiatives, including a National Mitigation Plan (Government of Ireland, 2017) and a public consultation process entitled the National Dialogue on Climate Action, mandated by the Programme for Government agreement between Fine Gael and several

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[1] Details of the Assembly can be found at www.citizensassembly.ie and archive video footage of the first of two sessions considering the topic "How the State can make Ireland a leader in tackling Climate Change" can be accessed at https://www.youtube.com/channel/UC2DgyetL9aUTMry_F9B9yUw

independent deputies. Some of these initiatives were mandated in Ireland's primary climate change legislation, the Climate Action and Low Carbon Development Act (Government of Ireland, 2015). In general, the policy responses to climate change in Ireland, including the Act, have been roundly criticised for (i) the absence of binding sectoral targets for emissions reduction, and (ii) the lack of specific policy proposals as to how a transition to a low-carbon economy and society is to be achieved (Torney, 2017). Indeed, the Climate Change Advisory Council, an expert body established by the 2015 Act, has warned, firstly, that Ireland's emissions are in fact rising in the agriculture and transport sectors, and that, "in the absence of further policies or measures, the overshoot on emissions could be even larger than currently projected" (Climate Change Advisory Council, 2017b, p. 10). At the meeting of the Citizens' Assembly, it was remarked that making Ireland a leader in tackling climate change was "fanciful", that Ireland was failing "spectacularly" to meet its obligations on emissions reduction, and that it might be a better first step to ensure Ireland simply did its fair share (O'Sullivan, 2017a).

1.4 The social and political context

Political progress in advancing climate legislation has been a slow and contested process, with sectoral interests, particularly the agriculture lobby, arguing against specified targets. At various points since Ireland was assigned emissions targets as a result of the burden-sharing agreement of the Kyoto Protocol in 1998, a range of political parties including the Green Party, Labour and Fine Gael have been involved in proposing climate legislation (Torney, 2017). A comprehensive bill was proposed by the Labour Party in 2007, another by the Green Party in 2010; neither was enacted. A less stringent bill was proposed by a Fine Gael minister in 2013, and a version of this legislation was again

presented by his Labour Party successor in 2015, at which point it was passed by the Oireachtas (Ibid.).

The Labour Party bill of 2007 was introduced as a private member's bill in the Seanad (upper house) when the Labour Party was in opposition, and stood little chance of being accepted by the government. The 2010 bill, put forward by the Green-Fianna Fail government, had been accepted at cabinet, and was in a consultation period when that government fell. The 2015 Act was passed by a Fine Gael-Labour coalition. An interesting difference in the drafting of the 2010 Greens-led legislation and the 2015 Fine Gael-led Act relates to the composition of a "national expert advisory body on climate change" (now called the Climate Change Advisory Council, mentioned above). In the 2010 bill, the chief executives of the Environmental Protection Agency and the Sustainable Energy Association of Ireland were proposed as *ex officio* members of this body; in the 2015 legislation, these were augmented by the director of Teagasc, the state agricultural research agency, and the director of the Economic and Social Research Institute, signalling a turn away from an environmental emphasis and towards an agricultural and economic one.

Two further developments permit insights into the political and social contexts in which this research is set. Firstly, at the UN climate change conference in Paris in December, 2015, Taoiseach Enda Kenny (in common with all other government leaders) addressed the COP, saying that climate change "requires action by everybody, big and small. Ireland is determined to play its part". However, he also alluded to Irish agriculture, saying it was "already efficient" (Kenny, 2015). Meanwhile, in a briefing to the Irish media, he said that tackling climate change was not a priority for Ireland, defended the agriculture sector

and blamed a "lost decade" of economic growth for Ireland's inability to prioritise climate action (McGee, 2015a; McGee and Marlowe, 2015; Melia, 2015). The disparity between the public speech and the private briefing were seen as symbolic of Ireland's attitude to climate change: public alignment with EU and other policy objectives combined with domestic indifference and business as usual, especially in regard to agricultural growth (An Taisce, 2015; Gibbons, 2015).

Secondly, the recent emergence of a climate contrarian organisation in Ireland entitled the Irish Climate Science Forum has challenged a broad social and political consensus on the anthropogenic origins of recent climate change (Gibbons, 2017). The group have, at the time of writing, hosted two closed meetings at which noted climate deniers (Richard Lindzen and William Happer) addressed the audience. Lindzen was the subject of an open letter from MIT scientists dissociating themselves from Lindzen's appeal to President Trump urging the US to withdraw from the Paris climate change agreement (Hirji, 2017), while Happer, among those being considered for the post of science advisor to the White House, has espoused a range of denier positions (Readfearn, 2017). Both Happer and Lindzen questioned the contribution of methane to global warming. The meetings were covered by the media (even though journalists were prevented from attending) and the claim that methane was contributing less to the warming effect than previously thought was dismissed as "balderdash" by eminent climate scientist John Sweeney (Boucher-Hayes, 2017).

Ireland, then, is a small country with a large per capital emissions profile, whose emissions from the transport and agriculture sectors are rising; Ireland will not meet its emissions reductions targets in 2020, and has not produced any policy initiatives that

might help it to meet its 2030 targets. Despite some recent climate-related initiatives, Ireland remains a laggard in terms of climate legislation, and the issue remains low on the political agenda.

1.5 The media context

Ireland's media system exhibits characteristics that place it in the North Atlantic or Liberal model, such as medium newspaper circulation, neutral commercial press and strong professionalisation within the journalism sector (Hallin and Mancini, 2004). As this research is concerned with print media (a decision discussed in detail in Chapter 4), it is helpful to sketch the media landscape as it pertains to the newspaper market. Sales of print newspaper are dominated by Independent News and Media, which publishes several leading titles, including the *Irish Independent,* the *Sunday Independent,* the *Sunday World,* and the *Evening Herald.* The Irish Times Trust Ltd. publishes the *Irish Times* and, at the time of writing, is in talks to buy the *Irish Examiner* from Landmark Media. Several UK media organisations publish Irish editions, such as News International (the *Times Ireland* and the *Sunday Times* Ireland edition, the *Irish Sun*), Trinity Mirror (the *Irish Mirror*) and Associated Newspapers (the *Irish Daily Mail*). Some 76% of the Irish population read a newspaper between two and three times per week (Flynn, 2016), although newspaper circulation and readership is falling (ABC Ireland 2017). The circulation and readership figures for the newspapers studied in this thesis are given below.

Table 1.1: Circulation and readership of seven national Irish newspapers

Title	Number of copies sold	Readership
Irish Independent	95,502	508,000
Irish Times	62,423	317,000
Irish Examiner	28,338	194,000
Irish Daily Mail	41,027	172,000
Sunday Independent	185,080	852,000
Sunday Business Post	30,202	109,000
Sunday Tribune	54,400	171,000

Circulation figures relate to the period January to June, 2017; readership figures relate to 2014-2015. Source: Newsbrands Ireland. Note: the Sunday Tribune *ceased publication in 2011. The* Tribune*'s circulation and readership figures relate to 2010.*

Although Ireland records a low score on the Media Pluralism Monitor, the score for concentration of media ownership is high, principally due to the influence of businessman Denis O'Brien, who has extensive cross-media holdings in radio, online and print media, and is the largest shareholder in INM (Flynn, 2016). The media market in Ireland is quite diffuse, with legacy titles such as those of the Independent group and the *Irish Times* continuing to be influential, while net native news outlets such as thejournal.ie grow their audiences. However, the state, in the form of RTÉ's television, radio and online news offerings, dominates the media landscape (McNamara *et al.*, 2017). This brief outline is intended to give a sense of the media environment in Ireland and to establish the reach, and the agenda-setting potential, of the titles examined. The six titles listed above have a combined circulation of 496,972 copies, and a combined readership of 2,323,000,

representing considerable market penetration. Critical perspectives on the Irish media landscape from journalism history (O'Brien, 2017), political economy (McCullagh, 2008; Cawley, 2012; Preston and Silke, 2014), journalism practice (Heravi, Harrower and Boran, 2014), and more general perspectives on the role of the media in Irish society (Bell, 1986; Horgan, 2001; Truetzschler, 2007; Horgan and Flynn, 2017) are acknowledged; however, the critical focus of this work remains the framing strategies of those communication about climate change during the timeframe examined.

1.6 Critical perspectives on media coverage of climate change

Climate change became a media topic in the US in 1988, following the testimony of NASA scientist James Hansen to a US Congressional committee in the summer of that year (O'Donnell, 2000; Boykoff and Boykoff, 2004; Russill, 2008; Killingsworth and Palmer, 2012). How the media have covered the topic since then is an established and growing academic field. Early scholarship concentrated on whether media coverage was scientifically accurate, or whether the over 97% scientific consensus on anthropogenic global warming was reflected in media reports. Other strands in this field considered the representations of sceptics in the media, the influence of journalistic norms on climate change coverage, and the question of how coverage was framed. Even though journalistic work practices, routines and norms were examined, the perspective of journalists and editors themselves was largely absent from such studies. Furthermore, much of the scholarship of media coverage of climate change is naturally concerned with media texts, either with measuring their frequency or analysing the frames they contain. The question of how media frames perform in the competitive environment described in agenda

systems scholarship is a neglected area. The interaction of the frames advanced by claims makers and issue entrepreneurs with the frames favoured by journalists has therefore not been fully explored.

Ireland's media coverage of climate change has been a relatively neglected research area. Although some work has been done of the framing of climate change and related topics in Irish newspapers (McNally, 2015; Wagner and Payne, 2015), the area of frame competition, whereby various actors compete to establish the dominant frame, has not been explored. Much of the research carried out on Irish media examines media representations only; this wider perspective is missing.

This thesis aims to uncover the framing strategies of a range of influential actors communicating about climate change during a particularly dramatic period in Irish political history. These actors include the environment correspondents of the major media organisations, national newspaper editors, government ministers and political media advisors. This work offers three levels of analysis:

(i)   firstly, trends in Irish coverage are revealed by a quantitative content analysis;

(ii)   secondly, the framing strategies of journalists are uncovered by means of a frame analysis of a representative sample of climate articles;

(iii)   thirdly, these journalistic frames are made more explicit by interviews with environmental journalists, while the framing strategies of other actors are also investigated by means of interviews. These interviews permit rare and privileged insights into the wider competitive communications environment around climate change during the timeframe under examination.

This research also aims to build on this earlier work, both in scope and breath of perspective. It expands on Wagner and Payne's 2015 work by considering a greater number of newspaper titles over a longer timeframe. Wagner and Payne carried out a frame analysis on a one-year sample of articles; this thesis includes a more detailed (10 frames versus four used by Wagner and Payne) frame analysis over 10 years. McNally's work is concerned with print media representations of low carbon transition and decarbonisation and does not discuss climate change directly (McNally, 2015). Therefore, this thesis contributes to our understanding of Ireland's media coverage of climate change by broadening and deepening the analysis of media attention and media framing, and contributes to the understanding of media coverage of climate change more generally in its examination of the frame competition engaged in by elite actors.

1.7 The perspectives of practitioner scholars

It is necessary to be explicit about the possibility of bias in qualitative research (Ortlipp, 2008) and the importance of reflexivity in examining one's own work (Kuo, 2008). I am one of a growing number of former journalists who have joined the academy; I worked as a reporter, sub-editor, columnist, section and magazine editor in national print journalism for 25 years before joining the academic staff at Dublin City University. This experience permits me some insights and critical tools unavailable to non-practitioner scholars (Niblock, 2007), but it also carries with it a risk of a narrow analytic focus and a propensity to foreground considerations of journalism practice, sociology of journalism, newsroom cultures and journalistic work routines. In addition, I am a member of the Green Party, stood as a Green Party candidate in the local elections of 2009, and worked as an advisor to the Green Party Minister for the Environment, Heritage and Local

Government. Once again, this involvement in electoral politics and public policy allows for "insider knowledge" of how these worlds work, but also carries the risk of bias in privileging narratives and explanations of events which favour a Green Party perspective.

Much scholarly analysis of journalism adopts approaches derived from sociology, and many researchers in the area of journalism practice have felt "limited by these sociological discourses in research and are seeking to bring practice to the forefront" (Ibid. p. 21). There has been a growth in reflective research, with former practitioners such as Roy Greenslade and Barbie Zelizer bringing insights from the professional world to their work. Indeed, Zelizer has argued that a range of perspectives is required to further understand journalism, including those offered by former or continuing practitioners (Zelizer, 2004, p. 4). There is also a body of scholarship relating to the role of scholar-practitioners in the field of organisational psychology and business studies; the work of Edgar Schein (1988, 2010) is influential in setting out the role and beneficial influence of scholar-practitioners (Wasserman and Kram, 2009). Scholar-practitioners are "actors who have one foot each in the worlds of academia and practice and are pointedly interested in advancing the causes of both theory and practice" (Tenkasi and Hay, 2004, p. 49). My experience in journalism practice, politics and policy may therefore allow the communication of a deeper understanding of the processes at work in these arenas. Furthermore, my "insider" status is a considerable advantage in securing and carrying our research interviews, as "practitioner-scholars who have inroads with a particular group can use this route to increase understanding, gain access, and build confidence in participants" (Hiles and Hinnant, 2014, pp. 436–7). Likewise, the unspoken norms of a particular profession or endeavour can be made explicit, as "tacit knowledge" (Polanyi, 1958) is shared among those with a common understanding (Lam, 2000).

The research methods themselves constitute a corrective to possible bias on the part of the researcher as far as is ever possible. The integrity of the quantitative element of the research is evident, as set out in Chapter 4. The possibility of researcher bias in the frame analysis and interview process is guarded against by (i) using an established frame typology, and (ii) carrying out in-depth research, asking open-ended questions and engaging in researcher reflexivity, measures recommended to ensure the trustworthiness of the research (Poggenpoel and Myburgh, 2003; Sampson, 2012).

1.8 Organisation of thesis

The remainder of this thesis is divided into three distinct parts. Firstly, the literature relating to media coverage of climate change is examined in the next chapter (Chapter 2) with a view to discerning trends, gaps and long-standing preoccupations. This literature is, in turn, divided into three broad phases:

(i)   an initial phase concerned with measuring media attention and evaluating media representations of science,

(ii)   a second phase concerned with uncovering and analysing frames and discourses in media texts and with analysing sceptic arguments present in media coverage,

(iii)   and a third phase in which the broad topic of climate change is disaggregated into sub-topics such as flooding, carbon, public health, environment and renewable energy, among others. In this third phase, the media analysed also become more diverse, with a growing focus on digital media and visual representations of climate change.

This part of the thesis also considers the literature relating to how issues appear on the media, public and policy agendas, and how they rise to the top of these agendas, or fail to do so (Chapter 3). Firstly, the media's role in these processes is examined. Media effects including agenda-setting, second-level agenda-setting and priming are discussed, but there is a focus on framing as a powerful media effect. Subsequently, perspectives from outside the media on the question of how social problems appear and rise on public agendas are discussed. These include approaches from agenda systems theory, such as multiple streams (Kingdon, 1995), punctuated equilibrium (Jones and Baumgartner, 2012) and the public arenas model (Hilgartner and Bosk, 1988). Approaches which allow for media effects alongside broader public, political and policy influences, such as issue attention cycles (Downs, 1972), are also discussed in this section, as is the theory of mediated issue development (Nisbet & Huge, 2006), which seeks to explain agenda dynamics in a way which does not downplay or neglect the role of the media.

The second section of the thesis deals in more detail with the focus of the research, including the research question, and also with the collection and analysis of relevant data. The methodologies used to collect and examine data in order to address the research question are set out and discussed (in Chapter 4), while the results are presented and analysed subsequently (in Chapters 5 and 6). Briefly, a content analysis is carried to establish levels of coverage of climate change between January 2007 and February 2016 in seven national newspapers. This large sample of articles is reduced, and a frame analysis is carried out on the reduced corpus. The coding system used for this research allows for both "dominant" and "secondary" frames to be identified, permitting detailed analysis of both of the most prominent frames in each article, but also of the frames most

often appearing alongside these dominant frames. The frequency of frames, the titles in which they appear, the article type containing the frames and the topics to which the frames refer are presented and analysed in depth in this section. Subsequently, the framing strategies of journalists, politicians and media advisors is investigated further by means of 12 semi-structured interviews. The data from these interviews is set forth and discussed in Chapter 6.

This research is also concerned with the influence of the Green Party on media coverage of climate change during a period in which the party was in government and two of its members held ministerial portfolios. It is in this second part of the thesis that this influence is investigated, both quantitatively, by means of content analysis of climate press coverage mentioning the Green Party, and qualitatively, in interviews with journalists, the ministers themselves and their media advisors. It is found that increased coverage of the Green Party also increases coverage of climate change; however, when coverage of climate change increases, as it does around UN climate conferences, this increase does not affect levels of media interest in the Greens.

The third part of the thesis (Chapter 7) aims to synthesise the discussion and analysis which has gone before, drawing conclusions as to the significance of this research and its contribution to our understanding of media coverage of climate change and the framing strategies of those communicating about it. The limitations of the research are considered in this section, and some areas for further research are discussed. The discussion focuses on the outcome of the complex frame competition in which journalists, government ministers and their advisors were engaged, and evaluates the framing strategies employed. These strategies are examined in the light of the analysis of media texts, where

such frames are made manifest. From this analysis, a complex picture emerges in which journalists frame climate change in predominantly political terms, while ministers and their advisors emphasise responsibility and economic framings. A disconnect between the empirical data on media framings and the ways in which individual journalists describe their frame strategies is also evident. The differing communications strategies, of the two government ministers interviewed, are also discussed in this concluding section.

Chapter 2

The media and climate change

2.1 Introduction

This chapter considers how the media functions in relation to climate change, and reviews the scholarly literature in this area. It begins with a brief outline of the scholarship of media theory and various sociological approaches to the study of journalism and journalists. This is not meant to be an exhaustive review; it is intended to give the reader a sense of how media scholars have found the media to operate generally before seeking to understand how they operate in relation to the single although complex issue of climate change in particular. In this section, there is a necessary emphasis on "legacy" media, and print media in particular, as many of the influential theories considered pre-date the arrival of digital media. Subsequently, a literature review of the scholarship of media coverage of climate change is presented.

The study of media representations of climate change is a growing area of research (Doulton and Brown, 2009). It is also a multi-disciplinary research field. However, despite the diversity of approaches and methodologies, studies are generally derived from long established research agenda in the fields of media and communication and are predicated on the notion that increased media attention for a particular issue creates, reflects, influences or shapes public perceptions of that issue. The ways in which these effects are manifest are considered in detail in the next chapter; here, it is sufficient to note that whether, how and to what extent the media cover a particular issue has an effect on how the public and the policy world perceives that issue.

Such scholarship takes as a starting point two separate but related aspects of the media: first that the public gets most of its information about science from the mass media (Nelkin, 1987; Wilson, 1995), and second, the public associates high levels of coverage with salience (McCombs and Shaw, 1972; Ungar, 2000a; McCombs, 2004). Public amplification in the media "provides a certification of importance" (Schudson, 1995, p. 20); elsewhere, the same author adds: "When the news media offer the public an item of news, they confer on it a public legitimacy." (Schudson, 2011, p. 22). The media are "central agents for *raising awareness* and *disseminating information* (Schäfer et al. 2014, p.1233, emphasis in original), and their coverage of climate change may create circumstances "where it is conducive for governments to act, or hard for them not to act in the face of perceived pressure to initiate a policy response" (Newell, 2000, p. 94). Furthermore, mass media are an important forum in which various responses to climate change are discussed and legitimated (Nanz and Steffek, 2004, p. 321; Schneider, Nullmeier and Hurrelmann, 2007, p. 136). They are also a forum in which various societal actors – ENGOs, business associations, political parties, policymakers – may put across their views and in turn have these views exposed to feedbacks from others (Steffek, 2009, p. 315). Where there is disagreement about the effects of climate change, or even the extent to which is it anthropogenic, or about mitigation or adaptation measures which may or may not be undertaken, the media helps clarify the positions of the various societal actors on the issue (Peters, 2008, p. 131).

Broadly, there are two main strands of media coverage of climate change research: studies which strive to understand why coverage rises and falls in particular contexts, and studies which examine the nature of the coverage itself. These two approaches could also be said to be focused externally (at the social, ideological and institutional forces

affecting general media attention for climate change) and internally (at the work of the journalist, the framing and lexical choices he or she makes, the sourcing practices he or she engages in and the professional norms to which he or she is subject). This extensive body of research can also be divided into three distinct thematic phases: an initial phase of research which concerned itself with measuring media attention, with assessing whether the media reported climate science accurately, with ascertaining whether the scientific consensus on the anthropogenic element of climate change was reflected in the coverage and with detecting the presence of sceptic, denialist or contrarian voices; a second phase involving a more diverse examination of media texts through the explanatory lenses of framing theory, critical discourse analysis and other theoretical approaches. The coverage of discreet events, rather than the broad topic of climate change, was examined in this phase (e.g. COPs, IPCC reports and weather events). Research into social media coverage of climate change was also undertaken in this phase. And a third phase which has diversified into coverage of various constituent parts of the climate change issue. In this phase, subjects such as visual representations of climate change, media treatment of carbon, perceptions of risk, the role of celebrities, flooding, weather, transition to carbon-free societies, sustainability, landscape, and energy are examined. These phases are broadly aligned with the chronology of media coverage of climate change research, with the first phase occurring in the years after the subject became a media topic following NASA scientist James Hansen's testimony to a US Congressional hearing in 1988. The alignment of chronology with these three groups is not rigid however; research on framing and attention levels continues to be published (e.g. Wagner & Payne 2015), as do studies devoted to the analysis of sceptic discourses (e.g. Reed 2016).

This study aims to add to this body of research in certain important areas. Firstly, in relation to the first phase of media coverage of climate change research, it aims to perform the essential measurement work on media attention in Ireland, which may in turn form the basis of further research for other scholars; secondly, in relation to the second, more exploratory phase, it aims to provide a frame analysis of Ireland's national press coverage of the topic, and thirdly, it aims to provide valuable perspectives from journalists, politicians and media advisors, relating both to the production of media coverage and also to the frame competition played out in the media arena in relation to climate change.

2.2 Theoretical approaches to understanding and analysing the media

To examine how the media have represented climate change, one must first understand how the media represents things in general. The perspectives offered by media studies, journalism studies, various ethnographic approaches, political economy and other academic disciplines are valuable in analysing how the media work on three levels: media systems, newsroom cultures and the sociology of the individual editor or reporter.

The *media system* in operation in a given territory at a given time will necessarily have an influence on the content of the media outlets within that system (Siebert, 1956). There have been various attempts to provide a reliable taxonomy of media systems, starting with Fred Siebert's influential work in 1956, *Four Theories of the Press* in which four basic media systems (authoritarian, libertarian, social responsibility and Soviet totalitarian) were proposed. A fifth, based on media ownership, was suggested (Merrill and Lowenstein, 1979) and subsequently dismissed as superfluous (Ostini and Fung, 2002) because the *Four Theories* models were based on media ownership as well as media function. Other taxonomies have been put forward: one with three categories

(market, communitarian and advancing) (Altschull, 1995); one with five categories (authoritarian, Western, Communist, revolutionary, and developmental) (Hachten, 1981). Calling for an update of Siebert's model, Hallin and Mancini suggest three basic media models: Mediterranean/Polarised Pluralist; North/Central European or Democratic Corporatist; and North Atlantic or Liberal (Hallin and Mancini, 2004). Ireland was one of the 18 countries they analysed; it belongs, in their analysis, to the North Atlantic or Liberal model.

A basic question at the heart of these studies is how each particular kind of media system affects the performance of the media in relaying accurate information to the public. Does, for instance, the commercialisation of the media promote or inhibit this flow of information? The evidence is "fragmentary and not entirely consistent" (Hallin and Mancini, 2004, p. 279) on this point, but it is asserted that commercialisation "has encouraged the development of a globalised media culture that substantially diminishes national differences." (2004, p. 282). For others, however, the danger of the commercialisation of the media is quite clear. The flow of political information reduces in line with the level of commercialisation (Aalberg, van Aelst and Curran, 2010). Indeed, there is a strong case to be made that market-based media are structurally incapable of serving the public at all. Because the media is part of the market economy, they inevitably serve the interests of the political and economic elite (Herman & Chomsky 1988). The concentration of media ownership in the hands of an elite few was a consequence of the collapse of the "public sphere" following the rise of capital in the mid-20th century, according to Jürgen Habermas (1989), who called for the re-creation of a space where rational citizens engage with each other and hold government to account. The argument that the media is structurally inclined to support the status quo, as Herman and Chomsky

state, and which forms part of Habermas's theory of the public sphere, has implications for the coverage of climate change.

Various scholars have defended the media against these charges, principally on the grounds that individual journalists have professional standards and adhere to professional norms which prevent them from slavishly following the agenda of the social elite. They are concerned with their own legitimation (Hallin, 1985) and are in fact insulated by commercialisation rather than compromised by it (Schudson, 2011, pp. 124–5).

The influence of commerce and the market also forms part of Pierre Bourdieu's critique of media systems. Bourdieu's influential concept of "the field" (any specialised form of human activity) having its own rules and forms of capital both supports and counters more political economy arguments such as those made by Herman and Chomsky and Habermas. The support comes from Bourdieu's contention that journalism is a "weak autonomous field" (Bourdieu, 2005) in that it is dependent for its survival on other fields (the economic field, for instance) by which it is inevitably influenced. However, within journalism itself, individual journalists compete for capital within the field. Thus, although the media generally may be susceptible to influence and control from economic elites, this influence may be subverted by the struggle for peer reputation and prestige of the reporters and journalists themselves. (See Willig 2012 for an overview).

Following on from theories of how media systems operate, a body of scholarship has grown around how the media in general and journalism/journalists in particular *ought* to be – ***normative theories of the media***. Many lists of journalism attributes have been compiled and propounded, based squarely on the idea that a fair and free press is essential

to the proper functioning of democracy (Deuze 2005b; Deuze 2008; Deuze 2005a; Schudson 2001; Schudson 2008; McQuail 2010; Altschull 1995). Precisely how the press should contribute to this functioning was the subject of "one of the most instructive and heated intellectual debates of the American twentieth century" (Alterman, 2008) between journalist and political commentator Walter Lippmann and philosopher John Dewey. Lippmann (1922) believed the world was becoming too complex for lay audiences to comprehend, and the role of the media was to interpret these complexities on their behalf; Dewey (1922) believed the press should encourage the participation of the citizenry in democracy. Modern journalism has followed the Lippmann model (Schudson, 2008a), although the growth of online media has promoted a more Deweyan, participative model (Hermida *et al.*, 2011) in which news is constructed through a conversation between journalist and citizen.

Many scholars agree that journalists should be autonomous and independent, fair and balanced, but the extent to which journalists should pursue a goal of objectivity is a matter of debate. For instance, Marx believed that adherence to a code of objectivity on the part of journalists is a barrier to change (Altschull, 1995), yet journalists themselves value objectivity as a professional norm (Schudson, 2001); indeed, it is the "chief occupational value of American journalism" (Ibid., p. 149). The American emphasis is notable; objectivity does not play such a central role in the professional norms of European media culture (Chalaby, 1996; Schudson, 2001).

From the 1920s onwards, objectivity became "a fully formulated occupational ideal" for journalists (Schudson, 2001, pp. 162–3); however, it was largely an unattainable ideal (Hallin and Mancini, 2004, p. 26) because news organisations and routines inevitably

produce bias (Schudson, 2011, p. 41). Various professional codes of conduct also set out norms such as fairness, balance, social responsibility for journalists (Laitila, 1995), yet whether journalism was a profession at all remained open to debate (Abbott, 1988; Broddason, 1994; Friedson, 2001; Gardner, H, 2001; Aldridge, M and Evetts, 2003). Political scientist and civic engagement scholar W. Lance Bennett identified three normative orders with which journalists had to content: economic norms (that journalism in a market system must be efficient and profitable), political norms (that journalists must provide the citizenry with accurate information so as to make informed electoral choices), and journalistic norms (that journalists must be fair, balanced, accurate and objective in their reporting) (Bennett, 1996).

It is also an open question as to whether audiences value journalistic objectivity: some argue that a form of transparent partisanship is more honest (Gil de Zúñiga and Hinsley, 2013), while others have found that an unbiased presentation of various viewpoints, allowing the reader to decide among them, is preferable (Newman, Levy and Nielsen, 2015). The Bosnian war of 1992-1995 persuaded a veteran BBC correspondent that journalistic objectivity amounted to a dishonest approach. When faced with morally freighted events, standing above and apart from the events themselves was inappropriate and unworkable, and journalists should strive to produce a kind of reportage that "cares" as well as "knows" (Bell, 1998). However, Bell's definition of objectivity was criticised for being too narrow and reductive (Ward, 1998).

How journalists interpret their duty to be objective, fair and balanced has implications for the media coverage of climate change. The concept of balance is a cornerstone of journalism education (Vos, 2012), but has been found to produce informationally biased

coverage of climate change due to the practice of "hearing both sides" irrespective of the relative merits of their viewpoints (Boykoff and Boykoff, 2004, 2007). While journalists espouse the values of objectivity, fairness and balance when it comes to their reporting, they often advocate for increased media attention for their particular news area. For instance, environmental journalists press for more environmental coverage in their media organisations (Hiles and Hinnant, 2014).

Perhaps the professional norms of individual journalists could indeed mitigate against the institutional bias of the media organisations they worked for, as Michael Schudson has argued. However, there is a good deal of evidence from ***ethnographic newsroom studies*** to suggest that reporters and editors reproduce the bias of their employers (White, 1950; Gieber, 1964), and that newsroom culture enforces such bias (Breed, 1955; Tuchman, 1972; Glasgow University Media Group, 1976; Schlesinger, 1978; Gans, 1979). In much of this early research, there is a feeling that "if left alone, reporters will produce truth" (Reese and Ballinger, 2001, p. 651). This is a comforting notion, but one that fails to take into account the influence of news values (Galtung and Ruge, 1965; Harcup and O'Neill, 2001). It turns out that the media do not simply report the truth, but rather the truth is made to accommodate the news routines and values of the media. Furthermore, far from being mindful of professional norms and social responsibilities, journalists often rely on heuristics (Dunwoody and Griffin, 2011), a sixth sense for news, the journalistic gut feeling (Schultz, 2007).

Barbie Zelizer (2004) and Michael Schudson (2011) have provided valuable analyses of the development of sociological approaches to the study of journalism. The many approaches they describe often turn out to be ways in which journalism is weighed in the

balance and found wanting. The media systems in which journalists operate, the requirements of news itself, the inherent biases of the individual journalists all, it is argued, make it difficult, if not impossible, for journalists to fulfil the roles assigned to them by normative theories of the press. However, the professional norms to which individual journalists aspire may be a defence against such institutional and structural constraints, especially in cases where coverage is provided by specialist correspondents, who are seen by their peers more as "independent experts, free to make judgments" (Michael Schudson, 2001, p. 163). Furthermore, the influence of news values – characteristics of events and topics which make them attractive to journalists – may prove more powerful than more institutional constraints.

2.3 Studying media coverage of climate change: surveying the academic field

The study of media coverage of climate change is a broad, inter-disciplinary field (Schäfer *et al.*, 2016). Scholars from academic disciplines such as science, political and environmental communication are represented, as are, to a lesser extent, perspectives from journalism studes and journalism practice. They have analysed many different types of media data, including newspaper articles, TV reports, social media posts and various visual representations. Much of their research starts from a common concern that the response to climate change at national and international level has been lacking and a desire to explore whether the media coverage of the issue has played a role in influencing the nature of the response.

A meta-analysis of research on media coverage of climate change carried out in late 2014 for this research is helpful in scoping out the extent and nature of academic endeavour regarding media coverage of climate change. The search encompassed three academic

databases (JSTOR, Scopus and Web of Science). The search terms were "media", "climate change", "global warming" and "greenhouse effect". The search was limited to article abstracts only, and the sample was further refined by selecting only those journal articles which examined hard media data. The results show that science communication journals are strongly represented, while journalism studies journals are relatively poorly represented. In terms of territories studied, the US and the UK attract most scholarly attention. Comparative studies are becoming more common. Print remains the most commonly analysed form of media content, while content analysis and frame analysis are the most frequently used analytical approaches.

These findings are in broad agreement with a meta-analysis carried out of the research field from 1959 to 2012 in which it was found that (i) there is a clear growth in research concerning media coverage of climate change research; (ii) Europe (39.5% of 133 relevant studies) and the US (19.3%) predominate; (iii) print media are by far the most analysed form of media (67.5%), and (iv) qualitative (44.8%) and quantitative (47.8%) are fairly evenly represented, while studies which employ both quantitative and qualitative methods (such as this one) are increasingly popular (Schäfer and Schlichting, 2014).

Fig 2.1 Types of media analysed

N = 189
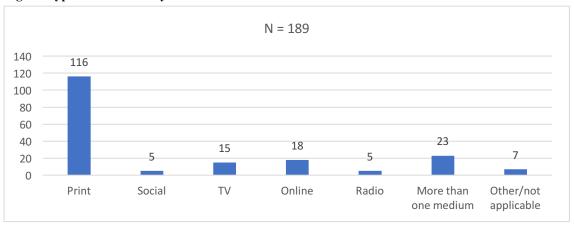
Fig 2.2 Analytical methods

N = 189
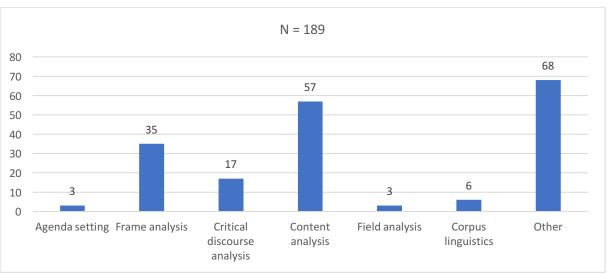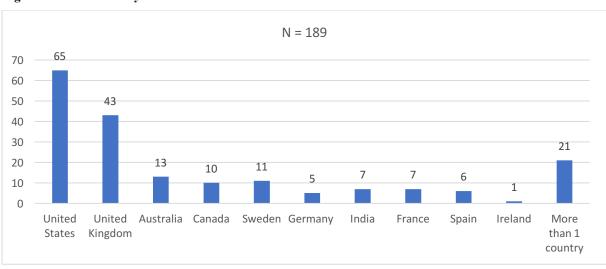
Fig 2.3 Territories analysed

N = 189
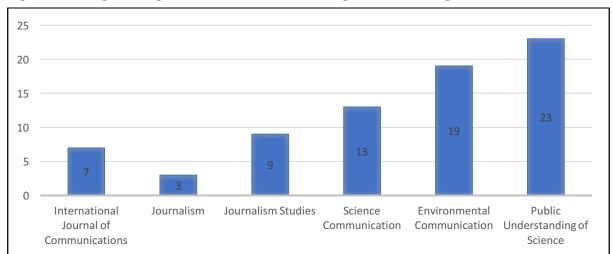
Fig 2.4 Journals publishing most research on media coverage of climate change

It can be seen from this analysis that, while the perspectives of science communication and environmental communication are well represented, perspectives from inside the world of journalism – and especially journalism practice – are lacking. Given that, as the review of the media theory and journalism studies literature above has shown, the professional norms of journalism, its ethical professional codes of conduct can be important bulwarks again institutional and structural deficiencies, this is a troubling gap in the literature. This research, featuring interviews with working journalists reporting on climate change, may contribute to filling this gap.

2.4 Media coverage of climate change – measuring attention, accuracy and sceptics

It can be argued that climate change as a media topic "took off" in the summer of 1988. In that period, climate scientist James Hansen testified to the US Congress that human activity was affecting the climate, UK prime minister Margaret Thatcher made reference to climate change as a "massive experiment with the system of the planet itself" (Leggett, 2001), the US suffered a prolonged heat wave, and there was an international conference on climate held in Toronto (Ungar, 1992). On June 23, 1988 Dr. Hansen said that the first

five months of 1988 had been warmer than any other period in the previous 130 years. Dr. Hansen said it was "99 per cent certain" that this temperature increase was not due to natural variation, but to the build-up of greenhouse gases in the atmosphere. "It is time to stop waffling so much and say that the evidence is pretty strong that the greenhouse effect is here," Dr. Hansen said. This testimony had an immediate effect: "the US opinion-leading newspapers leapt on the story" (Anderson, 2011, p. 536) .

The coverage of climate change in the prestige US print media increased dramatically in 1988, from 73 climate change stories in 1987 to 285 stories in 1988 and continued to rise in subsequent years. (Wilkins, 1993, pp. 75–76). However, several researchers have identified a change in the nature of the coverage in the period 1988-1989. It was at this time that climate change became transformed from what was perceived as a scientific issue to one that was perceived as an ideological or political one. In a study of US media coverage of climate change from 1987-1990, Wilkins shows that, in 1987 and 1988, scientists were the sources most often quoted in the US press, whereas in 1989 and 1990, government officials were the most often quoted, with industry sources second and scientists third (Wilkins, 1993). In her study of climate change coverage in the British press from 1985 to 2001, Anabela Carvalho discovered that scientists were the "uncontested central actors and exclusive definers" of climate change until the end of 1988 (Carvalho, 2007, p. 228). These findings align with Craig Trumbo's analysis of US coverage from 1985-1995, which showed that scientists were quoted less often, and politicians more often as the story developed over time (Trumbo, 1996). If climate change had "arrived" as an issue in the summer of 1988, by the end of that year, it had ceased to be simply a scientific matter: "At the end of 1988, the scope of potentially necessary

political, social and economic transformations necessary to address climate change started to become visible" (Carvalho, 2007, p. 229).

2.5 Concerns over the communication of science and journalistic accuracy

A related strand of early research on the media coverage of climate change relates to concerns of journalistic accuracy. Research into media miscommunication of science has its origins in the 1930s, when the method of inquiry involving sending news clippings to the scientists concerned and asking them to evaluate their accuracy (Bell, 1994). A study of journalists' accuracy when reporting climate change in the New Zealand media in 1988 found that the coverage was largely accurate (1994), and also noted that scientists had a negatively biased view of media reporting on science in general. Environmental journalists in the US were found to have an adequate working knowledge of the greenhouse effect, but they did not properly understand other related climate processes (Wilson, 2000). A survey of Danish broadsheet coverage from 1997 to 2009 showed that the reporting was "moderately inaccurate" (Vestergård, 2011). The question of sources used in media coverage of climate change is also of concern to scientists and science communicators: "Journalists frequently adopt (in the scientists' view) an overly broad definition of who is qualified to comment on scientific issues" which "raises the question of evidence over assertions" (Weigold, 2001, pp. 181–2).

Many scientists believe they are poor communicators and are wary of engaging with the media. One climate scientist who presented a case study of how research was reported in the Australian media, states that while scientists may be adept at communicating science, this does not equate to facility in communicating through the mass media. "There are very few scientists who have the natural ability, and learn or cultivate the talents of

effective communication with and through the media…" (Henderson-Sellers, 1998, p. 430). Scientists suffer from "a widespread perception they [they] are not effective communicators, at least when the audience is the general public." (Weigold, 2001, p. 172). Scientists "regard journalists with suspicion" (Gascoigne and Metcalfe, 1997, p. 278), often because they are "shocked by the 'inaccuracies'" (Henderson-Sellers, 1998, p. 431) they see in science reporting.

Most journalists in the United States who write about science have no qualification in a science subject, but learn about science reporting on the job (Weigold, 2001, p. 169). Research also shows that fewer than three per cent of American journalists majored in mathematics, physical or biological science (Weaver and Wilhoit, 1994). However, more recent research suggests that 14 per cent of science reporters who were members of the Society of Environmental Journalists held degrees in environmental science (Wilson, 2000, p. 3). Despite these differing figures, we can say that the level of formal science education among American science journalists is low. This does not mean that their knowledge of science subjects is lacking. Indeed, one survey showed that all science journalists were familiar with the term "global warming", and most knew that carbon dioxide was a greenhouse gas. However, knowledge of the other greenhouse gases, or of the state of scientific consensus on a number of climate change issues was not so complete (Wilson 2000). Despite a lack of scientific qualification and incomplete knowledge on the part of science reporters, "the studies that have examined the issue have found general satisfaction among scientists with news story accuracy" (Weigold, 2001, p. 184). Indeed, scientists may have an unnecessarily negative stereotype of journalists: they consistently rate science reporting in general as inaccurate, yet often rate the stories in which they themselves are quoted as entirely accurate. (Bell, 1994, p. 271). Indeed, Bell concludes

that science reporting in general, and climate change reporting in particular is probably "largely accurate".

Many of these early studies of media coverage of climate change view the media's "performance" on the issue from the scientists' side of the table: did the reporter get the facts right? Was the science of climate change accurately reported? Were scientists consulted in the first place, or given adequate status in the story? The incident that forms the basis of a paper by Henderson-Sellers on science-media miscommunication is instructive (Henderson-Sellers, 1998). The author was involved in issuing a press release related to research on the frequency and power of tropical storms. The press release mentions, near the end of the document, that a projected 10-20% increase in the intensity of tropical cyclones may have implications for the insurance industry in Australia. The author expresses chagrin that some media outlets decided to base their news coverage on this insurance angle, rather than on the climate science behind it. She is surprised that other parties (e.g. insurance industry spokespersons) were asked for comment. She is aghast that a newspaper used the phrase "supercyclones" in a headline referring to the possible 10-20% increase in storm intensity in a climate-changed world. The "lessons learned" have mostly to do with how someone in her position will be judged by their peers in the scientific community. In other words, dealing with the media is judged entirely in the light of the norms of science. It may be argued that the author has strayed into an error identified by Wilkins: much science communication research has "analysed media coverage of science according to the standards of science itself. Coverage which is accurate according to the standards of the scientific community has been praised. Little effort has been made to link the coverage itself with an underlying value system that spans both mass communication and science." (1993, p. 74).

2.6 The influence of professional norms

Much early research into media coverage of climate change from the science communication perspective draws attention to the differing norms of science and journalism. These differences are viewed almost entirely from the point of view of the science community (with the exception of Wilkins, mentioned above) and contain the implication that scientific norms are the standard against which journalistic norms are measured. Firstly, scientists point out that journalism is fast-moving, while science is slow; journalism seeks unequivocal facts, while scientific progress is incremental and most scientific statements are equivocal (Bell, 1994, pp. 259–60). Journalists believe it is part of their job to be critical of sources, while scientists assign less weight to this function; journalists accept that their job has an entertainment function, but scientists do not accept this function as readily; journalists go to great lengths not to "talk down" to their audience, whereas scientists have a paternalistic attitude to media audiences (Peters, 1995, pp. 44–5). Perhaps most importantly, scientists expect journalists to support the scientist's goals, whereas journalists are neutral as to the goals of the scientific endeavor they are covering.

These journalistic norms have been described by the science communication research community as they have encountered them: that is, from the science side of the communication process. There has been much valuable research undertaken from other disciplines also. For example, the work of political scientist W. Lance Bennett (touched upon above) was an important influence on two major works of scholarship on media coverage of climate change. Bennett argued that there were three first order journalistic norms: political, economic and journalistic (Bennett, 1996). In their influential paper,

Boykoff and Boykoff (2004) focused on the journalistic norm of balance. Balance is various defined as neutrality (Entman, 1989) or presenting both sides of an argument (Gans, 1979). However, simply quoting a source with an opposing view can be a way of avoiding checking the validity of the initial claim; it is a "surrogate for validity checks" (Dunwoody and Peters, 1992, p. 10). Boykoff and Boykoff's content analysis of the US prestige press from 1988 to 2002 showed that "balanced" reporting has produced a biased account of the scientific consensus. They conclude that "balanced reporting is actually problematic in practice when discussing the human contribution to global warming and resulting calls for action to combat it." (2004, p. 134). In a subsequent paper, the same authors develop their conceptualisation of journalistic norms, suggesting there are first order norms (personalisation, dramatisation, and novelty) and second order norms (authority-bias and balance) (Boykoff and Boykoff, 2007). The authors undertake a case history of US newspaper and television coverage of climate change from 1988 to 2004. They conclude that:

> Adherence to the norms of dramatisation, personalisation, novelty, balance, and authority-order is part of a process that eventuates in informationally biased coverage of global warming. This informational bias has helped to create space for the US government to defray responsibility and delay action regarding climate change. (2007, p. 12)

The demonstration by Boykoff and Boykoff's 2004 paper that the standard journalistic practice of "hearing the other side" was not appropriate to media coverage of climate change and in fact produced an informational bias had a sobering effect on environmental journalists, in the US particularly (Hiles and Hinnant, 2014). Indeed, subsequent studies found that the practice of quoting sceptics had declined considerably in the US press by 2006 (Boykoff, 2007a).

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2.7 The effect of news values on media coverage of climate change

Bennett's normative theories emerge from a broader sociological tradition pioneered by Herbert Gans and Robert Entman, media scholars and social theorists rather than dedicated journalism scholars. To some extent they echo earlier scholarship relating to "news values" – characteristics necessary for any event to be covered by the news media. Johan Galtung and Mari Ruge's investigation into how events become news has been called the "single piece of research that most cogently advanced a general understanding of news selection processes". (Zelizer, 2004, p. 54). Originally presented at the First Nordic Conference on Peace Research in Oslo in 1963, the paper considers the factors at play in the selection of foreign news in the Norwegian press. They suggest 12 factors: *frequency* (discreet events, such as a murder, are more likely to be covered than long-term social trends); *threshold* (events must be reasonably uncommon); *unambiguity* (the more easily an event can be understood, the more likely it is to be selected); *meaningfulness* (the more an event fits into the selector's cultural frame of reference, the more likely it is to be regarded as news); *consonance* (the selector may want, or predict, that something will happen; if it does, it has a greater chance of becoming news); *continuity* (if something is already news, that increases its chances of staying in the news); *composition* (an event may be included because it helps the overall balance or composition of a newspaper or broadcast); *reference to elite nations* (the actions of elite nations are seen as intrinsically more consequential that those of other nations); *reference to elite people* (famous people may be seen by news selectors as consequential); *reference to people* (news is presented as the result of individuals' actions rather than the result of social forces); *reference to something negative* (negative news is seen as more unexpected and happens over a short time span). (Galtung and Ruge, 1965, pp. 65–71).

In a critique of Galtung and Ruge's work, Harcup and O'Neill examined over 1200 news articles in the UK press, and suggested that certain categories of story were not accounted for in the earlier taxonomy of news values. They suggest that picture opportunities, entertainment, sex, humour, reference to animals, reference to elite organisations, campaigns and promotions and reference to something positive be added. (Harcup and O'Neill, 2001). Quite apart from satisfying various news values, events and topics may need to provide dramatic stories with compelling narratives (McComas and Shanahan, 1999); this requirement for drama – which is often born of conflict over the certainty and risks of climate change or the costs or benefits of action (Nisbet, 2011) – is close to Boykoff's norms of personalisation and dramatisation discussed above. It is clear that for a happening to become news, it must fit a quite rigid template of what journalists consider newsworthy.

Some environmental communications scholars have suggested that news values tend to predispose the media to rely on official sources (Anderson, 2009; Hansen, 2011), or to foreground conflict between scientists (Corbett and Durfee, 2004). Journalists often use government or other official sources to confer authority on their reports, while sources gain "authoritative status" in a "reciprocal utility" (Carlson, 2009, p. 530). These sources often assume the role of "primary definers" who can exercise power over the terms in which social problems are discussed. The term was coined by Stuart Hall et al (1978) in a study of news coverage of crime in the UK and the associated moral panic. In *Policing the Crisis,* the authors describe how journalists continuously quote official sources in their reports. This leads to a structural bias within the news media, they argue. This level of access allows institutional sources (such as government official and law enforcement

officers) to establish the initial definition of the issue, in turn setting the terms of future debate (ibid., p. 58). The authors offer an example:

> Once race relations in Britain have been defined as a 'problem of numbers' (i.e. how many blacks there are in the country), then even liberal spokesmen, in proving that the figures for black immigrants have been exaggerated, are nevertheless obliged to subscribe, implicitly, to the view that the debate is 'essentially' about numbers.
> (ibid., p.59)

Hall et al acknowledge that this preference for official sources is not ideologically driven, but rather is based on journalistic norms and newsroom work practices. However, the practice does have the effect of reinforcing the political and economic status quo (Louw, 2005). In relation to climate change, Lisa Antilla has noted that in the 1980s, scientists were the primary definers of the issue, but that by the early 1990s, politicians had taken over this role, suggesting that climate change had ceased to be a matter of scientific evidence and had become more politically contested (Antilla, 2005).

News values are often not understood by protestors (Gavin, 2010), and scientific reports which do not contain appeals to news values such as personalisation or dramatisation may be ignored by the media (O'Neill, H. Williams, *et al.*, 2015). However, there is a lack of scholarship examining the impact of news values on media coverage of climate change from a journalistic perspective. Field theory has been used to explore journalist's deployment of news values (Willig, 2012), and indeed the two are related: a journalist's standing among peers is related to an ability to research and write an impactful news story, and the standard of this work is judged according to the norms of news values. This links to the Bourdieusian notion of journalistic *doxa* – "the unspoken, unquestioned, taken-for granted, understanding of the news game and the basic beliefs guiding

journalistic practice" (Ibid., p. 374). However, the large preponderance of studies examining media coverage of climate change, and which allude to the influence of news values on such coverage, do so from a perspective outside the media. In other words, they examine media texts and discern the influence that news values may have had in their production. There is little acknowledgement of the role news values may have played in the commissioning of such coverage in the first place, and little understanding of how difficult a story climate change is for journalists to cover, given the newsroom cultures in which they operate, and the news values by which their work is judged. In Chapter 6 of this thesis, such perspectives are explored in detail.

2.8 No time, no money – economic pressures and media coverage of climate change

The economic pressure on the media industry may also influence the extent and quality of climate change reporting. Members of the American Society of Environmental Journalists found that the amount of time they were given to research science subjects was insufficient and that they were expected to do general news reporting as part of their job, thus further depleting the time they were able to devote to researching their science stories. They also remarked on the decline of the number of dedicated science correspondents in the American press in general. (Wilson, 2000). Alison Anderson points out that "Economic, organisation and institutional pressures means that journalists in the United Kingdom have become increasing reliant upon prepackaged information, principally from public relations (PR) professionals, industries and news agencies (Anderson, 2011, p. 538). Such dependence was found to be "extensive" (Lewis, Williams and Franklin, 2008, p. 7), with almost half of all stories including some copy from prepackaged information. The "carrying capacity" (Hilgartner and Bosk, 1988) of newspapers has increased over the last two decades, staffing levels have not kept pace

and cutbacks have affected many journalists who are working on the environmental beat in the UK and the US (Anderson, 2011, p. 538). Furthermore, under-funded newsrooms may have to assign climate change stories to general news reporters. These "are usually written by general-interest journalists (given that the economic crisis has reduced the presence of specialised journalists in editorial departments), who, on top of it all, have very demanding deadlines, so the notes supplied by press offices and wire services become the main (or only) source of news" (Hoyos, 2014, p. 94). In the new digital media ecosystem, science journalists are expected to fulfil more diverse roles, with the roles of convenor, curator, civic educator and public intellectual being added to the "legacy" role of reporter (Fahy and Nisbet, 2011). However, reduced newsroom staffing and budget cuts may make fulfilling these and other roles assigned to journalists difficult if not impossible (Beam et al, 2009). In tabloid newspapers, the pressures can be even more intense (Boykoff and Mansfield, 2008), with tabloid reporters given scant training in science and environmental reporting and expected to be a "jack of all trades" (Deuze, 2005b, p. 887). Putting general news beat reporters to work on specialist areas such as climate change can exacerbate distortions of scientific information (Anderson, 2013).

2.9 When and why media coverage of climate change rises and falls

The study of levels of media attention to climate change is based on the premise that the public equates levels of coverage with salience and on the assumption that high levels of coverage equate to high levels of public concern on the issue. Many studies – including, in part, this one – measure levels of coverage over time and attempt to discover the underlying reasons for various rises and falls in attention levels (see Schmidt et al. 2013 for an overview). Many scholars are in agreement that media coverage of climate change gradually increased from its initial appearance on the media agenda in 1988. Some early

peaks are evident in 2000 and 2001, and the coverage then builds to high point in 2009, before dropping back to roughly 2005 levels from early 2010 (Grundmann and Scott, 2014). The ICE CaPs (International Collective on Environment, Culture and Politics) project at the University of Boulder, Colorado, has been monitoring global print media coverage of climate change since 2004. Their data confirms the picture of a gradual increase up to late 2009, early 2010 followed by a steep decline. Levels of coverage have increased in the period of late 2015/early 2016, but have declined again since then, and indeed even this most recent peak did not approach the levels seen in late 2009/early 2010.
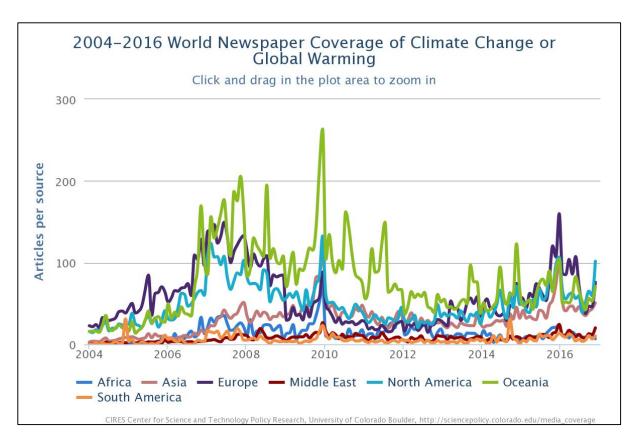
Chart courtesy of ICE CaPs collective, Centre for Science and Technology Research (CIRES), University of Colorado Boulder, accessed December 20, 2016.

This trend has been confirmed in many territories: The United Sates (Boykoff, 2011), Finland (Lyytimäki and Tapio, 2009), the UK (Boykoff and Mansfield, 2008), Canada (Ahchong and Dodds, 2012), Germany and France (Grundmann and Krishnamurthy, 2010), Japan (Sampei and Aoyagi-Usui, 2009) and Sweden (Shehata and Hopmann, 2012). In their key paper, Andreas Schmidt and colleagues (2013) analysed levels of climate change coverage in 27 countries from 1996 to 2010 and found that coverage had increased in all territories studied, and that coverage was especially high in "carbon dependent countries with commitments under the Kyoto Protocol" (2013, p. 1233).

The various peaks and troughs in coverage are linked to political events (the 2001 withdrawal of the US from Kyoto, for example), extreme weather events (Hurricane Katrina, August 2005), media events (the documentary *An Inconvenient Truth,* May 2006), national and international reviews and reports (the Stern Review, October 2006, AR4 of the IPCC, early 2007) and international conferences (the Copenhagen COP, December 2009) (Grundmann and Scott, 2014, p. 223). Schmidt et al also found that coverage peaked around COPs and the publication of IPCC reports (Schmidt, Ivanova and Schäfer, 2013, p. 1241). This may be because COPs provide a forum for political actors, to whom the news media are attracted (Galtung and Ruge, 1965; Harcup and O'Neill, 2001; Anderson, 2009), and because NGOs concentrate their activities around such conferences (Benford, 2010). Media coverage of climate change has been shown to peak at the time of COPs in the US (Boykoff and Boykoff, 2007; Boykoff and Mansfield, 2008), in Switzerland (Besio and Pronzini, 2010), Mexico (Gordon, Deines and Havice, 2010), India (Billett, 2010), Canada (Ahchong and Dodds, 2012), Japan (Sampei and Aoyagi-Usui, 2009) and Germany (Schäfer *et al.*, 2014). The publication of Assessment Reports of the IPCC also coincides with peaks in media attention (Hulme, 2009).

However, other research has found that weather events have no effect on levels of media attention for climate change, nor do scientific publications, whereas feedbacks from politicians and ENGOs serve to increase media attention (Schäfer *et al.*, 2014). A correlation between temperature development and media attention for climate change has been found to be non-existent (Liu, Lindquist and Vedlitz, 2011) or very slight (Shanahan and Good, 2000). There is some debate as to whether extreme weather events are linked to increased media coverage of climate change: a study of German, Indian and Australian media coverage of climate change showed that extreme weather events played only a subordinate role in driving attention (Schäfer *et al.*, 2014), while elsewhere, heatwaves, droughts, storms and heavy rain have been found to increase coverage of climate change in the media (Ungar, 1992; Gordon, Deines and Havice, 2010; Aykut, Comby and Guillemot, 2012), as have incidents of flooding (Gavin and Marshall, 2011). In a study of Irish print media coverage of flooding, it was found that a frame linking flooding and climate change was beginning to emerge in the media discourse (Devitt and Neill, 2017).

There have been suggestions that this decline follows the failure of the Copenhagen COP to arrive at an agreement, leading to a general disillusionment on the part of politicians and journalists (Lyytimäki, 2011; Schmidt, Ivanova and Schäfer, 2013), or that the decline post-2009 is due to the constriction of resources in newsrooms (Boykoff and Yulsman, 2013), which in turn has led to a reduction in the number of specialised environmental correspondents employed by media organisations (Hansen, 2011). Others have suggested that the global financial crisis "crowded out" (Djerf-Pierre, 2012a) environmental news and political attention shifted to dealing with the issue (Gupta, 2010).

It should be noted that there are underling issue dynamics at play regarding levels of media attention, quite apart from external events such as international conferences, inputs from actors and claims-makers, and extreme weather events. These dynamics relate to the ways in which certain issues enter and subsequently rise or fall in the media and policy agenda, and will be considered in the following chapter.

2.10 The presence of sceptic discourses in media coverage of climate change

From the 1980s onwards, there was a well-funded, well-organised campaign to undermine the scientific consensus on climate change. Conservative "think tanks" played a prominent role (McCright and Dunlap, 2003; Jacques, Dunlap and Freeman, 2008; Klein, 2014). This campaign was waged primarily in the media, and primarily in the US. (Oreskes & Conway 2010; Antilla 2005). In several countries, such as France (Brossard, Shanahan and McComas, 2004), Germany (Weingart, Engels and Pansegrau, 2000b), and Holland (Dirikx and Gelders, 2010), the media "exhibit less uncertainty about climate science" than in the UK and US (Painter, 2015, p. 11). The media have been found to give undue prominence to sceptics in the US and the UK (Boykoff & Boykoff 2004; Boykoff 2007; Boykoff & Mansfield 2008), mainly due to journalists seeking to "balance" their stories by quoting a sceptic source. Some research into sceptic views present in the media concluded that contrarian or denialist views had been relegated to the margins of media discourse by the mid-2000s (Ereaut & Segnit 2006; Boykoff 2007).

James Painter and Neil Gavin have pointed out some problems with this conclusion that the era of "false balance" was over: the studies claiming the sceptics had been marginalised were published in the period up to the mid-2000s "and predate very significant developments" such as the Climategate controversy, disputes over some

findings in the IPCC report of 2007 and the 2009 Copenhagen COP (Painter and Gavin, 2015). Furthermore, subsequent research showed that UK tabloids continued to give space to sceptic arguments (Boykoff and Mansfield, 2008). A comparison of sceptic representations in the print media of six countries (Brazil, China, France, India, US, UK) found that, while sceptic views in the first four had declined between 2007 and 2009-10, they had in fact increased in both the US and UK (from 18% to 34% and from 15% to 19% respectively) (Painter and Ashe, 2012). Painter and Gavin conclude that "sceptical voices were present is about one in five of all climate change articles in the main UK newspapers" between 2007-2011 (Painter and Gavin, 2015, p. 15). Further research focusing on two periods, 2007, and 2009-10, "would support the view that the USA is particularly notable for the presence of sceptics who question the need for strong climate change policy proposals. It would also be true of the UK, where the GWPF [the sceptic Global Warming Policy Forum] has had a major impact in the media since its formation in November 2009" (Painter and Ashe, 2012, p. 6). In a study of broadcast and online media coverage of the Copenhagen COP of 2009, it was found that "in both the conventional and new media, contrarian claims, assumptions and lines of reasoning were still very much in evidence around the high-profile Copenhagen negotiations, or presented in such a way as to lend them undeserved authority (Gavin and Marshall, 2011, p. 1041). Even at the prestigious British Broadcasting Corporation, where guidelines had suggested sceptics not be given equal time to proponents of the scientific consensus (Jones, 2011), the science of climate change continued to be framed as uncertain in reports from Copenhagen.

Some of this academic disagreement over whether sceptics "disappeared" from the media by the mid-2000s can be cleared up by examining the methodologies of early studies, and

especially be examining their definitions of what constitutes scepticism. Much of this early, establishing work was done by American academic Maxwell Boykoff (Boykoff and Boykoff, 2004, p. 128; Boykoff, 2007a, pp. 474–5; Boykoff and Mansfield, 2008, p. 4). His methodology, broadly speaking, consisted of measuring the content of news articles against four possible portrayals of climate change: it's all due to anthropogenic causes; there is a significant anthropogenic contribution; there is a "balance" between these two, and there is little anthropogenic contribution (Painter & Gavin 2015, p4). Only the second portrayal is deemed "accurate", while all others are coded as "inaccurate". This approach is narrow and reductive, and does not take into account the complexity and diversity of sceptic attempts to influence media discourses on climate change. For instance, sceptics do not restrict themselves to questioning the attribution of global warming (Gavin and Marshall, 2011). In fact, there are three categories of sceptic (Rahmstorf, 2004): *trend sceptics*, who argue that global warming is not happening at all; *attribution sceptics*, who concede global warming in happening, but deny the anthropogenic contribution, and *impact sceptics*, who accept the human contribution, but suggest climate impacts may be beneficial, or that climate models are not robust enough, and/or question the necessity for policy interventions (Painter and Ashe, 2012, p. 3). (A shorthand version is: it's not happening; it's happening but it's not us; it's happening and it's us, but there's nothing we can do).

Thus, scepticism goes far beyond questioning the science of climate change, although sceptics do question the integrity of the satellite data, the usefulness of computer modelling, and claim that warming is due to natural variability or solar activity (Oreskes & Conway 2010). Trend sceptics may also direct attention to a medieval warming period that cannot be attributed to CO2 emissions, or to an alleged "pause" in warming since

1998. Other sceptics ignore the scientific evidence altogether, suggesting instead that climate science is itself a conspiracy, that individual scientists dare not confess this for fear of destroying their careers, that there is a rigorously enforced orthodoxy akin to a religion, that the IPCC is politicised, that climate change is actually a means by which socialists can implement anti-capitalist programmes. (See Booker 2009; Booker & North 2007; Lawson 2008 for a range of sceptic positions and Monbiot 2011 for a refutation).

There is some evidence to suggest that the presence of sceptics in newspaper coverage of climate change is linked to ideological stance of the news organisation in question (Carvalho, 2005, 2007; Carvalho and Burgess, 2005). These three studies analysed the period 1985 to 2000 and concluded that, of the three newspapers examined (the *Times, Independent* and the *Guardian*), the ideological stance of the *Times* became strongly apparent by the mid-1990s. Others note that the *Daily Mail* coverage of climate change reflected the scientific consensus least, and suggest "a key element shaping the difference may be the politically conservative stance of the newspaper" (Boykoff and Mansfield, 2008, p. 4). A study of commentary in News Corporation outlets in the UK, US and Australia revealed a tendency to emphasise uncertainty and to frame consensus views as motivated by political correctness or adherence to orthodoxy, while sceptics were portrayed by News Corp as courageous dissenters (McKnight, 2010). It has also been found that, while other major news organisations "overwhelmingly reflected the consensus view on the reality and causes of climate change" between 2009-2010, the *Wall Street Journal* did not (Nisbet, 2011, p. 57).

It is clear from the foregoing that early studies of scepticism in media coverage of climate change focused on a narrow definition of scepticism; thus, when the sceptics ceased to

focus simply on denials of climate science, they ceased to be recorded as sceptics at all in these early coding methodologies. Once the complexities and nuances of scepticism were more fully understood, and their tactics uncovered, a more thorough content analysis of media could be undertaken. This showed that, far from being banished to the margins of media coverage of climate change, they had in many cases increased their presence. In the US and UK at least, they are very far from being a "dead norm" (Boykoff, 2007a).

2.11 The influence of celebrities on media coverage of climate change

In a study of modern news values with which events must align before being deemed newsworthy by the media, the authors state "The UK press seems obsessed with celebrities such as TV soap stars, sports stars, film stars and, of course, royalty" (Harcup and O'Neill, 2001, p. 270). The interest in celebrities is not restricted to the UK. Celebrities "are increasingly appearing as key voices within the climate change debate, providing a powerful news hook with a human-interest angle, crystallizing issues that may otherwise be perceived as relatively removed from people's everyday lives. This reflects a growing connection between the entertainment industry and politics in many liberal democracies." (Anderson, 2011, p. 535). The academic research into the influence of celebrities follows on earlier scholarship relating to the status of "primary definers" of climate change (Antilla, 2005). It has been shown that, in the first phase of media coverage of climate change from 1988 to the mid-1990s, scientists were the most used source in climate change news stories. As the issue of climate change moved from the scientific into the political realm, the scope of participation (Schnattschneider, 1960) broadened, and politicians, activists and other actors featured in, and sometimes dominated, media coverage. Some researchers have attempted to classify climate

celebrities. There may be six types: celebrity business people (e.g., Richard Branson); celebrity musicians (e.g., Sheryl Crow, Coldplay); celebrity politicians (e.g., Arnold Schwarzenegger); celebrity actors (e.g., Leonardo De Caprio); celebrity athletes/sports figures (e.g., David James); and celebrity public intellectuals (e.g., Michael Crichton, George Monbiot) (Boykoff and Goodman, 2009), or there may be four types: celebrity endorsers (e.g., Oprah Winfrey, members of the British Royal family); celebrity advocates (e.g., Bono, Angelina Jolie); celebrity politicians (e.g., Arnold Schwarzenegger or Ronald Reagan); and politicians turned celebrity. ('t Hart and Tindall, 2009).

There has been a substantial increase in celebrity involvement in climate change advocacy in Australia, the UK, the US and Canada between 1987 and 2006 (Boykoff and Goodman, 2009), while the publication in the UK news media from 2000-2006 of photographs of celebrities as advocates for the environment has become more common (Smith and Joffe, 2009). A case study found that 165 celebrities were involved with 53 environmental groups, but their activities had little impact on news coverage. Furthermore, large ENGOs such as Greenpeace rarely use celebrities in their awareness-raising activities (Anderson, 2011). Photographs of celebrities in news coverage of climate change conferences are rarely published (Wozniak, Wessler and Lück, 2016), and the use of celebrity photographs may be counter-productive in any case. In a study of the impact of visual representations, it was found that images of celebrities strongly undermines salience (O'Neill *et al.*, 2013), while the use by ENGOs of celebrity authorizers may also serve to mute and de-legitimise their message (Anderson, 2011). The generation of news coverage by celebrities is not guaranteed, but is dependent on variables such as their claim to fame, the role they fulfill and the issue they endorse (Panis

and Bulck, 2014). It appears that the use of celebrities to endorse climate change campaigns in increasing, that such use can benefit both the news media and the cause to which the celebrity has signed up, but the exercise is fraught with unintended consequences, among them a backlash against an affluent elite attempting to change individual behaviour (Laidley, 2013). It is difficult to disagree with Alison Anderson's verdict that the use of celebrities to promote environmental causes is "a double-edged sword" (Anderson, 2011).

2.12 Visual representations of climate change in the media

There is a considerable body of scholarship based on the analysis of visual representations of the environment, of climate change and of environmental issues. These images evoke climate change in particular ways, and certain visual framings of climate change have become dominant, while others have become marginalised, and the academic study of the impact of such images seeks to understand the ways in which they contribute to the cultural politics of the issue (O'Neill and Smith, 2014). While this study concentrates on print coverage, it is important to acknowledge that the study of visual aspects of climate change communication is a growing research area. The ability of the visual to present factual depictions which may also evoke strong emotional responses, to engage audiences and to present complexity, make it a powerful means of communication about climate change (O'Neill *et al.*, 2013). Furthermore, although the reality of climate change may be contested in the print media, "this element of uncertainty is removed in visual depictions. Viewing an image of a melting iceberg or a retreating glacier, for example, is much more definitive. It says to the reader that climate change is happening and here is the evidence to prove it. Concretisation of impacts in newspaper images,

therefore, speaks against the argument that climate change science is uncertain" (Smith and Joffe, 2009, p. 658).

In a study of images used in six UK Sunday newspapers, it was found that climate impacts were the most common category of visual representations published (over 50%), followed by personification images (photos of people affected by climate change, either as victims of an extreme weather event or as exemplars of the kind of lifestyle that is contributing to CO2 levels) and quantitative data graphics. (Smith and Joffe, 2009). A study of two Canadian newspapers' use of imagery found that photographs of humans dominated (66%), with nature (42%) and industry and technology 29%) featuring strongly. The authors note that Canadian visual media coverage of climate change avoids expected visual tropes. Polar bears, for instance, hardly feature (3%), although they are a powerful symbol for Canadians. The selection of uninvolving imagery suggests the topic is not a priority for the Canadian media. (DiFrancesco and Young, 2011). In a study examining the frames present in climate change images in 11 US newspapers from 1969 to 2009, it was found that images relating to government and politics were most common (34%), with science and scientists (21%), measurements of environmental impacts (21%), images of warming (15%) people affected by climate change (no precise estimate), food (10%), technology (9%) and landscapes (9%) among the image categories recorded. (Rebich-Hespanha *et al.*, 2015). A study of visual representations in 13 UK, US and Australian newspapers, found that images of people predominated (48%) (O'Neill, 2013). Politicians were the most common group of people featured in all countries, while celebrities, scientists and other public figures rarely featured. Other categories of image, in descending order, were climate impacts, climate protests, causes of climate change, solutions, science and technology, and weather. In contrast to claims

that visual images of climate change are more categoric than written text, this study argues that images of people can and do portray the politicised and contested nature of the climate change debate in the three countries studied. Furthermore, imagery than is distancing for the viewer is also commonly used to accompany media coverage of climate change (Ibid.).

2.13 Frame analyses of media coverage of climate change

The origins of framing, its usefulness and its drawbacks will be addressed more fully in a subsequent chapter dealing with the methodology of this thesis. It is the intention here to survey and analyse the academic literature that has used framing as a conceptual tool for analysing media coverage of climate change. We have already seen how framing is a frequently used approach in media coverage of climate change research (Fig 2.2 above). Framing is "one of the most fertile areas of current research in journalism and mass communications" generally (Riffe, 2004, p. 2), and media coverage of climate change in particular (Schäfer *et al.*, 2016, p. 9). In frame studies of media coverage of climate change, researchers may use deductive frames (i.e. frames derived from theory and from the existing academic literature), inductive frames (i.e. frames which emerge from the data being analysed), or a mixture of both. Some scholars suggest that all media content can be ascribed to just two deductive frames: episodic and thematic (Iyengar, 1991), while others suggest there are in fact five generic frames into which all news media content falls: the responsibility, conflict, (economic) consequences, human interest and morality frames (Semetko and Valkenburg, 2000). A rare example of research on media coverage of climate change which takes a purely deductive approach (based on Semetko and Valkenburg's approach) is a 2010 study of Dutch and French media coverage of COPs between 2001 and 2007 which found that the consequences and responsibility

frames were most common, while the conflict and human interest frames were rare (Dirikx and Gelders, 2010).

A wider set of deductive climate change frames, drawn from the literature of science communication and studies of various science-related controversies, such as nuclear power and biotechnology, has been put forward by Matthew Nisbet, who suggests eight frames applicable to climate change: *social progress* (akin to the opportunity frame in other studies), *economic development and competitiveness* (the economic frame in other studies), *morality and ethics*, *scientific and technical uncertainty, Pandora's Box, public accountability and governance, middle way/alternative path* and *conflict and strategy* (Nisbet, 2009). The same author, in collaboration, has also suggested a slightly more concise typology: *economic development, morality/ethics, scientific uncertainty, Pandora's Box, public accountability* and *conflict/strategy* frames (Nisbet and Scheufele, 2009). A more recent study proposes a typology which includes *health, security* and *settled science* frames (O'Neill *et al.*, 2015).

Although many studies have examined ways in which media coverage of climate change is framed in different countries at different times, it has been argued that only seven studies explicitly define their analytical approach as "issue framing". (O'Neill *et al.*, 2015). (These are: Antilla 2005; Doulton & Brown 2009; Olausson 2009; Nisbet 2009; Shehata & Hopmann 2012; Painter 2013; O'Neill 2013). Taking these seven "pure" framing studies as a starting point, then, it is possible to discern commonalities in the frame typologies uncovered.

(i)   In her study of newswires, scientific journals, 225 regional and national newspapers in the US, Lisa Antilla "encountered four discernable frames:

valid science; ambiguous cause or effects (indicating a degree of disregard for the gravity of climate change); uncertain science; and controversial science." (Antilla, 2005, p. 344). The author notes that frames emphasizing debate, controversy and uncertainty were plentiful.

(ii)   Doulton and Brown's 2009 study sits uncomfortably in the category created by O'Neill et al, in that it bases its analysis on Drysek's discourse analysis approach (Doulton and Brown, 2009, p. 192) and lays no claim to identify or analyse frames. However, the discourses uncovered by the authors align with frames found in other climate change research: optimism, rationalism, disaster, ethics and opportunity. They conclude that UK prestige newspaper coverage of climate change between 1997 and 2007 is dominated by catastrophism and fails adequately to represent "the uncertainty inherent in many aspects of our climate understanding" (Doulton and Brown, 2009, p. 201).

(iii)   Ulrika Olausson, in her study of 144 climate change articles in three Swedish newspapers from 2004-2005, found that, although "Collective action against climate change is…a central theme of the Swedish print media reporting on the issue", adaptation and mitigation frames were seldom mentioned in the same article. (Olausson, 2009, pp. 425–6).

(iv)   Shehata and Hopkins's comparison between US and Swedish coverage of climate change between the Kyoto (1997) and Bali (2007) climate summits showed little difference between coverage in the two countries, and identified three broad frames: the climate change frame (similar to the settled science frame in other studies), the scientific uncertainty frame and the economic consequences frame. The authors also found, in a case study of coverage of

the Bali and Kyoto summits themselves, that the scientific uncertainty frame was "totally absent in news coverage of the two summits" (Shehata and Hopmann, 2012, p. 188).

(v)   Matthew Nisbet's essay on the framing of climate change is one of the most cited works on the media treatment of the issue (468 citations at time of writing) and sets out a convincing rationale for the need to frame scientific information in ways that resonate with one's audience. The author provides a typology of climate change frames (which will be discussed in detail in a subsequent chapter) and thereby "suggests a deductive set of mental boxes and interpretive storylines that can be used to bring diverse audiences together on common ground, shape personal behavior, or mobilize collective action." (Nisbet, 2009, p. 22).

(vi)   James Painter's 2013 book includes a cross-national study of six countries (US, UK, India, Australia, France and Norway) for various dates from 2007 to 2012 and identifies four frames: disaster or implicit risk, uncertainty, opportunity, and explicit risk. (Painter, 2013).

(vii)   Saffron O'Neill's study of visual climate change frames shows that two main framings dominated coverage in 13 newspapers across three territories (Australia, UK, US) in 2010: a distancing frame and a contested frame. The contested frame was especially apparent in titles owned by Rupert Murdoch's News Corporation, while it was also more present in Australian news titles generally than in UK or American ones. The author speculates that depicting climate change as contested, politicised and distant from everyday life "is unlikely to increase a sense of issue efficacy." (O'Neill, 2013, p. 18).

Although the methodologies of these framing studies are interesting, their findings are of greater interest to those wishing to establish how media coverage of climate change is framed in different countries at different times and in relation to different aspects of the wider climate change issue. In a recent study US and UK print and broadcast and social media coverage of the IPCC's Fifth Assessment Report, it was found that different frames were used in coverage of the different Working Group reports, that different media types used different frames, and that different media outlets favoured certain frames. Of particular relevance to this research is the finding that the *political or ideological contest* frame (similar to the *conflict/strategy* frame in other studies) dominated print media coverage of all Working Group reports (O'Neill, H. T. P. Williams, *et al.*, 2015).

Meanwhile, in Peru, a "solutions" and "effects" frame was dominant, while frames relating to policy and science were limited (Takahashi, 2011). In a frame analysis of the coverage by two US and two UK newspapers of the "Climategate" email hacking controversy, frames of scientific dishonesty, scientific explanation, criminal activity and political advocacy were identified using a cluster analysis which permits the frames to emerge from the data themselves. (Bowe *et al.*, 2012). An analysis of sceptic discourses and US newspaper op eds uncovered three frames: diagnostic, prognostic and motivational. (Hoffman, 2011).

The frames of "new evidence or research", "scientific background", "consequences", "economics", "domestic politics", "international relations" and "current weather" were used by Brossard et al (2004) and McComas and Shanahan (1999). While environmentalists and others frame climate change as a looming disaster (Nisbet, 2010), conservative groups who deny the anthropogenic element of climate change counter that climate change may bring benefits and that efforts to mitigate or adapt to climate change

would be counterproductive (McCright & Dunlap 2014). The "apocalyptic frame" (coded as a *disaster* frame in other studies) may persuade the public there is little they can do to avert the impacts of climate change (Foust & Murphy 2009, p.164), while episodic framing that focuses on people and personalities is more involving (Iyengar and Kinder, 1987b). Although cosmopolitan and communitarian frames in climate change coverage have been examined (Cottle, 2009; Laksa, 2014), thematic framing of climate change in the media is less frequent (Iyengar, 1996).

2.14 Research into media coverage of climate change in Ireland

Ireland has been relatively neglected as a subject territory for the study of media coverage of climate change. It has "only recently emerged as a distinct field of inquiry" (Fox and Rau, 2016, p. 1). The first two pieces of research into the levels and nature of media coverage of climate change in Ireland were published in 2013; the first was the publication by Andreas Schmidt and colleagues of a cross-national study of media attention levels for climate change from 1996 to 2010. Ireland was one of 27 countries studied, and the *Irish Times* was the only paper whose coverage was recorded. Ireland conformed to the broad international trends: coverage peaked at about 4% of all news coverage in late 2009 (Schmidt *et al,* 2013). However, as this research has found, the *Irish Times*, especially in the 1996-2010 period, published greater levels of climate change stories than any other title, and therefore it may not be representative of Irish media generally. Also in 2013, sociologist Gerard Mullally and his colleagues presented some data on newspaper coverage of climate change to a conference in University College Cork. Coverage in the *Irish Times, Irish Independent* and *Irish Examiner,* along with 13 regional titles, was studied for the period 2008 to June 2013. The *Irish Times* coverage, which had been close to 500 stories in late 2009, dropped dramatically to fewer

than 100 by 2013; the two other national titles did not approach the peak in coverage shown by the *Irish Times*, and their coverage, while it decreased post-2009, did not suffer such as dramatic decline. Of the 13 provincial papers studied, only the *Corkman* and the *Kerryman* devoted notable levels of coverage to the issue. (Mullally *et al.*, 2013).

The levels of attention for climate change in the broadcast media in Ireland is also a neglected area of academic research. A single, exploratory study of RTE's coverage of the issue from October 2010 to October 2013 was undertaken at the request of the RTE Audience Council. This research concluded that the national broadcaster's coverage was "infrequent, sporadic and clustered around a small number of topical areas." The report also found that there was a decline in the number of climate change items broadcast from October 2010 to October 2011, a period during which the broadcaster left the post of environment correspondent unfilled. In the main TV news programmes, climate change was seen as an international, rather than an Irish, story, nor was climate change linked to any topical stories. However, sceptical views were not present in the coverage studied. (Cullinane and Watson, 2014, p. 19) .

Levels of climate change coverage in three Irish newspapers (the *Irish Independent, Irish Times* and *Sunday Business Post*) from 1997-2012 formed part of the data for a study by Wagner and Payne on the representation of climate change in the Irish media. This study confirmed earlier findings that Ireland's newspaper coverage rises and falls at times of international conferences and major scientific reports, and that levels of coverage declined steeply in late 2009/early 2010. The authors conclude that the Irish print media present a narrow, ideological view of climate change, one that is supportive of the country's political and economic elites. (Wagner and Payne, 2015). Another study, by

Brenda McNally, which focuses on the Irish media's representation of low carbon transition and decarbonisation and is therefore tangentially related to media coverage of climate change, examined coverage in a wide range of titles: these were the *Irish Times, Irish Independent, Irish Examiner, Sunday Business Post, Mirror* and *Sunday Mirror, Sunday Tribune, Sunday Independent* and *Irish Daily Mail*. Again, coverage of these climate change-related topics (low carbon transition, decarbonisation) peaks in late 2009, and again, the *Irish Times* publishes a far greater number of articles on these topics than the other titles (212 articles, compared to 52 in the *Irish Examiner*, the next highest). (McNally, 2015).

An overview of the scholarship of media coverage of climate change in Ireland has recently been provided by an entry on Ireland in the Oxford Research Encyclopaedia of Climate Science (Fox and Rau, 2016). The authors survey the literature mentioned above, concluding that (i) coverage of climate change has steadily increased since 1997; (ii) there was a steep "post-crash drop" in late 2009; (iii) the *Irish Times* has a "track record of providing the most coverage" and (iv) that coverage is largely driven by events. (2016, p. 8). They further find that coverage presents climate change as a challenge that must be dealt with from within the existing institutional and economic system, and that broadsheet newspaper coverage relies heavily on the optimistic discourse of ecological modernization (2016, p. 9).

A climate change frame formed part of a frame analysis of Irish media coverage (*Irish Times, Irish Independent, Irish Examiner*) of flooding, in which the authors noted that the media relied on descriptive reporting and emphasised humanitarian responses to individuals rather than long-term adaptation policies. (Devitt and Neill, 2017). More

recently, a climate change-related study of Irish media coverage in the *Irish Independent, Irish Times, Irish Examiner, Sunday Independent* and *Irish Daily Mail* of the Papal encyclical on climate change, *Laudato Si': On Care for Our Common Home,* examined frames used by the Irish print media. The encyclical was published in June 2015 and received widespread media coverage. The study found that the *morality or ethics* frame dominated, while the *settled science* frame was also prominent, with the *political or ideological struggle* frame relegated to third place. (Robbins 2017). A report on Irish media coverage of climate change, including print, social, broadcast and online media, is in preparation (Culloty et al., forthcoming).

The academic literature on media coverage of climate change in Ireland is evidently somewhat threadbare. It may be argued that, in the case of Ireland, the academy has bypassed certain stages in the process of analysing media coverage of climate change, stages that have been undertaken with regard to other countries. Whereas the general scholarship of media coverage of climate change began with concern over levels of attention and scientific accuracy, these areas have not heretofore been addressed with regard to Ireland. Furthermore, the range of academic disciplines represented elsewhere, such as communications, media, journalism and science communications studies, have not contributed to the study of Ireland's media coverage of climate change. Of the substantive research undertaken on Ireland, the influence of sociology and public policy (Wagner and Payne, 2015; Devitt and Neill, 2017) is apparent. These scholars use media data to make broader points about political economy and social structures rather than the media itself and its influence on public engagement with climate change. In considering representations of carbon (McNally, 2015) and of flooding (Devitt and Neill, 2017), the literature relating to Ireland's media coverage of climate change has left other, more

central questions unanswered. This research aims to address some of these shortcomings, firstly by measuring media attention in print media in seven national titles over a period of over nine years, and secondly by presenting a more media-focused perspective and analysis, emphasising the scholarship of media and journalism studies and presenting the viewpoints of working journalists, politicians and media advisors for the first time.

2.15 Recent trends in media coverage of climate change scholarship

Recent scholarship of media coverage of climate change has moved away from the treatment of the issue as a homogenous entity. Perhaps partly in acknowledgement of the complexity of climate change, and partly because of the contribution of earlier research, scholars have focused on its constituent parts. [There are exceptions to this trend, such as studies of media coverage of climate change in South Korea (Chang *et al.*, 2016), the Canadian arctic (Stoddart and Smith, 2016) and Greenland (Davies, Wright and Alstine, 2016)]. Recent studies have considered, for instance, the social media coverage of individual COPs (O'Neill et al. 2015), of flooding (Gavin, Leonard-Milsom and Montgomery, 2011; Escobar and Demeritt, 2014; Devitt and Neill, 2017), online comments sections on climate change (Koteyko, Jaspal and Nerlich, 2013), climate change coverage in science magazines (Nielsen and Schmidt Kjærgaard, 2011), scientist bloggers (Thorsen, 2013), letters to the editor on climate change (Young, 2013), images used to illustrate climate change (O'Neill, 2013; Rebich-Hespanha *et al.*, 2015), representations of coal (Bacon and Nash, 2012), carbon (Feldpausch-Parker *et al.*, 2015; McNally, 2015) and fracking (Jaspal and Nerlich, 2014). The academy has moved on from establishing whether media coverage of climate change accepts AGW as happening and has begun to consider what a post-climate change world might look like.

However, certain characteristics remain persistent. The perspective of journalists is all too rare, a recent survey of elite environmental correspondents notwithstanding (Hiles and Hinnant, 2014). In her review of media coverage of climate change trends, Alison Anderson suggests that "research involving in-depth interviews with editors and reporters would provide important insights into the factors impeding or enhancing climate change coverage" (Anderson, 2009, p. 176). The view from the other side of the media fence, from those wishing to increase, influence or dominate media coverage of climate change is also lacking. Anderson adds: "Studies involving in-depth interviews with news sources would provide us with a greater understanding of competition to control the issue and the behind-the-scenes factors influencing patterns of reporting." (2009, p. 176). Anderson echoes a similar suggestion made by Max and Jules Boykoff that "… interviews with journalists would better situate and extract explanations as to why journalists continue to adhere to the norm of balanced reporting on the issue of global warming at certain times, and not in others. Also, future studies could integrate macro-structural analysis with the micro-process analysis featured here. Furthermore, future work could delineate partial predictive influences on the production of 'balanced' coverage, of global warming, or divergence from it, in order to more finely texture explanations of this media coverage" (Boykoff and Boykoff, 2004, p. 134). It is possible to argue that the academic field has failed to shake off its origins in science communication, and remains overly concerned with scientific accuracy and portrayals of science; the difference is that now, such concern relates to representations of issue such as carbon capture and storage and wind turbines rather than climate change itself.

2.16 Conclusion

In this chapter, in order to place the study of media coverage of climate change in a wider theoretical context, a review of general media theory was presented, and the ways in which the media are organised, and in which they are expected to perform in society were examined. Subsequently, a review of the literature relating specifically to media coverage of climate change was undertaken. It is possible to discern several broad areas of agreement between scholars. For instance, it has been found, both globally and in relation to many individual territories, that media coverage of climate change is episodic, exhibiting peaks and troughs of media attention. It peaks at times of international climate change conferences and the release of major scientific reports. There is debate about the influence of other factors, such as extreme weather events, or political or celebrity claims-making. There is also general agreement that, in the wake of the global financial crisis and the failure to reach agreement at the Copenhagen COP of December 2009, coverage declined steeply. The Paris COP of December 2015 received high levels of coverage, approaching the levels of Copenhagen, but in general coverage has not attained its pre-2009 levels worldwide. Other commonalities include findings that climate change is often covered as a political or economic issue in ways that reflect the political stance of the media organisation (Carvalho, 2007), that adaptation receives more coverage than mitigation (Boykoff and Roberts, 2007), and that the disaster frame is attractive to journalists (Ereaut and Segnit, 2006; Hulme, 2007; Hart and Feldman, 2014).

The general media theories examined in the opening sections of this chapter have much to contribute to an understanding of the broad forces influencing the media's coverage of climate change. Macro-level concerns such as media structure, ownership, and the political economy of the media industry are all important considerations when examining

media coverage of particular issues. However, this research is concerned with how media coverage of climate change is framed, and with the competition between various agenda-driven actors to impose their framing of the issue on the discourse. In seeking to establish how various actors frame climate change, whether it is journalists covering the topic or other actors whose claims may be reported in the media, it is necessary to examine media texts. Broader theories provide a context in which the media operate, but more journalist-centric approaches can contribute much to understanding how and why particular frames are reproduced in the media.

Despite the constraints placed on media organisation by political economy considerations, individual journalists, concerned with legitimation and attached to professional norms and work routines, often strive to perform their normative roles. In adopting a newsroom-level view, we may uncover the influences of organisation cultures, the extent to which journalists are reliant on information subsidies from the PR industry, and, most importantly in my view, the extent to which news values shapes coverage of climate change.

It is evident in surveying the broad sweep of scholarship of media coverage of climate change that certain aspects have been foregrounded, while others have been neglected. For instance, the extent to which coverage is scientifically accurate, or reflects the scientific consensus on climate change, has been something of a preoccupation. The framing typologies used in many studies reflects this: for instance, in an influential study on the politics of media coverage of climate change, the four frames examined all related to representations of science (Carvalho, 2005), while numerous other studies also included frames concerning the portrayal of science (for example, Brossard et al. 2004).

It is only in more recent scholarship that broader framings which relate climate change to wider spheres such as politics, economics, and to notions of morality and opportunity, have emerged. However, even though the frames examined have moved away from scrutiny of scientific accuracy, the scholarly perspective has remained resolutely outside the media, drawing attention to the ways in which media coverage is misleading, deficient or otherwise inadequate. The perspectives of those actively engaged in framing climate change for media audiences has been lacking, and therefore an understanding of how the media and others involved in the climate change discourse operate is largely absent. It may also be argued that scholars in the disciplines of sociology, political economy and political communication have used media coverage as a proxy for public opinion or societal attitudes, that, in the absence of expensive survey data, media data has been used as a surrogate, and that there is a need for scholars of journalism and communications to contribute to a debate that is passing them by. This research aims to address these issues by analysis frames in the Irish media coverage of climate change and by triangulating these results with semi-structured interviews with journalists, politicians and media advisors.

An argument has been presented here for more media-centred perspectives in the study of media coverage of climate change. In the following chapter, the literature concerning the effects of media coverage on public and policy opinion, and on theories of issue agendas is considered. The aim of my research is to investigate the framing strategies of those involved in the frame competition around climate change. These strategies form part of a larger arena in which various issues and "issue entrepreneurs" compete for media and policy prominence. Again, the extent to which media agency is accounted for in these theories forms part of the analysis and discussion.

Chapter 3

Media effects and issue dynamics

3.1 Introduction

In the previous chapter, the literature relating to the media's coverage of climate change was discussed. The focus on the performance of the media in relation to climate change is based on several assumptions. The first is that the more an issue appears in the media, the greater the level of importance the public assigns to that issue (Ungar, 2000b). The second is that those aspects of an issue given prominence by the media in their coverage – how the issue is framed – affects how the public perceives it (Chong and Druckman, 2007b). A third reason for analysing media coverage of climate change involves working backwards from an assessment of political responses to the issue. Thus, the perceived lack of political responses to mitigating against, or adapting to climate change is a starting point, and the extent and nature of the media's coverage of the issue is examined as a possible contributory factor to this state of affairs. In this chapter, the media's role is placed in the wider context of other social, political and policy dynamics at play in responses to climate change.

Thus, the focus moves outside the media and the texts they produce, and considers the effects these texts have on various audiences. As Mazur and Lee point out (1993, p. 682): "the most widely accepted effect of the news media on public opinion is agenda setting – the placing of certain issues or problems foremost in the public mind". A well-known aphorism in journalism scholarship puts it thus: the news media "may not be successful much of the time in telling people what to think, but [they are] stunningly successful in telling its readers what to think about" (Cohen, 1963, p. 13). This agenda-setting effect

(McCombs and Shaw, 1972) is important with regard to climate change because, unlike some other issues of which citizens have direct experience, such as poverty, or the impact of health or taxation policy, the public "draws most of its knowledge" about the issue from the news media (Anderson, 2011, p. 535).

Much of communications scholarship is predicated on the notion of media effects, both in terms of the power of the media to "set the agenda" for discourse and policy priorities within a society, and in terms of setting the tone, content and limits of these debates. The media select certain frames through which they present their coverage. These *media frames* have been defined as the words, images, phrases, and presentation styles that a media outlet uses when relaying information about an issue or event to an audience (Gamson and Modigliani, 1989), and the process of their selection is referred to as *frame building* (Scheufele, 1999). *Frame setting* (Ibid.) takes place when media frames interact with audiences, who in turn have their own favoured frames through which they view certain issues.

The framing effect takes place between the media and their audiences. Other academic perspectives place the media in a broader social and political context. For instance, in relation to climate change, the media may be studied because they constitute a central forum for discussion of climate policy (Nanz and Steffek, 2004, p. 321) or because high levels of media coverage are an important indicator for policymakers of an issue's salience (Van Aelst and Walgrave, 2011), or may create circumstances in which governments are forced to act, or at least may find it difficult not to act on climate change (Newell, 2000, p. 94). These perspectives consider the media as participants in systems relating to public and political systems. Theories of agenda systems concern themselves

with how and why certain pressing issues are promoted to the top of the political agenda, while others, which may be just as pressing, or even more so, remain at a low priority level. Agenda systems approaches take into account the interaction of various "streams" (Kingdon, 1995) or "arenas" (Hilgartner and Bosk, 1988) which generally include the media, politics and policy environments. However, some allow for more agency on the part of the media, and on the part of journalists, than others.

This thesis is concerned with uncovering the framing strategies of those involved in the "frame competition" (Borah, 2011; Nisbet *et al.*, 2013) around climate change in Ireland from 2007 to 2016. The data collected in pursuit of this research goal include newspaper articles (which in turn allowed for the detection of frames) and interviews with environmental journalists, government ministers and their media advisors. Thus, many of the key elements considered by agenda systems form part of this research, and the perspectives offered by agenda systems theories offer valuable explanations as to how frame competitions play out.

The key question which theories of agenda systems seek to address is "how does an issue or a demand become or fail to become the focus of concern and interest within a polity?" (Cobb and Elder, 1972, p. 12). In general, theories suggest that issues, or social problems, exist in the background until some "focussing event" (Kingdon, 1995) or "information shock" (Baumgartner and Jones, 1991) brings them to the attention of policymakers and politicians. The issue is then subject to "information feedback" (Ibid.) comprising of input from concerned constituencies which further amplify the issue's claims for priority. In a systematic test of two influential agenda systems models (John Kingdon's agenda-setting model and Baumgartner and Jones's punctuated equilibrium model), Xinsheng

Liu and his colleagues described "feedback" as emanating from the routine work of government officials in monitoring programmes, opinion polls, complaints from the public, pressure from interest groups, criticism from "thought leaders", and the findings of scientific research. It is notable that the media is absent from this list of constituencies from which feedback may originate. Yet it is in all likelihood from the media that policymakers learn of the initial "information shock"; furthermore, the media are the most likely forum for "information feedback" to be disseminated. The extent to which these agenda systems theories take account of media influence will be discussed in the sections below.

3.2 Theories of media effects

It is helpful to think of the process of mediation of an issue as having two stages. The first stage concerns the work of the media in sourcing, writing and publishing news. The processes and routines involved in this work, the internal and external pressures at play, both on the individual journalist and on media companies in general, were discussed in the previous chapter. The second stage in the process concerns what happens after the news item is published. Research relating to this stage is focused on the effects media coverage has on public opinion and on the priorities of policymakers. Much of this research takes the form of investigations into who sets the public and policy agenda. The ability to set the agenda on an issue, or to bring an issue to the top of the agenda, is an exercise in power. Indeed, McCombs calls it "the epitome of political power". Citing the example of President G. W. Bush's ability to sideline environmental concerns and proceed with an energy policy based on fossil fuels, he notes that "Controlling the perspective of the political debate on any issue is the ultimate influence on public opinion." (McCombs, 2004, p. 82). In the following sections, the literature relating to the

media effects of agenda-setting, second-level agenda-setting, priming and framing is presented and discussed.

3.3 Agenda-setting

The theory that the media influences public perceptions of issue importance is now almost 50 years old. The original Chapel Hill experiment (in which voters were asked about the election issues they thought were most important; their answers were compared to the media coverage of these issues, and a correlation was found) took place in 1968 (McCombs and Shaw, 1972), but the origins of the notion that audiences perceive a mediated environment rather than an actual one is even older, going back to Walter Lippmann's suggestion that the public responds to a "pseudo-environment" rather than reality or a real environment (Lippmann, 1922). In a later account, one of the originators offers a definition of the concept: "The core theoretical idea is that elements prominent in the media picture become prominent in the audience's picture. Those elements emphasised on the media agenda come to be regarded as important by the public." (Ibid p. 68). Others have emphasised correlation rather than causation, noting that agenda-setting "refers to the idea that there is a strong correlation between the emphasis that mass media place on certain issues (e.g., based on relative coverage or amount of coverage) and the importance attributed to these issues by mass audiences". (Scheufele and Tewksbury, 2007).

The publication of these findings marked a new departure in communications research. In the 1920s and 1930s, the "hypodermic" or "magic bullet" approach had dominated, which put forward the notion that the mass media directly influenced their audiences (Scheufele and Tewksbury, 2007). This paradigm was in turn disrupted by the work of

sociologist Paul Lazarsfeld of Columbia University's Bureau for Social Research in the 1940s. Lazarsfeld placed an intermediary between the press and the public, arguing that the media influenced "opinion leaders" who in turn influenced the public, a "two-step" communication process (Lazarsfeld, Berelson and Gaudet, 1948). Furthermore Lazarsfeld contended that, in contrast to the belief of journalists, advertising executives and politicians that mass media campaigns can produce widespread changes in public opinion, the opposite is the case (cited in Katz 1987). This strand of research emphasised the limited effects of the media and transferred power to the individual and away from the media on the basis of each individual's selective perception of the world. McCombs and Shaw disagreed with the diminution of the effect of the media, as McCombs later stated: "…the idea of powerful media effects expressed in the concept of agenda-setting was a better explanation for the salience of issues on the public agenda than was the concept of selective perception, which is a keystone on the idea of minimal mass media consequences." (McCombs, 2004, p. 6).

Many instances have been found of the correlation between the media's agenda and the public's agenda (McCombs 2004, pp.8–16), yet the agenda-setting effect is not straightforward. For example, the *timeframe* is important when measuring agenda-setting effects: the effect of agenda-setting is most marked in the month after coverage appears, and declines thereafter. TV news has the most immediate agenda-setting effect, but also has the shortest period before 'decay' sets in. "It is primarily the accumulation of these lessons over the period of one to eight weeks that is reflected in the responses of citizen students when we enquire about the most important issues facing the nation." (McCombs, 2004, pp. 46–47). The *medium* also seems to matter, in that print has a greater agenda-setting impact than television. (Ibid p. 49). The *circumstances* in which agenda-setting

occurs is important too. Agenda-setting is at its most powerful when the public requires orientation regarding an issue which is relevant to them but about which they are uncertain. The author cites the example of the Clinton-Lewinsky scandal; although media coverage was extensive and prolonged, it did not appear as a matter of importance in public opinion as it was an issue on which the public was not in need of orientation. (Ibid p. 56-7). Whether an issue is *obtrusive* or *unobtrusive* has an effect on the media's agenda-setting impact (Ibid p. 61-2). The agenda-setting power of the media was found to be strong for unobtrusive issues of which the public has little personal knowledge, but weak for more obtrusive issues more directly experienced by individuals. For instance, Canadians followed the media agenda for unobtrusive and abstract notions such as Canadian unity but not for inflation, of which they had daily experience (Winter, Eyal and Rogers, 1982).

The competition between issues to gain media attention has been emphasised by agenda-setting scholars. McCombs himself states: "The intense competition among issues for a place on the agenda is the most important aspect of this process." (McCombs, 2004, p. 38). Other scholars broaden the definition: agenda-setting is "an ongoing competition among issue protagonists to gain the attention of media professionals, the public and policy elites." (Dearing and Rogers, 1996). There is an implication here that it is through the media that influence can be exerted by 'issue protagonists' on both the public and policymakers. Thus, in this later, broader definition, the media becomes an arena in which claims makers compete for attention. The introduction of a third party to this process, i.e. when claims makers are introduced to a dynamic which had heretofore concerned only the media and their audience – recalls Lazarsfield's model discussed above. The difference is that, in this definition, the media remains as the agent of influence.

Agenda-setting establishes a correlation between the media's agenda and the public agenda. However, as can be seen with the studies relating to obtrusive and unobtrusive issues, this is not universally the case; it is issue dependent. It is also dependent on the need for orientation in the audience. This dependence cuts to the heart of the problem with agenda-setting theory: there is often a correlation (but not always), but that does not establish causation. The evidence for agenda-setting "is insufficient to show a *causal* (emphasis in original) connection between the various issue agendas:

> "…the further one moves from the general notion that media direct attention and shape cognitions, and towards examining actual cases, the more uncertain it becomes whether such an effect actually occurs…[agenda-setting remains] a plausible but unproven idea". (McQuail, 2010, p. 513).

The empirical evidence confirms that there is a strong correlation between the media's agenda and the public agenda. This correlation is accepted by journalists and politicians (and other media-centric industries, such as lobbying and advertising) and plays out in real life (Davis, 2007; Van Aelst and Walgrave, 2011). Furthermore, if politicians accept the agenda-setting role of the media, and respond to media pressure, then the effect is manifest. In other words, the agenda-setting power of the media is such a well-researched area of communications that, although it has yet to be comprehensively proven, it is widely accepted in media, social and political systems theories. Indeed, much of media scholarship is based on the notion that media texts have an effect on their audiences, and that agenda-setting is one of them; framing, which is considered in a later section, is another.

3.4 Second-level agenda setting

Much of agenda-setting research is related to elections and policy priorities, and is concerned with issues of political communication and public opinion. The origins of agenda-setting in political communication are evident in McCombs's discussion of attributes and second-level agenda-setting. The media is influential in telling the public which aspect of a person is most note-worthy, he argues, but it is clear that he is referring to election candidates. He remarks that second-level agenda-setting focuses on which aspect of "an issue or a candidate" gains more salience (McCombs, 2004, p. 71). However, not all news material is related to policy issues. Indeed, the original Chapel Hill study discussed above found that only about a third of media coverage was about public issues. The remainder concerned people, events and other news (McCombs and Shaw, 1972). The coverage of these issues also has an agenda-setting effect, because the media can influence which aspect of a news event or a person was most deserving of attention. McCombs calls these "attributes", and the influence of the media in emphasising them became known as "second-level agenda-setting". Hester and Gibson (2003, p. 74) offer a valuable definition: "Examining the tone of news coverage, rather than simply the amount of coverage, is part of what is considered 'second-level' or 'attribute' agenda setting. This second level analyses the attributes afforded issues and individuals in news coverage, whereas traditional agenda-setting research has focused primarily on amount and placement of news coverage." Attributes may be straight-forward (e.g. a person's age, place of birth, whether they are left or right-handed) or more complex (e.g. their political alignment) (McCombs, 2004, p. 71). In selecting which attributes of an issue, or a person, to foreground, the media "not only tell us what to think, but that they tell us *how to think about* (emphasis in original) some objects." (McCombs, 2004, p. 71).

It is clear that second-level agenda-setting is similar to framing, in that it foregrounds certain aspects of an individual or issue. Indeed the terms have been used interchangeably (Castilla, Rodríguez and País, 2014), while McCombs states that "Attribute agenda-setting explicitly merges agenda-setting theory with framing." He also argues that a frame is an attribute "because it describes the object" (McCombs, 2004, p. 88). This seems like an attempt to annexe the area of framing research as part of the territory of agenda-setting. In some definitions, framing and second-level agenda-setting are aligned (Tankard *et al.*, 1991), while others resist the subsuming of framing into agenda-setting on the grounds that different cognitive processes are at work in each case (Scheufele, 2000). I would argue for a separation between second-level agenda-setting and framing on the grounds that framing is a more complex process. It involves not only foregrounding an aspect of an issue or individual (as takes place in second-level agenda-setting), but also involves placing the topic in a wider context and presenting it in ways that suggest both causes and solutions (Entman 1993). Furthermore, agenda-setting (and priming, discussed in the next section) place emphasis on story selection on the part of the media, whereas framing instead focuses on the ways in which those issues are presented (Price and Tewksbury, 1997; Scheufele and Tewksbury, 2007). A more detailed discussion of framing is presented in section 3.5 below.

3.5 Priming

In their 1987 paper, Iyengar and Kinder argued that the media not only influence public opinion as to what are the most important issues of the day, but also that the media suggest that certain issues are the ones the performance of governments, political parties and individual politicians are to be judged against. (There is some debate over the origins of

the concept of priming. Some scholars suggest that it is a well-worn communications approach, "dating back at least to 1975" (Weaver, 2007, p. 145), while others credit Iyengar and Kinder as the originators (McQuail, 2010, p. 514)). Priming "changes in the standards that people use to make political evaluations" (Iyengar and Kinder, 1987a, p. 63). Other definitions have refined the concept: "Priming occurs when news content suggests to news audiences that they ought to use specific issues as benchmarks for evaluating the performance of leaders and governments." (Scheufele and Tewksbury, 2007). Thus, priming as a media effect is a consequence of the agenda-setting influence of the media. Many studies have found empirical evidence of a priming effect (Miller and Krosnick, 1996), while some have found that, while an effect exists, it is minimal (Pan and Kosicki, 1997). Again, McQuail is sceptical of priming as an established theory of media effects: "Like agenda-setting, although it seems true to what is happening, it is difficult to prove in practice." (McQuail, 2010, p. 514).

Much of the academic literature comparing and analysing the differences between agenda-setting, priming and framing discuss their operation at a psychological level (Scheufele, 1999; Scheufele and Tewksbury, 2007; Weaver, 2007), focusing on the influence each effect may have on the ease with which issues (or frames) can be brought to mind or retrieved from the memory of the individual. As noted in this and previous sections, there is ample evidence of an agenda-setting effect of the media. The effects of agenda-setting and priming have been established, yet the processes by which they take place are not entirely clear.

Of the three media effects considered so far, agenda-setting is the most influential; second-level agenda-setting and priming derived from it, and are refinements, seeking to

analyse and codify different aspects of the agenda-setting effect. However, the agenda-setting effect is a relatively unsophisticated one: high levels of media attention signal to the public that an issue is important, but not what, if anything, should be done about it. Framing, on the other hand, which is considered in the next section, presents information in ways in which causation and solution are implied. This thesis pays attention to agenda-setting by recording attention levels for climate change in seven national daily titles from 2007-2016 for the first time, but focuses more intently on frames because of their greater power in focusing audience attention on potential action.

3.6 Framing

In the previous chapter, frame analyses of media coverage of climate change were examined. In this section, it is intended to place framing as a methodological approach in its context as a theory of media effects. Framing analysis is a common analytical framework for analysing socially constructed concepts and has become much more prevalent in recent times than agenda-setting or priming. For instance, a search of the *Communication Abstracts* database for the timeframe 2001-2005 found 165 framing articles, as opposed to 43 agenda-setting studies and 25 priming studies (Weaver, 2007). The relative popularity of framing as an analytical approach may be because it "provides a strong hypothesis that an audience will be guided by journalistic frames in what it learns." (McQuail, 2010, p. 511). Framing studies are particularly prevalent within media and science communication (see Anderson 2009 for an overview) and political science (Chong & Druckman 2007b). Framing is the most frequently used theory in leading international journals in the field this century (Bryant and Miron, 2004). Framing's founding text is *Framing 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 2012: p. 158).

Many definitions of framing build on Goffman's original notion that information is organised or interpreted for the receiver. Frames have been described as "organising principles" (Reese, 2003, p. 11); a frame is "a central organising idea" (Gamson and Modigliani, 1989, p. 3); framing is "the setting of an issue within an appropriate context to achieve a desired interpretation or perspective" (de Blasio and Sorice, 2013, p. 62) which "organises the world for both journalists and those who rely on their reports" (Bowe et al, 2012, p. 158). Some scholars argue that framing is done subconsciously (Lakoff, 2009), but most agree it involves some level of conscious selection in a way "that encourages certain interpretations and discourages others" (Kitzinger, 2007, p. 134). Framing is "an inevitable process of sense-making" (Ibid.) that structures what might otherwise be random and unconnected information. Indeed, "there is no such thing as unframed information" (Nisbet, 2009, p. 15)

Framing selects some aspect of an issue for emphasis, thus encouraging audiences to think about it in a certain way. This process of selection also involves promoting "*a particular problem definition, causal interpretation, moral evaluation, and/or treatment recommendation* for the item described" (Entman, 1993, p. 52 emphasis in original). This aspect of framing – that it entails elements of problem definition, a diagnosis of causes and a suggestion for solution (Entman, 2004) – is central to the attraction of framing as a methodological tool. In interacting with framed information, audiences may perceive what the problem is, who is to blame, and what needs to be done.

Framing may be a much-used method of interrogating texts, but there is some dispute as to whether it is a paradigm. Entman (1993, p. 395) suggests it may *become* a unified research paradigm, which he defines as a "general theory that informs most scholarship on the operation and outcomes of any particular system of thought and action". Framing has been used as an interpretive methodology in several disciplines, yet scholars have differing approaches to the concept (R. M. Entman, 1993; Vreese, 2005; Vliegenthart and van Zoonen, 2011). Entman observes that "despite its omnipresence across the social sciences and humanities, nowhere is there a general statement of framing theory that shows exactly how frames become embedded within and make themselves manifest in a text" (Entman 1993: p. 51). D'Angelo (2002), in a response to Entman's call for a unified approach, suggests that in fact, framing is comprised of three (at least) separate paradigms:

(i) Cognitivist – texts of journalistic accounts become embodied in the thoughts and words of those affected;

(ii) Constructivist – journalists provide 'interpretive packages' of the sponsors (sources) of news;

(iii) Critical – frames are the outcome of news-gathering routines and the values of elites.

Framing is also open to criticism due to the lack of a standardised approach to detecting frames in a given text. Each new study tends to develop its own more or less unique frame set (Dahl 2015: p. 44). Suggestions have been made for a set of generic and issue-specific frames (de Vreese 2005), while others have pointed out the unsuitability of such a taxonomy (Porter and Hulme, 2013). Frames are usually operationally defined (Bowe at al 2012: p. 158), meaning that for each study, a specific set of frames is created for the

research project at hand. Framing researchers "have a tendency to 'reinvent the wheel'" (Nisbet, 2010, p. 46) when identifying frames. However, journalists use "generic frames" that do not depend on time, place or subject matter (Iyengar, 1991; Neuman, Just and Crigler, 1992; Valkenburg, Semetko and de Vreese, 1999). For instance, Semetko and Valkenburg (2000) found that five frames recur in general news coverage: the responsibility, conflict, (economic) consequences, human interest and morality frames.

Entman (1993) suggests that framing is under-theorised, while Matthes, who undertook a 15-year content analysis of framing studies in leading communications journals, found five areas for concern: the lack of transparency between the conceptualisation of the frame and its operationalisation; the lack of distinction between generic and thematic frames; the predominance of descriptive rather than theoretical studies; the lack of attention to the contribution of visual elements to the creation of frames, and the lack of reliability reporting in "a vast amount of studies" (Matthes, 2009, pp. 359–360). The diversity of approaches has "pushed the field towards incoherence (Bowe *et al.*, 2012, p. 158). Some believe that scholars "often give an obligatory nod to the literature before proceeding to do whatever they were going to do in the first place" (Reese 2007: p. 151). Standing back from the debates over methodological incoherence in framing research, McQuail questions whether news frames produce a media effect at all: "Despite the complexities, there is insufficient evidence, especially from political communications research, to demonstrate the occurrence of effects that are in line with news frames." (McQuail, 2010, p. 512). Others argue that framing effects can occur, but for them to do so, an audience is required to pay close attention to a text: "Attention to messages may be more necessary for a framing effect to occur than an agenda- setting effect. Mere

exposure may be sufficient for agenda setting, but it is less likely to be so for framing effects." (Scheufele and Tewksbury, 2007).

Other perceived shortcomings of framing include a contention that it concentrates on the "micro level" of analysis and therefore may miss the real-world experience of a competitive message. Because framing concentrates its analytical focus at the level of the text – a newspaper article or television news report, for example – it "does not allow for individuals being exposed to competing frames simultaneously" (Nisbet *et al.*, 2013, p. 767). The frame effects contained in one text may be reduced or eliminated by competing frames in other media (Borah 2011; Chong & Druckman 2007a; 2007b; Sniderman & Theriault 2004).

This criticism of framing relates to the impacts of frames on audiences, who may be exposed to alternative frames from other media or inputs of a non-media kind. However, it has been shown that certain frames encourage public engagement with issues (Nisbet, 2009) and that politicians are acutely sensitive to the second-level agenda-setting power of the media (Van Aelst and Walgrave, 2011). Frames do produce a media effect, even if that effect is diluted or countered by other influences. Indeed, I would suggest, arguing against framing as a research approach on the basis that media frames may be diluted by other frames seems like an argument supporting the power of frames in general. Furthermore, it is possible to argue that framing is not really a "micro-level' approach. Measurements of media attention calculated by means of basic content analysis may fall into this category: they count mentions of a topic such as climate change and demonstrate how these rise and fall. Framing, on the other hand, gives context by analysing which

frames, out of all possible frames, have been selected. Frames show how, and not just how often, the media communicate on an issue.

Framing often involves a process of selection and omission whereby certain aspects of an issue or an event are foregrounded and others are neglected or omitted. This process may be unconscious, but in the case of media frames, is the result of conscious decisions on the part of the journalist (Scheufele and Tewksbury, 2007). Framing refers to modes of presentation that journalists and other communicators use to present information in a way that resonates with existing underlying schemas among their audience (Shoemaker and Reese, 1996). Most journalists, however, are not engaged in deliberate attempts to distort events or issues, or to deceive their audiences. They use frames as a necessary tool to reduce the complexity of an issue, given the constraints of their respective media related to news holes and airtime (Gans, 1979). Framing differs from gatekeeping, which is concerned with issue selection; framing refers to the process whereby certain aspects of a news event are emphasised: "Journalists are involved in a wider process of defining what is at issue in public debates" (Brüggemann, 2014, p. 62). Therefore, "journalists actively construct frames to structure and make sense of incoming information" (Scheufele, 1999, p. 115).

Some scholars have argued that the frame selection on the part of journalists is one of three processes at work in "frame building". The others are the political orientation of the media outlet and the influence of external actors (Scheufele, 1999). Others suggest that frames may also be jointly constructed by the public and the media (Zhou and Moy, 2007), but both these approaches downplay the influence of newsroom cultures and news production routines (Scheufele and Tewksbury, 2007) in which the journalist is

somewhat insulated from outside influence and retains the power of agency when it comes to framing.

Framing is particularly attractive to students of media coverage of climate change. It may be argued that some theoretical approaches to this topic, especially those which focus closely on the text of climate change communication, operate at too micro a level to offer insight into a problem that exhibits "tremendous complexity, transcending economic, political, scientific, and social boundaries across cultures." (Bowe et al 2012: p. 159). Nor can macro-level theories of media alone explain the media's reaction to climate change because they neglect the agency of the journalist, the news values which inform editorial decisions, newsroom cultures and the influence of professional norms. A "meso-level" approach, which considers both the text and the context, is required. Such an approach would take into account the micro-level lexical choices of the individual journalist, but also permit analysis of the broader contexts in which these choices are made. Despite the many objections to frame analysis on the basis of lack of theoretical or methodological coherence, framing continues to be attractive to media and social science researchers. As Matthew Nisbet remarks: "Framing is an unavoidable reality of the communication process, especially as applied to public affairs and policy…most successful communicators are adept at framing, whether using frames intentionally or intuitively." (2009, p. 15).

3.7 Theories of agenda systems

The various theories of media effects examined above are focused primarily on the media and its audiences. Many have their origins in the traditions of political communication and public opinion research, and many of the studies are concerned with media influence

on elections, candidates and issue priorities for citizens. In much of this research, news coverage of events and issues is an independent variable; it is a given whose influence is then measured and described. In this section, a body of scholarship which, among other aspects, places the media in a broader matrix of influencing factors is examined. This research is concerned, among other issues, with frame-building and agenda-building (Scheufele, 1999, 2000), processes whereby media frames are constructed in the media production processes. Who influences the media's agenda is a key concern. McCombs has suggested, in an attempt to claim this area of academic inquiry for agenda-setting, that there are three main influences on the media's agenda: sources, other news organisations, and journalists' norms and traditions (McCombs, 2004, p. 113). Others propose a broader, constructionist approach, arguing that wider societal forces are at work in influencing the media agenda (Gamson and Modigliani, 1989; Scheufele and Tewksbury, 2007). The approaches presented in the following sections represent attempts to explain these dynamics.

It is helpful first of all to consider briefly the development of broad theories relating to social problems. Initially, social problems were seen as those issues which were defined scientifically to be detrimental to human wellbeing (Manis, 1976, p. 25), that is to say they existed and were empirically shown to be harmful. Later approaches suggested that social problems did not exist until some strategic actors began to engage in claims-making activity about them; social problems were essentially socially constructed. Spector and Kituse defined social problems as "the activities of individuals or groups making assertions of grievances and claims with respect to some putative conditions." (1977, p. 75). Their constructionist approach became known as the "natural history" model of social problems, and was controversial at the time because it sought to divorce

social problems from social conditions (Best, 2002). Their thesis was summed up by Sheldon Ungar as: "No condition is a social problem unless groups with some power consider it one." (1992, p. 484). This branch of the sociology of social problems was further critiqued on grounds that it focusses too narrowly on the role of claims-makers (Fritz and Altheide, 1987). Others suggested that the public arenas in which these claims were debated were more important that the claims themselves (Hilgartner and Bosk, 1988). The influence of the media is largely absent from these analytical approaches. Primarily, this is because theories relating to social issues and policy agenda attempt to put forward unified, generalisable models, and do not consider in detail the internal dynamics of each relevant constituency, such as politics, policy, media and public. Each of these areas has its own internal and external constraints, professional norms and routines. However, it is possible to argue that the role of the media in the operation of some of these models of agenda dynamics has been downplayed to an unwarranted degree.

3.8 Issue attention cycles

Research on agenda-setting goes some way to explaining the role of the media in the promotion of issues on the public agenda. As Mazur and Lee put it, "the most widely accepted effect of the news media on public opinion is agenda setting – the placing of certain issues or problems foremost in the public mind" (Mazur and Lee, 1993, p. 682). There is no shortage of research into how issues "spring to life" (Djerf-Pierre, 2012b, p. 499), but less on how they "fall from grace", on "why real problems fall from the news - beyond the cliché that they become 'stale'" (Mazur, 1998, p. 470). A paper published by Anthony Downs in 1972 attempted an explanation: issue attention cycles. Issues go through a predictable five stage cycle, he argued:

(i)   A pre-problem stage, in which "some highly undesirable condition exists" but has yet to come to public attention;

(ii)   An alarmed discovery and euphoric enthusiasm stage, in which a series of dramatic events (Downs offers the example of ghetto riots) both informs and alarms the public. There is great optimism about society's ability to 'solve' the problem in this stage also;

(iii)   Realising the cost of significant progress, a stage in which it comes to be understood that 'solving' the problem is not that straight-forward and is going to be expensive and will involve sacrifice by a large section of society;

(iv)   Gradual decline of intense public interest, a stage in which, once the costs and sacrifices involved are known, people become discouraged, threatened or bored;

(v)   A post-problem stage, in which the issue is replaced on the public agenda and retreats to a "twilight world". This is not equivalent to the pre-problem stage, for the issue retains the ability sporadically to recapture national interest;

(vi)   Downs speculated that environmental issues would not enter the fourth "post-problem stage" as rapidly as other issues, because environmental damage was continually occurring, pollution was a persistent public topic, environmental issues lend themselves to "heroes and villains" narratives, and various technological solutions proposed for environmental problems were also interesting to the public.

(Downs, 1972, pp. 39–41)

Not every issue was subject to such an attention cycle. To qualify, an issue must affect a minority of the population, it must have been created away from public attention and be capable of creating peaks of public attention. In the second half of his 1972 paper, Downs gave consideration to environmental issues, suggesting that, at the time, the environment was about half way through his attention cycle (1972, p. 43).

Downs set forth his model "in largely anecdotal fashion" (Howlett, 1997, p. 7), and his criteria for the types of issues that go through the issue cycle process left many important social problems out. In considering the effectiveness of Downs's issue attention cycle theory and Baumgartner and Jones's punctuated equilibrium theory (discussed below), Holt and Barkmeyer suggest both could work simultaneously when it comes to coverage of environmental sustainability in worldwide print media from 1990 to 2009 (Holt and Barkemeyer, 2012). In a study of a decade of environmental coverage in the US, Downs's model was found to be a "good fit" for the pattern of coverage (Trumbo, 1996). Indeed, Trumbo, although his research is over 20 years old, makes a salient point when it comes to the relevance of attention cycles to climate change research. He argues that Downs's model "can be used as a more general basis" for examining and dividing patterns of coverage (Ibid 1996, p. 280). Other researchers have applied the model to media treatment of climate change (Brossard, Shanahan and McComas, 2004; Nisbet and Huge, 2006), but it has been criticised for being vague (Howlett, 1997), too inflexible, too linear, and in focusing on the media and public agendas, it does not account for other influences:

> "The problem with Downs's model is that it is too linear and inflexible. His approach tends to focus narrowly upon a limited number of fora, or arenas of influence, namely: the media and public agendas (Hilgartner and Bosk 1988). We should not underestimate the role of political institutions, NGOs, the wider political culture and the scientific community in defining the important issues of the moment. None of these public arenas are discrete units; they encompass a wide range of overlapping platforms employing

different strategies and targeting a diverse range of audiences. This 'one model fits all' approach tends to downplay the complexity of public debates." (Anderson, 2009, p. 169)

Downs's attention cycle describes what happens to certain issues with regard to the media and the public agenda, but not why. As Alison Anderson has pointed out, the model does not take account of other actors and claimsmakers in the issue process. Nor does it take into account factors internal to the functioning of the media themselves. In particular, the influence of news values is unaccounted for. News values (discussed in Chapter 2, section 2.7 and also in Chapter 6) is a key concept in journalism studies, and shows that that the news media favour new information in particular (Galtung and Ruge, 1965; Harcup and O'Neill, 2001), which makes it difficult for an issue to stay in the news form long as "newer" events push themselves into the news cycle. Downs's model is not completely at odds with the scholarship of news values. The media is more likely to cover a story already in the news, which may prolong the media "shelf life" of an existing story. Downs also argued that only issues capable of being vividly dramatised were capable of going through the issue attention cycle; these kinds of stories are also favoured by the news media. However, the principle drive of the media is for novelty: "The media responds to breaking news, to new things, to change" (May and Pitts, 2000, p. 24).

The attention cycle model has been found to be an inadequate explanation for the patterns of media coverage of environmental issues such as climate change. However, as Holt and Barkmeyer suggest, the model is useful as a starting point for research into the media "career" of certain issues. Nisbet and Huge use it as a general basis for their theory of mediated issue development (discussed in more detail below). Although it has been criticised for a lack of nuance, Downs's attention cycle has proved a valuable tool for media analysts.

3.9 Punctuated Equilibrium

In their theory of how changes in policy come about, Baumgartner and Jones argued that a single process could account for both slow and rapid policy changes. The process they outlined has several components:

(i)   Depoliticised and relatively independent *subsystems* of government (also called *sub-governments*) which are given charge of an industry sector. These subsystems are insulated from large-scale democratic forces and resistant to change;

(ii)   *Policy images* are the perception of the particular issue or industry held by the general public and the media. The authors note that policy images are generally either very positive or very negative, and swing between extremes;

(iii) *Policy venues* are the institutions in society granted jurisdiction over a particular issue. These may change as an issue develops, and "those who previously dominated the policy process may find themselves in the minority".

(1993, pp. 1046–7)

As an example of how rapid change may affect a previously stable policy system, the authors outline the hypothetical case of an American environmental campaign group who had lost several regulatory battles in the courts. The group then appeals to a new constituency, a previously uninvolved group in Congress, where they may receive a more favourable hearing. Congress may pass new laws which force other policy venues to give more weight to environmental considerations. The environmental campaigners are now strong in policy venues where previously they had been weak. The widening of the debate

may lead to changes in policy venue and policy image, so that "From one strategic appeal, a whole series of self-reinforcing changes in image and venue may potentially follow." (Baumgartner and Jones, 1991, p. 1049). A more oft-cited example is that of the nuclear energy industry (Mazur, 1981). Initially, when this policy area was dominated by science, engineering and public administration interests, its policy image was positive; when the policy venue changed following campaigns by environmental groups, it was no longer dominated by a narrow policy sub-system and its policy image was altered also.

More broadly speaking, the concept of "punctuated equilibrium" comes from evolutionary theory, and suggests that evolutionary shifts can occur in relatively stable policy environments (Holt and Barkemeyer, 2012). A policy system can suffer an exogenous shock, after which prevailing power arrangements in dominant policy groups are altered irrevocably. As Baumgartner and Jones put it:

> "When shocks or changes are introduced in this system, they may lead not just momentary deviation from normal, with a more or less rapid return to the status quo, but rather to new points of stability, as the system settle down to a period quite radically different from the original. If policy and politics can be said to follow such a dynamic, then we expect stability during certain periods, but with the possibility of rapid, dramatic and non-incremental change." (1993, p. 88)

A further key concept in the theory of punctuated equilibrium is that of *problem indicators*: the baseline information about an issue. These can take many forms and come from many sources, but are usually provided to policy elites in the form of second-hand data sources and presented in quantitative form (Liu *et al,* 2011). These problem indicators may have existed for long periods before an issue comes to the attention of policy makers. A dramatic event (in Baumgartner and Jones's model, an *information shock*) is required to bring these indicators to public attention. With regard to climate

change, the problem indicators include various types of climate data and information about climate impacts. The third element required to bring about rapid change in a policy environment is *information feedback.* It is not enough for problem indicators to exist, or for there to be an information shock; pressure from interested actors and groups, calls for action from campaigners and politicians, and other forms of communication from claims makers is also required to amplify the previous two stages (Jones and Baumgartner, 2005; Liu, Lindquist and Vedlitz, 2011).

Punctuated equilibrium theory seeks to explain agenda dynamics in an evolutionary way, arguing that some issues evolve slowly, while others may experience rapid change through a combination of problem indicators, information shocks and information feedbacks. The theory has much in common with multiple streams theory (Kingdon, 1995), which will be examined in the subsequent section. Punctuated equilibrium builds on earlier work relating to the "scope of participation" and "conflict expansion" (Schnattschneider, 1960) and competition between social groups to advance selected issues (Cobb and Elder, 1972; Dearing and Rogers, 1996). It emphasises the concept of issue competition by suggesting that policy subsystems may compete for territory and try to annexe issues that previously belonged to other policy systems. Changes in regulation, or the entry of a new strategic actor into the field, may spark a competition for dominance in a once-stable and settled policy area. This accords with findings by Nisbet on the relative success in encouraging public engagement with social issues by re-framing scientific issues as moral or emotional ones (Nisbet, 2009). In this way, punctuated equilibrium is connected to the idea of framing, in that it suggests that those with the power to define or frame an issue will wield the most influence over policy. It is also significant in that it emphasises the concept of power in issue dynamics, arguing that the

power balance on policy issues may subject to rapid change, but that power ultimately rests with those who can dominate its definition and constrain the boundaries of discourse.

3.10 Multiple Streams Theory

The multiple streams approach (Kingdon, 1995) is similar in structure to punctuated equilibrium, in that it is based on ideas of pre-existing problems that come to policy attention because of a sudden change in circumstance. Kingdon argues that there are essentially two methods of policy prioritisation: agenda-setting, whereby issues worthy of attention are selected from the range of all possible problems, and alternative specification, whereby the set of conceivable alternatives for addressing each problem is selected (Durant and Diehl, 1989, p. 180). The former is characterised by sudden discontinuities and political actors; the latter by incremental change and nonelected members of specialised policy communities. Kingdon suggests that policy formation is best conceptualised as "multiple streams": a *problem stream* representing the real-world indicators that a problem exists; a *policy stream,* in which as range of solutions exists, awaiting a suitable problem, and a *political stream* comprised of factors that influence the body politic. These three streams flow along independently of one another until a *policy window* opens and the streams cross each other. (Béland and Howlett, 2016, p. 222).

The creation of these policy windows is subject to another set of influences. Kingdon suggests they can come about through *focussing events* (for example, a crisis or accident), or through the actions of *policy entrepreneurs,* advocates for a particular issue who may exist within or outside government. As Kingdon argues:

"windows are opened either by the appearance of compelling problems or by happenings in the political stream. … Policy entrepreneurs, people who are willing to invest their resources in pushing their pet proposals or problems, are responsible not only for prompting important people to pay attention, but also for coupling solutions to problems and for coupling both problems and solutions to politics." (1995, p. 21).

Once an issue has risen to the top of the policy agenda, it is subject to *feedback* (akin to *information feedback* in Baumgartner and Jones's approach). This feedback may come internally from government officials monitoring the operation of programmes or policies, from scientists researching in policy-relevant areas, from public opinion polls or from interest groups (Liu, Lindquist and Vedlitz, 2011, p. 407).

Kingdon's model, in which problems and solutions wait in the wings until a policy window opens to allow for their "moment in the sun", exhibits similarities to the "garbage can" model for policy formation put forward by Cohen et al (1972). Cohen's model sets itself up in contrast to the comprehensively rational approach, whereby policy makers identify a problem or an aim, bureaucracies carry out a comprehensive analysis to produce various solutions and policy makers then select the best option. According to Cohen, policy makers and policy problems remain ambiguous and bureaucracies therefore have difficulty in researching and proposing solutions. Ultimately, the mix of problems, solutions and choices end up in the garbage can.

Multiple streams theory has been criticised for being too US-centric and insufficiently tested for relevance to other territories (Béland and Howlett, 2016). Furthermore, the vivid language and metaphors of Kingdon's original text may lead to a situation where the metaphors of streams and windows may become disconnected from the original theory (Ibid, p.224). It has also been criticised for arguing that rapid change can take

place only in the agenda-setting component of policy formation, rather than in both the agenda-setting and alternative specification components. This position means it "cannot fully capture the interaction of these analytically distinct streams." (Durant and Diehl, 1989, p. 182).

Multiple streams theory draws on organisational theory, while punctuated equilibrium theory draws on evolutionary theory. Both suggest that long-standing social problems can be brought to the top of the policy agenda by means for focussing events (or information shocks) and feedbacks from interested groups, politicians or measurements of the public mood. Media are almost entirely absent from these models. Yet it may be argued that media are the means by which these information shocks are delivered, and feedback amplified. If agenda-setting theory assigns almost complete power to set the public agenda to the media, then these theories of issue dynamics downplays the media's influence. Liu et al proposed a synthesis of both multiple streams theory and punctuated equilibrium theory – based on "problem indicators", "focussing events" and "feedback" – which they called an "agenda system perspective" (Liu, Lindquist and Vedlitz, 2011). Again, the role of the media was downplayed in this synthesised model (Schäfer *et al.*, 2014). In a paper which took Liu's approach as a model, factors relating to media production and journalistic norms and routines were also excluded from consideration on the basis that these routines and norms are relatively stable and do not change over short periods of time (essentially, they are an independent variable), and that levels of coverage of an issue are influenced by factors external to the media rather than by internal factors (Ibid 2014, p. 155). This omission of media influence, and the characterisation of the media as passive conduits in agenda systems, seems to underestimate media influence assigned by agenda-setting and theories of media effects.

Kingdon's theory formed the theoretical basis for an examination of the promotion of adaptation to climate change in the UK, Finland, Italy and Sweden in which it was found that climate change adaptation experienced some success in the UK due to support from a broad coalition at local and national level whereas support in the other three countries was more dispersed (Keskitalo, Westerhoff and Juhola, 2012). An influential study of US media coverage of climate change and US Congressional hearings on the topic found that the agenda theories of Kingdon and Baumgartner and Jones were largely supported by the empirical evidence (Liu, Lindquist and Vedlitz, 2011). Issue dynamics relating to environmental matters in the Swedish media were found to be complex; increased coverage of some environmental issues can increase media attention for others (Djerf-Pierre 2012b), while in times of crisis, the limited carrying capacity of the media means that news of war and economic crises "crowd out" environmental news (Djerf-Pierre 2012a).

3.11 The Public Arenas model

In their attempt to develop of model of how social problems rise and fall, Hilgartner and Bosk suggest that it is necessary to adopt an approach "incorporating and moving beyond natural history models" (Hilgartner and Bosk, 1988, p. 55). Their "public arenas" model has six components:

(i)   a dynamic process of competition among the members of a very large "population" of social problem claims;

(ii)   the institutional arenas that serve as "environments" where social problems compete for attention and grow;

(iii)   the "carrying capacities" of these arenas, which limit the number of problems that can gain widespread attention at one time;

(iv)   the "principles of selection," or institutional, political, and cultural factors that influence the probability of survival of competing problem formulations;

(v)   patterns of interaction among the different arenas, such as feedback and synergy, through which activities in each arena spread throughout the others; and

(vi)   the networks of operatives who promote and attempt to control particular problems and whose channels of communication crisscross the different arenas.

(Ibid 1988, p. 56)

The public arenas in which these social problems compete for attention comprise the executive and legislative branches of government, the courts, made-for-TV movies, the cinema, the news media (television news, magazines, newspapers, and radio), political campaign organisations, social action groups, direct mail solicitations, books dealing with social issues, the research community, religious organisations, professional societies, and private foundations. Each of these arenas has a limited "carrying capacity", a concept that echoes McCombs's statement that "polling shows that the US public agenda ranges from two to six issues" at any one time (McCombs, 2004, p. 38).

The authors suggest that "principles of selection" also influence which social problems rise to the top of the agenda. These include a need for drama, novelty, the organisational characteristics of the institutions involved, and the broad cultural and political concerns of these institutions (Hilgartner and Bosk, 1988, p. 61 et seq.). To a media scholar, some

of these principles (for example, novelty and drama) appear closely aligned with news values (Galtung and Ruge, 1965; Harcup and O'Neill, 2001). The public arenas model acknowledges that too much media attention can lead to saturation; high levels of coverage can "de-dramatise" a particular issue, or an entire class of issues. Again, this concept is closely related to the phenomenon of "issue fatigue" identified by communications research (Djerf-Pierre 2012), while at the same time running counter to much of the agenda-setting literature which suggests that high levels of coverage equate to high levels of public concern (McCombs and Shaw, 1972). A final component of the public arenas model is "feedback", communications strategies or claims-making which can dampen or amplify the attention given to problems in public arenas.

A key concept in the public arenas model is the idea of competition. Issues compete for limited attention in various public arenas. Advocates attempt to increase their chances of success by appealing to more than one arena, or by broadening the scope of their chosen issue. Indeed, "a relatively small number of very successful social issues tend to occupy much of the space in most of the arenas" (Hilgartner and Bosk, 1988, p. 77). Furthermore, the authors argue that "the level of attention devoted to a social problem is not a function of its objective makeup alone but is determined by a process of collective definition" (Ibid 1988, p. 68). The power of definition over an issue is again related to the framing ability of the media.

3.12 Issue cultures and social scares

Sociologist Sheldon Ungar attempted to extend the public arenas model to suggest that social problems, especially environmental problems, have a better chance of success when they "piggyback" on real-world events (1992). These events may then trigger a

social scare; these scares are defined as "acute episodes of collective fear that accelerate demands in the political (or related) arena" (Ibid, p.485). When it comes to issues such as nuclear energy and climate change, Ungar argues, there is a latent dread present in the public mind; only when this dread becomes more pressing does a social scare ensue and only then do the claims-making activities of those involved with the issue gain pubic acceptance. The author cites the example of the summer of 1988 in the United States as an example of the dynamics of social scares: there was a severe heatwave, sales of air-conditioning units increased dramatically, there was widespread drought, sewage treatment plants were affected and the water level of the Mississippi River dropped by 10 metres. However, these phenomena were "necessary but not sufficient" to create a social scare (Ibid, p.491). Subsequently, UN Congressional hearings into the greenhouse effect, combined with the Toronto world conference on the changing atmosphere (both events occurred in June 1988) meant that:

> "Scientists and environmentalists sponsored global warming packages with extreme positions in political forums that had suddenly attracted great media attention. The scare shifted media practices away from official or conventional packages toward coverage of alternative frames. Cultural resonances also favored alternative frames, since the extreme physical impact of 1988 stoked latent anxieties about human-caused ecological catastrophes." (Ibid, p.491)

Ungar argues that the confluence of these factors – extreme weather, Congressional testimony about the greenhouse effect and the Toronto conference – combined to create a social scare. These events were able to tap into "a large reserve of latent public concern" over environmental issues which had been accumulating since the 1970s and was "waiting to be mobilised" (Ibid, p. 492). It is this "latent public concern" that is the focus of a subsequent paper by the same author (Ungar, 2014) in which the concept of a pre-existing well of background information and concern is linked to the concept of "issue

cultures" first put forward by Gason and Modgliani (1989). Gamson and Modgliani suggested that every policy issue has its own specific culture, an "ongoing discourse that evolves and changes over time, providing interpretations and meanings for relevant events" (Ibid, p. 1). Their work is most often associated with the academic literature concerning framing, mostly because they argue that the media provide "interpretive packages" about social topics, but in this context, their proposal of "issue cultures" is more relevant to agenda dynamics because it offers an explanation as to why some issues succeed in gaining access to the public agenda while others fail. The media, argue Gamson and Modgliani, are central to the process of the creation is issue cultures, as they provide a forum in which an issue culture may be created while at the same time playing an active role in creating it: "… media discourse dominates the larger issue culture, both reflecting it and contributing to its creation." (Ibid 1989, p. 3).

Ungar takes this concept of issue cultures a step further by suggesting that the existence of an issue culture is a pre-requisite for the creation of a social scare (Ungar, 2014). For example, he argues, there is a long-standing issue culture around infectious diseases (Ebola, "Mad Cow" disease, SARS, swine flu), the atmosphere (the ozone hole, the greenhouse effect) and national security (the 9/11 attacks, the "war on terror"). These "extended cultural preoccupations" (Ibid, p. 238) provide a ready-made context for similar issues as they arise. Thus a social problem with an established issue culture is more likely to rise to the top of the public agenda because the public are already familiar with similar issues in the same culture: "The media and the public become far more receptive to claims-making that meshes with the prevailing issue culture than to claims that do not fit or resonate with it." (Ibid, p. 238).

The dynamics explored by Ungar, although characterised by the author as a development of the public arenas model (Hilgartner and Bosk, 1988), also have much in common with both multiple streams theory (Kingdon, 1995) and punctuated equilibrium theory (Baumgartner and Jones, 1991; Jones and Baumgartner, 2012), in that issues such as nuclear power, climate change and other social problems need a "focussing event" to bring them to public attention, before they can "piggy-back on real-world events". Hilgartner and Bosk suggested that each policy arena had its own culture – akin in many ways to Bourdieu's ideal of "the field" – which made it resistant to a greater or lesser degree to change. They also suggest that, among the "principles of selection" for an issue to gain traction on the policy agenda, is "culture", which they define as "deep mythic themes or broad cultural preoccupations" (Hilgartner and Bosk, 1988, p. 71).

3.13 Mediated issue development

Matthew Nisbet and Mike Huge use Downs's attention cycle model as a starting point for their attempt to construct a generalisable theory of "mediated issue development" (Nisbet and Huge, 2006). Taking the issue of plant biotechnology, the authors sketch the rise and fall of media coverage using the Downsian approach, before combining other approaches from the sociology of social problems to come up with their own model which conceptualises "several important underlying social mechanisms that drive cycles of media attention and definition to policy issues" (Ibid 2006, p. 7). Downs's model, as we have seen above, has been criticised for being descriptive, anecdotal and for failing to examine the underlying factors that drive his attention cycle; here, the authors attempt to address some of these criticisms by paying attention to these underlying factors. In particular, they identify and investigate four factors which, they argue, influence the progress of an issue through the attention cycle:

(i)	the type of policy venue where the debate takes place or is centred.;

(ii)	the media lobbying activities of competing strategic actors as they attempt to interpret or "frame" the issue advantageously;

(iii)	the tendency for different types of journalists to depend heavily on shared news values and norms to narrate the policy world, and

(iv)	the context relative to other competing issues.

(Nisbet and Huge, 2006, p. 7)

The first factor in whether an issue achieves "celebrity status" is policy venue. The authors argue that, when issues are confined to technical and scientific policy venues from which the public is excluded, media coverage is low, change occurs incrementally and discourse is characterised by consensus. In these venues, the "scope of participation" (Schnattschneider, 1960) is also low. However, when an issue moves into administrative and more overtly political arenas, consensus is replaced by conflict, change can be non-incremental and media coverage is increased. In regulatory policy venues, science and industry may be granted a "political monopoly" and the authority of science is defended through the use of impersonal language and technical discourse. Secondly, the authors consider the framing strategies of those actors trying to broaden the scope of participation of an issue, and to move it from technical venues to more political ones. This approach acknowledges the importance of the power to define an issue and therefore to frame it in advantageous ways. As other researchers have noted, "framing an issue is therefore a strategic means to attract more supporters, to mobilise collective actions, to expand actors' realm of influences, and to increase their chances of winning" (Pan and Kosicki, 2001, p. 40). Schnattschneider goes even further, calling the ability to define a given issue "the supreme instrument of power" (Schnattschneider, 1960).

Nisbet and Huge also give weight to the work practices and routines of journalists in their model of mediated issue development. Just as moving from technical to political policy venues can help promote an issue, so too can changes in the kind of journalist covering it. The authors argue that, when a scientific or technical issue is covered solely by science correspondents, it tends to be framed in scientific or technical terms. However, once it begins to be covered by political correspondents, it is more likely to be presented in the strategy frame and media coverage increases (Nisbet and Huge, 2006, p. 13). The authors do not elaborate on the fourth factor in their model, "context relative to other issues", perhaps because it is self-evident that more urgent and dramatic news usually rises to the top of the news agenda. Indeed, in the opening to their paper, the authors outline a controversy over the contamination of food products with genetically modified corn. Just when public concern was at its height, the recount in Florida at the conclusion of the 2000 US presidential election came to dominate the news agenda.

The model of mediated issue development is attractive because it examines the underlying factors which produce Anthony Downs's issue attention cycle. It draws together concepts from Baumgartner and Jones's punctuated equilibrium theory (specifically, the analysis of sub-governments, their inherent biases and relative imperviousness to outside influence) and from earlier social theorists such as Schnattschneider and Cobb and Elder (1972) on the changes in power structures that come about when new participants join the debate relating to an issue. The proposed mediated issue development theory is also attractive because it gives due acknowledgment to the role of the media in issue dynamics and because it is attuned to the norms and practices of journalists. The authors give regard to the influence of the

media in general in providing the forum in which various claims-makers may be heard, but also to the individual journalist and the influence of the framing choices he or she may make as a correspondent or editor.

3.14 Conclusion

This thesis is aimed at discovering and examining how climate change was framed by various actors engaged in communicating about this issue during a key period in the history of Irish environmental politics. To understand the framing strategies of environmental journalists, government ministers and media advisors, it is necessary to place them in the context of what is known about frames and framing, and in the context of our understanding of the interaction of the media, policy and political arenas in relation to complex social problems. In this chapter, theories of media effects and theories of agenda systems were discussed with a view to exploring how these perspectives can promote understandings of issue dynamics.

In the case of each of these theories, the imprint of its academic origins is evident. Theories of media effects are often proposed by journalism scholars and emphasise the social power of the media or the individual agency of the journalist. Theories of agenda systems often originate in sociology or political science, and place the media in wider social and political processes in which the agency of the media (and of individual journalists) is neglected.

For instance, agenda-setting theory, proposed by two journalism professors (McCombs and Shaw, 1972), sought to re-establish the notion of powerful media influences on audiences after a period in which the academy had favoured communications models

which suggested the influence of mass media on individuals was minimal (Katz, 1987; McCombs, 2004). Agenda-setting also enabled other theories of media effects to be proposed, such as second-level agenda-setting (Hester and Gibson, 2003) and priming (Iyengar and Kinder, 1987b). Taken together, these three related approaches suggest the media has the power to tell people what to think about, how to think about it and by what standards they should judge politicians. Thus, they assign almost complete power to set the public and political agenda to the media and, it can be argued, fail to acknowledge the agency of other actors and the possibility that other forces can control or influence the media themselves.

The media effect of framing is, I would argue, of a different order to the three agenda-related theories mentioned above. It must first be acknowledged that framing is similar to second-level agenda-setting in that frames foreground certain aspects of a topic or issue. However, a key difference is that frames also contain elements of issue definition, attribution of responsibility and problem solution. Frames place issues in context, interpret and organise information for their intended audience. For instance, presenting the issue of climate change in an economic frame suggests that the origins of, responsibility for, and solutions to the problem lie in the economic arena.

It is important to emphasise that both agenda-setting and framing theorists foreground the idea of competition. Agenda-setting promotes the idea of competition between issues (Dearing and Rogers, 1996; McCombs, 2004) for media attention, while framing theorists focus on the competition over how such coverage is framed, and on who prevails in the competition to establish the dominant frame (Borah, 2011; Nisbet et al, 2013).

Another conceptual approach which takes account of a general media effect is that of issue cultures and social scares (Ungar, 1992, 2000b). This approach suggests that the media create cultures around certain long-standing problems, and therefore the public is more receptive to news from this issue culture and may more readily place new information in the context of the existing culture. Examples of topics with issue cultures are nuclear power, infectious diseases, the atmosphere, and national security. Thus, when news relating to any of these topics is forthcoming, the public is already in possession of certain baseline information and a "latent fear" may be activated to produce a "social scare" and lead to demands for political action. The concept is attractive, as it may help explain why some issues come to dominate the policy, media and political discourse, but it has not been developed past its initial outlines, and remains a fringe sociological concept.

The influence of media coverage is placed in a wider perspective by theories of agenda systems. These theories seek to understand how policy, political, media and other arenas interact to promote certain issues to the top of the policy agenda, while other issues remain undiscovered or at a low priority level. There is a common process to these agenda models, even though the terminology, imagery and precise operational details differ. The models discussed – the punctuated equilibrium (Jones and Baumgartner, 2012), multiple streams (Kingdon, 1995) and public arenas (Hilgartner and Bosk, 1988) models – all provide situations in which a problem exists in the background, a sudden event brings it to public attention, various interested parties provide feedback which serve to increase attention.

Some of these models propose concepts which correspond to existing ideas in media theory. For instance, the public arenas model suggests that each arena (the media is one such) has its own cultural, political and institutional factors which affect an issue's ability to survive. This concept is related to the professional norms and news values described by journalism scholarship. Furthermore, all of the models allow for a media role (if not influence) in providing or amplifying the feedback offers by claims makers.

The mediated issue development model (Nisbet & Huge, 2006), however, allows for a more developed role for the media as a whole and for individual journalists. This approach is attractive because it attempts to synthesise some of the elements and processes involved in agenda systems (such as policy venue) with the scholarship of news values and the sociology of the newsroom. It also privileges the frame competition between various sectors and actors and provides a more plausible account of how issues develop in the media and policy realms.

<center>**Chapter 4**</center>

<center>**Methodology**</center>

4.1 Introduction

The study of media coverage of climate change has proliferated over the past decade (Olausson and Berglez, 2014) and a wide variety of methodologies have been employed to interrogate the extent and nature of such coverage (Metag, 2016). Many scholars set out from a starting position that the media's coverage of the issue is important because, quite apart from the agenda-setting influence of the media, which was discussed in the previous chapter, "Most people do not experience climate change first-hand but have to rely on communicative content to develop an understanding of climate change" (Metag, 2016, p. 2). Because climate change involves complex processes which take place over long periods of time and affect large spatial entities such as continents, hemispheres or even the entire planet, and because it is measured and described by scientists from an increasing number of different disciplines using complex models and measurements, "the scientific community has long acknowledged the importance of media communication on climate change" (Schäfer and Schlichting, 2014, p. 143). Media coverage of climate change is important not only for the general public, but also for stakeholders and decision-makers (Arlt, Hoppe and Wolling, 2011). In their meta-analysis of the research field, Schäfer and Schlichting (2014, pp. 148–152) found that print was the most analysed medium (67% of 199 studies from 1960 to 2012), European countries were studied most (39.4%), although studies of Asian countries (14%) were becoming more common. They also found that qualitative (44.8%) and quantitative (47.8%) methods were almost equally represented, while single-country case studies (39.6%) were the most common focus of research. The research presented here sits squarely in this research tradition,

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being a single-country case study in which print media coverage of climate change is analysed. However, there are elements of the research design of this thesis which differ from the majority of similar studies. Schäfer and Schlichting note that case studies "typically focus on coverage in one national context and within a given, mostly short period of time" (Ibid 2014, p. 152); this research covers a longer period of time (a decade, from 2007 to 2016). This study is also relatively unusual in combining both qualitative and quantitative methods, an approach adopted by only 7.5% of other studies. In the following sections, each aspect of the methodology is considered, beginning with a description of the research question and the general design of the research.

4.2 Research question and general research design

In formulating a research question, Booth et al (2008)suggest a four-step process, in which the researcher begins with a broad topic, adds a conceptual question, explains its conceptual significance and outlines its potential practical application. He proposes the following template as a means of clarifying the research question and answering questions as to the significance of the research project (the "so what?" question):

> "I am studying X topic
>
> because I want to find out why/how Y occurs,
>
> in order that my reader understands more about Z,
>
> so that they might be better able to do A" (Ibid, p.61).

In the case of this research, the following formula sets out the process of arriving at the research question:

> "I am studying the media's coverage of climate change,
>
> because I want to find out how the issue is framed,
>
> in order to help my reader understand the framing strategies of journalists, politicians

and political advisors, so that they might better evaluate claims making about complex scientific, environmental and social issues such as climate change."

The research question this thesis seeks to answer is:

"What were the framing strategies used by Irish journalists, politicians and political advisors around climate change in the period 2007 to 2016?"

In pursuit of these research goals, a content analysis of articles in eight national print newspaper titles was undertaken *(n = 12,865)* and certain independent variables were coded for. Subsequently, this sample was reduced by excluding articles of fewer than 500 words *(n = 7,059)* and a random sample of this corpus was extracted by selecting every 10th story *(n = 706)*. A frame analysis was then carried out on this reduced sample using NVivo coding software. The results of this quantitative and qualitative analysis were then triangulated with semi-structured interviews with journalists, politicians and political advisors active in the climate change space during the timeframe under study.

It is helpful to consider other studies using a similar sample size and similar corpus reduction methods. In relation to frame analyses and sample size, a study of visual news content relating to COPs 16,17,18 and 19, examined a corpus of 451 images (Wozniak, Wessler and Lück, 2016), and a study of climate change coverage in the Russian print media over a seven-year period analysed 82 articles (Wilson Rowe, 2009). A framing analysis of a week's coverage around a climate change conference in Peru analysed 52 articles (Takahashi, 2011). A study of the framing of climate change in US newspapers from 2007-2009 examined a corpus of 800 op-ed articles (Hoffman, 2011). An analysis of frames found in US coverage of biotechnology over a 26-year period (1974-2001) examined 841 articles, which comprise the universe of available articles (Nisbet,

Brossard and Kroepsch, 2003). In a study of Chilean climate change coverage, a reduced sample of 269 articles were analysed for frames out of total coverage amounting to 1,628 articles over three separate years. (Dotson *et al.*, 2012). A study of 20 years of climate change coverage in US, UK and Canadian news magazines carried out a frame analysis of 476 articles, chosen from random years (Tillinghast and McCann, 2013)

In relation to corpus reduction methods, a comparative study of US and Swedish coverage of climate change used methods similar in some respects to this thesis: a content analysis of coverage over a 10-year period (N=1781 news stories) and a frame analysis of a smaller sample of 1008 paragraphs (equivalent to approximately 120 news stories) (Shehata and Hopmann, 2012). Maxwell Boykoff, in his examination of US and UK climate change coverage between 2003 and 2006, found that 9465 articles on the topic were published. He carried out a frame analysis on a random sample of these, using methods similar to those employed here: selection every 6th article as they appeared chronologically. His reduced sample comprised 1607 articles, 17% of the available population (Boykoff, 2007a). The same author employed a similar corpus reduction methodology in a study of US television and print climate change coverage, randomly sampling coverage over a 10-year period (Boykoff, 2007b). This thesis analyses 706 climate change articles published between 2007 and early 2016. In terms of sample size, it is comparable to other studies, and in terms of corpus reduction methods, it is also aligned with previous work.

This approach – quantitative data on media coverage of climate change triangulated with qualitative methods of data interpretation and semi-structured interviews has been used by geographer Maxwell Boykoff and his collaborators several times (Boykoff, 2007b,

2008; Boykoff and Mansfield, 2008) and by other researchers (Jennings and Hulme, 2010; Keskitalo, Westerhoff and Juhola, 2012) . This combination of methods allows for empirical findings about the extent, prominence, authorship and nature of media attention for climate change, but also permits more nuanced analysis of the content and context of the coverage. In the sections which follow, the decisions and processes involved in this methodology is described and justified in more detail.

4.3 Ireland as a case-study: from the particular to the general

There are several reasons why Ireland is of interest to students of media coverage of climate change. Firstly, it is under-represented in the literature (Fox and Rau, 2016). Although several scholars have recently considered Ireland's media coverage (as described previously in section 2.16), considerable gaps remain, and the perspectives of journalists, politicians and other stakeholders and claims-makers is absent. Secondly, the role of the Irish media in agenda-setting on climate change may be of interest in a European context: climate change is a low priority for the Irish public, as it is for states in northern Europe compared to their fellow EU members further south, (Lorenzoni and Pidgeon, 2006). Only 13% of Irish citizens considered it to be the most serious global problem, compared to 20% in the EU as a whole in a 2011 survey (European Commission, 2011); this figure had risen to 15% by 2015 (European Commission, 2015). It is possible that the media coverage of the issue may be a factor in the low priority assigned to the issue by the Irish public.

Furthermore, two events which took place during the timeframe of this study make Ireland a relevant case study in an international context: the Green Party of Ireland

entered a coalition government following the election of 2007, and Ireland's public finances collapsed, necessitating the institution of a financial rescue package. Ireland's media, it is argued, did not give sufficient warning of the impending banking and property market collapse in 2008 and some journalists concede that they failed in their normative duties (Fahy, O'Brien and Poti, 2010), becoming mere "cheerleaders" intent on keeping Ireland's booming economy growing indefinitely (Mercille, 2014b). The role of Ireland's media in reporting on climate change is therefore of interest, given their earlier failure to alert the public to structural economic issues. The role of the media in reporting climate change during an economic crisis may also be of interest to other countries who came under pressure from European institutions to implement so-called austerity programmes, such as Portugal, Spain and Greece.

Also, the influence of having a Green Party in government on media coverage of climate change is of interest in a wider context, as is the question of whether, once a Green Party falls out of favour with the electorate, those issues most closely associated with it also fall out of favour. The Irish Green Party is part of the European Greens organisation, and similarities between the political progress of Green parties in several European states have been found (Dumont and Back, 2006); therefore the impact of the Irish Green Party on media coverage of climate change may be of interest to scholars in other territories.

4.4 Timeframe: why the period 2007 to 2016 is relevant

The timeframe under examination in this research is January 2007 to March 2016. This period is chosen because it allows for the interrogation of Irish climate change coverage from several perspectives over a considerable period of time. In terms of research into Irish media coverage of environmental issues, the timeframe of this study is slightly

shorter than the 2000-2013 timeframe studied by McNally (2015) and the 1997-2012 period examined by Wagner and Payne (2015). However, it is longer than comparable single-country studies such as Bosch's (2012) study of a single year of South African coverage. This research covers a similar timescale to several other influential studies, such as Yang (2010) (China, 2000-2007), Grundman and Scott (2014) (France, Germany, US, UK, 2000-2010), and Brossard et al (2004) (France, US 1987-1997). The timeframe covered by this research is 10 years, a period which permits the discovery of patterns and influences that might not be evident in research studying shorter periods.

It has been established that media coverage of climate change peaks during international conferences, the release of climate reports and at times of extreme weather (Schäfer *et al.*, 2014). The timeframe chosen for this research includes the release of the Fourth (2007) and Fifth (2014) Assessment Reports (abbreviated to AR4 and AR5) of the UN Intergovernmental Panel on Climate Change (IPCC) and nine Conferences of the Parties (COPs) to the UN Framework Convention of Climate Change. This research, building on and broadening the work of Wagner and Payne (2015), will establish whether international norms and patterns of coverage are replicated in Ireland.

The IPCC Assessment Reports are published at intervals. For instance, regarding AR4, the report of Working Group I (concerned with the physical sciences) was published in March 2007. The report of Working Group II (concerned with impacts, adaptation and vulnerability) was published in September 2007, while Working Group III's report (concerning mitigation of climate change) was published on May 2007 (summary for policymakers) and September 2007 (full report released online). Each Assessment Report is summarised finally into a Synthesis Report, which is published separately. The AR4

Synthesis Report was published in November 2007. In the case of AR5, the corresponding dates were: WGI (physical sciences) September 2013; WGII (impacts, adaptation and vulnerability) March 2014; WGIII (mitigation) April 2014; Synthesis Report November 2014. It has been argued that the staggering of the publication of the reports of the various working groups has affected media attention, with high coverage for the WG1 report, and progressively less coverage for subsequent WG reports. This arrangement may also contribute to disaster framing in the media as reporters concentrate on the findings related to the physical sciences, while narratives related to adaptation and mitigation strategies are relatively neglected (O'Neill *et al.* 2015). This project also investigates whether the tendency to foreground apocalyptic framings of climate change, while neglecting frames that emphasise the social and economic opportunities offered by adaptation strategies, is manifest in Irish coverage. This investigation builds on other scholarship, which has found that the disaster frame dominates coverage of IPCC reports (Painter 2014; E Nisbet *et al.* 2013) and that coverage decreases with the publication of each WG report (O'Neill *et al.* 2015).

The timeframe also encompasses other climate-related events, including the so-called Climategate controversy in which emails stolen from the University of East Anglia's (UEA) Climatic Research Unit in November 2009 were published online. The release of the emails – which it was claimed showed that climate scientists were manipulating their data to promote the theory of anthropogenic climate change – coincided with preparations for the December 2009 COP in Copenhagen. This conference was expected to produce a binding global agreement to reduce the emission of greenhouse gases. In the event, a less ambitious agreement was adopted. Subsequently, three separate investigations cleared the UEA scientists of any wrongdoing. Nevertheless, the controversy was seized upon by

climate sceptics (Hoffman, 2011). The Climategate controversy may have been a factor, along with the much-anticipated COP 15 in Copenhagen, in producing a global peak in media coverage of climate change towards the end of 2009. In fact, levels of coverage have not generally attained 2009 levels in the interim (Schäfer *et al.*, 2014; McAllister *et al.*, 2017). Several reasons have been suggested for this decline: the post-Copenhagen frustration of those involved in the climate governance process, journalists and other actors (Lyytimäki, 2011), the global financial crisis (Djerf-Pierre, 2012a), the decline in the financial resources available to newsrooms (Boykoff and Yulsman, 2013) and the subsequent decline in the number of specialist environmental correspondents available to cover and advocate for climate change in newsrooms (Hansen, 2011). The "crowding out" effect identified by Monica Djerf-Pierre (2012), whereby news of wars and financial crises reduce media attention for environmental issues, seems the most powerful of these factors, with post-Copenhagen dejection and lack of newsroom resources contributory but secondary factors. In addition to investigating whether a post-2009 decline in coverage is evident in Ireland, this research aims to interrogate the nature of the Irish media's coverage of climate change conferences and other climate-related events.

Initially, the proposed timeframe for this research was 2007-2014, with the beginning and end dates selected to coincide with the release of the fourth and fifth IPCC Assessment Reports. However, it was decided to extend the time period to include two other significant events: the publication in June 2015 of a Papal encyclical on climate change (Franscis, 2015) and the 21st Conference of the Parties in Paris in December 2015. The Paris COP produced the Paris Agreement, a global accord which committed all signatories to climate action (Obergassel *et al.*, 2016) and led to increased media coverage, especially in Europe (McAllister *et al.*, 2017). Previous research has shown

that the Papal encyclical was widely covered in the Irish media and that a moral or ethical frame dominated the coverage (Robbins, 2016). This research aims to examine both events in the context of longer-term media coverage of climate change in Ireland.

In addition to considering the influence of international events such as climate reports and conferences, this project analyses the media coverage of events and developments more locally focused. In particular, it focuses on the impact on media coverage of climate change of two events:

(i)   the entry for the first time of the Green Party/Comhantas Glas into government following the general election of May 2007, and

(ii)   the global financial crisis of 2008, which led to the imposition of a financial rescue package for Ireland implemented by the European Commission, the European Central Bank and the International Monetary Fund (known as "the troika").

It has been argued that the presence of a Green party in government has a positive effect on a country's progress towards achieving emissions-reduction targets (Jensen and Spoon, 2011), and indeed the Irish Green Party instituted several initiatives aimed at reducing emissions from the energy, transport and housing sectors (Pape *et al.*, 2011). The Irish Greens have been accused of propounding an eco-modernist approach to combating climate change, "that is, by producing and reproducing the argument that that the best way to address climate change was through a combination of the use of market incentives and technological advances" (Wagner and Payne, 2015, p. 21). However, it has not been established whether the presence of the Green Party affected the extent or nature of media coverage of climate change. The methodology of this research, including interviews with the two Green Party ministers in government from 2007 to 2011, will

contribute to a deeper understanding of media coverage of climate change during this period.

In November, 2010 Ireland availed of a €67.5bn financial support programme. The funds were used primarily to support the country's banks, which had become over-extended in the property market. The Irish media's role in reporting both the property market boom and the subsequent bailout have been examined (Mercille, 2014a, 2014b); however, the effect of the "boom and bust" on media coverage of climate change in Ireland remains unexamined. There is considerable evidence to suggest that news of financial matters and armed conflict "crowd out" coverage of environmental issues (Djerf-Pierre, 2012a; Ungar, 2014). The timeframe chosen for this research allows for an investigation as to whether this "crowding out effect" occurred in Ireland also.

4.5 Type of media analysed: the enduring influence of print

At the outset, it must also be conceded that many researchers focus on print media because there are established print media databases available such as Pro-Quest and Lexis-Nexis, whereas for radio, TV, online and social media, comparable data are difficult to collect. Thus, any decision to analyse print media as opposed to various forms of digital communication such as the online editions of media companies, postings to social media networks or personal blogs requires some robust justification, given the attraction of accessible data mentioned above, the decline in legacy print media reach (Kleis Nielsen and Levy, 2011; Westlund, 2013) and the over-representation of print in the academic literature. Firstly, in contemplating the media landscape in Ireland, it is apparent that legacy media companies still command considerable audiences when their print and digital offerings are taken into account. The Independent media group has reach

of 44% of the population over 18, while the Irish Times has a 37% reach. These companies rank second and third in terms of reach behind the public service broadcaster RTÉ (64%) (Kirk *et al.*, 2016).

Other scholars, in selecting print media as a data source, did so because of the less ephemeral nature of the print product and because national print journalism has an agenda-setting effect on other media (Harcup and O'Neill, 2001). For instance, in their study of Australian, German and Indian media coverage of climate change, Schäfer, Ivanova and Schmidt chose to examine print media because the prestige press are seen as "leading media" whose coverage of issues influences other media (Schäfer *et al.*, 2014, p. 159). In the case of Ireland, print media often set the agenda for the state broadcaster's morning news radio programme, and journalists were the primary interview subjects here during the economic crisis (Rafter, 2014). A longitudinal study of the visual representation of climate change in the Canadian media also chose to examine print media. Young and Dugas contend that, while blogs and other online forms of communication have important contributions to make to the public debate on climate change, "they cannot reach the breadth of reach enjoyed by mainstream media" (Young and Dugas, 2011, p. 3). Particularly in the case of environmental issues, newspapers, in both their print and online editions, remain the "predominant source" of information for most people (Antilla, 2010, p. 245). An influential 2007 study of the influence of journalistic norms on media coverage of climate change also chose to study print media – as well as television coverage – because the newspapers examined (the *New York Times, Los Angeles Times,* the *Washington Post* and the *Wall Street Journal*) had a considerable influence on other smaller, regional newspapers (Boykoff and Boykoff, 2007, p. 5).

The coverage of climate change on social media has been studied by scholars, including Twitter coverage of IPCC AR5 (O'Neill, Williams, et al. 2015), Twitter usage around climate change protests (Segerberg and Bennett, 2011), participatory dynamics on YouTube (Porter and Hellsten, 2014) and in online reader comments (Koteyko, Jaspal and Nerlich, 2013) regarding the Climategate controversy. Social media content mentioning climate change or containing a climate change-related hashtag was the subject of an extensive study covering a year's worth of tweets in four languages: Portuguese, Spanish, English and Russian. The researchers concluded that 40% more tweets in English are posted between 7am and 12 noon than at other times, leading to speculation that "this difference suggests that a sizeable amount of tweeting on climate change originates from a workplace, possibly as part of Twitter users' work duties" (Kirilenko and Stepchenkova, 2014, p. 180). In other words, a considerable amount of Twitter activity is from "professional" tweeters, a finding at odds with portrayals of Twitter as a social media platform enabling the empowerment of non-journalists in breaking news and reporting from events (Newman, 2009; Hermida *et al.*, 2011). Furthermore, the same study found that 34% of tweets referred to an existing online resource. Of the top 10 of these external resources, "nine belong to the prestige press, top popular science magazines, and news aggregators, and only one (ThinkProgress.org) is a blog" (Ibid: p. 180). These findings are in line with those reported by Brulle et al. (2012) in a study of 74 surveys of public concerns regarding climate change. They found that mass media coverage and elite cues were among the three most important factors in forming public opinion (the third factor was related to economic conditions).

The retransmission of Twitter messages is highly concentrated, with 50% of the retweets pointing to just 0.37% of Twitter users mentioned in climate change tweets. The top

mentions are an almost identical list of online prestige press outlets and news aggregators, with addition of popular bloggers and celebrities. The evidence of ''core'' resources is in agreement with prior studies (Kirilenko and Stepchenkova, 2014, p. 179). Hindman (2008) noticed that the political discussions in the Internet tend to be highly concentrated, with the majority of hyperlinks pointing to very few newspapers, journalists and prominent bloggers, which makes it hard for minorities and non-mainstream messages to be heard. In the context of Twitter discussions of the news, Heim (2013) found that the elite journalists dominate the discourse, while other research has found that 99% of stories linked to from blogs came from legacy outlets (Pew Research Centre, 2010).

Although there is some evidence to suggest that social media inadvertently exposes users to diverse political opinions (Brundidge, 2010), there are many who believe that social media, and especially Twitter, are merely echo chambers in which users are reinforced in their previously held beliefs (Wilhelm, 1998; Davis, 1999; Noveck, 2000; Mutz and Martin, 2001; Sunstein, 2001; Bimber and Davis, 2003; Galston, 2003). Social media allows users to select information and interactions, and this has resulted in a tendency to prefer partisan information (Bimber and Davis 2003). Similar balkanisation and self-segregation is also evident in political blog sites (Adamic and Glance, 2005).

The use of "pro-sumer" content (produced by people who both produce and consume it) is common, but this means that social media has become another source for journalists, rather than a means of collaboration between journalist and audience. Indeed, it is argued that social media has enhanced the power of journalists rather than diminished it because, thanks to postings on social media, they have access to places and events that they would

not have had in the past. Journalists become curators of social media content produced by others and their gate-keeping status in enhanced. (Phillips, 2015).

Although new media has been heralded as "one of the greatest tools in achieving a true democracy" (Head, 2009), scholars concede there are difficulties for citizens wishing to access reliable information (O'Neill and Boykoff, 2012). Digital literacy (skill in use of technology devices and search techniques) does not equate to information literacy (skill in evaluating the sources and reliability of information) (Nicholas *et al.* 2008), and the growth of new media and social media has contributed to the spread of skeptical, contrarian and denialist views (Lockwood, 2008). Contrarian discourse in new media has been used to justify the inclusion of contrarian views in mainstream media, while the rise in popularity of climate contrarian blogs has added to the volume of contrarian discourses (Ibid). As O'Neill and Boykoff (2012: p. 239) conclude, "Perhaps then, even more than with traditional media and communications vehicles, evaluating information (and knowing who and what to trust) is a key issue in climate engagement through new media." In short, as Sunstein (2007, p. 143) remarks: "those who consult blogs will learn a great deal. But they will have a tough time separating falsehoods from facts."

Social media are relatively popular in Ireland. On social media, 46% of Irish people use Facebook, while 14% use Twitter. This compares with figures of 40% and 11% respectively in the United States, and 29% and 14% respectively in the United Kingdom. Regarding online news consumption, the website of Ireland's state broadcaster RTÉ is the most popular with 31% of the population accessing news here. However, print titles, despite being frequently dismissed as obsolete, provide news to a considerable audience. The Independent News and Media (INM) print titles (the *Irish Independent*, the *Evening*

Herald and the *Sunday Independent*) have a 33% reach, the *Irish Times* has a 25% reach, regional newspapers reach 25% of the population, Irish tabloid newspapers (the *Irish Daily Mail,* the *Irish Mirror,* the *Irish Sun*) reach 15%, and the Irish edition of the *Sunday Times* reaches 11%. It is evident that print media remain influential in the Irish media landscape. The relevance of so-called "legacy media" companies is even more striking when it is considered that the online versions of the INM titles and the *Irish Times* account for a combined 51% of the online news audience (Newman *et al.* 2015).

Consequently, it is reasonable to analyse print media on three grounds: (i) such an analysis would form part of a pre-existing body of scholarship which has examined print media and may therefore contribute to a global academic conversation on the mediation of climate change; (ii) social media coverage of climate change is of dubious value as a large proportion of social media content links to resources provided by traditional media outlets; (iii) taken together, the print and online versions of newspapers are by far the most important source of news for Irish people.

4.6 Content analysis

This research employs three primary research methods: a quantitative content analysis of eight national newspapers over the period January 2007 to March 2016; a frame analysis of a random sample of the corpus of articles produced by the content analysis, and a series of interviews with journalists, politicians and political advisors involved with the Irish media coverage of climate change during the period under review. In this section, I wish to set forth some general argument as to why content analysis is an appropriate method for this research, and also to describe how the content analysis was carried out.

Content analysis is "a research technique for making valid and replicable inferences from data to their context" (Krippendorf, 1989, p. 403). In order to allow for replication, however, the technique can only be applied to data that are durable in nature. Content analysis enables researchers to sift through large volumes of data with relative ease in a systematic fashion (GAO 1996). It can be a useful technique for allowing us to discover and describe the focus of individual, group, institutional, or social attention (Weber, 1990). It also allows inferences to be made which can then be corroborated using other methods of data collection. Krippendorf (1980, p. 51) notes that "much content analysis research is motivated by the search for techniques to infer from symbolic data what would be either too costly, no longer possible, or too obtrusive by the use of other techniques". Content analysis is a something of an umbrella term for a variety of approaches to extracting and analysing data (Cavanagh, 1997) covering a family of analytic approaches ranging from impressionistic, intuitive, interpretive analyses to systematic, strict textual analyses (Rosengren, 1981). However, this flexibility can lead to difficulties. As Hsieh and Shannon (2005, p. 1277), citing Tesch (1990), point out, "although this flexibility has made content analysis useful for a variety of researchers, the lack of a firm definition and procedures has potentially limited the application of content analysis." Furthermore, some scholars have critiqued the results produced by content analyses. For example, Nosty (2014, p. 8) gives a trenchant account of the inadequacy of content analysis media research:

> "Content analyses, for example, verify the hypotheses that have already been discussed in many previous studies. Their journalistic discourse is poor, they are insufficiently specialised and the narrative tendency does not allow for the effects of an unsustainable industrial model to be perceived socially. They discover deficiencies in media content based on an ideal theoretical model based on the subjective perspective of the researcher, who takes an arbitrating position which is not always realistic. These studies, as a whole, are useful in asserting that the media do not fulfil the role that they are expected to play.

They even state that the media are unable to explain the weaknesses of a system in crisis, because they are part of its very core."

However, this analysis seems more critical of the purposes to which media scholars put content analysis, rather than of the method itself.

In its strictly operational phase, content analysis provides for the coding of data according to criteria relevant to the researcher's intent and the content of the research question. The process of sampling data, reducing the sample size and coding the data amounts to what Krippendorf (2004, p. 83) calls "data making", and as such it is a precursor to the description and interpretation of the data. He recommends that a content analysis have the following elements and structure: unitising, sampling, recording/coding, reducing sample, drawing inferences, and narrating the answer to the research question (Krippendorff, 2004, p. 83).

In a content analysis of framing studies in leading communications journals (Matthes, 2009), the author searched a range of journals for "articles that identified, named and extracted media frames" (Ibid. p. 353). These were then coded for descriptive variables (media analysed, timeframe covered), conceptual variables (frame type, unit of analysis, frame definition etc.) and theory variables (whether hypotheses were tested, or whether a research question was considered). For this research, a search of the LexisNexis database was undertaken, using the search terms "climate change" OR "global warming" OR "greenhouse effect". As LexisNexis does not permit searches that return over 3,000 results, 111 individual monthly searches were carried out, producing a corpus of 12,751 articles mentioning the search terms.

The newspaper titles searched are presented in Table 4.1 below. The eight titles represent a cross-section of daily (five) and Sunday (three) national newspapers, with five broadsheet and two tabloid titles represented, and one title (the *Irish Independent*) that published in broadsheet format for part of the timeframe under study, then appeared in both broadsheet and "compact" format (from February 2004) before finally appearing in the compact format only (from December 2012).

The discrepancies in the dates for which each title was available presented a challenge in recording meaningful data. Therefore, a method was employed whereby the total number of relevant stories for each title in each month was recorded, and this total was then divided by the total number of titles available for that month. This produced a total for the average number of climate stories per title per month, a figure which could be usefully compared to other datasets, such as the one maintained by the ICECAPs collective in the University of Boulder, Colorado (McAllister *et al.*, 2017). To give an example: for the early months of 2007, only four of the eight titles were recorded in the LexisNexis database, and thus the total of climate change stories was divided by four; later in 2007 (from August), six titles were available, and the total was divided by six, and so on. It should be noted that the recorded content for the *Evening Herald* in LexisNexis covers less than a year, during which the title published just a single climate change story and therefore this title has been omitted from the analysis.

Table 4.1: Irish national newspaper records available in the LexisNexis database.

Title	Dates available
Irish Times	June 1992-present
Irish Independent	July 2006 – present
Irish Examiner	Aug 2007 – present
Irish Daily Mail	Feb 2012-present
Evening Herald	Feb 2008 – Jan 2009
Sunday Independent	Oct 2006 – present
Sunday Business Post	Aug 2007-present
Sunday Tribune	Sept 2001-Feb 2011

This process comprised the unitising phase of Krippendorf's (2004) content analysis process. Subsequently, the sampling stage was undertaken. Krippendorf acknowledges that sampling is necessary in order to deal with large amounts of data, and suggests that random sampling is the best way to deal with "texts that stem from regularly appearing publications". In this type of systematic sampling, every kth unit is extracted, with k is a constant. Thus the "rhythm" of the publication is reflected in the sampled data (Ibid. p. 115). LexisNexis allows for sample reduction by permitting the selection of articles containing >500 words. This strategy reduced the sample of climate change articles from the eight newspaper titles to 6,959 articles. Employing a further systematic sampling strategy of selecting every 10th article further reduced the sample to 706. These three datasets, all climate change stories, climate change stories over 500 words, and every 10th climate change story over 500 words show the same trends (Fig 4.1).

Fig 4.1: Comparison of data samples

Area chart comparing data samples

This sample of 706 newspaper articles about climate change were then coded for a number of descriptive variables. These were:

(i)   Publication

(ii)   Headline

(iii)   Publication date

(iv)   Word count

(v)   Story type

(vi)   Author

(vii)   Section/Page number

(viii) Science

(ix)   Climate focus

(x)   Dominant frame

Several of these variables are self-explanatory. Others, such as "story type", "science", "climate focus" and "dominant frame" require further explanation. Each of the 706 stories was coded as to *story type*, a classification which recorded whether the story was (a) a straightforward news story, written in a news style, with relatively few sources, (b)

a complex news story, with several sources and providing more detailed context, (c) a feature article, (d) an editorial, expressing the stance of the newspaper on a given topic, (e) an opinion article, (f) a regular column. The *science* classification recorded whether the science of climate change was accepted or portrayed as a given, in which case the story was coded as "settled science"; in cases where the science of climate change was not accepted, these stores were coded as "contested science". The *climate focus* classification recorded whether climate change was the primary focus of the article, or whether it was a secondary focus. Stories were also coded according to their *dominant frame*. The approach to coding frames is dealt with in the following section. Articles were coded in their entirety for the presence of several frames, and articles typically contained more than one frame. In this descriptive phase, the frame present in the first paragraph (commonly called the lead or intro [or lede in US journalism]) or opening section of the article.

Schäfer et al, in their "best practice" guide for media coverage of climate change researchers, state that "To analyse issue attention as a process of selecting one issue over others given limited editorial space, however, it is necessary to normalise these measures, e.g. by relating the number of CC-related articles to all articles published in a given medium over a given time span (see Schmidt et al. 2013; Schäfer et al. 2014). Such measures control for the size of the news hole and thus yield data comparable across outlets, time periods, or countries." (2016, p. 7). Therefore, the media coverage of climate change is compared to all news coverage in the period under study. This was achieved by setting the parameters of the search within the LexisNexis database (date range and newspaper titles) but leaving the search term field blank. This method returned all news items for the titles with the specified dates. As LexisNexis does not allow searches to

return more than 3,000 articles, this exercise entailed 670 individual searches (five searches per month, over 134 months). The findings of this analysis are set out in Chapter 5, section 5.3.

As this thesis is also concerned with the influence of the Green Party on levels of media attention for climate change, a second content analysis was undertaken to discover the extent to which media coverage of climate change also mentioned the Greens. Again, the LexisNexis database was searched for the time period of January 2006 to December 2011 for all articles mentioning "climate change", "global warming" and "greenhouse effect"; subsequently, the same search was undertaken again, this time with the added search terms of "Green Party" or "Greens". The results of this content analysis are discussed in Chapter 6, section 6.7.1.

4.7 Frame analysis of the data

Other researchers have found that a classic content analysis can provide insights as to the types of coverage and its relative frequency (for example, O'Neill 2013), or the "loudness" of an issue within a media environment, but that a more qualitative approach such as frame analysis is required to discern an issue's "strength" (Chong and Druckman, 2007b). O'Neill (2013) implies that a content analysis is a separate process and approach to a framing analysis, and indeed there seems to be considerable difference of opinion in the academy as to whether framing is a separate research method, or if it comprises a form of the coding of data which falls within content analysis. Krippendorf states that the coding phase of a content analysis involves "classifying the units according to the categories of the analytical constructs chosen" (Krippendorf, 1989, p. 407), a description broad enough to accommodate frames as a unit to be classified.

When considering climate change images in the media, Chong and Druckman (2013) make a distinction between content and frame analysis, and state that the latter has more in common with Critical Discourse Analysis because it is relevant to the construction of meaning (p. 13). Others consider framing as part of what Rosengran (1981) calls the content analysis "family", suggesting that the framing approach is in effect a qualitative content analysis (Semetko and Valkenburg, 2000, p. 97). Maxwell Boykoff combines "investigations of framing" with CDA in his study of the cultural politics of media coverage of climate change in UK tabloids (Boykoff, 2008).

Some of the confusion about whether framing sits within content analysis or constitutes a separate methodology is due to the association of content analysis with quantitative approaches to data, and likewise with the association of framing analysis with qualitative approaches. However, this dichotomy is misleading, as a best-practice guide for media coverage of climate change research points out: quantitative and qualitative methods can be both descriptive and explanatory (Schäfer *et al.*, 2016). Content analysis is more usually concerned with statistical data and the coding of descriptive variables of each unit of analysis. Framing, meanwhile, may appear more subjective as the identification of frames, and the detection of their presence, is often left to the individual researcher. It would sometimes appear that those scholars interested in the cultural resonances of media coverage of climate change, or in linking coverage with social or political theory, tend to view frame analysis as separate from content analysis, while scholars more interested in the construction of meaning within the media view framing as existing within the territory of content analysis.

For the purposes of this research, I take the position that frame analysis can be part of a content analysis, and that frames may be coded accordingly. The danger of subjectivity in selecting a typology of frames may be diminished by using typologies from previous research, and measures to ensure inter-coder reliability may also dispel fears that the presence of frames has been subjectively identified.

One of the criticisms of framing studies is the absence of a uniform approach that each one creates a framing typology *ab initio* to suit the research topic at hand (Dahl, 2015), that the frames are operationally defined (Bowe *et al.*, 2012) and that framing researchers exhibit a tendency to "reinvent the wheel" (Nisbet, 2010, p. 46). Some of this debate on how best to operationalise frame analysis involves arguments as to whether generic frames (Semetko and Valkenburg, 2000) or "episodic" frames (Iyengar, 1991) are best suited to providing replicable results. Tankard recommends the "list of frames" approach, which identifies 11 framing mechanisms, and has, he claims, the the advantage of being replicable, of taking the subjectivity out of the identification of frames, of being reliable, and of allowing theory-building and theory-testing (Tankard, 2001, p. 101). Tankard and others (for example, Nisbet & Scheufele 2009) concede that, while using established frame typologies can help bring coherence to a fragmented field, there will always be a need to allow issue-specific frames emerge from the data. Tankard states that "…frames and frame indicators must be discovered and defined for each new topic under investigation. This step seems unavoidable, since framing deals fundamentally with the differences in the ways particular stories are presented." (2001, p.102). The authors of a "best-practice" guide for researchers into media coverage of climate change recommend that scholars "look for existing conceptual tools" while also pointing out that generic

approaches are best suited to issue-comparison studies, while issue-specific approaches are best suited to in-depth analysis (Schäfer et al. 2016, p.5-10).

Accordingly, this thesis uses a combination of existing frame typologies, while also allowing new frames to emerge from the data. The broad coding schema derives from typologies put forward by Matthew Nisbet (2009) and Saffron O'Neill et al (2015). Nisbet, in an influential essay on the importance of frames for public engagement, suggested a typology of frames relevant to media analyses of climate change: *social progress, economic development and competitiveness, morality and ethics, scientific and technical uncertainty, Pandora's Box, public accountability and governance, middle way/alternative path, conflict and strategy*. In their supplementary material supplied with their research paper, O'Neill and her colleagues provide a thorough examination of frames in existing studies before putting forward the following typology: *settled science, uncertain science, political or ideological struggle, disaster, opportunity, economic, morality and ethics, role of science, security and health* (O'Neill, H. Williams, *et al.*, 2015). In addition to these frames commonly found in science-related policy debates, two other frames specific to the issue of climate change in an Irish context were detected in the data: a *communitarian/cosmopolitan* frame and an *agriculture* frame. The complete typology of frames is set out in Table 4.2 below.

Table 4.2 Typology of frames coded in this thesis

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, 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 which are policy-neutral and which 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, to the impact of climate change on those who have done least to cause it (climate justice), or to 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 to reactions to suggestions that these emissions be reduced, to the cultivation of forestry as a carbon sink, to the reduction of meat in human diet, to land use, to CAP 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 due to natural causes, suggestions that any initiatives to mitigate climate change or to reduce individual or sectoral emissions are misguided, references which confuse weather and climate, which suggest that the science of climate change is contested, that climate scientists are in error or may change their minds, which cite the University of East Anglia email theft as evidence of a conspiracy among climate scientists, which 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, or to exclusively negative economic impacts.
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 to the minimal impact on global emissions any mitigation measures Ireland may take are coded as featuring this frame.
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.), to the cost of energy production.

In addition to these frames, two topics were also coded for in the analysis of the data: stories mentioning the Green Party and stories alluding to turf-cutting[2]. The idea of coding a Green Party frame was considered, but it was found that stories concerning the Green Party were accommodated more naturally in other, more conceptual frames. The Green Party was therefore recorded as a topic rather than as a frame. Turf-cutting has been a contentious subject in Ireland for at least two decades, ever since the National Parks and Wildlife Service surveyed Ireland's peatlands in the late 1990s and 139 raised bogs were designated under the EU Habitats Directive (Lowes, 2013). In 1998, the Irish Government sought and was granted a 10-year derogation on implementing the Habitats Directive; the derogation expired in 2008, and in 2010, the Green Party minister for the environment announced that, under the terms of the Directive, the cutting of turf on these bogs would cease. There was opposition to the ban, especially in the Sligo, Leitrim and Roscommon areas. Candidates opposing the ban were elected to the Irish parliament and the European parliament. In 2015, the government renewed efforts to implement the ban (McGee, 2015b). Given the importance of bogs as carbon sinks (Cooke, 2014) and the impact on the climate of burning turf (Irish Peatland Conservation Council, 2009), it was thought that this issue was pertinent to the debate over climate action in Ireland. Furthermore, given its political prominence, with the election of protest candidates and the intervention of Green Party politicians, and the place of cutting turf for domestic use in the national consciousness (Clifford, 2016), the issue offered possibilities as a prism through which to view certain rural-urban aspects of the climate change debate in Ireland.

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[2] Only two articles were coded to the turf-cutting frame, and therefore it does not form part of the frame analysis.

4.8 Operational phase: how the data was coded using NVivo

Once the data was collected, and a framing typology settled upon, each unit of analysis was coded for (i) the descriptive variables described above, and (ii) the presence of frames in each unit as described in the coding instrument. The data was imported into NVivo, a type of CAQDAS (computer-assisted qualitative data analysis software) designed for coding media texts including newspaper articles, audio and video texts, photographs and interviews. NVivo allows for a "code and retrieve" system, whereby pieces of data are coded according to the relevant coding instrument and may then be retrieved separately from the original data. The software also allows for advanced searching and interrogation of data. Although NVivo enhances the work of researches when it comes to efficiency, multiplicity and transparency, it "does not do the intellectual work" (Hoover and Koerber, 2011, p. 71) and the features of the software "do not by any means replace the need for careful reading of every line of data" (Ibid, p. 77). The NVivo software affords a researcher some efficiencies and thereby "release some of the time used to simply 'manage' data and allow an increased focus on ways of examining the meaning of what is recorded" (Bazeley and Jackson, 2013, p. 2).

NVivo also allows for in-depth analysis of media content. In this study, every sentence of each article was coded for the presence of frames. This does not differ greatly from other methodologies which do not use CADQAS; for instance Brossard et al (2004) and Zamith et al (2012) manually code each article in its entirely. However, NVivo's "code and retrieve" function allows for the direct comparison of all content coded as belonging to a particular frame. Its advanced search functions also allow for the demonstration of "coding density" (the number of frames in each story) and to track the rise and fall of frames in specific publications over time.

The coding process involved assigning each article a dominant frame (i.e. the frame present in the opening section of the article and/or recurring most frequently in the article), while also coding other frames present in the body of the text. This process allowed for analysis showing which frames were found alongside dominant frames most often. For instance, in articles assigned a dominant frame of "political or ideological contest", it was possible to see which secondary frames were coded to those stories, and how often. Thus, a more complex and nuanced analysis of framing strategies was possible. Once the initial coding of frames had taken place, it was possible to analyse all text coded to particular frames (thanks the Nvivo's "code and retrieve" function). A subsequent level of coding was then undertaken to identify the main sub-topics discussed in articles coded to certain frames. The results of these processes are presented in Chapter 5.

The data collection for this thesis also involved interviews with 12 subjects, a step discussed in more detail in the next section. The transcripts of these interviews were also imported into Nvivo, where they were coded according to a coding instrument based on the questions they were asked during the interviews. Details of this instrument, the coding instrument used for the frame analysis, and a fuller account of how material was organised and coded in Nvivo are given in Appendices 4 and 5. Table 4.3 below sets out in table form the methods used to collect and analyse the data.

Table 4.3: Data-building and content analysis process

Step	Unit of analysis	Method applied
1	Newspaper article	Quantitative content analysis of LexisNexis database for eight national newspapers, using search terms "climate change" OR "global warming" OR "greenhouse effect". *N = 12,865*
2	Newspaper article	Sample reduction 1: articles containing < 500 words eliminated. *N = 7059*
3	Newspaper article	Sample reduction 2: random sample extracted by selection every 10th story. *N = 706*
4	Newspaper article	Content analysis 1: articles coded for descriptive variables
5	Newspaper article	Content analysis 2: articles coded for presence of dominant frames
6	Newspaper article	Content analysis 3: articles coded for presence of secondary frames
7	Newspaper article	Content analysis 4: text coded to dominant frames coded for presence to sub-topics
8	Interview transcript	Content analysis: text of transcript coded per topic

Semi-structured interviews with politicians, advisors and journalists

Interviews are typically a face-to-face conversation between the participant and the researcher (Gubrium, J. F. & Holstein, 2002). Interviews are useful for data collection because "they have the potential to overcome poor response rates of a questionnaire survey (Barriball and While, 1994, p. 329), they are well suited to exploring attitudes, beliefs and motives in depth (Smith, 1975), they provide the opportunity to assess the validity of a participant's responses by abserving non-verbal cues (Gordon, 1975), and they ensure that the respondent is not prompted or does not otherwise receive assistance in answering the questions (Bailey, 1987). Srivastava and Thomson (2009) list three different types of interview: structured, unstructured and semi-structured. In research involving structured interviews, there is no variation in the questions between participants. Unstructured interviews have no predetermined set of questions (Crabtree and Miller, 1999; Patton, 2002).

In her research into the perceptions of climate change in the Russian Federation, Poberanska (2013, p. 330) used semi-structured interviews as a means of data collection for two reasons: "First, they are well suited for the exploration of the perceptions and opinions of respondents regarding complex and sometimes sensitive issues and enable probing for more information and clarification of answers. Second, the varied professional, educational and personal histories of the sample group precluded the use of a standardised interview schedule ."

However, Diefenbach (2009, pp. 891–3) offers a trenchant criticism of semi-structured interviews, suggesting that the approach has flaws in the stage of *research design* (chiefly that the researcher's subjectivities will affect the research question), *data collection* (chiefly that the selection of subjects is not systematic and objective), the *data themselves* (chiefly low internal validity, i.e. do not mirror reality), and *findings* (they cannot be replicated, nor can they be extrapolated into a general theory). For qualitative empirical research to be worthwhile, the researcher must put his findings into a broader societal, historical and ideological contexts. (Ibid: p. 893).

The use of semi-structured interviews is an established methodology in the study of the mediation of climate change. Russell (2013) used semi-structured interviews in her analysis of climate change coverage of the 2011 climate conference in Durban, while Maxwell Boykoff and his collaborators have frequently used semi-structured interviews as a means of examining situated views of climate change (for example, Boykoff 2007; Boykoff & Mansfield 2008; Boykoff 2008). Keskitalo et al (2012) carried out 92 semi-structured interviews in their study of support for climate change adaptation, and Geall

(2014) used semi-structured interviews in his study of the framing of climate change in the Chinese media. Following these methodologies, this research triangulates the data gathered by collection and analysis with semi-structured interviews with environmental journalists, government advisors and Green Party politicians.

The use of interviews compliments the use of frame analysis. It allows for the examination of questions of transmission and reception, of conscious or unconscious agency. This combination of approaches allows for the investigation of the framing of the climate change issue by journalists and by politicians at source. For instance, one of the journalists interviewed confirmed that stories were more likely to be accepted by his editor if the issue was presented through a frame that emphasised jobs and economic opportunity. The use of interviews *alongside* frame analysis permits an exploration of the conscious and unconscious use of frames by actors on both sides of the discourse. Brüggermann suggests that content analysis alone is not sufficient for investigating the framing practices of journalists; interviews are also required (2014, p. 74).

The selection of interview subjects was therefore informed by the desirability of hearing from those wishing to gain media attention for climate change and from those from whom such attention was sought. Green Party government ministers in the Fianna Fáil-Green Party coalition government of 2007 to 2011 gained extensive experience in dealing with the media while trying to advance an environmental agenda, while their media advisors also tried to attract media attention for environmental topics. Meanwhile, during this period, environmental correspondents for the national print and broadcast media were engaged in pitching stories related to their "beat" to their editors and dealing with various claims-makers in the environmental space.

Thus, it was decided to interview the two Green Party ministers who served in government, along with their media advisors, and the environment correspondents of the main media outlets in the state. Of particular interest were the inputs of two "poachers turned gamekeepers": John Downing, a political journalist who was appointed to be the Green Party's representative in the Government Press Office, and Liam Reid, a former environment correspondent with the *Irish Times* who became Minister John Gormley's media advisor.

The interviews were carried out in two phases: an initial set of interviews was undertaken in May and June, 2015 and a subsequent second set of interviews was carried out in January and February, 2017. The first set of interviews took place in advance of newspaper data collection and analysis, and the second set was carried out afterwards. The first group of interviews were undertaken at an early stage in the research project, partly to familiarize myself with the interview process, and partly to establish the context of the issue of communication about climate change during the period under examination. In cases where, following analysis of the media data, it was necessary to clarify or expand on a point made in these early group of interviews, supplementary interviews were carried out by phone or email. The full list of interviewees, along with the dates on which the interviews took place, are set out in Table 4.4 below.

Table 4.4: List of interview subjects and dates

Name	Position	Date interviewed
Eamon Ryan	Leader of the Green Party of Ireland and former Minister for Communications, Energy and Natural Resources	February 1, 2017
Bríd McGrath	Former media advisor to Eamon Ryan	February 8, 2017
Frank McDonald	Former Environment Editor of the *Irish Times*	May 15, 2015
Claire O'Sullivan	Former environmental reporter, *Irish Examiner*	June 16, 2017
John Gibbons	Environmental blogger and former columnist with the *Irish Times*	May 1, 2015
Paul Cunningham	RTE journalist and former environment correspondent	April 24, 2015
John Gormley	Former Minister for Environment, Heritage and Local Government	April 12, 2015
John Downing	Political columnist with the *Irish Independent* and former deputy government press secretary	February 23, 2017
Liam Reid	Former environmental correspondent, *Irish Times,* and former media advisor to John Gormley	May 19, 2015
Cormac Bourke	Former news editor, *Irish Independent* and currently editor of the *Sunday Independent*	August 1, 2017
Paul Melia	Environment Editor, *Irish Independent*	August 8, 2017
Kevin O'Sullivan	Former editor of the *Irish Times* and currently Environment Editor, *Irish Times*	August 14, 2017

The individuals interviewed are not intended to be a comprehensive survey of all those involved in climate change communication in the research period. Indeed, other political parties, individual politicians, NGOs, unions, employer groups and journalists were also deploying various communications strategies concerning climate change at the time. Instead, they are intended as a core group of journalists, politicians and media advisors working very closely on the issue. As such, their views are of value as to what was happening in the space where policy, media and politics came into contact. For instance, the Green Party ministers belonged to a political party for whom climate change legislation was a primary policy objective. They were in ministries with direct responsibility for climate-related areas: energy and environment. The journalists interviewed comprised the environment correspondents of the main media outlets in the

state, while the three "media handlers" interviewed operated in the interstices between the working journalists and the realm of policy and politics.

As discussed above, the format of the semi-structured interview permits the interviewer to ask broad, open questions and to allow the interview to develop organically from the responses to these questions. For this research, several general, open questions were asked of each subject. Specific questions relating to the subject's personal experiences and expertise were then asked. The general, open questions were:

- How would you describe the Irish media's coverage of climate change?

- How would you describe climate change as a general media topic?

- How would you describe the attitude of the Irish media towards climate sceptics?

- Are there any recommendations you would like to make for journalists reporting on climate change?

- Do you think having a green presence in government increased media attention for climate change?

- How do you think the media frames climate change?

- Do you think sceptic voices are represented in Irish media?

The texts of the interviews was also imported into NVivo for analysis. The views of the interview subjects have been brought to bear on the discussion of the data analysis in Chapter 5.

The interview subjects were contacted initially by email. It was explained to them that the interview would form part of the data for an academic thesis and might also be used in subsequent academic journal articles. It was also stated that the transcripts of the interviews might also be published subsequently. The interviews were transcribed, and

the transcripts sent back to the interview subjects for review. This process was approved by the DCU Research Ethics Committee. The data relating to these interviews comprised (i) audio files, (ii) text files and (iii) email addresses and other contact information. These have been stored securely on the university's cloud drive system.

4.10 Analytical tools: mediated issue development

The final constituent of the research methodology concerns the analytical tools used in the discussion of the data. The theory of mediated issue development put forward by Nisbet and Huge (2006), which was discussed in the previous chapter, is a useful approach in analysing the rise and fall of climate change on the media and policy agenda. To recap briefly, Nisbet and Huge identify and investigate four factors which, they argue, influence the progress of an issue through the attention cycle:

(i)   the type of policy venue where the debate takes place or is centred.;

(ii)   the media lobbying activities of competing strategic actors as they attempt to interpret or "frame" the issue advantageously;

(iii)   the tendency for different types of journalists to depend heavily on shared news values and norms to narrate the policy world, and

(iv)   the context relative to other competing issues.

(Nisbet and Huge, 2006, p. 7)

Their model sythesises previous agenda theories, such as multiple streams theory (Kingdon 1995), punctuated equilibrium theory (Jones and Baumgartner, 2005) and other conceptual approaches such as Downs's issue attention cycle. Mediated issue development adds to these theories by taking into account the norms and practices of

journalists, thus bringing together concepts from agenda systems and more media-centred approaches. This thesis is not intended as a test of the mediated issue development theory, but rather aspects of the theory will inform the discussion section.

4.11 Acknowledgement of the limitations of the methodological approach

While arguing that this research offers a contribution to knowledge about the coverage of climate change in the Irish print media, it is necessary also to acknowledge its limitations. Firstly, the incomplete nature of the data recorded in the LexisNexis database for Ireland means that there are gaps in the data. The research design attempts to overcome these lacunae, but it must be acknowledged that (i) the inconsistency of the media record over time and (ii) the absence of certain titles (such as the Irish edition of the *Sunday Times*) and the inadequate recording of others (such as the *Herald*) constitute a limitation of this research.

Furthermore, the decision to reduce the data sample by choosing to analyse only stories of greater than 500 words means that many shorter news articles have been excluded. Tabloid stories, which tend to be shorter than stories published in broadsheet titles, are more likely to be excluded as a result of this decision. The focus on longer articles may also mean that comment articles may constitute a greater proportion of the sample analysed that might otherwise be the case. However, the reduced sample of 706 climate articles remains representative, replicating the same peaks, troughs and trends of the complete sample, and longer articles proved richer in nuance and complexity than shorter news reports.

The analysis of newspaper articles about climate change did not include consideration of news sources. That journalists tend to use official sources and routine news channels, and thereby support the political and economic status quo (Hall *et al.*, 1978) "is one of the most reproduced findings in the study of journalism" (Carlson, 2009, p. 529). Furthermore, the intentions of sources shapes the presentation of information as "events look different to different people; who is asked shapes what is reported as true" (Carlson, 2016, p. 239). There is a considerable overlap between how news is framed, and the sources used in its construction (Scheufele and Tewksbury, 2007), but it is possible to argue that the power to frame the news rests ultimately with the journalist-author, despite the influence of official sources. This framing power in turn influences how the public receives and perceives certain emphasised aspects of events or issues reported in the media.

4.12 Conclusion

The research question, and the methods employed in attempting to answer it, have been set out in this chapter. A robust, mixed methods approach, solidly grounded in the existing literature, was employed. Initially, a quantitative content analysis was carried out, identifying every story mentioning climate change, global warming or greenhouse effect appearing in eight Irish national newspapers over the 2007-2016 period. This corpus (*n = 12,865)* was reduced by two measures: firstly, stories containing fewer than 500 words were eliminated, reducing the corpus to 6,959; secondly, every 10th story was selected from this reduced corpus, giving a final representative sample of 706 stories. A frame analysis of these stories was carried out, using a typology of frames drawn from the existing media coverage of climate change literature. The results of the data analysis were then triangulated with interviews with journalists, politicians and media advisors.

The theory of mediated issue development put forward by Nisbet and Huge (2006) as an explanation of how and why certain issues rise and fall on the media and policy agenda was brought to bear on the analysis of the results.

This research aims to measure and analyse Irish media coverage of climate change over a given time period, and to investigate aspects of issue dynamics. Therefore, the prioritisation of issues by journalists and politicians and the amount of media attention given to climate change *relative to other issues* is of interest. In the following chapter, the results produced by the employment of these data collection, description and analysis methods are set forth and discussed.

Chapter 5

The Irish print media's coverage of climate change

5.1 Introduction

In this chapter, the empirical findings of my research are set out and analysed in the context of other research into fluctuations in, and influences on, media attention levels for environmental issues. The significance of the findings of this research in relation to theories concerned with the dynamics of media attention are also discussed.

In the opening sections, the quantitative data are presented. These comprise the levels of Irish print media attention for climate change from January 2007 to February 2016, levels of coverage in each publication, and various attributes of climate change articles (story type and authorship). The levels of climate change coverage are also compared to general news coverage levels, as recommended by the authors of a "best practice" guide for researchers into media coverage of climate change (Schäfer *et al.*, 2016). Subsequently, the results of the frame analysis are presented. The frequency of the frames outlined in Chapter 4, Figure 4.3 are outlined. The coding methodology allows for the coding of dominant frames (the frame appearing at the top of the article, through which the article is predominantly presented) and secondary frames. These are also analysed.

In the latter sections, the implications of these descriptive findings are discussed and compared to the findings of other scholars, especially with regard to framing. They are also placed in the context of theoretical approaches to media attention, such as attention cycles (Downs, 1972) and mediated issue development (Nisbet and Huge, 2006).

It is useful to establish at the outset why findings in relation to the extent and nature of climate change may be significant. Firstly, establishing levels of media attention is a means of measuring the salience of climate change to the public and to policy domains, as audiences equate the prominence of an issue in the media with its importance relative to other issues (McCombs and Shaw, 1972; Ungar, 2000b; McCombs, 2004). The public also gets most of its information about scientific issues such as climate change from the mass media (Nelkin, 1987; Wilson, 1995), so it is reasonable to assume that, in the absence of media coverage of climate change, the public would be largely uninformed about the issue. Secondly, establishing how climate change is framed in the media is helpful because the way in which a topic is presented in the media – rather than simply how often it is presented – can affect public attitudes and engagement. Technical and administrative framings may have a distancing effect, while more emotive framings, such as moral or political frames, may be more engaging (Nisbet, 2009). Thirdly, the authorship of climate change articles is also important, both for public engagement with the issue, but also in promoting higher levels of coverage. When a scientific topic such as climate change is covered primarily by science writers, it tends to be framed in dry and technical terms. When it is covered by general news reporters or by political correspondents, it is framed in more engaging ways. A move from the science section into the main news section, or the politics section represents a promotion up the news agenda, leading in turn to more extensive coverage (Nisbet & Huge, 2006). Thus, the amount of coverage, how it is framed, and who writes it can have significant influences on the effect such coverage has on the public (Nisbet, 2009), on other journalists (Galtung and Ruge, 1965; Harcup and O'Neill, 2001) and on politicians and policy-makers (Newell, 2000).

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5.2 The level of print media attention for climate change in Ireland

Irish print media coverage of climate change follows well established international patterns: it peaks around international climate conferences and the release of international climate science reports (see Fig 5.1). Coverage gradually increases from 2007 onwards, with distinct peaks in November/December 2007, December 2009 and December 2015. The November (196 stories) and December (300 stories) 2007 peak coincides with (i) the publication of the Synthesis Report of the IPCC's AR4 on November 16, 2007, and (ii) COP 13 in Bali from December 3-15, 2007.
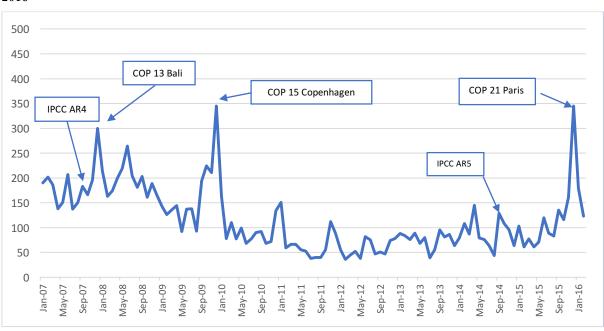
Fig 5.1: Number of climate change articles published in Irish national newspapers, Jan 2007-Feb 2016

The Bali conference is noteworthy in that it was the first COP to take place following the appointment of two Green Party ministers to government in June, 2007. One of these, John Gormley, Minister for the Environment, Heritage and Local Government, attended

the conference. The *Irish Times* sent their environment editor Frank McDonald to cover the event and several Irish ENGOs also attended. Furthermore, the conference witnessed an unexpected change of policy direction by the United States to enable an agreement to be reached (McDonald, 2007). These factors – the drama of the event itself, the presence of a larger than usual Irish delegation, and the novelty of a newly appointed Green Party minister – were likely factors in increasing the level of media attention for climate change at that time. The Bali COP of 2007 agreed a "roadmap" as to how future climate change negotiations were to be conducted. By 2009 and COP15 in Copenhagen, there were expectations of a binding global agreement to limit GHG emissions (Fisher, 2010).

Media coverage of climate change both in Ireland and internationally shows a steep decline in late 2009 and early 2010, a period which coincides with the global financial crisis. In late 2009, Ireland was in the middle of a long drawn-out banking crisis and finally availed of a €64bn financial rescue package from the IMF, the European Central Bank and the European Commission in 2010 (Breen, 2012; Fraser, Murphy and Kelly, 2013; Palcic and Reeves, 2013).

A second peak in Ireland's print media coverage of climate change occurs in December, 2015. The seven titles studied published a total of 345 stories mentioning climate change in that month, exactly the same number as they published in December 2009. The December 2015 peak coincides with COP21 in Paris, just as the December 2009 peak coincided with COP15 in Copenhagen. The Paris Climate Change Conference –which I attended (Robbins, 2015) – took place at the Le Bourget conference venue outside Paris. It was attended by 30,000 delegates and 6,000 journalists applied for accreditation (Howard, 2015). This is roughly equivalent to the number of registrants for COP15 at

Copenhagen, but much higher than the attendance at other previous COPs. For instance, COP13 in Bali had 10,828 registrants and COP11 in Montreal had 9,474 registrants (Fisher, 2010). It is interesting to note that COP15 and COP21, both were significant in that final treaty texts were expected to be agreed at both events, are equivalent in terms of attendance levels and media attention.

5.3 Comparison of climate change coverage and total news coverage

In their "best practice" guide for researchers of media coverage of climate change, Schäfer et al recommend measurements of media attention for the issue be normalised:

> "To analyse issue attention as a process of selecting one issue over others given limited editorial space, however, it is necessary to normalise these measures, e.g. by relating the number of CC-related articles to all articles published in a given medium over a given time span (see Schmidt et al. 2013; Schäfer et al. 2014). Such measures control for the size of the news hole and thus yield data comparable across outlets, time periods, or countries" (Schäfer *et al.*, 2016, p. 7).

This was achieved by setting the parameters of the search within the LexisNexis database (date range and newspaper titles) but leaving the search term field blank. This method returned all news items for the titles with the specified dates. As LexisNexis does not allow searches to return more than 3,000 articles, this exercise entailed 670 individual searches (five searches per month, over 134 months). In their study of 27 countries from 1997-2009, Schmidt et al found that the average percentage of total news coverage concerning climate change was 0.60%. The authors found that countries with a high Climate Risk Index had higher levels of media attention for climate change, but that countries likely to suffer future negative impacts from climate change, as forecast by their placing on the DARA Vulnerability Factor, did not show increased levels of media coverage of climate change. Countries whose economies depend to a greater extent on

carbon-intensive industries show an increased level of climate change coverage (Schmidt, Ivanova and Schäfer, 2013). Ireland has a low Climate Risk Index score (Sönke *et al.*, 2015) and a low to moderate exposure to climate vulnerability (*DARA Climate Vulnerability Monitor*, 2012).

The authors note that, over the 27 countries they studied, two distinct periods of media attention for climate change could be identified. In the 1997-2000 period, coverage was relatively low, although it had increased somewhat from the early 1990s. In the period 2004-2009, a larger increase was recorded, what the authors call a "clear shift" (Ibid, p. 1240). Their findings for Ireland show that coverage of climate change was 0.27% of total news coverage for the 1997-2000 period (against an average over 27 countries of 0.20%); 0.51% for the period 2001-2005 (average = 0.29%) and 1.82% for the period 2006-2009 (average = 1.26%) (Ibid. p. 1241). Thus, Ireland recorded above average levels of coverage for each of the three periods identified by Andreas Schmidt and his colleagues. However, it should be noted that Schmidt et al's analysis is based on levels of coverage in the *Irish Times* only. As will be discussed is a subsequent section, the *Irish Times* has consistently covered climate change more extensively than other Irish newspapers, and therefore these findings cannot be said to be representative of Irish newspaper coverage more generally.
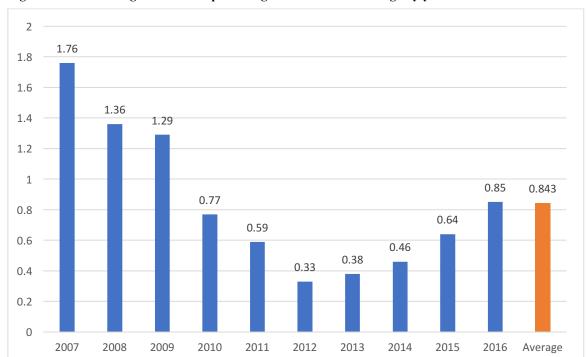
Fig 5.2: Climate change stories as a percentage of total news coverage by year

The findings of this research align with those of Schmidt et al with regard to the period up to 2009: Irish newspaper coverage of climate change accounts for 1.76% of total news coverage in 2007, before falling slightly to 1.36% and 1.29% in 2008 and 2009 respectively (see figure 5.2). The post-2009 decline seen in the total levels of news coverage is also starkly evident when the coverage of climate change is examined as a percentage of total news coverage, falling to 0.77% in 2010, 0.59% in 2011 and 0.33% in 2012. My research finds that news coverage mentioning climate change comprises 0.843 of total news coverage over the entire time period studied. Although direct comparisons with Schmidt et al's findings are not possible because the time periods under examination differ, some remarks may be made about the time periods when the two pieces of research overlap. Schmidt et al note that climate change coverage reached its highest levels in the 2006-2009 period and that Ireland's climate change coverage

comprised 1.82% of total news coverage during that period. My research finds that, for the somewhat shorter period of 2007-2009, the equivalent figure is 1.47%. The difference can be explained by the fact that Schmidt and his colleagues recorded coverage from the *Irish Times* only, whereas my research records coverage from seven national newspaper titles.

5.4 Coverage of climate change: how Irish newspapers compare

Figure 5.3 below shows the total number of climate change stories published by the newspapers under study in the period January 2007 to the end of February 2015. It is immediately evident that the *Irish Times* has published considerably more climate-related stories than the other publications. Taking the three most significant peaks in coverage as points of comparison, in December 2007, the *Irish Times* published 143 climate stories, compared to 60 by the *Irish Independent*, 42 by the *Irish Examiner*, 21 by the *Sunday Independent*, 20 by the *Sunday Business Post* and 10 by the *Sunday Tribune*. The *Irish Times* (143) published nearly as many climate stories as the other publications combined (157). In December 2009, the *Irish Times* published 184 climate stories, compared to 60 by the *Irish Examiner*, 54 by the *Irish Independent*, 24 by the *Sunday Business Post*, 13 by the *Sunday Tribune* and 10 by the *Sunday Independent*. In this instance, the *Irish Times's* total of 184 was more than all the other newspapers combined (161). In December 2015, the *Irish Times* total was 143, while the other newspapers (*Irish Independent* 72; *Irish Examiner* 69; *Irish Daily Mail* 28; *Sunday Independent* 33) amounted to 202. It total, over these three peak periods, the *Irish Times's* story total of 470 compares to a combined total of 520 for all the other publications. This finding is aligned with other research: the *Irish Times* was also the "dominant news organisation" reporting on low-carbon transition and decarbonisation between 2000 and 2013

(McNally, 2015). There is other evidence that the *Irish Times* published significantly more climate change-related articles than other Irish print titles (Mullally *et al.*, 2013; Wagner and Payne, 2015; Robbins, 2016).

It is also evident that the dominance of the *Irish Times* when it comes to climate change coverage is declining. In December 2009, it published 184 climate stories, compared to 60 from the *Irish Examiner* and 54 from the *Irish Independent,* its nearest rivals, a difference of 60 stories; in December 2015, the *Irish Times* published 143 stories, just two stories more than the total of 141 published by its two closest competitors. In April 2014, the *Irish Times* published 48 climate-related stories, but both the *Irish Independent* (40) and the *Irish Examiner* (30) were close behind in the extent of their own coverage.

In figure 5.4 below, the extent of climate change coverage in publications excluding the *Irish Times* is shown. The *Irish Independent* and the *Irish Examiner* are the two dominant publications once the *Irish Times* is excluded. Otherwise, a fractured picture is evident, with several publications providing extensive coverage at certain points and showing much reduced levels of coverage at others. The relative decline of coverage levels in the *Irish Times* and the relative increase seen in the *Irish Independent* may be influenced by staffing issues at the two newspapers. Frank McDonald, the long-serving environment editor of the *Irish Times,* retired in June 2015. For some time before his retirement, he contributed mostly feature articles and was less concerned with reporting day-to-day environmental news. Up to 2007, McDonald had been assisted by an environment correspondent. This post was left vacant when Liam Reid left to become an advisor to the Green Party Minister John Gormley. With regard to the national broadcaster RTÉ, the post of environment correspondent was left vacant from 2010 to 2014 following the

departure of Paul Cunningham to another post. As it has been found that the media tend to cover issues and events already in the media, (Galtung and Ruge, 1965; Harcup and O'Neill, 2001; Denham, 2014), the absence of a dedicated environment correspondent at the national broadcaster meant that an important intermedia agenda-setting effect was absent. Cunningham's replacement was given the role of covering the environment and agriculture (RTE, 2014). The organisation in fact placed "agriculture" ahead of "environment" in the job title of this new role, and the appointee spoke at some length about the food sector, the farming backgrounds of his parents and the "great prospects for increased output and jobs" in the agriculture sector, before mentioning global warming (Ibid.). Others have pointed out the "inherent contradiction" of joining these two journalistic portfolios into the same role (Cunningham, personal interview, April 24, 2015) given that agriculture contributes almost 30% of the country's total emissions (Environmental Protection Agency, 2013). More recently, Kevin O'Sullivan has stepped down as editor of the *Irish Times* and has been appointed to the post of Environment Editor. Meanwhile, at the *Irish Independent,* Paul Melia was appointed environment correspondent in February 2008. The effect of employing a dedicated environmental correspondent on the levels and nature of environmental coverage is examined in the discussion section. McDonald, Cunningham, O'Sullivan, Reid and Melia have been interviewed for this thesis. Their remarks are presented and analysed in the following chapter.

A comparison between Ireland and Europe is possible by comparing the data compiled for this research with that of the International Collective on Environment, Culture and Politics (ICECaPs) based at the Co-operative Institute for Research in Environmental Sciences (CIRES) at the University of Colorado at Boulder. The CIRES project monitors

52 newspaper sources across seven regions using the LexisNexis, Proquest and Factiva databases (McAllister *et al.*, 2017). The metric used by CIRES is average number of climate change stories per publication (i.e. the total number of climate change stories for a territory or region is recorded, and the total is then divided by the number of sources). I have used the same methodology to arrive at a similar measurement for Ireland. In figure 5.5 below, it is evident that Irish print coverage of climate change follows the broad patterns of European coverage, exhibiting similar peaks and troughs, but at a lower level of overall coverage. However, 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 *Sunday Times*, the *Sun*, the *Observer*, the *Guardian*, the *Daily Mail* and *Mail on Sunday*, the *Daily Mirror* and *Sunday Mirror*, the *Daily Telegraph* and *Sunday Telegraph*, the *Financial Times*, the *Independent*, the *Scotsman* and *Scotsman on Sunday* (all UK), *El Pais* (Spain), the *Irish Times* (Ireland), and the *Sofia Echo* (Bulgaria). Several important territories, such as France, Germany, Italy and the Scandinavian countries, are absent from the CIRES dataset.

Fig 5.3: Coverage of climate change: number of stories per title, Jan 2007-Feb 2016
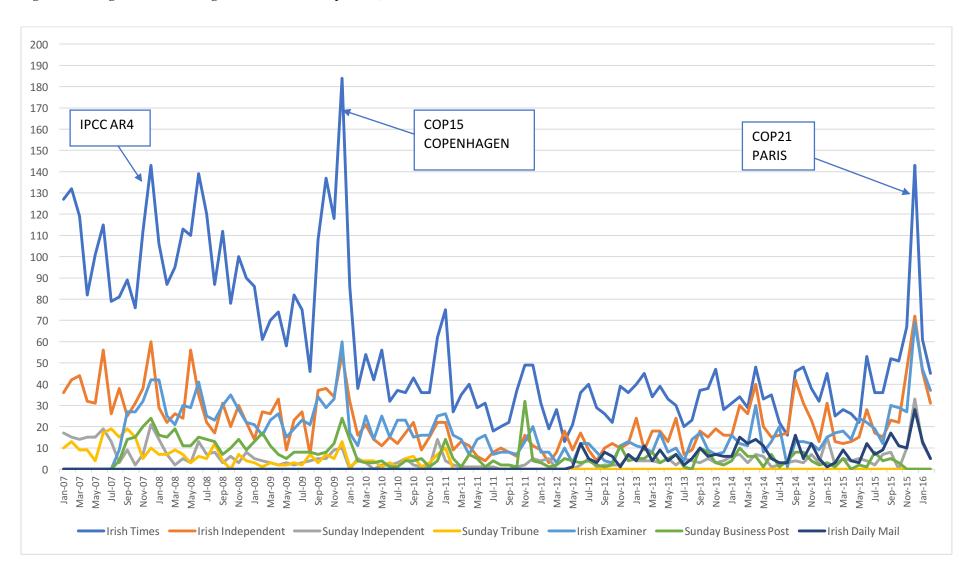
Fig 5.4: Stories per title Jan 2007-Feb 2016, excluding the *Irish Times*
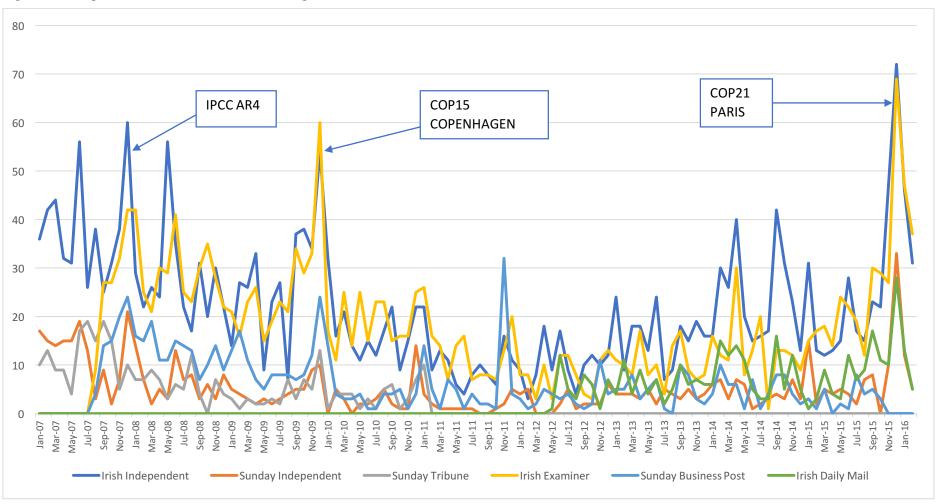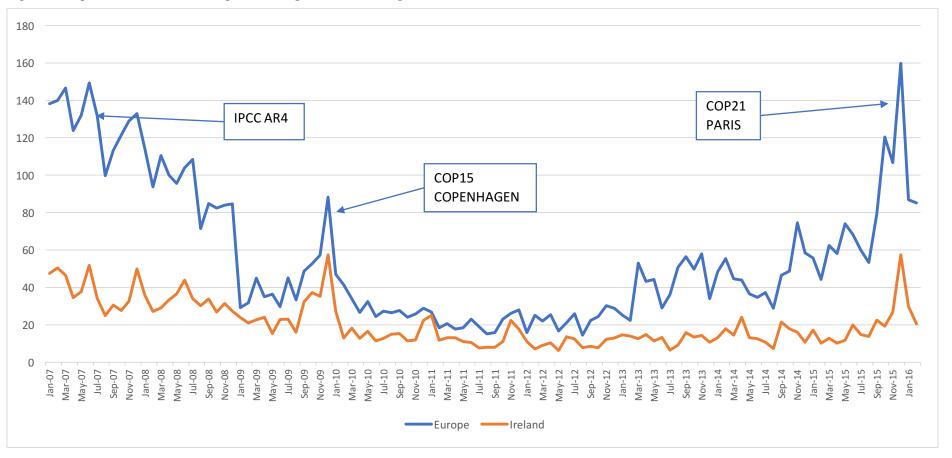
Fig 5.5: Comparison of Irish and European coverage of climate change
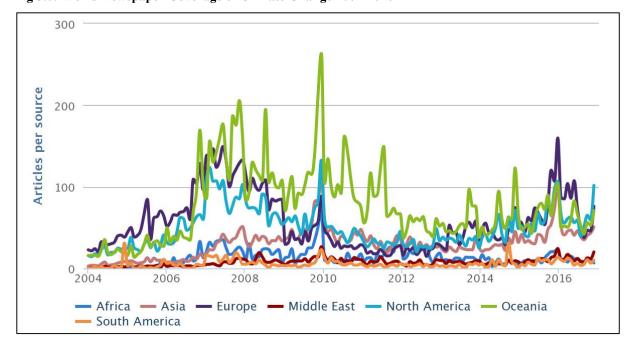
Fig 5.6: World Newspaper Coverage of Climate Change 2004-2016

McAllister, L., Nacu-Schmidt, A., Andrews, K., Boykoff, M., Daly, M., Gifford, L., and Luedecke, G. (2017). World Newspaper Coverage of Climate Change or Global Warming, 2004-2017. Center for Science and Technology Policy Research, Cooperative Institute for Research in Environmental Sciences, University of Colorado, Web. [Accessed December 20, 2016].

5.5 Characteristics of Irish newspaper stories about climate change

It is important to note that not every story containing the search terms "global warming" or "climate change" or "greenhouse effect" is primarily concerned with the climate change issue. Often, climate change is mentioned as one topic among many in stories about politics or policy, or it is alluded to as one factor among several others in considering other global issues, such as the refugee crisis, for instance. Stories which were primarily focussed on climate change were coded as such, and stories making substantial reference to the issue but in which climate was not the main topic were coded as having climate change as a secondary focus (see Boyd & Paveglio, 2012 and Mercado, 2012 for similar coding methodologies) . Stories with climate change as their main topic comprise 39% of the corpus, and stories with climate change as a secondary focus comprise 61%.

Stories mentioning climate change were also coded as to story type. As was set forth in the previous chapter, stories were coded as either simple (single-source, basic) or complex (multiple-source) straight news stories, features, opinion articles, regular columns or editorials. Articles which allow for the presentation of the writer's opinion (columns and opinion articles) account for 38% of the total, while articles based on news gathering and reporting (simple and complex news stories and feature articles) account for 59%.
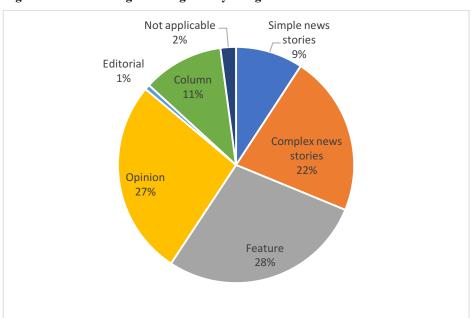
Fig 5.7: Climate change coverage: story categories

The LexisNexis database is unreliable in recording the authorship of climate change coverage. In instances where the writer's name is given in a blurb or standfirst or is otherwise prominent in the original article, it is recorded by LexisNexis. Thus, where the author's name forms part of the display text of the article, it is noted; where it forms part of the body text (for example, where the author's name is placed at the top of the first column of text, or where the device of inserting the writer's name at the end of the first paragraph is used), it is generally not recorded. Accordingly, the data on story authorship

is presented with the caveat that it is not comprehensive: in only 285 instances out of 706 (just over 40%) was it possible to code for authorship. This admittedly imperfect analysis shows that regular columnists were the most represented in the coverage (87), followed by non-journalist guest experts contributing opinion articles (71). Specialist correspondents were also strongly represented (69). Professional journalists (specialist correspondents, news reporters and news agencies) accounted for 99 stories of the 285 coded (34.7%), while non-journalist contributors (guest experts and columnists) accounted for 158 (55.4%).
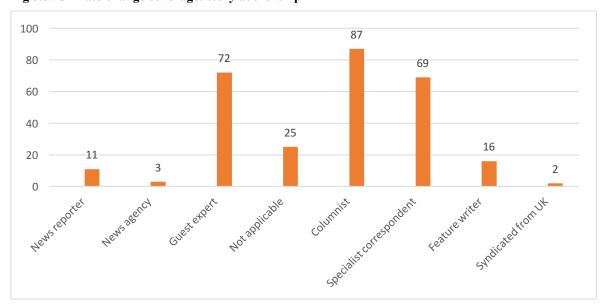
Fig 5.8: Climate change coverage: story authorship

5.6 How Irish newspaper coverage of climate change is framed

This section presents the results of the frame analysis carried out on the corpus of 706 articles as described in Chapter 4. A total of 1643 frames were found in the articles. The Political or Ideological Contest frame was the most dominant, with 399 instances, or 24.28% of the total number of frames. Other frames strongly represented are settled science (238 instances; 14.48% of all frames), the economic frame (215 instances,

13.08%), the disaster frame (191 instances, 11.62%) and the policy or technical frame (184 instances, 11.19%). Frames that were not prominent in the print media coverage of climate change include the agriculture frame (51 instances, 3.1% of all frames), the morality or ethics frame (148 instances, 9%), the opportunity frame (111 instances, 6.75%) and the contested science frame (94 instances, 5.72%). The presence of the domestication or communitarian frame is almost negligible, with just 12 instances, or 0.73% of all frames, recorded (see fig 5.9 below).
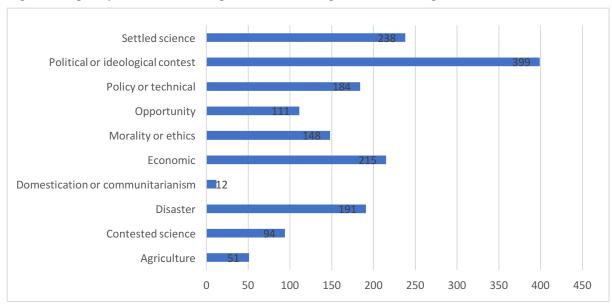
Fig 5.9: Frequency of frames in Irish print media coverage of climate change

When we come to look at the framing of climate change in each newspaper title, it is apparent that the framing is relatively evenly spread between the titles. Figure 5.10 presents the total number of frames present in each newspaper. It can be seen that the *Irish Times* leads in each category, simply because it publishes more climate change coverage than its competitors. It is more useful to consider the percentage of each paper's coverage coded to a particular frame.

Fig 5.10: Instances of frames per newspaper title

When the data is presented in this manner, some interesting preferences are apparent: the *Sunday Business Post* and the *Sunday Tribune* have the highest percentage instance of the economic frame (19.67% and 19.01% respectively), while the *Irish Daily Mail* records the highest percentage for the contested science frame (16.7%, compared to 9.65% in the *Irish Independent*, the next highest total recorded). The *Irish Examiner* (19.26% of frames) and the *Sunday Independent* (20.83%) present much of their coverage through the disaster frame. The *Sunday Independent* and the *Irish Daily Mail* record considerably lower percentages for the settled science frame (8.33% and 5.56% respectively, compared to 16.43% in the *Irish Times*). The *Irish Daily Mail* records a high score of 22.22% for the morality or ethics frame, far more than the second highest score for this frame, the *Irish Examiner* (13.33%). The political or ideological contest frame is also relatively evenly represented in all seven newspaper titles, with the *Sunday Independent* (29.17%) favouring this frame slightly more than the *Sunday Business Post* (26.06%), the *Irish Times* (24.49%), the *Irish Independent* (23.68%), and the *Sunday Tribune* (22.95%). The *Irish Examiner* (19.26%) and the *Irish Daily Mail* (19.44%) recorded the fewest instances

of the political or ideological contest frame in their coverage. The specific approaches to coverage of climate change by particular newspaper titles is discussed in a subsequent section.
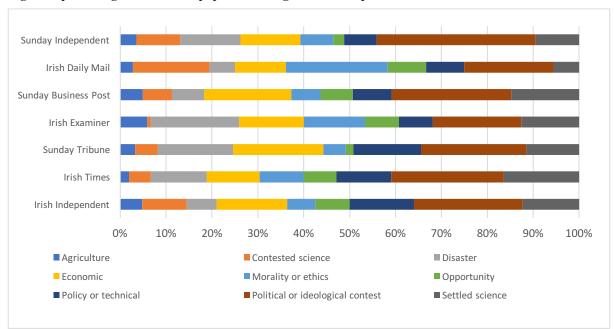
Fig 5.11: percentage of each newspaper's coverage devoted to particular frames

In tracking the number of instances of each frame over time, it is evident that the political or ideological struggle frame largely mirrors the rise and fall of media attention in general. In other words, it is an ever-present frame through which climate change is presented. Other frames, such as the morality and ethics frame, become more prominent during international climate change conferences at which issues relating to climate justice may be discussed. The settled science frame and the disaster frame remain constant throughout the period under consideration and their frequency in the coverage seems unaffected by increases and declines in overall coverage (see figure 5.12 below). It is interesting to note that the contested science frame, which hit peaks in 2008 and 2013, is now largely absent from coverage of the issue.
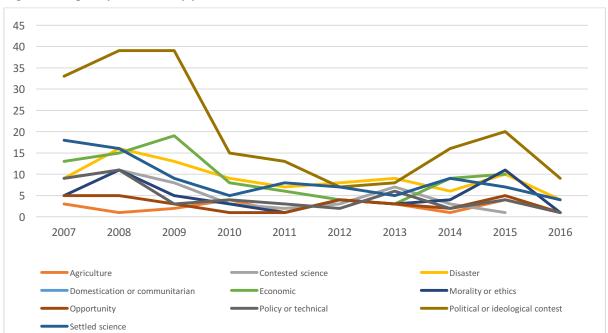
Fig 5.12: frequency of frames by year, 2007 to 2016

As mentioned above, the coding methodology allowed for the coding of dominant and secondary frames. Although mapping the frequency of frames throughout the coverage provides a base measurement of how climate change is framed, the examination of the extent to which certain frames dominate the stories in which they appear gives a second metric of their influence. For example, the political or ideological contest frame has already been established as the most frequently found frame in the corpus of 706 articles; by measuring the extent to which it is the dominant frame, its effect is more manifest. This frame dominates 28.1% of all climate stories, more than twice the number of the second most dominant, the disaster frame.

Table 5.1: extent to which frames are dominant in climate change coverage

Frame	Instances of frame	Number of stories dominated by this frame	Percentage of stories dominated by this frame
Political or ideological contest	399	199	28.1
Disaster	191	91	12.8
Settled science	237	88	12.4
Economic	215	87	12.3
Morality or ethics	148	48	6.7
Contested science	94	47	6.6
Policy or technical	184	45	6.3
Opportunity	111	30	4.2
Agriculture	51	20	2.8
Domestication or communitarian	12	2	0.2

It is interesting to note that the frequency of frames does not correlate to the extent to which they are dominant. For example, the settled science frame is strongly present in climate articles, accounting for 14.43% of all frames, yet it is the dominant frame in just 12.4% of articles. Likewise, the influence of the policy or technical frame recedes, while the disaster frame become more powerful, when looked at through the metric of dominant frames. The relative salience of individual frames will be examined in more detail in the subsequent sections.

5.7 Inside the frames: a more detailed analysis

In the following sections, the coverage of climate change coded to the 10 frames is examined more closely. In each case, further details relating to each frame, such as authorship and article type, are provided. The extent to which the frames are present in the various publications is also analysed, as is the extent to which each frame dominates the coverage in which it is present.

In addition, secondary framing in stories is explored. This allows for a more nuanced analysis of media framing of climate change, permitting insights into which other frames most often appear alongside dominant frames. Furthermore, the text coded to each frame is subjected to a further level of coding to determine the particular sub-topics: the events and areas referred to in the coverage. Thus, the specific subject matter of the articles coded to a particular frame is uncovered.

Lastly, the text relating to these sub-topics is examined and specific examples of climate change coverage are analysed. Having considered the frames at a macro level (their prevalence in the coverage and their general characteristics), and at a mezzo level (sub-topics discussed by in stories dominated by particular frames), it is then proposed to look at the content coded to this frame at a more micro level: the level of the texts themselves. The most prevalent sub-topics are therefore analysed at the textual level. Trends and characteristics in the coverage coded to each frame are then identified. The findings of this analysis is then discussed and analysed in later sections.

5.8 The Political or Ideological Contest Frame

The political or ideological contest frame dominates Irish print media coverage of climate change. It is found in 265 (37.5%) climate change stories. There are 399 instances of this frame within the corpus of 706 articles, accounting for 24.28% of all frames. It is the dominant frame in 199 articles (28.1%) and appears as a secondary frame in 200 other stories (28.3%).

Given that the timeframe of this study encompasses an eventful period in Irish politics, the prevalence of this frame is not surprising. The issue of climate change was an important part of discussions between the Green Party and Fianna Fail following the May 2007 general election, formed a central part of the programme for government agreed between the Greens, Fianna Fail and the Progressive Democrats in June 2007 (Ahern, Harney and Sargent, 2007) and was central to the policies promoted by the two Green Party ministers in the 27th and 28th governments of Ireland (Minihan, 2015).

To recap, the political or ideological contest frame (see figure 4.3 in chapter 4) contains

> "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, to climate change as a battle between elites, and explicit references to a 'left versus right' conflict regarding the implementation of climate policies."

The political frame appears most frequently (65 instances) in complex news stories, reports of major events in which multiple sources are quoted. Indeed, political treatment of climate change is more common in journalism requiring news gathering (118 instances

in news stories and features) than it is in analytical journalism or commentary (76 instances in editorials, regular columns and op-ed articles).
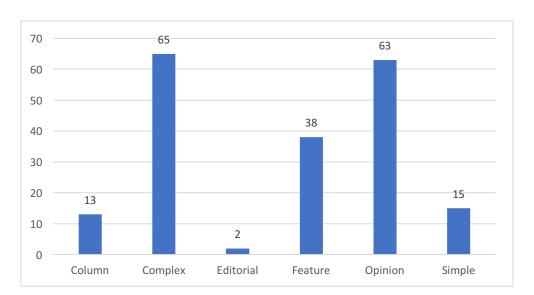
Fig 5.13: Types of story in which the political or ideological contest frame was dominant

Looking more closely at the authorship of climate change stories dominated by the political frame, the finding that a large majority of articles was written by professional journalists appears to be contradicted by a subsequent finding that columnists and non-journalist guest experts were the more frequently recorded authors (see Figure 5.14 below). However, this anomaly can be explained by the failure of the LexisNexis database to record story authorship comprehensively. In 68% of instances where political or ideological contest was recorded as the dominant frame, the authorship of the article was not recorded in the LexisNexis database. In the 32% of cases (64 instances) where authorship was recorded, non-journalist guest experts (17 stories), regular columnists (17) and specialist correspondents (18) were the dominant sources of content presented through this frame. The missing data from the LexisNexis database makes a comprehensive analysis based on story authorship impossible. However, it is wise to base inferences on the complete data (story type) rather than the incomplete (story authorship),

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and the finding that climate change stories presented through the political frame are more

fact-based and less polemical stands.
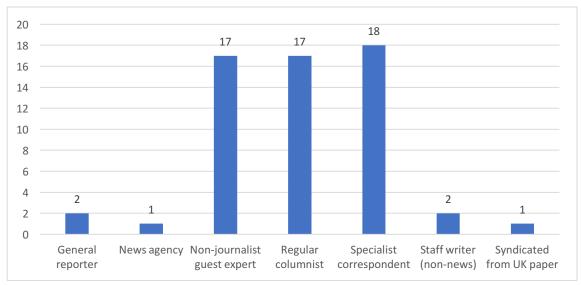
Fig 5.14: Authorship of politically framed climate change stories

The political frame is quite evenly represented in all newspaper titles. The lowest number

of references coded to this frame occurs in the *Irish Examiner,* where it accounts for

19.44% of all frames recorded, while the *Sunday Independent* records the highest

frequency, at 29.17% of all frames recorded. (See figure 5.15 below).
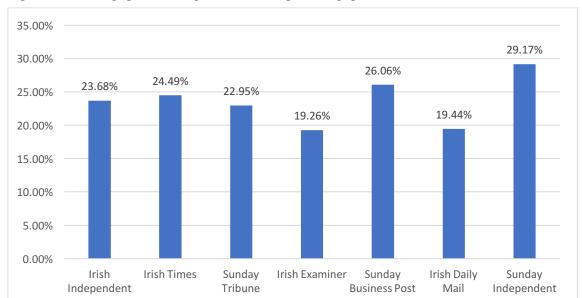
Fig 5.15: Percentage presence of political frames per newspaper title

Frames were recorded in two ways: the dominant frame (which appeared in the article's first paragraph and/or was the main framing device used by the author) was recorded and the framing of particular sections of text was also coded. It is thus possible to examine a particular frame in two different ways: (i) by considering its overall presence in the data, and (ii) by analysing the extent to which it dominated the stories in which it was present.

The *Irish Times* published far more stories dominated by the political frame (121) than any other newspaper (see Fig 5.16), while the *Irish Examiner* (9), the *Irish Daily Mail* (3), and the *Sunday Tribune* (5) published very few.
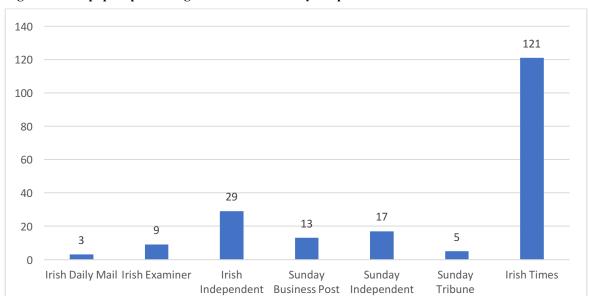
Fig 5.16: Newspapers publishing stories dominated by the political frame

It is more instructive to note the relationship between occurrences of the political frame in each publication and the extent to which that frame dominates the coverage. When looked at in this way, it is apparent that, in the *Irish Times* and the *Irish Independent,* the political frame is dominant in just over half of the stories in which it appears, while the *Sunday Independent* the percentage is slightly higher, at 58.62%. In the *Sunday Tribune,* the *Irish Examiner* and the *Sunday Business Post,* approximately a third of stories featuring the political frame are dominated by it. The *Irish Daily Mail* records a figure of 42.86%. It is apparent then that certain newspaper titles such as the *Sunday Independent,* the *Irish Times,* and the *Sunday Business Post* privilege the political framing of climate change, and that of these three, the *Irish Times* and *Sunday Independent* allow this frame to dominate more frequently than the other titles.

Table 5.1: Extent to which political framing dominates coverage

Newspaper title	Political frame instances	Political frame dominant	% dominated by political frame
Irish Independent	54	29	53.70
Irish Times	228	121	53.07
Sunday Tribune	14	5	35.71
Irish Examiner	26	9	34.62
Sunday Business Post	37	13	35.14
Irish Daily Mail	7	3	42.86
Sunday Independent	29	17	58.62

With a view to looking more closely at representations of this frame in the Irish print media, secondary frames in articles dominated by the political frame were also examined. Thus, other frames present in primarily political stories were coded (see Fig 5.17). The economic frame is the most common secondary frame, occurring in 34% of political climate stories, followed by the morality and ethics (19%), policy or technical (13%) and contested science (12%) frames. The settled science frame (4%), the agriculture frame (3%) and the domestication frame (1%) are sparsely represented.
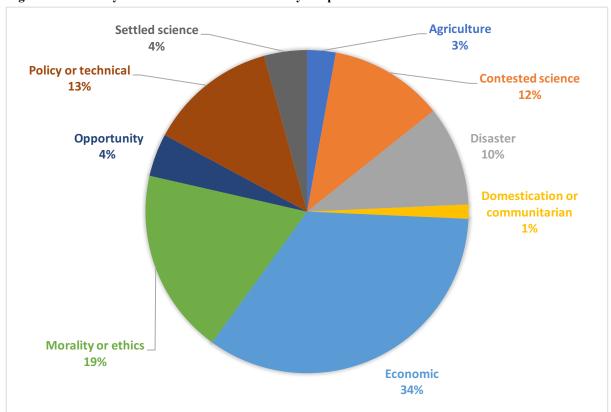
Fig 5.17: Secondary frames in articles dominated by the political frame

The strong presence of a secondary economic frame is the result of references to the economic impacts of climate policy formulated in the political arena; likewise, the policy or technical frame is the result of reporting on policy options for mitigation or adaptation measures. The finding that almost one fifth of stories primarily concerned with politics also contain a secondary moral framing is noteworthy. An example of this political-moral framing combination occurs in a report in the *Irish Times* on November 4, 2009, in advance of the UN COP15 in Copenhagen. The story concerns a boycott by the African countries of a stand of preparatory talks organised by the UN. Thus, the primary framing concerns the politics of climate governance at UN level. The journalist also seeks reaction to the boycott from NGOs. A spokesperson for the World Wildlife Fund puts forward the view that African countries are likely to suffer the most severe impacts of climate change

while having done least to cause it. This is essentially a "climate justice" argument, and therefore constitutes a moral or ethical framing.

The relatively strong presence of a secondary framing of contested science (12%) in political coverage is also noteworthy. Examples of this combination occur in reports of US electoral politics and reports of Dáil debates on the climate issue. For example, a report on the views of prospective Republican presidential candidate Fred Thompson in the *Irish Times* on July 28, 2007 is primarily a political story, but contains a reference to the actor's views on climate change, which he equated with a belief that the Earth is flat. A parliamentary report in the *Sunday Business Post* on July 6, 2008 noted that TDs (members of the Irish parliament) failed to distinguish between weather and climate, and that one TD remarked that his mother blamed the launch of the Sputnik spacecraft in 1957 for changes in the climate.

In looking more closely at the 399 instances of political framing in the corpus of 706 climate change articles, it is possible to identify several sub-topics: the particular political arena or subject matter to which the coded text refers. The sub-topics identified are outlined below, while Table 5.2 shows the number of instances for each found in politically framed articles:

(i) ***Climate change as political proxy:*** reference to a belief in the anthropogenic element of climate change, or to the existence of climate change at all, as an indicator of more general political orientation.

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(ii)   ***EU regulations:*** references to the political claims-making in relation to the setting of EU regulatory targets, such as CO2 emissions targets and exhaust emissions levels for motor vehicles.

(iii)   ***EU-level politics:*** references to the politics of EU climate and other policy, to Ireland's stance in relation to EU policy, to EU policy in relation to diplomatic and economic orientation towards the US and the UN, and to the Nice and Lisbon Treaty referendum campaigns.

(iv)   ***G7, G8 and G20 summits:*** references to political statements and positioning in advance of and during international policy and economic summits of developed nations.

(v)   ***Ireland Greens:*** references to policies proposed by the Green Party of Ireland, to statements made by its members, to negotiations in relation to the formation of a coalition government between the Fianna Fáil, Progressive Democrat and Green parties following the 2007 general election in Ireland.

(vi)   ***Ireland party politics:*** references to domestic political debate and claims-making in relation to climate policy, to assessment of party performance and critiques of ministers and party leaders.

(vii)   ***Ireland regulation:*** text concerning announcements of and reaction to regulatory policies proposed in Ireland, presented in a political frame without references to party politics.

(viii)   ***Politics of other territories:*** references to climate politics in foreign news coverage. The single instance of this sub-topic is found in an article concerning electoral politics in Australia published in the *Sunday Tribune* on December 2, 2007.

(ix) **UK politics:** references to climate policy and politics in the United Kingdom. The two instances of this sub-topic concern UK security in the face of threats posed by climate change (*Irish Times,* March 14, 2007) and a meeting between the UK prime minister and prospective US presidential candidates at which climate change was discussed (*Irish Times,* April 18, 2008).

(x) **UN climate summits:** references to political manoeuvring in advance of and during UN Conferences of the Parties (COPs).

(xi) **UN-level politics:** references to statements made to the UN General Assembly referring to climate change or statements relating to climate change made by the UN Secretary General.

(xii) **US domestic politics:** references to debates internal to the US on climate change, to the issue as a polarising one for evangelicals in the US and to proposed domestic mitigation measures.

(xiii) **US international politics:** references to the US policy position in advance of and during international climate summits, to US-EU relations as they relate to climate change, and to US influence on global affairs.

Table 5.2: Sub-topics in politically framed coverage

Topic	References
Climate change as political proxy	2
EU regulations	4
EU-level politics	21
G7, G8, G20 summits	5
Ireland Greens	18
Ireland party politics	35
Ireland regulation	4
Politics other territories	1
UK politics	2
UN climate summits	8
UN-level politics	3
US domestic politics	7
US international politics	14

Sub-topics relating to domestic politics (57 instances) and international politics (60) are evenly represented. The international politics total comprises 25 references to EU-related topics, and 35 references to broader global politics. The strong representation of outward facing coverage aligns with the earlier finding of this research that domestication and communitarian perspectives on climate change are largely absent from Ireland's coverage of the issue.

An example of the framing of climate change as a contest for advantage among domestic political actors occurs in a report of public forum on the topic organised by the Labour Party and Friends of the Earth in the EU Parliament offices in Dublin on June 24, 2009. The forum was addressed by then Labour Party leader Eamon Gilmore, who argued that the Taoiseach should take personal responsibility for climate change. Mr Gilmore on the one hand appears to acknowledge the gravity of the climate change situation, suggesting that a national response is required, but he appears to be seeking to score advantage over

a political rival by making him personally answerable on Ireland's lack of climate action, rather than advancing any climate policy himself:

> Mr Gilmore said yesterday the gravity of the situation demanded a major national response and it was the responsibility of Taoiseach Brian Cowen to provide the leadership behind that response. There is historical precedence. When there are major national issues that need to be addressed like the Northern Ireland peace process, the European Union, social partnership during the economic crisis in the 1980s, the political responsibility is transferred to the Taoiseach. Climate change targets need now to be seen in the same way as the peace process in Northern Ireland. The Taoiseach must take responsibility for it, he said. (*Irish Times,* June 25, 2009).

Issues relating to climate change, such as energy independence, CO2 emissions targets and proposals to tax carbon coded to this frame are presented in the context of their impact on political popularity rather than their likely climate impact. In this example, nuclear power is presented in exclusively party political terms, while wider environmental and societal contexts are not presented:

> Eamon Ryan wants a public debate on nuclear power. The Communications and Energy Minister was responding to the British government's backing for a new generation of nuclear power stations to secure the UK's energy supplies. "The debate on nuclear is part of a wider debate on where we are going to get our energy from in the future," Ryan said. He suggested that the issue be taken up by the Oireachtas committee on climate change and energy security. But before asking people to consider the merits of a debate on nuclear power, Ryan should check the views of the larger party in the coalition government. Bertie Ahern has already rejected the nuclear power option. He aligned himself emphatically to the anti-nuclear camp last February at a Fianna Fail conference. At the same meeting in Galway, the then energy minister Noel Dempsey said there was "no proposal before government or contemplated by government to change" the statutory ban on generating electricity by nuclear means which had been in place for almost 30 years. (*Sunday Tribune*, January 13, 2008).

Concern over climate change and other environmental issues are represented as political postures adopted to gain a perceived advantage in an analysis article concerning tensions

between the then Taoiseach (prime minister) Bertie Ahern and the Tánaiste (deputy prime minister) Brian Cowen, both member of the Fianna Fáil party:

> Ahern abhors confrontation while Cowen is ready to go toe-to-toe with an opponent. Sources close to the Taoiseach say that while he was publicly praising the decisive role played by Cowen in the election campaign, in private Ahern was jealous of the credit given to him. Still, two days after the election Bertie Ahern acknowledged his role and Cowen is now Tanaiste and Fianna Fail's leader-in-waiting. However, Cowen didn't see the Taoiseach's anointing of him as his successor as a favour. The Tanaiste hated it. Stories began to emerge in the media last weekend questioning Cowen's competence as Minister for Finance. Other sources said the Taoiseach had been highlighting his green credentials while questioning Cowen's commitment to the environment and climate change. (*Irish Independent*, April 11, 2007)

Thus, climate change is portrayed as a policy area in which political advantage may be gained, or in which an opponent can be put at a disadvantage. Concern for the climate itself, or the benefits or otherwise of particular policies, appear secondary to concerns of political point-scoring.

There are several instances of journalists seeking to delegitimise attendance at climate change conferences and other events abroad on the basis of cost and CO2 emissions incurred in travel. One such report concerns a trip by the then Minister for the Environment Phil Hogan to the Earth Summit (the UN Conference on Sustainable Development in Rio de Janeiro). The report describes the trip as "controversial" and foregrounds the costs involved:

> Mr Hogan and his department have spent almost €92,000 travelling to Europe and the rest of the world since he took office in March last year. The most expensive jaunt so far was a €28,847 trip to Durban, South Africa, to attend the COP 17 Climate Change Conference in Durban in December last year. Mr Hogan's delegation stayed six nights in the beach front Blue Water Hotel. Flights for the department's controversial three-day trip to the UN Conference on Sustainable Development in Rio earlier this summer cost €7,347 for four

of the members of the mission who attended. Accommodation costs for the group were the subject of much discussion between department officials and Ireland's Brazilian embassy and the final hotel bill for the trip has not yet been finalised. However, it was revealed that six members of the group dined out on the taxpayers' expense clocking up a €842.66 in one of the city's famous steak houses. (*Sunday Independent,* July 19, 2012).

Other similar reports concerned trips by councillors to a range of events, including climate change events, in 2014 (*Irish Daily Mail,* April 29, 2014) and trips by government ministers to promote environmental messages on St Patrick's Day (*Irish Times,* March 10, 2007).

In coverage of climate change dealing with EU politics, the issue is frequently presented as a purely regulatory challenge, with countries arguing for the establishment of emissions reduction targets that favour their own national interests. The wider context of global climate impacts is rarely considered. An example of this narrow portrayal of climate change as a challenge that can be met by agreeing emissions targets is provided by a report on negotiations concerning proposals from the EU Commission to reduce EU GHG emissions by 20% compared to 2005 levels by 2020. The Commission proposal also contained legally binding requirements for the EU to produce 20% of its energy from renewable sources by 2020, and to improve energy efficiency by 20% by the same date: The article depicts the negotiations as difficult, with Italy, Poland and Germany seeking concessions on these targets:

> Italy and Poland have both threatened vetoes unless their concerns over the cost to their industry is addressed, although there have been signs of compromise in the lead-up to the summit. Berlin and Rome want to exempt large portions of their heavy industries from having to pay for allowances to emit CO2 in return for their support for the package. They fear "carbon leakage" if they do not win concessions, whereby heavy industries simply move out of the EU to avoid the extra cost. Poland, which relies heavily on coal-fired power stations, says that forcing power stations to pay for all their emissions could lead

to a huge jump in electricity prices. Most diplomats expect a deal because failure would represent a huge setback for the EU. (*Irish Times,* December 11, 2008)

The timeframe of this study encompasses the political campaigns in Ireland and elsewhere concerning the Lisbon Treaty, which consolidated the treaties of Maastricht (1993) and Rome (1957) to become the new constitutional basis for the EU (Dinan, 2010). Several instances of op-ed articles and news reports concerning the treaty's implications for the EU's role in global affairs occur in this coverage sub-topic. For example, Labour Party politician Ruairi Quinn and Sinn Féin politician Mary Lou McDonald argued "for" (Quinn) and "against" (McDonald) adopting the treaty in side-by-side articles in the *Irish Times* on December 13, 2007. Quinn wrote:

> I belong to that first generation of European citizens who grew up, fortunate in the prospect that I would never have to face a European war in which I could become a combatant. For my children, and their children, the global dimension is different. The prospect, now, of a European war is inconceivable. But the reality of global challenges confronts us all every day. Climate change, globalisation, migration and social justice are the new agenda with which we have to grapple. The combined strength and authority of the European Union acting together is the new instrument which my parents or I never had as citizens growing up in the Republic of Ireland.

In her reply, McDonald did not refer to climate change, but rather based her opposition to the treaty on the grounds that, as she perceived it, it eroded democracy in the EU and failed to safeguard Ireland's neutrality. Other instances also portray climate change as a supra-national challenge which can be dealt with only by a strong and united EU. A further example is given by an article by Micheál Martin, then a minister in the Fianna Fáil government, writing in support of the treaty:

> I support the Lisbon Reform Treaty because of two vital overall principles and because of many specific positive elements. First of all, the purpose of the treaty is to ensure that the EU is reformed so that it is more efficient and effective in meeting modern challenges,

such as energy, security, climate change, globalisation and cross-border crime. The world isn't standing still, so the EU must not or it will fall behind. Secondly, it is true to the core model of an EU which has worked so well in promoting Ireland's interests. (*Sunday Business Post,* May 25, 2008).

Thus, coverage of the sub-topic of EU-level politics falls into two broad categories: the first, in which climate change is seen as a matter for regulations and targets rather than larger societal change, and a second, in which climate change is portrayed as a supra-national threat against which the EU must unite.

Despite the finding that media coverage of climate change peaks around international climate conferences, there are relatively few references to such conferences in texts coded to the political or ideological contest frame. Articles dominated by this frame refer to UN COPs (8 references), G7, G8 and G20 summits (5 references) or UN politics (3 references) are sparsely represented in politically framed coverage in the Irish print media.

The coverage devoted to these international summits presents the issue of climate change as a metric by which the performance of political leaders may be measured. This trend of personification has been identified as a journalistic norm (Galtung and Ruge, 1965) and as a feature of climate change imagery used by the mass media (Smith and Joffe, 2009; O'Neill and Smith, 2014). In a report concerning the G7 summit in Krün, Bavaria, the relative potency of German Chancellor Angela Merkel and French president François Hollande are assessed:

> True to the Merkel method, the final G7 communiqué was an incremental agreement that made modest steps forward on pressing global issues, in particular UN agreements looming this year on climate change and development goals. First, Merkel set aside time for a public breakfast with Barack Obama, a clear effort to restore transatlantic ties burdened by the Snowden revelations. But in doing so Merkel only emphasised how she

has become Obama's go-to leader in Europe. French leader François Hollande has some climate-change momentum for end-of-year talks in Paris. (*Irish Times,* June 9, 2015).

In addition to representing climate change as a measure of the efficacy of particular political leaders, the issue is also "personified" as a measure of national standing in relation to the climate issue. An example of the framing of climate change as a global contest among political and economic forces occurs in a report from Davos in which global climate policy is presented as a competition for dominance between the US and China:

> A good example of this happened yesterday in the General Congress Hall during a debate on climate change where Bi Jingquan, vice-chairman of China's National Development Reform Commission, had this to say about US energy policy: "The United States contains 4.7 per cent of the world's population and consumes 22 per cent of the world's energy. When China develops its energy consumption model in the future, we will never copy the US mode." Highlighting consumers' fondness for SUVs in the US, Mr Jingquan went on to say that far from dictating the world's climate agenda, it might look at what the East was doing. "We must develop the public transportation sector in urban areas. In China, we have the largest public transportation system in the world" he said, a hint of triumph on his face. (*Irish Times,* January 26, 2007).

A more explicit use of this strategy or game frame occurs in a report about COP17 in Durban:
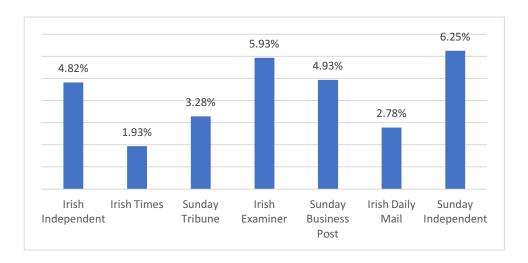
> China has raised the stakes in the game of climate poker being played here by yesterday affirming publicly and for the first time that it would be willing to sign up for a legally-binding international agreement to combat global warming. On a blustery day in the South African city of Durban, China's chief negotiator, Xie Zhenhua, told a packed press briefing his country, the world's number one carbon emitter, would be prepared to negotiate such a deal if the EU and others renewed the Kyoto protocol. Mr Xie, who is vice-chairman of China's National Development and Reform Commission, spelled out a number of other conditions, including the delivery of promised aid to poorer developing countries to help them cope with the impacts of climate change. (*Irish Times,* December 6, 2011).

In considering the sub-topics dealt with in articles coded to the political or ideological contest frame, it is clear that coverage of domestic and international politics represents climate change as a policy issue offering opportunities for gaining political advantage or inflicting political damage. The coverage at EU level portrays climate change as an issue in which narrow sectoral interests must be defended against onerous regulation, while also suggesting it is a bloc-wide challenge in the face of which Europe must unite. The strategy framing is also prevalent, with a winners-and-losers narrative strongly present, and the issue is personified both by individual leaders and countries.

5.9 The Agriculture frame
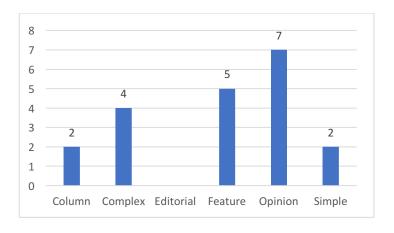
The agriculture frame was relatively sparsely represented in the corpus of 706 climate change articles. It was present in just 34 stories (4.83% of total), and was the dominant frame in 19 of these (2.69%). It was most prevalent in the *Irish Independent* (11 instances, 4.82% of frames present in that publication) and the *Irish Examiner* (8 instances, 5.93%), while the *Irish Times* (11 instances, 1.93%) and the *Irish Daily Mail* (1 instance, 2.78%) recorded low percentage representation of this frame.

Fig 5.18: Frequency of agriculture frame in Irish newspaper titles

Opinion articles were the most common story type dominated by the agriculture frame (7 instances, 35%), followed by feature articles (5 instances, 25%), complex news stories (4 instances, 20%), simple news stories (2 instances, 10%) and regular columns (2 instances, 10%). Journalism requiring news gathering, such as simplex and complex news stories and feature articles, and opinion journalism, such as op-ed articles and personal columns, are evenly represented in stories dominated by the agriculture frame.

Fig 5.19: Types of story dominated by the agriculture frame

Of the 19 stories dominated by the agriculture frame, 10 (52%) did not feature a byline. Of those that did, 40% (4 instances) were authored by non-journalist guest experts, 30pc

(3 instances) by regular columnists, 20% (2 instances) by specialist correspondents and 10% (1 instance) by a general reporter.
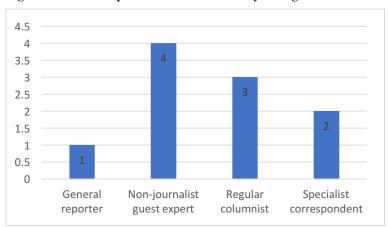
Fig 5.20: Authorship of stories dominated by the agriculture frame

Looking at the secondary frames present in the 19 stories dominated by the agriculture frame, it is noteworthy that frames emphasising policy or technical responses to climate change are strongly present (29%), as are frames emphasising opportunity (21%) and economic aspects (17%). Articles dominated by the agriculture frame are not overly concerned with politics or ideology (8%), morality or ethics (4%) or disaster (4%). An acknowledgment that climate change is anthropogenic in origin and requires urgent action is well represented in agriculture stories (13% of secondary frames), while frames undermining the scientific consensus on climate are relatively rare (4%).

It would appear that agriculture, as represented in the context of climate change, is seen as a matter largely confined to the area of policy and technocratic management. Agriculture is also constructed as a sector offering economic and other opportunities to farmers as they consider responses to the issue. A portrayal of those engaged in agriculture

as being involved in the stewardship of the environment, or of having responsibilities to future generations, is largely absent from media coverage of the topic.

It is also noteworthy that the domestication or communitarian frame, which seeks to present Ireland's emissions-reduction efforts as futile in the context of global emissions, is entirely absent from articles dominated by the agriculture frame. The secondary framing emphasises dry, technical or policy aspects of climate change, but does not seek to undermine climate science or to foreground Ireland's self-interest as an argument against mitigation or adaptation measures.
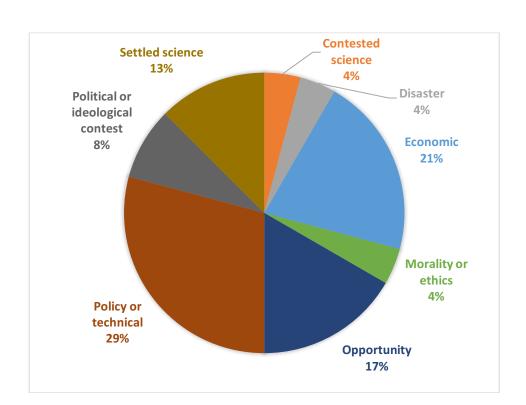
Fig 5.21: Secondary frames in articles dominated by the agriculture frame

A closer examination of the text contained in the agriculture frame shows that references to agriculture's contribution to Ireland's emissions occur most frequently (17 instances),

followed by references to politics, both at EU and national level (13 instances). It is interesting to note that there are several references to how climate change impacts on agricultural production, but only one direct reference to agriculture's impact on the climate. The references to emissions from agriculture occur in the context of EU targets and national emissions profiles rather than in the context of climate impacts (See figure 5.22 below).
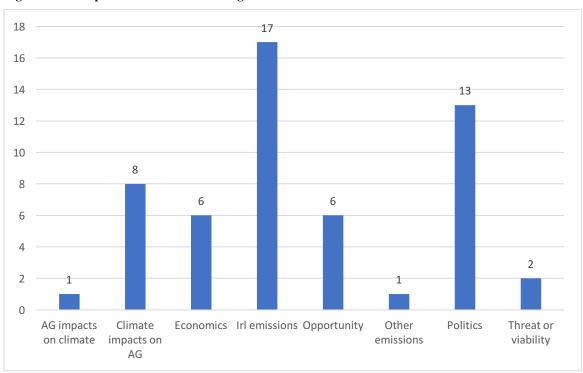
Fig 5.22: Sub-topics in articles coded to agriculture frame

Several articles make reference to GHG emissions from agriculture and to various proposals to reduce them, such as growing biomass or planting forestry to offset the GHGs produced by dairy and beef production. There are also multiple references to the argument put forward by the Irish Farmers' Association and others that reducing the size of the national herd in Ireland is of limited benefit if the demand for beef and dairy products is to be satisfied by producers in other countries who farm in a less carbon efficient way. A typical example of media representations of this argument occurs in the *Irish Times* on

October 14, 2014, which quotes the then Minister for Agriculture Simon Coveny (Fine Gael party):

> "We are not talking about taking agriculture off the hook in terms of its responsibilities, but to simply force Ireland to reduce its emissions from agriculture by reducing its herd size misses the point in terms of what we're trying to achieve," he said." This is a global problem. If we produce less, someone else somewhere else in the world will fill that gap, and in all likelihood that someone else will be producing food with a higher carbon footprint than Ireland." Mr Coveney added that Ireland had the lowest carbon footprint per litre of milk in the EU.

A tangential concern expressed by farmers and farming organisations is that, were Ireland to reduce its beef production, meat imported from Brazil would take its place. Again, the argument is made that weaker environmental standards elsewhere would lead to an overall increase in global emissions were Ireland to attempt to cut its own emissions from agriculture. This argument is made in an article appearing in the *Irish Times* on November 26, 2007:

> "The social and environmental damage associated with Brazilian beef production is totally ignored by those promoting this trade, including retailers, but it is clearly documented. The UN Commission on Human Rights has reported on the worker exploitation and slave labour problem on Brazilian ranches. Environmentalists have linked the five-fold increase in beef exports from Brazil in recent years with the rapid destruction of the rainforests in the Pantanal and Amazon regions, which is a major cause of global climate change. Brazilian beef fails to meet EU standards. It fails to meet the standards demanded and expected by European consumers. It exposes Europe to the unnecessary risk of foot and mouth disease. The evidence requires that it be banned."

These arguments constitute a subtle form of communitarianism by arguing against emissions reduction measures in Ireland on the basis that producers elsewhere will "fill the gap". Communitarian arguments usually support the advancement of national interests by placing them at a higher level of importance than global, or cosmopolitan ones. By

suggesting that global interests will be harmed by Ireland taking mitigation measures in the agricultural sector, this argument appears to wrap a communitarian argument in cosmopolitan clothing.

An article which was published over two pages in the *Irish Daily Mail* on Saturday, November 2, 2013, also refers to the proportion of Ireland's emissions contributed by agriculture, but suggests that reducing them may be counter-productive because climate change is in fact beneficial to Irish agriculture. The article bears the headline: "Why are we so afraid of global warming? Whatever is causing it, the planet is getting hotter. But the Irish have no need to panic: a brave new thesis shows how it could bring wine, warmth and prosperity to our rain-sodden shores". The article contains an interview with Professor Richard Tol, a Dutch academic specialising in the economic impacts of climate change. Professor Tol worked for the Irish research body the Economic and Social Research Institute (ESRI) and has contributed to the IPCC assessment reports (Working Group II) on the economic impacts and opportunities of climate change (DeSmog, 2016). Professor Tol has links to various climate denial organisations and has been involved in a lengthy attempt to dispute the finding by Cook et al. (2013) that 97% of climate scientists support the hypothesis of anthropogenic global warming (Nuccitelli, 2014; Tol, 2014). Professor Tol is seen by many as engaging in a kind of climate change denial identified by Rahmstorf (2004) as "impact sceptics" (Harman, 2014). The headline immediately suggests there is some dispute about the cause of climate change by including the introductory phrase "whatever is causing it…". The headline also characterises Professor Tol's research as "brave", already casting his views in a positive light for the reader. The article itself is written by Paul Drury, now deceased and a former editor of the *Evening Herald* and *Irish Daily Mail* who also worked as a motoring correspondent for the *Irish*

Independent. Drury also wrote op-ed articles for the *Irish Daily Mail.* In this article, he puts forward the view that, because CO2 is necessary for plant growth, more CO2 in the atmosphere will lead to more plant growth. Warmer temperatures will lead to lower heating bills and fewer deaths caused by low temperatures. Humans will adapt to the extreme weather caused by climate change, and concerns about "peak oil" have been dispelled by the oil and shale gas extractive technology of fracking. The author concludes that: "In other words, there are, it would appear, infinitely more positives to global warming - at least in the short term - than there are negatives."

Insofar as it deals with aspects of climate change relating to agriculture, the article states that rising global temperatures will enable the production of crops which were heretofore unsuited to the Irish climate. Other articles suggest that climate change will have negative impacts on Irish agriculture, such as an article published in the *Sunday Tribune* on October 21, 2007 outlining a variety of crop and animal diseases that had already been detected in Ireland. The article quotes a soft fruit farmer concerned about the milder winters caused by climate change and the effect of higher winter temperatures on his crop, and includes an analysis by Professor John Sweeney of Maynooth University that lower summer rainfall will affect potato production.

In news coverage of climate change dominated by the agriculture frame, agricultural politics was the second most frequent sub-topic, with 13 instances in the 34 stories containing the agriculture frame. Topics mentioned included the appointment of Phil Hogan, the former Minister for the Environment, as EU Agriculture Commissioner (*Irish Times,* November 4, 2011), reform of the EU's Common Agricultural Policy (*Irish Independent,* August 23, 2013; *Irish Examiner,* March 16, 2011) and the political dangers

of conflict with the agricultural lobby (*Irish Times,* March 17, 2009; *Irish Examiner,* March 16, 2011).

An article in the *Irish Examiner* on December 18, 2010 encapsulates the inherent contradiction in Ireland's climate policy: the impossibility of reducing emissions while increasing agricultural output. The article concerns a climate change bill the Green Party was bringing to government:

> The Green Party leader said the bill is aimed at delivering on the Government's international commitments to reduce carbon emissions. The short-term target is to reduce greenhouse gas emissions by an average of 2.5% annually by 2020 compared to 2008. The medium-term target is to reduce carbon emissions by 40% by 2030. The long-term target is an 80% reduction by 2050, compared to 1990 emissions. Mr Gormley said: "The structure of the bill provides a strong legislative framework for a core objective on transition to a low-carbon, climate-resilient and environmentally sustainable society. I am acutely aware of particular concerns in the agricultural sector, but I believe the bill poses absolutely no threat to the sustainable future of agriculture in Ireland."

Responses to the proposed legislation are then sought from farming and environmental groups. The then Irish Farmers' Association president John Bryan points out that the aims of the bill run counter to the growth strategy for the agricultural sector contained in the Harvest 2020 policy document, and states that any emissions reduction measures initiated in the agricultural sector would damage the economy and lead to job losses:

> "This proposed legislation flies in the face of the Government's own expansion plans for the agriculture sector as set out in the Food Harvest 2020 Report and will have a hugely damaging effect on the recovery of the economy." The proposals fail to recognise the many positives around agriculture, especially our sustainable model of farming and the carbon sink in both our permanent pasture and our forestry." Mr Bryan said that the climate change legislation fails to include a proper calculation of greenhouse gas emissions, as it fails to include the positive impact of Ireland's grassland base and forestry in its environmental impact calculations. John Bryan said: "It is ludicrous that Ireland could introduce emission reduction targets way in excess of those proposed by other

countries, while at the same time countries such as Brazil destroy Amazonian rainforests and allow their greenhouse gas emissions spiral out of control."

In conclusion, it is evident that agricultural framings of climate change are dominated by technical measurements of emissions and by national political considerations. Climate impacts on agricultural production feature strongly in the coverage, while the impacts on the climate from agricultural emissions are not explicitly described. There is an implicit acceptance that such emissions are harmful, but the discourse quickly moves on to questions about the legitimacy of the emissions targets themselves or the wisdom of attempting to implement them. The rhetorical strategy of the IFA in suggesting that low carbon intensity agriculture in Ireland would be replaced by higher carbon intensity production in Brazil is also strongly present in the coverage. It is also apparent that potential beneficial impacts of climate change are presented, yet the potential benefits of a low-carbon or decarbonised agricultural sector are not.

5.10 The Contested Science frame

The contested science frame has a significant presence in the Irish media's coverage of climate change. There are 94 instances of this frame in the corpus of 706 articles mentioning climate change, accounting for 5.72% of all frames. A total of 78 articles (11.04% of the corpus) contain this frame. It is the dominant frame in 47 articles, accounting for 6.65% of dominant frames. So, although this frame is not strongly present in Irish coverage, it is nonetheless significant and dominates a larger number of stories that other, more prevalent frames, such as the policy or technical frame (184 instances,

but dominant in 45 articles) or the opportunity frame (111 instances, dominant in 30 articles).

It has been argued that the presence in the media of sceptic perspectives on the existence of climate change, its anthropogenic element, or the wisdom of mitigation or adaptation measures contributes to public uncertainty about the issue, leading to a lack of individual engagement and political action (Moser and Dilling, 2004; Painter, 2015). Therefore, media attention to contestations of climate science, or to the wisdom of climate action, may have wider societal impacts.

The contested science frame appears most often in the journalism of opinion. Of the 47 articles dominated by this frame, 34 (72.3%) are either newspaper editorials, op-ed opinion articles or opinion columns, while only 9 (19.1%) feature news-gathering journalism (news stories and feature articles). Although, as has been noted above, the LexisNexis database does not provide a comprehensive dataset of article authorship, it is often possible to discover authors' names by searching a particular news outlet's website. Several of the regular columns expressing sceptic views were written by two columnists who return to the topic of climate change from time to time: Kevin Myers, a career journalist and opinion writer, writing in the *Irish Independent,* and Maurice Nelligan, a retired heart surgeon, writing in the *Irish Times.* The content of their media texts is discussed in more detail below.
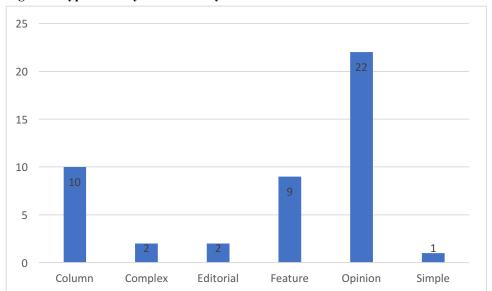
Fig 5.23: Types of story dominated by the contested science frame

Figures 5.24 and 5.25 present the prevalence of the contested science frame in each publication. In terms of frequency, this frame is found most often in the *Irish Times* (44 instances) and the *Irish Independent* (22 instances). However, it is more instructive to consider the percentage of each newspapers frames devoted to the contested science frame. Looked at in this way, the *Irish Times,* although it has published the most instances of this frame, devotes just 4.73% of its total frames to contested science. The frame is more strongly present in the *Irish Independent,* with 9.65% of that newspapers total frames featuring contested science. The frame is most strongly present in the *Irish Daily Mail,* where it accounts for 16.67% of all frames.
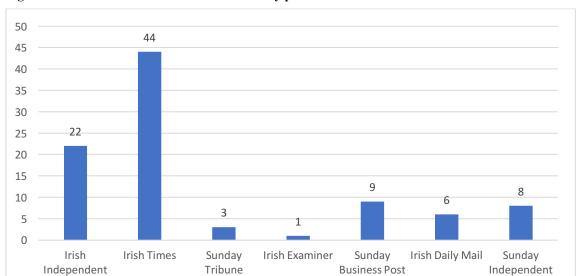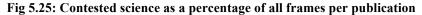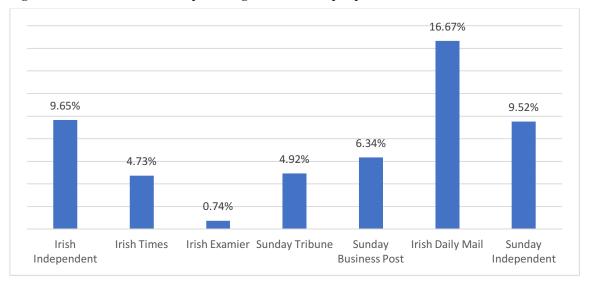
Fig 5.24: Instances of contested science frame by publication

Fig 5.25: Contested science as a percentage of all frames per publication

As has been the case with the analysis of other frames, the data relating to article authorship is incomplete. In roughly half of the 47 articles dominated by the contested science frame (51%) details as to authorship is not recorded in the LexisNexis database. Of the remaining 23 stories for which a "byline" was recorded, it is apparent that op-ed writers and opinion columnists feature strongly (see fig 5.26 below), with non-journalist guest experts and columnists accounting for 73% of articles, and journalists (correspondents and reporters) contributing 13%.
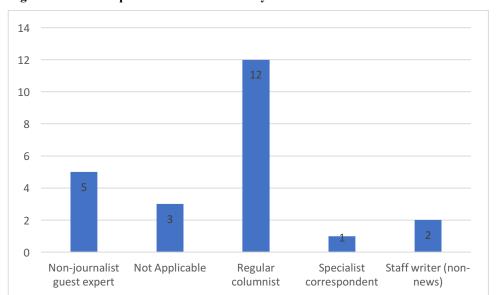
Fig 5.26: Authorship of articles dominated by the contested science frame

In the secondary framing of climate change in articles dominated by the contested science frame, the economic frame is strongly represented. In one quarter of stories dominated by contested science, the economic frame appears as a secondary frame. Settled science is the next most prevalent secondary frame, present in 15% of cases. It is helpful to note in this context that the contested science frame contains reference to sceptic views, including occasions on which the author mentioned such views in order to dismiss or counter them. As Nisbet remarks: "…frames as general organising devices should not be confused with specific policy positions; any frame can include pro, anti, and neutral arguments, though one position might be more commonly used than others" (2009, p. 18).
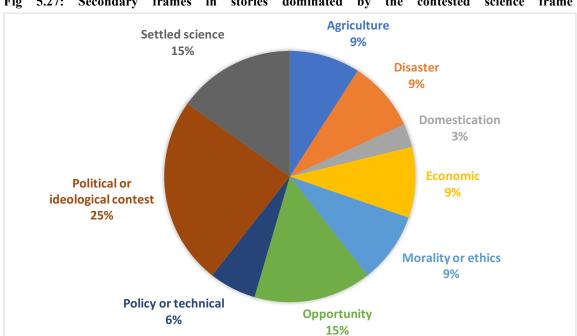
Fig 5.27: Secondary frames in stories dominated by the contested science frame

The 94 instances of this frame were also analysed to discover the sub-topics referred to in the relevant media texts. Some 11 sub-topics were identified:

(i) ***Confusing weather and climate:*** references, sometimes humorously intended, contrasting cold weather with "global warming";

(ii) ***'Crackpot' environmentalists:*** references to environmentalists, Green campaigners or politicians or so-called "eco-warriors" as fringe elements, easily dismissed because they are on the periphery of mainstream discourse;

(iii) ***Discrediting climate scientists:*** references to corruption among climate scientists or suggestions that scientists falsify findings for financial reward, or are reluctant to speak out for fear of losing funding;

(iv) ***Disputing climate science:*** references which suggest that there is significant disagreement among scientists regarding anthropogenic global warming, or which attribute climate change to solar activity or other causes;

(v) ***Distraction from more pressing concerns:*** suggestions that climate change is merely one of many global issues demanding attention, such as population growth, energy or food;

(vi) ***Honest broker:*** this sub-topic refers to a journalistic persona in which the writer assumes the mantle of an "Everyman" to ask seemingly innocent and well-meaning questions about the validity of climate science;

(vii) ***Hubris:*** references to the impotence of mankind in the face of the grandeur of nature, implying that our species is incapable of agency regarding the climate;

(viii) ***Mitigation unwise or counterproductive:*** references to various mitigation measures, such as the adoption of renewable energy sources, as ineffective or possibly dangerous;

(ix) ***Positive impacts:*** references to climate change as a benefit to people or territories;

(x) ***Religion or orthodoxy:*** references to a belief in the reality of anthropogenic global warming and the necessity for urgent action as a dogma whose adherents are intolerant of diverse views;

(xi) ***Reportage on sceptic views or organisations:*** reports on the statements or actions of sceptics which do not express support for such views, or which mention these views in order to refute them.
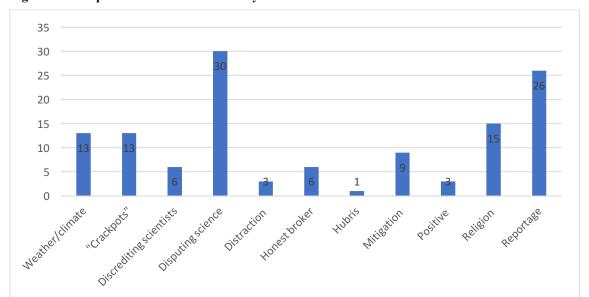
Fig 5.28 Sub-topics in articles dominated by the contested science frame

Media texts contained in the contested science frame, and which communicate direct or indirect contestations of climate science, present a broad range of established sceptic arguments. In Rahmstorf's (2004) typology of climate denial, they are mostly trend sceptics (who deny climate change is occurring) or attribution sceptics (who accept it's happening, but dispute the anthropogenic element). Often, the edifice of climate science is dismissed in its entirety, as an impenetrable "ism" or "ology".

Two particular sub-topics dominate contested representations of climate change: disputing climate science (30 instances) and reports concerning the activities or statements of sceptics (26 instances). Sub-topics which dismiss concern over climate change as being either a fringe concern or part of a quasi-religious orthodoxy – without, it should be noted, dealing with the substantive findings of climate science – are also strongly present in the coverage, accounting for a total of 28 instances.

Several articles coded to the contested science frame suggest that climate change is not occurring, or that it is a result of solar activity. For instance, an article by columnist Kevin Myers in the *Irish Independent* on May 6, 2008, states that weather data confirms the non-occurrence of global warming: "…what we hear of weather around the world does suggest that the simple slide to disaster so beloved of Warmism's doom-merchants is simply not occurring." This sentence contains two separate aspects of sceptic discourse: that climate change is not happening, and that climate science is an ideology (an "ism").

Myers returns to the topic of climate change several times during the period under study, often to dismiss concerns over climate impacts as unwarranted. Myers does not deal with specific findings of climate scientists, but rather offers broad characterisations of these fields of scientific inquiry as contradictory and alarmist. For instance, he ridicules the number of scientific disciplines involved in climate science by adding "kitchensinkology" to oceanography and others, and states that calls for adaptation or mitigation measures amount to "worldwide hysteria" (*Irish Independent,* January 4, 2011).

A more explicit reference to the theory that solar activity is causing increased temperatures on Earth occurs in a discursive comment article on the agreement between the Fianna Fáil party and the Green Party to enter government together following the 2007 general election in Ireland. The author (political reporter Jody Corcoran) makes sarcastic reference to Fianna Fáil's environmental record in government before concluding that emissions-reduction measures sought by the Green Party may be unnecessary:

> The harder truth is that we are now powerless, even if we accept the argument that the emission of greenhouse gasses is mainly responsible for global warming. In fact, the Earth is getting hotter because the sun is burning more brightly than at any time during the past 1,000 years. A study by Swiss and German scientists suggests that increasing radiation from the sun is responsible for recent climate changes. Most scientists agree

that greenhouse gases from fossil fuels have contributed to the warming of the planet in the past few decades but have questioned whether a brighter sun is also responsible for rising temperatures. It is doubtful that even Bertie Ahern can convince the sun to shine less forcefully. And for all their great idealism, it is doubtful that the Greens will make a significant impact on the other, man-made, causes of climate warming. (*Sunday Independent,* June 17, 2007)

Other examples of media texts directly disputing the findings of climate science occur in the Letters to the Editor section. Certain sceptic arguments are put forth, which are often rebutted in responses published in the same section subsequently. In this example, a range of several sceptic arguments is concisely presented (for a refutation of each of them, see www.skepticalscience.com):

> Firstly, a clear majority of scientists say that our understanding of global climate change is so inexact as to render making policy decisions based on it foolish in the extreme. Secondly, many solar scientists are predicting that, by 2020, the sun will be starting into its weakest Schwabe solar cycle of the past two centuries. This will probably lead to unusually cool conditions on Earth. Thirdly, some scientists say that the current warming blip is also visible on Mars; that is almost certainly not caused by my car. Fourthly, the current cooling blip might be entirely because of the unusually high temperatures caused by El Nino in 1998 making it seem as though we are cooling down when measured since then. (Letter to the editor, *Irish Independent*, December 31, 2007)

The argument that climate change is due, not to human influences, but to natural climate variability, is also present in the data. For instance, John Fingleton, a meteorologist with Met Éireann, Ireland's national weather service, puts forward this natural variability argument, while his colleague Gerald Fleming, states that recent weather extremes are due to climate change:

> For Fingleton, however, talk of global warming was an annoyance. "Wet summers are part of the Irish climate," he said. "I remember '85 and '86 and I remember my father telling me about '58 being desperate as well. It happens about every 20 years. It's a natural part of the Irish cycle." … If we are in a period of irresistible climate change, as suggested

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by Gerald Fleming, then we need to make detailed plans to cope with its consequences. If, as argued by Fingleton, these last two summers amount to little more than an aberration, then the planning can be more specific, targeting areas that we know are vulnerable to flooding in times of heavy rain. (*Sunday Tribune*, August 17, 2008).

There are several instances of coverage which accepts the climate is changing, but treats the suggestion that human activity has anything to do with it as an open question. Such references are often parenthetical, as in the following example from the "An Irishman's Diary" column in the letters page of the *Irish Times:*

> The latest suggestion is that it also has 400 years of fossil fuel resources, at a time when the world is wondering what part – if any – man plays in global warming and what part is down to the natural and recurring phenomenon of climate change, and the spinning of the Earth on its axis. (December 21, 2009)

An article in the *Irish Times* Saturday magazine presents a forceful dismissal of climate science. The article contains an interview with Ken Ring, an amateur meteorologist from New Zealand known as the "Moon Man" due to his belief that lunar cycles are a primary influence on the Earth's weather. The article is presented in a question-and-answer format, rather than journalistic prose, and his replies go unchallenged. In the article, Ring is asked whether he believes humans are capable of influencing the weather:

> "Not at all - not one iota. Global warming was an idea funded by Maggie Thatcher in the late 1970s because she needed an excuse to close down coal mines in order to ease the entry of British Oil nuclear generators in return for funding her election campaign. When you have half of the world in freezing winter at the same time as the other half is suffering heat waves, and when half of the world is in night time and the other half in daylight: what is the global temperature at that moment? There isn't one. It's like talking about global happiness. You can't say it's either decreasing or increasing because there's nothing to compare it to. They've only been taking valid measurements since the 1950s or so because of the standardisation of weather systems and the verification of them. And even

now they're not truly standardised: they're sometimes on rooftops or at airports next to jet engines." (*Irish Times,* March 23, 2013)

Several articles coded to the contested science frame could be described as presenting an "honest broker" approach, in which the author presents themselves as an "Everyman" willing to be convinced by "either side" in a hypothetical argument about the existence of anthropogenic global warming, or as an honest guide to the reader trying to understand scientific complexities. These arguments often begin with an exposition of the scientific case for climate change, before entering several sceptic caveats. Such an approach characterised an article on climate change in which the author begins by presenting themselves as a disinterested citizen attempting to arrive at a sensible conclusion:

> I still can't decide whether the environmentalist lobby is a type of pseudo-religious complex or a genuine scientific inquiry. End-of-the world-itis has manifested itself with regularity down the ages. The current global obsession with it - especially in the developed world - may be some sort of spiritual manifestation in the face of the overwhelming reality of global secular materialism. Like most religious believers, environmentalists seem riddled with guilt. One can't argue with thermometers: the globe is warming as it has done before in the past, but the question now is: why? The CO2 argument has become almost unstoppable. Despite many significant scientific sceptics, it has already generated a significant global industry. (*Sunday Business Post*, December 20, 2009.

A similar representation of the author as a typical "Everyman" occurs in an article concerning the efficacy of individual efforts to reduce GHG emissions. In this case, the author – a feature writer and music critic – adopts a passive persona of one awaiting persuasion, rather than that of an active citizen prepared to seek information:

> I'm one of what I suspect to be a growing number of people who are uneasy with the subject. I'm under no illusions that the human race has done huge damage to the environment but nobody is able to offer me empirical evidence as to the effectiveness of

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trying to reduce one's carbon footprint. And what about carbon offsetting, another of those bandied about terms? How effective is that. Is it all a load of codswallop, a PR initiative that promises much but delivers little? (John Meagher, *Irish Independent*, May 10, 2008)

Yet another example of the "honest broker" approach to presenting sceptic representations of climate change occurs in an article written by William Reville, an associate professor of biochemistry and science awareness officer at University College Cork and author of a long-running column on science in the *Irish Times*. Reville concedes his lack of expertise in climate science, yet states the importance of entertaining the views of sceptic scientists. The consensus among climate scientists that human activity is the main cause of observed climate change since the 1950s is 97% (Cook *et al.*, 2013), and many of the remaining 3% have been shown to have ties to the fossil fuel industry (McCright & Dunlap, 2014; Oreskes & Conway, 2010).

> There is a scientific consensus that the world is gradually warming and the majority of scientists believe that this warming is caused by man-made emissions of greenhouse gases, principally carbon dioxide. However, a not-insignificant minority of scientists disagree and believe that the current warming phase is caused largely by other factors, for example changes in solar activity. I am not expert enough in meteorology and climatology to critically adjudicate on this matter and, so, I accept the conclusions of the majority of experts in this area. However, I strongly believe that we must listen thoughtfully to the minority of independent experts who advance contrary evidence. (*Irish Times,* January 15, 2009).

There are 13 instances of text presenting weather and climate as interchangeable. There has been some debate over the use of the terms "climate change" and "global warming" in communicating about changes to Earth's climate. For instance, Frank Luntz, a political strategist, suggested to the Republican Party in the US that "global warming" sounded more threatening, and that Republican politicians should use "climate change" instead. A member of a focus group run by Luntz remarked that "climate change 'sounds like you're

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going from Pittsburgh to Fort Lauderdale.' While global warming has catastrophic connotations attached to it, climate change suggests a more controllable and less emotional challenge" (Luntz, 2002, p. 142). Of course, the terms are not interchangeable: "global warming" refers to the rise in the average mean temperatures on the Earth's surface, while "climate change" refers to a range of climactic and environmental changes caused by the trapping of GHGs in the Earth's atmosphere. One of these changes is the rise on global temperatures. Thus, global warming is a consequence of climate change: "Global warming refers to surface temperature increases, while climate change includes global warming and everything else that increasing greenhouse gas amounts will affect" (National Aeronautics and Space Administration; see also Wayne, 2015). However, using the terms has different effects on audiences (Ding *et al.*, 2011; Villar and Krosnick, 2011), and presents the possibility to rhetorically undermine the existence of climate change during spells of cold weather.

Several examples of the rhetorical use of unseasonable weather to delegitimise climate science occurs in several columns by Kevin Myers: "It was the coldest April for more than 20 years: so what is the meaning of this thing, "global warming"? (*Irish Independent,* May 6, 2008); "We have become the Falklands of the North Atlantic, yet we apparently are still experiencing "global warming". (*Irish Independent,* March 26, 2013). Myers is a controversial figure, having left the *Irish Times,* where he had written the "Irishman's Diary" column for many years, to join the *Irish Independent.* Most of the Myers articles in this corpus date from his time at the *Independent,* but more recently he moved again, this time to the Irish edition of the *Sunday Times.* On July 30, 2017, he was sacked following the publication of a column offensive to Jewish people (Logue and Gallagher, 2017). In general, Myers employs a two-fold approach when writing about climate

change: in contrasting cold conditions in the present with long-term warming trends, he confuses weather and climate and makes scornful references to environmental policies, such as energy efficient light bulbs or renewable energy (*Irish Independent,* January 8, 2009).

Often, the references to cold weather as a refutation of climate science are made as fleeting asides. An example of such parenthetical dismissal of climate change is found in a fashion article from the *Irish Daily Mail* on April 8, 2013: "In a climate such as ours – and I think we can all agree, as we shiver into April, that we can forget global warming – tweed is the most most natural, and attractive, defence against the elements." Another such example occurs in a column by Maurice Neligan. Neligan, since deceased, was a retired cardiac surgeon with a prominent media profile. He was the author of a weekly column in the *Irish Times* on medical matters and the concerns of bourgeois life, such as wine and travel. He wrote in the *Irish Times* on February 17, 2009: "It snowed in Dublin last night. I wondered if anybody had told God about global warming. If so, I wish He would get His act together because we're freezing down here."

There is also a strain of commentary in journalistic content coded to the uncertain science frame which seeks to dismiss those concerned about climate change as unworthy of serious consideration. These references often refer to "lunatic" environmentalists or "nutters". They comprise a blanket delegitimisation, a characterisation of the writer as being among a sane majority and those with whom they disagree as being "other". For instance, an article weighing the advantages of reducing one's carbon footprint by taking fewer flights, quoted Ryanair chief executive Michael O'Leary as "denouncing 'environmental nutters' who were 'persecuting' the aviation industry (*Irish Independent,* January 13, 2007). An article on COP15 in Copenhagen contains a characterisation of

climate activists as "unspeakably superior moral-high-ground environmentalists who dwell on their 'infallible' climatic knowledge" of whom the author is "weary" (*Sunday Business Post,* December 20, 2009).

A typical example of this representation occurs in a business-page article about an attempt by the Ryanair airline to distance itself from its image as aggressive towards its customers. The article contains a quote from the company's chief executive Michael O'Leary on the subject of citizens concerned about the environment:

> "We want to annoy the fuckers whenever we can. The best thing you can do with environmentalists is shoot them. These headbangers want to make air travel the preserve of the rich. They are luddites marching us back to the 18th century. If preserving the environment means stopping poor people flying so the rich can fly, then screw it." (*Irish Independent,* April 2, 2014).

In a sarcastic aside, Maurice Neligan remarks that "Mother Ireland is rearing them yet" in relation to objections by environmentalists to involvement by a leading biologist in a project in the Burren (*Irish Times,* December 23, 2008). He also makes sarcastic reference to "Minister Gormley…cycling to Poland to get global warming back on track", a project he described as "Bloody nonsense" (*Irish Times,* December 16, 2008). The same author considers climate mitigation measures in a subsequent article in which he looks forward to a holiday:

> To make it worse some humourless bore will start prating to us about global warming and saving the planet and explaining to us how some penal carbon tax will make us all feel better. Such lectures had better avoid our holiday centres as anybody coming out with that doleful rubbish would run a high risk of being run out of town on a rail. As it is we'll have to wait for the next election for that satisfaction. (*Irish Times,* August 4, 2009).

There is considerable media attention given to reportage on the claims, statements and actions of climate sceptics. Much of this content contains expositions of sceptic positions, but only as a starting point from which they can be countered or rebutted. An example occurs in the unsigned 'Present Tense' column in the *Irish Times* which considers the difficulties of communication the complexities of climate change:

> There's a serious point to all this. The languages of science and economics are difficult ones for the layman to stick with, so making it easier for sceptics to speak more directly. Increasingly, such sceptics are getting their place on the airwaves and in the papers, partly because they offer something a little more novel than the environmentalists, but also because their message doesn't need to be put across using percentages and per-capita figures. Those who warn of climate change must also explain that it's a complex issue, based on a variety of global, demographic and industrial factors. They must present apparently contradictory information. For instance, the sight of a polar bear drifting on a melted block of ice like a forlorn version of the Fox's Glacier Mints icon will always pluck the heart strings. But it is confusing to then learn that polar bear numbers are actually on the rise. Sceptics, on the other hand, can prey on the complex language of science. They can offer clarity and simplicity by blaming global warming on such easily-grasped notions as "natural cycles", and only need to do this repeatedly until enough people begin to doubt. (December 15, 2007).

Other articles falling into this "reportage" category are news stories concerning the tactics of climate sceptic organisations, such as this report concerning the Fourth Assessment Report of the IPCC:

> The American Enterprise Institute - a neo-conservative think-tank based in Washington, which has received funding from Exxon-Mobil - was reported yesterday to have sent letters to scientists and economists, offering them $10,000, plus expenses, if they were prepared to write articles debunking the IPCC's latest findings. (Frank McDonald, *Irish Times,* February 3, 2007).

The reporting on, and critique of, climate sceptics prominently features the work of John Gibbons, a former columnist on environmental matters with the *Irish Times,* a member of

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the Climate Change Committee of An Taisce, and a prominent blogger on climate related issues. For instance, Gibbons draws parallels between industry efforts to oppose the ban on CFCs in 1978 and more recent efforts by the fossil fuel industry to stop or delay emissions reduction measures:

> The US Environmental Protection Agency instituted a ban on CFCs in aerosols in 1978. The US emerged as the clear world leader in tackling the ozone threat, and its influence meant many other countries quickly fell into line. The CFC manufacturers weren't going to give up without a fight. In July 1975, for instance the chairman of DuPont described ozone depletion as "a science fiction tale, a load of rubbish . . . utter nonsense". This line may sound familiar if you've been listening to climate change sceptics recently. (*Irish Times,* June 19, 2008).

In another column, Gibbons considers the role of RTÉ (now Newstalk) broadcaster Pat Kenny in voicing, and giving a platform to, sceptic views. Gibbons opens the article with a reference to the Irish Academy of Engineering's report *Ireland at Risk: Critical Infrastructure – Adaptation for Climate Change* (2009). The report warns of "social and economic disaster" (Ibid, p. 4) unless adaptation action is taken. Gibbons contrasts the urgency of the report with the suggestion made by Kenny on his radio show (featuring an interview with climate scientist Wolfgang Knorr, postdoctoral fellow in the Department of Physical Geography and Ecosystem Science at Lund University) that the Earth is coping well with the increase in GHGs, accusing the presenter of embarking on a "bizarre tangent" about the CO_2 content of human exhalations. The article continues:

> Kenny then informed his guest that 98% of the heat generated on this planet comes from the outside, it's actually solar energy; are we being a bit panicky about what's going on down here on Earth? Knorr may have been too polite to point out that a similar portion of the energy on Venus is also of solar origin. However, high levels of heat-trapping CO_2 there have created a cauldron with surface temperatures of 480C. (*Irish Times,* November 19, 2009).

Other related content features reporting on the polarisation of opinion on climate change in the US, such as an interview with a US government official:

IF US president Barack Obama doesn't get re-elected in November, Gina McCarthy knows where she would like to spend the next four years: Vancouver. As assistant administrator of the US Environmental Protection Agency (EPA), she s had enough of all the climate change denial in Washington and muses openly about going into exile. McCarthy had never been to Vancouver but was so bowled over by how civilised it is that she half-joked about the idea of sitting out a Republican presidency – along with James Goldstene, executive director of California's powerful Air Resources Board – until the right-wing, anti-environmental agenda ran its course. Clearly frustrated by political sentiment in the US Congress, which led to the defeat of cap and trade legislation aimed at cutting carbon emissions, she told the Globe conference in Vancouver last week that the visceral opposition to it was driven by a refusal to deal with – or even recognise – the reality of climate change. (Frank McDonald, *Irish Times,* March 30, 2012).

There are several instances of attempted rebuttal of sceptic views contained in letters to the editor. One such concerns Ryanair's Michael O'Leary, who addressed the Oireachtas Committee on Transport in July 2008. The letter is written by Ciaran Cuffe, a leading Green Party politician:

Like a latter-day Willy Loman in Arthur Miller's play, *Death of a Salesman*, he [O'Leary] has failed to realise that the world has changed, and he must learn the new rules of the game. He was at it again on Wednesday, addressing an Oireachtas Committee on Transport. Ironically next door the Climate Change Committee listened to submissions on the European Union's proposals for reducing greenhouse gas emissions. Surely by now O'Leary must realise that times have moved on, and it is only fair that the aviation sector picks up the tab for its fair share of the costs of climate change…O'Leary feels a switch to nuclear power might save the day, but even a doubling of nuclear power worldwide would only lead to a 5 per cent reduction in global CO2 emissions, and his arguments distract from the need to conserve energy and use it wisely. He also confuses weather with climate, perhaps an understandable mistake to make when you spend time listening to climate change sceptics such as Nigel Lawson. (*Irish Times* July 18, 2008).

The 'Climategate' controversy also appears in the coverage of contested climate science. In this example, the theft of emails from the University of East Anglia is put in wider contest by the Science Editor of the *Irish Times:*

> Similar public naysaying has begun to percolate around the issue of climate change. People are told things will get warmer but then we get a major cold snap and people are ready to dismiss all the scientific facts piled up about climate change. Their scepticism was fuelled by the embarrassing e-mails either leaked or hacked from the University of East Anglia s Climate Research Unit. They pointed to manipulation of facts and tailoring of data in support of a human cause for global climate change. Put 'climategate' into your web browser to see how a powerful counter-culture view has sprung up on the issue. Yet if East Anglia disappeared under the waves of the rising sea level tomorrow, the research findings of another 2,400 scientists will still indicate anthropomorphic climate change is a reality. (Dick Ahlstrom, *Irish Times*, February 5, 2010).

An article syndicated from the *Financial Times* engages with several sceptic arguments directly. The article, which appeared in the business section, appeared under the heading 'Eight ways to tackle climate change':

> An analysis of abstracts of 11,944 peer-reviewed scientific papers, published between 1991 and 2011 and written by 29,083 authors, concludes that 98.4 per cent of authors who took a position endorsed man-made (anthropogenic) global warming, 1.2 per cent rejected it and 0.4 per cent were uncertain. Similar ratios emerged from alternative analyses of the data. A possible response is to insist that all these scientists are wrong. That is, of course, conceivable. Scientists have been wrong in the past. Yet to single out this branch of science for rejection, merely because its conclusions are so uncomfortable, is irrational, albeit comprehensible. This leads to a second line of attack, which is to insist that these scientists are corrupted by the money and fame. To this my response is: really? Is it plausible that a whole generation of scientists has invented and defended an obvious hoax for (modest) material gains, knowing that they will be found out? It is more plausible that scientists who reject the typical view do so for just such reasons, since powerful interests oppose the climate consensus, and the academics on their side of the debate are far fewer. (*Irish Times*, May 22, 2013).

It can be seen that the sceptic dismissals of climate science (30 instances) have been met with a robust response in the 25 instances of articles refuting or debunking sceptic arguments. It would appear that frank and open statement of sceptic arguments – such as suggesting that climate change is caused by solar activity, lunar cycles, or that climate change is not happening at all – are met with straightforward counter-arguments. The parenthetical dismissals, or the sarcastic references to people concerned about climate change, such as those written by Kevin Myers and Maurice Neligan, are less open to challenge insofar as they do not engage directly with the findings of climate science, but rather seek to ridicule those proposing climate action or the adaptation or mitigation measures they propose.

A related strand of contested science content presents climate science as an orthodoxy or a religion whose adherents are not amenable to argument. Sometimes climate science is compared to Marxism or communism, such as this reference to noted climate sceptic Bjorn Lomborg in the *Irish Independent* on January 13, 2007: "Bjorn Lomborg claimed in his seminal book *The Sceptical Environmentalist* that environmentalism is an ideology just like Marxism, which also pretended to be a 'scientific' theory of economic relations." Kevin Myers also compares climate science to Marxism, and also to Catholicism, suggesting supporters of climate action are immune to sceptic arguments (*Irish Independent,* May 6, 2008). Maurice Neligan also compares supporters of climate action to religious extremists in his *Irish Times* column of December 23, 2008: "Easy on the Yule logs Sir Walter, in this year of grace such behaviour would bring some jihadist out of the woodwork screaming about global warming." Columnist Mary Ellen Synon, writing in the *Irish Daily Mail* on March 11, 2013, repeats a frequently used sceptic tactic

of pointing to the so-called Little Ice Age (roughly 1350-1850) as an example of dramatic climate change occurring without human interference:

> Innocent VIII is, however, mocked today for his 1484 Bull against witchcraft. But consider his position. Climate change was leading to crop failure and mass starvation. The conventional wisdom of the time blamed the temperature changes on witches. In fact, we now know that this period between about 1300 and the late 1400s, known as the Little Ice Age, was likely to have been caused by low sun-spot activity. But at the time, witches and their incantations destroying crops was sold as the explanation. Just as now industrialists and their fossil fuel are sold as the explanation. It is likely Innocent was no more misguided in 1484 than the anti-capitalist witch-hunters of the Green movement are now.

Other texts coded to the contested science frame contain characterisations of climate change suggesting that climate change will in fact bring beneficial effects to Ireland, that the media, political and civil society focus on climate change is a deliberate tactic to distract attention from other issues, that climate scientists are dishonest or corrupt and that mankind is guilty of hubris in thinking that the human species is powerful enough to affect nature. In the following section, examples of these characterisations are briefly set forth:

(i) **_Positive impacts:_** there are three examples of this characterisation of climate change. One (*Irish Independent,* July 31, 2010) states that the Blasket Islands were created by a post-glacial rise in sea levels and that "if rising sea levels can produce such a captivating scene, the effects of global warming can't be all bad." The two others concern the *Irish Daily Mail*'s interview with Prof Richard Tol (November 2, 2013), analysed above. Prof Tol suggests that increased levels of CO2 will be beneficial for agricultural output.

(ii) **_Distraction from more pressing concerns:_** this characterisation of climate change occurs three times in the corpus of 47 articles containing a

contested science frame. An article in the *Irish Times* on May 25, 2008, is typical of this approach, suggesting that many in the developing world are too concerned with day-to-day survival "to spend precious time worrying about ecological niceties". Kevin Myers argues (*Irish Independent,* June 24, 2009) that climate change is such a pre-occupation of the UN because the greater problem of over-population is too contentious to be discussed.

(iii)   ***Discrediting climate scientists:*** there are six instances of texts suggesting that climate scientists are corrupt or conspiratorial. Three of these (*Sunday Business Post,* December 6, 2009; *Irish Times,* February 4, 2010; *Irish Independent,* July 31, 2010) refer to the 'Climategate' controversy as evidence of climate scientists' dishonesty. A letter to the editor of the *Irish Independent* (December 31, 2007) states that "the only people as irretrievably corrupt as politicians are scientists" and therefore the writer has been sceptical about "the current global warming PR blitz".

(iv)   ***Hubris***: There is a single instance of a hubristic representation of climate change. In his column in the *Irish Independent* on January 4, 2011, Myers contrasts a heavy snowfall with "the worldwide hysteria over global warming" before concluding that "We are nothing before the great forces of the world" and musing on "the humiliating insignificance of man".

It is evident that, in the text coded to the contested science frame, the work of Kevin Myers, and to a lesser extent that of Maurice Neligan, are prominent in putting forward sceptic views about the reality and impacts of climate change. The work of John Gibbons is also prominent in attempting to expose and refute sceptic arguments. The tendency to dismiss climate science completely by means of sarcastic asides or *ad hominem*

characterisations of those concerned about the environment, is also evident. The range of sceptic positions identified by Rahmstorf – trend, attribution and impact – are present in Irish media coverage of climate change, but so too is a considerable body of journalistic work challenging these positions.

5.11 The disaster frame

There are 191 instances of the disaster frame across 135 stories in the corpus of 704 climate change articles, and it accounts for 11.62% of all frames. In 92 individual stories, disaster is the dominant framing of climate change. Regarding the type of article in which this frame is dominant, it is evident that journalism involving reporting and news gathering presents the disaster frame most frequently (56 stories; 64.13%), while more opinion-based journalism (35 articles; 38.04%) is less strongly represented.

In just over 40% of the 92 stories dominated by the disaster frame was it possible to identify the author of the article. In the cases where an author was identified, columnists and op-ed writers were most common (63%), and reporters, staff writers and news agencies less so (37%).

The *Irish Examiner* presented climate change through this frame more often than any other title analysed, while the *Irish Daily Mail* relied on a disaster frame less often than the other titles. In the *Irish Examiner,* the disaster frame accounted for 19.26% of all frames used by the newspaper. The percentage for the other titles is as follows: *Sunday Tribune* 16.39%; *Sunday Independent* 13.10%; *Irish Times* 12.24%; *Sunday Business Post* 7.04%; *Irish Independent* 7.04%; *Irish Daily Mail* 5.56%.

Stories containing the disaster frame often contain secondary frames, although these stories are not as densely framed as stories coded to other frames. Articles presenting climate change through the disaster frame tend, therefore, to concentrate on a single framing. The frequency of secondary frames is given in Figure 5.29 below.
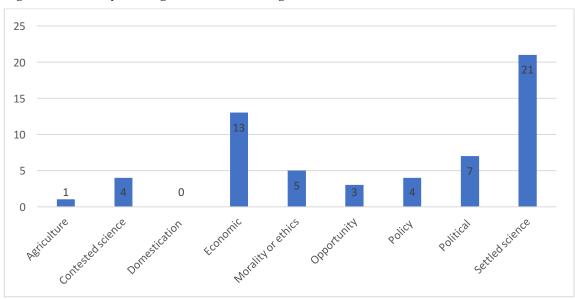
Fig 5.29: Secondary framing in stories containing the disaster frame

The prevalence of a secondary frame of settled science is noteworthy, suggesting that stories presenting climate change as having potentially disastrous consequences for the environment and for human populations is accompanied by representations of climate change as a reality requiring urgent action.

The subject matter of stories presenting climate change through a disaster frame is not as varied as was the case for the three frames examined in more detail above. Five sub-topics were identified: ***global climate impacts, global security, climate impacts on Ireland, elite actors*** and ***reportage from crisis-hit regions***. Of these, global climate impacts was by far the most prevalent sub-topic, with 82 instances, accounting for 55.78% of all sub-topics.

The other sub-topics were represented as follows: climate impacts on Ireland 29 instances, 19.72%; global security 16 instances, 10.88%; reportage from crisis-hit regions 15 instances, 10.2%; elite actors 5 instances, 3.4%.

Text in the ***climate impacts*** sub-topic refers to the publication of IPCC Assessment Reports, the setting of new temperature records, the impact of climate change on animal migration patterns and species extinction, increased flooding due to climate change, the likelihood of coastal cities being affected by sea-level rise, climate feedback loops, the decline in the ability of the oceans to absorb carbon, the potential for new diseases to infect human populations in a warming world, the loss of sea ice in both the Arctic and Antarctic, the effect of climate change on crops, predictions of increased desertification, the bleaching of coral reefs, water and food shortages, deaths due to extreme temperatures, increased storm intensity due to climate change, increased prevalence of wildfires and human migration.

Several articles deal with specific climate impacts, while others offer broad summaries. An example of the latter occurs in the *Irish Times* on April 1, and concerns the release of the IPCC's Fifth Assessment Report (AR5):

> [The report] warns that some risks of climate change are "considerable", even if warming is capped at 2 degrees - currently the international goal. For example, it would have an impact on human health, mainly by exacerbating health problems that already exist. "Throughout the 21st century, climate change is expected to lead to increases in ill health in many regions and especially in developing countries with low income, [with a] greater likelihood of injury, disease, and death due to more intense heatwaves and fires." Climate-change impacts would "slow down economic growth, make poverty reduction more difficult, further erode food security and prolong existing and create new poverty traps, the latter particularly in urban areas and emerging hotspots of hunger." There was also an increased likelihood of under-nutrition resulting from lower food production in poor

regions and increased risks from water- borne diseases. The magnitude and severity of such negative impacts would "increasingly outweigh" any positives. "It is true that we can't find many benefits of climate change, and I believe it's because there aren't many benefits, even though we tried really hard to find them," working group co-chairman Dr Chris Field said.   In many places, there would be "widespread negative impacts", he added. "We live in an era of man- made climate change," working group co-chairman Vicente Barros told the Yokohama briefing. "In many cases, we are not prepared for the climate-related risks that we already face. Investments in better preparation can pay dividends."

Other texts concentrate on more specific impacts of climate change, such as alterations to the habitats of chinstrap and Gentoo penguins (*Irish Times,* February 16, 2007) and the threat caused by climate change to production of the Arabica coffee bean (*Irish Independent,* November 21, 2012).

References to the ***impacts of climate change on Ireland*** concern changes to temperature, plants, growing seasons, crop diseases and the necessity of moving the date of the Irish Conker Championship as changes to the climate are affecting the growth cycle of chestnuts (*Sunday Tribune,* October 28, 2007). There are multiple references to flooding, and several articles link the floods of November 2009 and December 2015 directly to climate change. An article in the *Sunday Tribune* on August 10, 2008 states that flooding in Dublin's coastal suburbs will become more frequent due to climate change, while more recent floods in the south, west and midlands were also linked to climate change:

> Minister of state Ann Phelan made her comments after serious flooding affected her home town of Graiguenamanagh in the early hours of Wednesday, while many towns and roads in the region were hit by high river levels and heavy rainfall. A number of homes in Graiguenamanagh were evacuated overnight after the River Duiske in the Co Kilkenny town burst its banks, while two boats were also lost to the floods. Thomastown and Inistioge were among other areas in the county seriously hit by flood waters, with many local roads closed to traffic. "It's devastating," Ms Phelan said in relation to Graiguenamanagh. "I've never actually seen it as bad as what has happened this morning.

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The levels of water were quite frightening." She said that, as the water in the both the Barrow and the Duiske rivers remained high on Wednesday afternoon, that she hoped they were over the worst but that long-term strategies are needed. "I think we really have to plan now for how we deal with this. Climate change is becoming a real issue in our daily lives. We have to face up to that in a serious way to stop situations like this happening year in and year out." (*Irish Examiner,* December 31, 2015)

The ***elite actors*** sub-topic refers to articles concerning the statements of environmental "celebrities" such as Al Gore, David Attenborough and James Lovelock. An example occurs in the science section of the *Irish Times:*

James Lovelock, who developed the Gaia theory of the earth, has issued an apocalyptic prediction. He claims that global warming is now irreversible and, as a result, more than six billion people will die before the end of the century. (May 28, 2009)

There are several examples of text characterising climate change as a ***threat to global security***. For instance, climate change is a "threat multiplier" which will create millions of environmental migrants by 2020, according to a report submitted to the European Council. "Linking security to climate change shifts the issue from environment ministers to prime ministers, who have more power to deal with it." (*Irish Times*, March 15, 2008). This report was also the topic of a talk at the Irish Institute for European Affairs given by Dr Elina Bardram, policy coordinator at the European Commission's Directorate of External Relations. She predicted that conflict over scarce resources – water, food and land – will lead to instability, while demand for biofuels in the developed world is leading to hunger in the developing world. *Irish Times,* April 25, 2008). In another example of such coverage, the *Irish Examiner* reported on the launch of Global Trends 2025, a report by the National Intelligence Council, a body of analysts from across the US intelligence community, which stated that: "The world of the near future will be subject to an increased likelihood of conflict over scarce resources, including food and water, and will be haunted by the persistence of rogue states and terrorist groups with greater access to nuclear

weapons…Widening gaps in birth rates and wealth-to-poverty ratios, and the uneven impact of climate change, could further exacerbate tensions." (November 22, 2008).

Reportage from crisis-hit regions is also strongly present in articles presenting climate change through a disaster framing. Climate impacts at the Bentayan Wildlife Reserve in Indonesia (deforestation), Darfur (drought), Manilla (extreme weather), the Maldives (sea-level rise), Louisiana (oil spill from fossil fuel extraction), Somalia (drought), Berkshire (flooding), Kenya (drought), China (glacier melt). In two cases, coverage was as a result of Irish-based NGOs bringing Irish journalists to the affected regions.

The impacts of climate change, both in global terms and at local level, are strongly, often vividly, presented in the coverage examined. The links between extreme weather events, such as torrential rain leading to flooding, and climate change are often explicitly stated. The possibility that climate change may bring about a collapse of international order, leading to forced migration, conflict over resources and a breakdown of economic systems is also evident in the data.

5.12 The economic frame

The economic frame is strongly represented in the Irish media's coverage of climate change. It is the third most prevalent frame, with 215 instances (coming behind the political or ideological contest and settled science frames). It is present in 157 individual articles, and is the dominant frame in 87 of these.

Feature articles contain the most instances of this frame (32), while opinion articles (24) and complex news stories (18) are also strongly present. Simple news stories (8), personal columns (4) and newspaper editorials (1) are relatively sparsely represented. For 52 out of the 87 stories dominated by the economic frame, the LexisNexis database did not record a byline. In the 35 cases where a byline was recorded, it is evident that non-journalist guest experts (12) and specialist correspondents (10) were the most prominent.

The economic frame was most prevalent in the *Sunday Tribune,* accounting for 19.67% of all frames in that publication, and the *Sunday Business Post* (19.01%). The *Irish Times* (11.49%) and the *Irish Daily Mail* (11.11%) recorded relative low frequencies for this frame.

The secondary frames in the articles presenting climate change through an economic frame were also examined. The political or ideological contest frame was the most common secondary frame (24 instances), suggesting that media coverage of climate change strongly links political choices with economic consequences, and economic policies with political consequences. Examples of coverage which is primarily presented through an economic frame, but which contains a secondary political framing include a report of coal industry objections to EU emissions targets (*Irish Times,* December 11, 2008) and a preview of a 2009 EU summit:

> Europe's economic troubles continue to vex EU leaders. With more than half of all member states now in breach of the union's budget deficit guidelines, the nascent recovery of the wider EU economy will provide only limited cheer around the summit table. While economic freefall is at an end and talk has turned to the development of strategies to withdraw extraordinary fiscal stimuli around the union, the turnaround is far from secure and EU economies remain prone to shock. Still, Cowen can at least take some succour from support at the highest levels of the EU hierarchy for his government's swingeing Budget measures. When chiding Greece last Monday for the perilous position of its public

finances, European Central Bank chief Jean-Claude Trichet noted very, very tough decisions taken in Dublin and urged Athens to follow that path with courageous fiscal manoeuvres. (*Irish Times,* December 10, 2009).

It is also significant that the opportunity frame is a frequent secondary frame in economic stories (18 instances), while morality or ethics (16), policy or technical (16) and settled science (16) are also well represented. The contested science (3) and agriculture (3) frames did not often appear in articles dominated by the economic frame.

In considering the subject matter of the articles containing an economic frame, it is found that the concerns of specific industries, such as the aviation, automobile, food, energy and fashion industries dominate the coverage. The impact of environmental regulation on jobs is also a frequently mentioned topic, and there is considerable coverage devoted to the economic aspects of climate change on the global economy. Coverage which refers to the impact of mitigation or adaptation measures on the finances of ordinary citizens is present in the coverage, but at relatively low levels. The wisdom of pricing, trading or taxing carbon, and, in a specifically Irish context, the imposition of a 5% increase in electricity prices in 2010 to support renewable energy schemes, is also a prominent sub-topic.

Overall, the economic frame presents climate change as a narrow financial proposition, foregrounding a cost-benefit approach. The costs of environmental regulation on the aviation and automobile industries are emphasised, as are the costs to citizens of carbon or fuel taxes. The representation of climate change as a global problem requiring urgent action is almost entirely absent from this coverage. The financial and environmental costs of a "business as usual" approach are not addressed. For example, the Stern Review Report on the Economics of Climate Change (Stern, 2006), which emphasised the cost of

inaction, is mentioned only once in the 157 articles containing the economic frame. However, the opportunity frame, which represented climate action as offering possibilities for innovation and sustainable economic growth, is strongly present in the coverage.

5.13 The settled science frame

The settled science frame is very strongly represented in climate change coverage. It is the second most prevalent frame, present in 193 articles (27.33% of all climate coverage), with 238 instances (14.48% of all frame instances). It is the dominant frame in 88 stories, (12.46% of the corpus of 706 articles).

This frame occurs most frequently in feature articles (37 instances), and less frequently in opinion columns (15), op-ed articles (12), complex (13) and simple news stories (10). The *Irish Times* publishes 16.43% of its climate change coverage through the settled science frame, the highest figure of any of the titles under analysis, and the *Sunday Independent* (9.52%) and the *Irish Daily Mail* (5.56%) record the lowest figures. In 55 of the 88 articles dominated by this frame, no byline was recorded in the dataset. Of the 33 articles where authorship was recorded, columnists (13), guest writers (8) and specialist correspondents (8) were the most common author types.

The secondary framing in articles presenting climate change through a settled science frame is noteworthy in that secondary framing in these stories is sparse, with only 41 instances of secondary framing spread quite evenly among the other nine frames. This suggests that stories containing this frame focus quite narrowly on representations of climate change emphasising climate science and the need for mitigation and adaptation measures without reference to other aspects of the issue. For instance, there are only three

instances of the political frame as a secondary frame in settled science articles, while the economic frame appears only twice as a secondary frame. There are eight instances of the morality or ethics frame, suggesting that, in the rare cases where settled science coverage departs from putting forward the impacts of climate change, it emphasises the moral case for action.

The topics and subject matter of stories coded to the settled science frame falls into five main categories: articles based on the ***findings of climate science***, such as reports, scientific papers or discoveries (26 instances); articles dealing with ***mitigation and/or adaptation or measures aimed at increasing climate resilience*** (26 instances); articles outlining ***the impacts of climate change on Ireland*** (22 instances); articles containing calls for ***urgent action*** on climate change (14 instances) and articles based on the ***personal testimony*** of individuals involved in various forms of climate action (8 instances).

An example of coverage emphasising the findings of climate science occurs in an article based on the release of the IPCC's Fourth Assessment Report (AR4):

> So now we know. The warming of the world's climate system is "unequivocal", and that's now what scientists are saying. It has also been accepted as a fact in Paris this week by the representatives of more than 100 countries on the UN's Intergovernmental Panel on Climate Change (IPCC)."Unequivocal" is the most powerful word in its latest assessment of global warming, based on hard evidence of increases in air and ocean temperatures, widespread melting of snow and ice, and rising sea levels. And this trend is set to continue, even if we manage to cut greenhouse gas emissions. IPCC scientists are now 90 per cent certain that these emissions - mainly carbon dioxide (CO2) - are to blame for causing climate change. (Frank McDonald, *Irish Times,* February 3, 2007).

A further example is based on a report on Ireland's changing climate issued by the Environmental Protection Agency in 2009:

Average temperatures in Ireland will rise by between 1.4 degrees and 1.8 degrees by 2050, according to a new report on climate change impact published by the Environmental Protection Agency (EPA). The research also indicates that summer and autumn will warm faster than winter or spring, with the midlands and east warming more than coastal areas. Winter rainfall is also expected to increase by 10 per cent within 40 years with converse reductions of summer rainfall. The decrease in summer precipitation could be between 12 and 17 per cent. The report, *Climate Change in Ireland: Refining the Impacts for Ireland*, suggests that we need to plan for these changes, which are already occurring, but which will be clearly evident within four decades. (*Irish Times,* April 28, 2009).

Representations of mitigation or adaptation measures, or steps to increase resilience, also feature strongly in coverage coded to the settled science frame. Subjects mentioned include geothermal heating, eating less meat, taking fewer airline flights, and the adaptation of electric vehicle technology. An example of this coverage, focusing on the contribution to global emissions from the aviation industry, occurs in the *Irish Times* of April 14, 2008:

The unpalatable truth is that if we want to avoid the worst effects of global climate change we will have to fly less in future. This is not environmental Puritanism, it is simple arithmetic. Last year's Intergovernmental Panel on Climate Change (IPCC) report concluded that we need to cut global greenhouse gas emissions in half, at least, by 2050. Meanwhile, emissions from international aviation have doubled since 1990.These contradictory trends are projected to get worse. While the Irish and British governments predict a doubling of airline passenger numbers between now and 2030 and plan to provide for it, both governments have also pledged to cut climate pollution by 3 per cent a year on average. A collision is on the cards. To avoid dangerous climate change, we must limit global warming to less than two degrees above pre-industrial levels. If aviation continues to grow unchecked it would account for all our permitted emissions well before 2050.All other polluting activity including much that is essential for human survival - would have to stop, just to allow the aircraft to continue flying. Personally, I would rather have food, shelter, heat, light, jobs and leisure activity with family and friends, even if that means curtailing flying.

The move from fossil fuel-powered vehicles to electric powered ones featured in a report from the Detroit Motor Show:

> At the recent Detroit Motor Show, huge emphasis was placed on tackling carbon dioxide emissions and global warming. There were plenty of fuel cell-powered concept vehicles on display, all kinds of petrol or diesel-electric hybrids, cars with plug-in electric range extenders and so on. It was noticeable, though, that carmakers have learnt to be a lot more circumspect with their predictions about when the world might start seeing fuel-celled cars in meaningful numbers at more affordable prices. Although GM and Honda are believed to have ambitions to get fuel cell vehicles into the market soon after 2010, most carmakers at the Detroit show were more likely to mumble about 2015 to 2020. (*Irish Times,* February 6, 2008).

Coverage referring to climate impacts on Ireland foreground reports from government bodies, such as Met Éireann and the EPA. Policies relating to the environment put forward by political parties is also mentioned in this coverage, as is the role of climate change in the increased frequency and severity of flooding. An example of this coverage focusing on Ireland relates to a Met Éireann report on the changing climate:

> Ireland's climate continues to warm up in line with the global picture, according to the latest data from Met Éireann. Last year was the warmest on record for a number of the country's recording stations. Nor is there any reasonable doubt about what is causing it, according to Séamus Walsh of Met Éireann's climatology and observation division. "The figures don't really lie. It is 95 per cent certain it is the man-made contribution to levels of greenhouse gases that is the cause. The weight of evidence points to the fact it is anthropogenic." (*Irish Times,* February 2, 2007).

Personal testimony from individuals undertaking environmental initiatives is also prominent in climate change coverage. People involved in Dublin's Cultivate Centre, the "grow it yourself" (GIY) movement, eco-housing projects and carbon-tracking systems feature in this coverage.

Calls for urgent action also feature in coverage of climate change. Often, this coverage consists of reporting the statements of elite actors such as former UN Secretary General Ban Ki Moon, or former US vice-president Al Gore. In other examples, the calls for action are delivered by NGOs, as in this example from the events section of a newspaper magazine supplement:

> Environmentalists say we only have 10 years left to take action to save the planet from runaway climate change, and the next Government will probably last half that time. We can be sure they won't make climate change their priority unless we tell them it's ours. Ireland is pretty much Europe's most enthusiastic emitter of greenhouse gases, which takes some of the good out of our proud stance on international aid. Stop Climate Chaos, an alliance of 20 Irish aid and environment agencies, is inviting the public to send a message to the new Government that they must reduce carbon emissions, by joining Umbrella Action Day at the Martello Tower in Sandymount Strand tomorrow at 3pm.They're asking people to bring an umbrella, the kids, a picnic and have fun. Choreographer Muirne Bloomer will be coaching the crowd on how to wave its collective brolly at the politicians and demand "a future for our children, a decent life for the world's poor, and hope for the planet." (*Irish Times,* June 9, 2007).

Often, such calls are made by the writer directly:

> The challenge - should you choose to accept it - is to develop a sustainable global economy that the planet is capable of supporting indefinitely. The consequence, if you don't is to set the world on a collision course with the future and accelerate the path to potential major economic and social disruptions on a scale similar to those associated with the great wars and the economic depression in the first half of the 20th century. (*Irish Times,* January 14, 2008).

The prevalence of the settled science frame in the Irish media coverage of climate change confirms that such coverage has explicitly spelled out the state of scientific knowledge on climate change over the time frame under study, and has presented the issue as a global challenge requiring action. Settled science coverage is narrowly framed, rarely presenting the issue in secondary frames that may offer the possibility of deeper engagement.

5.14 The policy or technical frame

The policy or technical frame, which contains references to the measurement of climate impacts, records and assessments and policy initiatives which are value-neutral as to any possible course of action, is strongly present in the corpus of 706 climate change articles. There are 184 instances of this frame; it is present in 122 individual articles and it is the dominant frame in 45 of these. In percentage terms, it accounts of 11.19% of all frames; it appears in 17.28% of climate change articles, and it is the dominant frame in 6.37% of these.

The authorship of articles coded to this frame is evenly spread across all author types. It appears equally frequently in opinion-based journalism and in feature and news journalism. It is also relatively evenly represented in all newspaper titles. The *Sunday Tribune* (14.75%) frames climate change through the policy frame most often, and the *Sunday Independent* (7.14%) least often.

The settled science frame occurs as a secondary frame to the policy frame most often (13 instances, while the contested science frame (0 instances) and the agriculture frame (1 instance) are the least popular secondary frames. Economic (10) and political (9) frames also appear alongside this frame quite frequently.

The subject matter, and topics covered by the media texts coded to the frame prominently feature measures proposed to reduce GHGs, such as weighing luggage and owner together

to decrease aviation emissions, the role of microscopic marine animals in absorbing carbon, using eco-friendly concrete in public buildings, energy efficiency measures in domestic buildings, reducing CO_2 emissions from cars, pollution reduction initiatives and the White Paper produced by the government of Ireland on energy in 2015.

An interesting text concerns EU energy policy and the management of emissions from member states. As the text concerns measurement and regulatory matters, it is coded as belonging to the policy and technical frame. However, the article also refers to efforts by Ireland's minister for the environment to lobby to have these measurements amended to favour the Irish construction industry, and is therefore also political. Thus, it is coded as having a secondary frame of political or ideological contest:

> The European Commission recently ordered a 6.4 per cent cut in the CO_2 allowances that the state allocated to industry for 2008-2012. Minister for the Environment Dick Roche has been lobbying the commission to get it to amend its decision in favour of Irish industry. But Mr Dimas yesterday appeared to rule out any concessions. "It [the ruling] is not a matter of opinion, it is a matter of methodology. We have a methodology that we apply for each country and we end up with a number, so it is not a matter of negotiation. So the numbers are there - we don't change them." (*Irish Times,* March 8, 2007).

In general, policy or technically framed text deals with data collection, regulatory regimes and the measurement of various environmental pollutants. The existence of climate change is not contested in these texts, nor is any ideological view expressed as to the means of achieving the various emissions reduction targets described. There is some coverage of political exchanges regarding the efficacy of one policy over another, but these are written in a hard-news, non-discursive style. The texts in this frame are overwhelmingly descriptive rather than analytical. They take place inside the policy environment and are concerned with the ability of certain governments or organisations

to meet emissions reduction targets; there is no discussion as to whether the targets themselves are sufficient to prevent climate change.

5.15 The opportunity frame

Climate change is framed as an opportunity in 83 articles, and there are 111 instances of this frame in the corpus. This frame dominates 30 stories. Therefore, it accounts for 6.75% of all frames, is the dominant frame in 4.2% of climate change articles, and is present in 11.75%. Articles presenting climate change through this frame are most often written by specialist correspondents, and feature articles are the most common article type to contain this frame.

The *Irish Times* has published by far the most instances of this frame (67) and it represents 7.2% of all frames in that newspaper. The *Irish Independent* has published 17 instances, or 7.46% of all frames. The *Sunday Tribune* has published least coverage presented in this frame, both in absolute (1) and percentage (1.64%) terms. The economic frame is the most common secondary frame in this coverage (10 instances). Settled science and policy frames also occur (8 and 6 instances respectively), but the other frames are sparely represented.

 Articles coded to this frame present climate change as an economic and social opportunity. An example occurring early in the timeframe under examination presents the move to a low-carbon society as an exciting challenge rather than a sacrifice:

> Last year I met and interviewed EU Energy Commissioner Andris Piebalgs, again in advance of the annual Energy Ireland conference, and he endorsed a similar approach. The rationale behind this current thinking among energy policy makers is that energy use and climate change are inextricably linked. As Claude Mandil says, one of

the most important links between them is the 'efficient use' of energy. He points out that this does not mean we have to return to a modern version of the Stone Age. Far from it, he says we have to be able to travel the world, heat and cool ourselves, live in well-lit houses, and enjoy all our modern conveniences and comforts but we have to learn to do all these things by using less energy. He also argues that while using less energy and thereby creating fewer carbon emissions happens to be good for global warming, it also has a pragmatic side too. (*Irish Examiner,* August 20, 2007).

A further example concerns a policy initiative by the Green Party minister for energy, Eamon Ryan, to establish Ireland as a leader in renewable energy:

> It's still early days, but so far one of the most surprising things about Ryan's tenure in office has been his overtures to industry. Early on he announced that he wanted Ireland to become a world leader in green energy technologies - something almost as fanciful as the notion, in 1987, that Dublin could become a top global financial centre. "Twenty-odd years ago we set about developing an expertise in financial services - we had no expertise in that type of finance at the time," Ryan says. "It was a political decision that this is where we want to go, create the environment for it. Lo and behold, 20 years later 20,000 people work in the IFSC." "Similarly, in the energy area, this government will do everything it can to promote renewable heating and electricity. It's growing. Look at the construction industry - and I think it is an energy industry. Companies like Kingspan, CRH, a whole range of companies are really delivering energy products." The next priority, he argues, is to marry some of Ireland's newly-acquired financial expertise with the goal of encouraging new thinking in energy production and efficiency: "Let's look at international best practice in green funds to invest in technology in this area. And also, what innovative systems can we put in place for lending to householders to invest in renewables." (*Sunday Tribune,* September 30, 2007).

A significant thread in this coverage concerns the possibilities offered by so-called "clean tech" (technology that relies on energy efficiency and sustainable use of resources) industries. For example, Ireland's minister for the environment claimed that Ireland could become "a global leader" in this area (*Irish Times,* September 10, 2008), while in the US, president Obama spoke of a "clean energy economy" (*Sunday Business Post,* February

22, 2009). Climate change is presented as an opportunity for German wine growers, as warmer temperatures allow for riper fruit and more alcohol in their wines ('Riesling Uber Alles', *Irish Times,* July 18, 2009).

Text coded to this frame also presents climate change as an opportunity to improve social conditions and solve long-standing social problems, suggesting that the solutions to climate change will also bring about improvements in other areas of society. An example of this representation occurs in an interview with Prof Venkatesh Narayanamurti, an advisor to President Obama:

> Barack Obama gets it and that gives Prof Venktesh (Venky) Narayanamurti cause for great optimism. He believes that science and engineering have the capacity to solve the great challenges that threaten our future, but only if leaders with vision can be found. Harvard University's Prof Venky was in Dublin two days ago to deliver a lecture at the Science Gallery at Trinity College, organised by the TCD/UCD Innovation Alliance. He discussed the role of science and technology in overcoming the global problems that face us today, from climate change to world hunger. He touched on much wider issues, however, when speaking before his talk, encompassing his theories on education and social responsibility, the power of science and technology to deliver both good and evil, and how innovation and discovery can come from any quarter and from any country. (*Irish Times,* March 26, 2010).

An article by Jim Clarken of ENGO Oxfam in the run-up to the Warsaw climate conference (COP 19) typifies much of the content coded to this frame. It emphasises positive aspects of the challenges posed by climate change, and the opportunities available to those who respond:

> Apathy to climate change is not an option. But instead of focusing on an Armageddon-like vision of a future we are helpless to prevent, we need a new narrative on climate changes that focuses on opportunities offered by the green economy. Action on climate change will mean fewer natural disasters, less economic migration, fewer conflicts over resources and less hunger and poverty. From an economic point of view, action on climate

change also makes sense. There are innovations and breakthroughs there for the taking through developing independent energy sources and a marketplace for renewable power, which could place Ireland and our economy on a more secure footing. Developing the sustainable energy sources of the future and running our economy on greener, cleaner energy will grow jobs. Let's focus on what we can do, not on what we can't do. (*Irish Times,* November 20, 2013).

5.16 The morality or ethics frame

The morality or ethics frame includes 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, to the impact of climate change on those who have done least to cause it (climate justice), or to explicit references to fairness, justice or equity. It is present in Irish coverage to a moderate extent, with 148 instances, accounting for 9% of all frames. It occurs in 110 stories, 15.5% of the corpus. It is the dominant frame in 48 articles, or 6.7% of the total.

In absolute terms, the morality or ethics frame occurs most frequently in the *Irish Times* newspaper, which records 89 instances of this frame. However, the *Irish Daily Mail* (22.22%) and the *Irish Examiner* (13.33%) devote the highest percentage of their coverage to this frame. Regarding the type of article containing this frame, feature articles (14) and complex news stories (12) are the most common, but opinion based journalism, such as opinion articles (11) and personal columns (5) are also well represented. Of the 48 articles dominated by this frame, byline information is recorded for only 19 (39.58%). Of these 19, guest op-ed writers (8) and columnists (5) are most strongly represented. The

political or ideological contest frame is the most common secondary frame in this category (13 instances), with the settled science (7) and the disaster (9) also strongly represented.

A wide range of topics is addressed in the texts coded to the morality or ethics frame, reflecting a range of moral choices facing politicians, businesses and individuals when deciding to do something, or to do nothing, about climate change. Among the topics referred to is this coverage were the moral case for the European ideal, the moral responsibility on the US to take the lead on climate change, the responsibility the present generation has to future generations, ethical choices concerning fashion, flying and eating meat, the ethics of large corporations and the lack of morality among climate deniers.

The notion that acting to prevent climate change is a moral imperative because citizens have a responsibility to pass on a healthy planet to future generations is strongly present in this coverage. It is present, for instance, in a report of a speech made by US president Barack Obama when he was a candidate for the office:

> If we act with boldness and foresight, we will be able to tell our grandchildren that this was the time when we helped forge peace in the Middle East. This was the time we confronted climate change and secured the weapons that could destroy the human race. This was the time we defeated global terrorists and brought opportunity to forgotten corners of the world. And this was the time when we renewed the America that has led generations of weary travellers from all over the world to find opportunity and liberty and hope on our doorstep. (*Irish Times,* July 6, 2007).

The image of future generations asking questions of the present one was also present in a report of a speech by former US vice president Al Gore at the climate change conference in Bali (COP13):

> At the Bali conference, he said: "They'll look back, and either they will ask: 'What were you thinking? ... Didn't you see the glaciers melting? Didn't you see the deserts growing

and the droughts deepening and the crops drying up? Didn't you pay attention to what was going on? Didn't you care? ..."'Or they'll ask a second question, one that I'd much prefer them to ask. I want them to look back on this time and ask: 'How did you find the moral courage to successfully address a crisis that so many said was impossible?' "Either way, Gore can take some credit that the questions are being asked. (*Sunday Business Post,* December 30, 2007).

The idea that those who caused climate change should be the ones to bear the burden of solving it is also present in this coverage. It ranges from representations of a so-called "just transition" (whereby wealthy nations pay their share or mitigation and adaptation costs and alternative employment is found for those who work in industries made redundant by a transition to a low-carbon society) to representations of greed, both individual and corporate, among wealthy nations. The ethical aspects of unnecessary air travel, for instance, are considered:

> In a way, aviation encapsulates the dilemma facing the first world. So much pollution that we cause is not the unfortunate by-product of necessity, but rather the monstrous consequence of mankind's self-indulgence. And we're great at inventing new indulgences that we think we can't do without. Aviation is a prime example. Flying, we're told, has become our inalienable right. We like it, so we should do it, as often as possible…In Ireland and Britain, emissions from aviation have doubled since 1990, negating many of the savings made in other sectors. The number of flights in and out of Britain is set to double by 2020 and triple by 2030. Although the aviation industry clings to a 3.5 per cent global emissions figure, this ignores the fact that jet fuel causes 2.7 times more damage because it is dispersed at altitude - a realistically adjusted figure would be closer to 9 per cent of the total, and growing. (*Sunday Business Post,* April 6, 2008).

Dubious corporate practices are also represented in this coverage, ranging from the Volkswagen emissions rigging scandal (*Irish Times,* September 29, 2015) to the suppression of climate data and the funding of sceptics by Exxon Mobile (*Sunday Business Post* report of a call by NASA scientist Jim Hansen that the company's executives to be tried for crimes against humanity, June 29, 2008), to the potential for

deceit in corporate eco labelling and the trend for large corporations to co-opt environmental credibility by buying smaller, more eco-friendly companies (*Irish Times,* March 8, 2008).

Climate change is also portrayed as a moral issue of concern to those of religious faith. For instance, the Irish bishops of the Catholic church issued a pastoral letter which "drew attention to important moral dimensions involved in allocating emissions targets, internationally. Care must be taken to ensure that the most economically, politically or militarily powerful nations of the world are not in a position to take advantage of those countries which have fewer resources, they said" (*Irish Times,* November 9, 2009). Members of the Methodist, Anglican, Quaker, Catholic and other Christian religions held a day of prayer for a positive outcome to COP15 in Copenhagen (*Irish Times,* October 10, 2009). The publication of an encyclical on climate change by Pope Francis is widely referred to in this coverage also:

> Mrs [Mary] Robinson, the UN special envoy on climate change, found it "significant that Pope Francis uses one of the highest forms of doctrinal teaching to communicate that preserving a safe climate system 'represents one of the principal challenges facing humanity in our day'. His encyclical was "a call for climate justice from one of the most influential moral voices on our planet today. In it the pope shows his profound understanding of the connection between nature, justice for people living in poverty, human dignity and the need to act in solidarity in the face of climate change. Above all else, Pope Francis establishes climate change and safeguarding the Earth for humanity as the moral issue of our time." (*Irish Times,* June 9, 2015).

In summary, the moral complexity of climate change as a social issue is strongly emphasised in texts coded to this frame. These texts foreground concepts of fairness and equity, of justice and integrity, at global, national and individual level. Unlike in other frames, coverage coded to this frame represents climate change as a broad, global

challenge which humanity as a whole must face. Notions of stewardship of the planet and obligations of future generations are also emphasised.

5.17 The domestication or communitarian frame

This frame, which contains representations of climate change as a problem for others to solve, or references to the inefficacy of the efforts of any single territory's emissions reduction efforts, is very sparsely represented in coverage of climate change. There are 15 instances of the frame in the corpus of 706 articles, representing less than 1% (0.91%) of all frames present. This frame is present in 9 individual articles, and it is the dominant frame in two of these. This frame occurs most often in opinion-based articles. Where this frame occurs, it is usually the only frame present in the article. There is only one instance of a secondary frame being present, that of the political or ideological contest frame.

The topics referred to in texts coded to this frame concern issues related to Ireland's GHG emissions. In most cases, these articles articulate an argument that emissions reduction policies in Ireland are misguided, as they will have little impact on global emissions. There are several examples of this kind of coverage:

> Gormley has argued that he is in government principally to help deal with climate change, which he believes is the single biggest challenge facing the world today. The problem for the minister is that the vast majority of people are not as sure as he is of that being the case. In any event, Ireland's carbon emissions are so minuscule - relative to the rest of the world - that any achievements Gormley claims in this area won't amount to very much. (*Sunday Tribune,* September 16, 2007).

> The argument for altering the current treaties is that we in Europe have challenges which a continental institution is best equipped to address. Four million people in Ireland can turn off all the lights, but we won't make a blind bit of difference to the global threat of climate change. (*Irish Times,* March 19, 2008).

There is no point in Ireland, or any other small country, pursuing go-it-alone renewables policies. For every tonne of carbon emissions produced in Ireland, 500 tonnes are produced somewhere else in the world. Even if the EU as a whole makes emissions costly, high-emitting industries can relocate to other parts of the global economy, and an apparently successful go-it-alone policy can end up merely out-sourcing emissions. The Earth has just one atmosphere, but unfortunately has around 200 governments which must ultimately agree on a global response to this global problem. (*Sunday Independent,* January 26, 2016).

The pursuit of a narrow national interest is also present in this coverage, such as a report on diplomatic efforts to have Ireland's EU targets reduced in the agriculture sector:

Taoiseach Enda Kenny declared himself pleased with the climate change agreement, which accords special recognition for agriculture. This will remove shackles from Irish farmers as they build up the dairy sector after the elimination of milk quotas, Kenny's key objective going into the talks. (*Irish Times,* October 25, 2014).

The framing of climate change as something Ireland can do little to influence is present in Ireland's media coverage of the issue, but not to any significant degree. The instances which occur, however, state their argument trenchantly. These texts reject the concept of climate change as a global problem requiring a global solution which is advanced in the texts contained in other frames.

5.18 Discussion and analysis

The levels and framing of Ireland's media coverage of climate change have been described and commented on above; it is intended in the following sections to interpret these findings and to discuss them in relation to existing scholarly findings concerning media coverage of climate change. In the following chapter, the perspectives of individual

journalists, politicians active regarding climate policy, and their media advisors is presented and analysed.

Many scholars have taken as a starting point in the examination of media coverage of climate change Anthony Downs's (1972) theory of media attention cycles (see chapter 3, section 3.6 for further discussion). Downs theorised that environmental issues go through a predictable pattern of media attention, with coverage rising steeply, before falling away once the cost of remedial action is ascertained. The issue does not completely disappear, but returns to a "pre-problem" stage from which is may emerge to go through the cycle again. This notion that an issue can exist in the background, ready to "spring to life" once again, with the public retaining some faint memory of its previous incarnation, is similar to the notion of "issue cultures" (Gamson and Modigliani, 1989) and "social scares" (Ungar, 2014), whereby latent public concern about certain issues, or certain categories of issue, can be mobilised by events.

This research finds limited evidence of a Downsian cycle in Ireland's coverage of climate change. In the peaks of 2009 and 2015, a cycle is evident. On the other hand, this is countered by the existence of a steady increase from 2007 (and indeed from 1997 [Schmidt et al., 2013]) in which cycles are not evident. It is true that a steep decline occurs after late 2009, but this decline is not necessarily due to the public becoming bored with the issue, or to discovery that resolving the issue will be costly, as Downs predicted, but rather it is the result of issue competition from events perceived as more immediately pressing.

In relation to the theory of "mediated issue development" proposed by Nisbet and Huge (2006), again there is limited support in the data for this hypothesis. Nisbet and Huge argued that several factors influenced the lifecycle of scientific issues, such as policy area, media lobbying activities of strategic actors and media framing, and their approach is attractive because it combines elements of agenda systems theory, framing and agenda-setting, and allows for media agency and influence denied by other approaches. Those wishing to constrain the debate around climate change have been relatively successful in Ireland, as the policy and technical frame is very strongly represented. However, it is evident from my research that this constraint is countered by the presence of other, more dramatic framings in the media, such as the political and ethical frames, which serve to widen the scope of participation. The policy arena dimension of Nisbet and Huge's model is difficult to apply to Ireland, due to a lack of policy responses (Torney and Little, 2017).

Other perspectives on media dynamics may explain the relatively high levels of coverage up to 2009, which could have been as a result of "attention driving attention" (Djerf-Pierre, 2012b) whereby the prominence of one environmental issue prompts the media to cover others. A related concept, from the scholarship of news values, which suggests that items already in the news are more likely to be covered than items as yet undiscovered by the media (Galtung and Ruge, 1965; Harcup and O'Neill, 2001), may also have helped keep levels of coverage elevated in the period up to December 2009. The decline after this period is dramatic, and can be explained by the "crowding out" phenomenon whereby news of financial or economic crises and armed conflict downgrade environmental issues on the media agenda (Hansen, 1993; Boykoff, 2009; Djerf-Pierre, 2012a). This explanation is supported by evidence from interviews with journalists, politicians and media advisors presented in the following chapter.

International trends are also evident in Ireland's coverage: dramatic peaks at the times of the 2009 and 2015 COPs, and smaller peaks coinciding with the release of the Fourth and Fifth Assessment Reports of the IPCC. Although the peak in coverage in December 2015 attains the same level as that of December 2009, coverage levels in the intervening years have not recovered to their pre-2009 levels. While there are many factors influencing media interest in climate change, not least among them the difficulty the subject presents to journalists (again, to be examined in the following chapter), it is possible that a lack of political progress regarding climate change in the years 2009-2015 played a role. Media coverage tends to surge around reports, policy announcement, parliamentary debates and the introduction of climate legislation (Lockwood, 2009); Ireland's lack of progress in taking any meaningful emissions-reduction action (Torney and Little, 2017), and the absence of the discourse, consultation and debate which would accompany such climate action, may have been a factor in low levels of coverage in this period. However, even in the absence of political progress in terms of climate action, it is evident that Irish coverage was dominated by political framing of the issue. The reasons for such framing are discussed in the subsequent section.

Narrowing the focus to consider article type, it is evident that coverage favours journalism involving news-gathering (news stories and feature articles) over the journalism of opinion (columns and op-ed articles). Nonetheless, opinion journalism comprises 38% of the corpus, a considerable proportion, which has implications for the way in which such coverage is perceived. Coverage via op-ed articles tends to ignore the thematic substance of an issue and focus instead on political strategising (Nisbet & Fahy, 2015). Furthermore, there is a tendency on the part of editors to "outsource" the ethical considerations of

complex scientific issues to the op-ed (O'Sullivan, personal interview, June 16, 2015),

thus insulating themselves from direct criticism (Nisbet & Huge, 2006, p. 13).

5.19 The politicisation of climate change

Political framings of climate change dominate Ireland's coverage of the issue. The sub-

topics contained in this frame include domestic, EU, UN, G8 and G20 politics, and often

focus on negotiating positions and strategies. There is some debate about the effectiveness

of such strategic or political framing. On the one hand, it is argued that political framings

are more involving than dry, technical frames often used in the early media "career" of

scientific issues (Nisbet and Huge, 2006), yet on the other, political framings represent

climate change as an issue of concern solely to economic and political elites (Vliegenthart

and van Zoonen, 2011). Political frames may also be attractive to journalists, because it

is possible to personalise the issue by identifying certain politicians with it, thus allowing

assessments of their relative success. Yet such framings distance the discourse from the

debate about the core issue and what should be done to resolve it.

In the US, the issue of climate change is politically polarised, with Republicans openly

sceptical about its anthropogenic element (Weingart, Engels and Pansegrau, 2000a; Moser

and Dilling, 2004; Nisbet, 2009; Hiles and Hinnant, 2014); this is not found to be the case

in Ireland. There is no instance of a politician or political party questioning the existence

of anthropogenic global warming, or suggesting the science is not definitive on the issue[3].

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[3] The statement, which received wide media coverage, by Danny Healy-Rae, TD (member of
parliament) for Kerry that "God above is in charge of the weather and we here can't do anything

However, the findings of this research that media discourse about climate change is dominated by political framing required further elaboration and analysis. It is true that much media coverage presents climate change as a political issue, and foregrounds party, or national policies. Yet the deeper political, or even ideological implications of dealing with climate change are not addressed. This more profound debate about whether, as some argue, climate change is inherently a left-wing issue because it demands collective and government action (see, for instance, Klein, 2014), or whether it is merely a scientific or policy issue devoid of ideological meaning (Hoffman, 2011) is not engaged with.

This focus on party political argument rather than deeper, systemic aspects of responses to climate change relates to a wider debate in the academy on the politicisation of climate change. On one side, scholars argue that climate activists have alienated support from centre, centre-right and right-wing publics because they have characterised climate change solutions as requiring radical social and economic change – the "this changes everything" argument (McKibben, 1989; Klein, 2014). Furthermore, in choosing high-profile campaigns, such as the Keystone XL pipeline, cap-and-trade legislation, and divestment from fossil fuel companies, campaigners alienated moderates and employed flawed communications strategies (Nisbet, 2013). Apart from advocating so-called "big fix" solutions, the leaders of these grassroots environmental movements are opposed to nuclear power, geo-engineering and other technology-based approaches (Ibid.), which further diminish support among moderates (Pielke, 2010; Kahan *et al.*, 2012). These arguments suggest that conservatives embraced climate scepticism because measures to

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about it", made in the Dáil (parliament) chamber on May 3, 2016, (McGee, 2016) falls outside the timeframe of this study.

deal with climate change were framed for them as "deeply damaging to the economy, as violating strongly held moral beliefs relative to free markets and personal freedom, and as favoring President Obama's political goals (Nisbet, 2013). Some scholars associated with this analysis favour building broad coalitions on smaller, constituent elements of climate change, and recommend the work of ecomodern journalists who advocate for geoengineering and technological responses to climate change that allow for continued economic growth (Fahy and Nisbet, 2017). In calling for a broader coalition, scholars cite issues related to public health, such as air pollution, water and protection of the environment, which are related to climate change, as having bipartisan support. In other words, by taking the politics out of climate change and concentrating on those measures on which there is broad agreement, climate-friendly measures may be adopted.

On the other side of this debate, scholars argue that it is this very process of depoliticisation which prevents greater public engagement and political action regarding the issue (Pepermans and Maeseele, 2014; Carvalho, van Wessel and Maeseele, 2016). Focusing on communications strategies which ignore the political and focus on individual behaviour amounts to "social marketing" which echo 'several of the assumptions of the so-called information deficit model" (Carvalho, van Wessel and Maeseele, 2016, p. 124). These scholars, particularly Pieter Maeseele of Antwerp University, suggest that a consensual approach is unwise, and "democratic discussion and contestation" is necessary (Ibid. p. 125). Through such political debates, power structures are revealed and the possibility emerges to "shape a radically different society" (Ibid). This perspective on how to promote greater public engagement on climate change is based in large part on the criticisms of deliberative democracy put forward by political theorist Chantal Mouffe (Mouffe, 2005).

In trying to chart a course through these opposing arguments, it is possible to argue that the notion that "more politics" will help bring about climate action seems misguided. From a media perspective, politicising climate change further risks the media reverting to news values of personalisation and strategy framing, thus failing to engage with the issue in a substantive manner. However, attempting to deal with climate change by presenting it as a matter of environmental management also risks unduly sanitising the issue and returning it to techno-managerial arenas, with a consequence lack of public support for action or engagement with the issue at all. In any event, it is clear that such debates are absent from Ireland's media coverage of the issue.

Perspectives on media coverage of climate change which engage with the political must take account of the extent and nature of sceptic discourses. Such discourses attempt to depoliticise the issue by undermining the scientific consensus or, even when accepting climate science, seek to downplay the urgency of responding, or emphasising beneficial impacts. Again, in Ireland's coverage, there is a failure to engage at a meaningful level with the topic. Many sceptic references take the form of dismissive or sarcastic asides, or of would-be humorous juxtapositions of cold weather with global "warming". Articles which contain sceptic framings often seek to deligitimise environmental campaigners or politicians as humourless or Puritanical. Most of these characterisations come from columns written by familiar media figures with reputations as contrarians (Kevin Myers) or curmudgeons (Maurice Neligan) specialising in glib dismissal rather than deep and detailed engagement or discussion.

5.20 Economic and political economy perspectives

A considerable amount of climate change coverage is presented through the economic frame. Articles coded to this frame did not engage with deeper considerations of economic systems, but rather concentrated on the impact of regulations and targets on certain industries reliant on fossil fuels, such as the automobile and aviation industries. Concepts such as "de-growth" (Georgescu-Roegen, 1971) or limitations to growth (Meadows *et al.*, 1972; Meadows, Randers and Meadows, 2004), or perspectives that suggest the current economic system is incompatible with environmental sustainability (Alier, 2009) are not engaged with. With regard to the Irish media's coverage of the country's economic boom (the so-called Celtic Tiger) and subsequent economic collapse, it has been argued that the media's reliance on advertising made it difficult for journalists to counter the prevailing media narratives (Fahy, O'Brien and Poti, 2010; Mercille, 2014a), while others have suggested that this reliance prevents the media in general from challenging the political and economic *status quo* (Herman & Chomsky, 1988).

The limited nature of the economic discourse and the lack of reflexive analysis on the part of the media have produced coverage which concentrates on measures of efficiency, technological innovation and market-based incentives. Such representations were found in both the economic and opportunity frames. Indeed, the opportunity frame contained references to climate change as offering possibilities for ecomodern innovation and other market-based approaches to dealing with the issue. This finding aligns with that of other scholars on Irish media coverage of climate change (Wagner and Payne, 2015), and low-carbon transition (McNally, 2015) that media narratives which challenge the established economic order by foregrounding arguments of degrowth or alternative economic models

were absent from mainstream coverage of the issue and were "limited to marginal publications" (Fox and Rau, 2016, p. 18).

Coverage of agriculture may be considered here, as its economic aspects are foregrounded in Irish coverage. Once again, such coverage concentrates on targets, efficiencies and regulation, while larger questions about reorientation away from intensive production methods are unaddressed. The rhetorical strategy of the Irish Farmers' Association in suggesting that any reduction in relatively carbon-efficient beef production in Ireland would be compensated for by an increase in less carbon-efficient production in Brazil or other territories is foregrounded. However, coverage of agriculture is notable for its low levels, considering its place of reverence in the Irish national narrative, the importance of agriculture in the Irish economy and the presence of a powerful agricultural lobbying organisation.

5.21 Conclusion

The empirical findings of this research show that Ireland largely conforms to international levels and patterns of media coverage of climate change. Irish coverage peaks at the times of international climate change conferences and the release of international climate reports. Coverage of climate change accounts for 0.84% of total news coverage over the period examined. The *Irish Times* published by far the highest level of climate change coverage, but its dominant role has diminished in recent time, as coverage in the *Irish Independent* and *Irish Examiner* increases, while that in the *Irish Times* declined somewhat. The performance and approach of individual titles and journalists is considered in the following chapter. Data relating to story type and authorship show the Ireland's coverage favours news-gathering journalism (news stories and features), but the

journalism of opinion (columns and op-ed articles) is strongly present, suggesting that news organisations often "silo" the topic to the op-ed pages as an alternative to news coverage.

A frame analysis, using both inductive and deductive frames, identified the presence of 10 frames, with the political or ideological contest frame the most frequent. The settled science, policy and economic frames were well represented, with the opportunity and ethics frames also strongly present. The contested science frame was found to be present also, but at lower levels, while the agriculture and domestication frames were less frequent. An innovative approach allowed for the coding of dominant and secondary frames, which allowed for an examination of which frames were presented alongside one another. It is apparent from this analysis that, in stories dominated by the political frame, the economic frame was the most prevalent secondary frame, and likewise, in stories dominated by the economic frame, the political frame was present also.

This finding of "fellow traveller" frames is pertinent, in that it demonstrates that political coverage often focused on economic consequences, and economic measures were often assessed with regard to their potential political popularity. Thus, broader and deeper political and economic questions were unaddressed in the coverage. For instance, considerations of limitations to growth, de-growth and alternative economic systems are absent from the coverage, as are ideological questions regarding political approaches to the issue. Instead, Ireland's coverage is focused on emissions reduction measures that rely on increased efficiency, market incentives and green technology and suggest that climate change can be addressed from within the present political and economic systems.

In the following chapter, the views of individual journalists, politicians and media advisors are presented and analysed. Having considered, from an external perspective, the performance of the media in general, the effect of individual media titles and the content of media texts, it is important to examine perspectives from within media organisations, and from those who seek to influence media, both in terms of coverage levels and media framing. The aim of this thesis is to uncover and analyse the framing strategies of key actors in the communication of climate change during a remarkably eventful period for environmental politics in Ireland. The interviews with journalists, government ministers and their media advisors analysed in the next chapter allow for access to privileged information and perspectives into such strategies.

Chapter 6

Climate change, journalism and politics

6.1 Introduction

In the previous chapter, the performance of the Irish media regarding the topic of climate change was considered from a perspective situated outside the media themselves. Levels, trends and frames in coverage were identified, analysed and discussed. In this chapter, these findings are triangulated with interviews with those engaged in covering climate change within the media, and those attempting to influence such coverage. Interviews are often used to deepen analysis and expose different perspectives (Morse, 1991; Thurmond, 2001; Olsen, 2004), and interviews with journalists are also a common form of data collection, although they are often presented as the main or only data, rather than a means of triangulation of other, more quantitative information (see, among others, Fahy, O'Brien, & Poti, 2010, Hermida & Domingo, 2011 and Pihl-Thingvad, 2014 for examples of interview-based research). Some studies of media coverage of climate change have included interviews with journalists covering the issue, but these were concerned with scientific literacy and accuracy (Wilson, 2000; Boykoff and Mansfield, 2008), did not foreground the views of journalist interviewees (Mormont and Dasnoy, 1995; Aykut, Comby and Guillemot, 2012), or concentrated on journalists in the developing world and their personal attitudes to climate change (Harbinson, Mugara and Chawla, 2006). It is evident from the corpus of research on media coverage of climate change that there has been a concentration on the replication of scientific accuracy, and that perspectives from science communication and environmental communication have been privileged. There have been several calls for research which includes the perspective of journalists covering

climate change (for instance, Anderson, 2009, p. 176 and Dahl, 2015, p. 60). It is hoped that this research will go some way to answering such calls.

The interview subjects for this thesis were chosen with an eye to scholarship examining the role of the media in the development of complex social problems and, in particular, those theories which address the notion of issue competition. Several scholars have suggested that various actors attempt to dominate the framing of particular issues in ways that favour their agenda, and thereby gain "issue ownership" (Gusfield, 1981) and prevail in a battle for the scarce resource of public and policy attention (Hilgartner and Bosk, 1988; Baumgartner and Jones, 1991). The media, politicians, NGOs and policymakers are among those engaged in this competition, with the media often the target of the framing strategies of the other groups. Thus the media play a central role in these issue competitions, and the development of issue coverage in the media from niche specialist reporting to broader, more politicised coverage, is a key factor in raising public awareness (Nisbet and Huge, 2006). Journalists who covered the environmental "beat" during the timeframe under study were considered important interview subjects, as were those engaged in the issue competition concerning climate change from outside the media, such as politicians active on environmental issues and political advisors dealing with the media. The perspective of newspaper editors overseeing coverage of climate change was also considered valuable. The list of interview subjects therefore comprised the environment correspondents of influential media organisations such as the state broadcasting organisation RTÉ (Paul Cunningham), the *Irish Times* (Frank McDonald)*, Irish Independent* (Paul Melia) and *Irish Examiner* (Claire O'Sullivan)*,* the editors of the *Irish Times* (Kevin O'Sullivan) and *Sunday Independent* (Cormac Bourke)*,* and a prominent columnist and blogger on climate (John Gibbons). O'Sullivan's views were of interest as he was employed as environment correspondent prior to his appointment as editor of the

paper, and has returned to the same "beat" since his resignation as editor in April, 2017, albeit with the new title of environment editor. Thus, he has experience both as a reporter trying to "pitch" stories to an editor, and as an editor on the other side of this process. Bourke's perspective is also valuable, as he worked as news editor on the *Irish Independent* before he was appointed editor of the *Sunday Independent*. He was designated to speak on behalf of the Independent group of newspapers by the editor-in-chief Stephen Rae. Paul Cunningham, now a news anchor on RTÉ radio's flagship news programme *Morning Ireland,* and author of a book on the impacts of climate change on Ireland (Cunningham, 2008), was also a key interview subject. Non-media actors interviewed comprised two former government ministers (John Gormley, former minister for the Environment, Heritage and Local Government and Eamon Ryan, former minister for Energy, Communications and Natural Resources, both serving in office from 2007 to 2011) who were in office for much of the timeframe examined by this thesis, and their departmental media advisors (Liam Reid, John Downing and Bríd McGrath). The perspectives of these actors allow for access to privileged information and expert insight from those most closely involved in climate change communication during the examined timeframe.

The data from these interviews is discussed in relation to several theoretical perspectives. The responses of the interview subjects are placed within the scholarship of agenda systems. Many of these systems place importance on the role of "information feedback" provided by the media (Hilgartner and Bosk, 1988; Jones and Baumgartner, 2005; Liu, Lindquist and Vedlitz, 2011), suggesting that the media are an important component of such systems. Approaches from the sociology of journalism are also considered. Such scholarship approaches issue dynamics from a more media-centric position, examining the norms and work practices of journalists and their effects on issue coverage. The

influence of news values – attributes a topic must exhibit in order to be attractive to journalists – is found to play a key role in media coverage of climate change.

The choice of interview subjects also allows insight into the interaction between journalism and public relations. There has been an antagonistic relationship between these two areas (McNair, 2004), with many journalists resistant to the growing influence of PR practitioners (Franklin, 2003; Lewis, Williams and Franklin, 2008). Two of the interviewees worked as journalists in national print titles before their employment as ministerial media advisors and therefore have insight into this tension from both perspectives. John Downing had previously worked as a political reporter and commentator for a number of publications before being selected by the Green Party to be their appointee to the Government Information Service. During the period of the Fianna Fáil-Green Party coalition, he held the post of Deputy Government Press Secretary, and has since returned to political journalism with the *Irish Independent.* Liam Reid was environment correspondent with the *Irish Times* before accepting the post as media advisor to Gormley; he is now head of corporate affairs with Diageo. The third interviewee who worked as a media advisor – Bríd McGrath, advisor to Ryan – had no previous journalistic experience, having worked in the NGO sector and the civil service.

The perspectives uncovered in the interviews carried out for this research will also be discussed in relation to the professional norms of journalists (Schudson, 1989; Deuze, 2005a; Beam, Weaver and Brownlee, 2009; Pihl-Thingvad, 2015) and their understanding of objectivity (M. Schudson, 2001; Hiles and Hinnant, 2014). The choice of interview subjects, comprising as it does a sample of specialist correspondents, allows for investigations into the extent to which such journalists advocate for the environment, and

the extent to which they espouse a "journalism of attachment" (Bell, 1998; Ward, 1998) with regard to the environment.

In other sections below, the extent to which the Green Party influenced media coverage of climate change during their period in office is considered. Green Parties are considered "issue owners" when it comes to environmental issues and their activities to promote environmental concerns up the policy and media agenda can have implications for the agendas of other parties (Abou-chadi, 2014). The entry into government of the Green Party in 2007 was closely followed by a local banking crisis and the global financial crisis. The impact of these events on media coverage of climate change is also discussed with relation to theories of media attention in times of financial crisis (Djerf-Pierre, 2012a). Finally, the extent to which the newspaper titles in the sample examined in this thesis were able to offer alternative narratives concerning climate change (Krovel, 2011), and the performance of individual newspaper titles is evaluated and discussed, with reference to the interview data and concepts relating to journalistic narrative building (Parisi, 1997).

6.2 Situating the interviews in context

Some background information is required in order to situate the comments of the interviewees in context (Van Den Berg, 2005). In the general election of June 2007, Fianna Fáil emerged as the largest party, yet did not achieve an overall parliamentary majority. A coalition was formed between Fianna Fáil (77 seats), the Green Party (6), the Progressive Democrats (2) and four independent deputies. The negotiations for the formation of this coalition government occurred in the early part of the timeframe examined by this thesis. The Greens were allocated two ministries, and allowed to nominate two members of the Seanad (Senate). In May 2009, the Green Party initiated a renegotiation of the programme for government of the coalition in the light of changed

financial situation of the country. On May 6, 2008, Bertie Ahern, the leader of Fianna Fáil and Taoiseach (prime minister) resigned and was replaced by Brian Cowen. In March 2010, two Fianna Fáil ministers resigned. Following the collapse of the Irish banking system and a severe reduction in government income from property-related taxes, a memorandum of understanding, commonly referred to as a "bailout", was signed by the Irish government and the "troika" of the International Monetary Fund, the European Commission and the European Central Bank (Fraser, Murphy and Kelly, 2013; Mercille, 2014a; Preston and Silke, 2014). Six more Fianna Fáil ministers resigned in January 2011. In the same month, the Green Party announced their withdrawal from government and their intention to support the passing of a finance bill from the opposition benches. The bill was passed on January 29, and the Dáil (parliament) was dissolved immediately thereafter. In the following election, the Greens lost all their six parliamentary seats, failing to achieve 2% of the vote which would entitle them to state funding as a political party. Fianna Fáil lost 51 seats (Gallagher and Marsh, 2007, 2011; Breen, 2012).

Some more specific references in the interviews also require a context. For example, the Fianna Fáil-Green Party government published a Climate Change Response Bill in December, 2010, just weeks before the government's collapse and during a period in which the country's finances were effectively under the control of the "troika". This legislation was agreed in the programme for government, was agreed at cabinet (Gormley interview) but, due to the timing of its introduction as well as its contents, received widespread negative reaction (Tol, 2010). Also, at the behest of the Green Party, the government introduced a ban on the hunting of live stags in Ireland (Government of Ireland, 2010; Parsons, 2010). This legislation came into effect on July 10, 2010; again, it was seen as a frivolous endeavor given the situation of the nation's finances. It is evident in hindsight that, in permitting Fianna Fáil to first delay and then control the timing of the

introduction of the hunting and climate change legislation to parliament, the Green Party allowed this narrative to emerge. Furthermore, Green Party governance required consensus among the parliamentary party on any decision, and this arrangement delayed a decision to leave government in the interests of seeing two cherished pieces of legislation – the climate change bill and legislation providing for a directly elected mayor – through the parliamentary process (Minihan, 2015).

6.3 News values and journalistic norms

Some events and issues are more attractive to the media because they display certain characteristics that align them with journalists' notions of what "makes a good story". These "news values" include discreet events (as opposed to long-term trends) that happen close by to people who resemble the story's intended audience (Galtung and Ruge, 1965; Harcup and O'Neill, 2001). Drama, and the presence of heroes and/or villains (Jones, 2014) add to the likelihood of inclusion on the news agenda. These news values have approximate equivalents in the scholarship of framing. For instance, the news values of immediacy and discretion are echoed in the preference for episodic rather than thematic frames; thus, the framing choices of journalists bear out the news values of their profession. An example of this preference for coverage to focus on single, discreet events rather than placing them in longer-term contexts occurred with the reporting of two extreme weather events in the Caribbean and Gulf of Mexico in autumn 2017 (hurricanes Harvey and Irma) whereby coverage focused on the individual hurricanes and largely missed the opportunity to place them in the larger content of climate change (Radtke, 2017).

There was widespread agreement among interview subjects that, as a journalistic topic, climate change did not align with news values adhered to in newsrooms. For instance, climate change is perceived as invisible, distant in time and often geographically, it is complex and data-heavy; it is "for nerds, by nerds, to nerds" (Bríd McGrath, personal interview, February 8, 2017). The lack of a direct, visible impact of climate change in Ireland was also seen a barrier to media coverage, which in turn rendered the issue imperceptible and esoteric to an Irish media audience. According to one interviewee: "It was niche, people didn't really believe it and they thought it might affect Mauritius, the Seychelles, Bangladesh and small island nations somewhere far away but not us" (Ibid.). The absence of tangibility means the problem of climate change is difficult to convey:

> Human beings are just not psychologically geared up to deal with the issue of climate change. Because you are talking about a gas which is odourless and invisible and which is apparently being emitted in vast quantities. You can't see it and it's causing or is going to cause massive changes in our climate. That's not something people can immediately identify with, it's abstract almost, so therefore, you know, the media do try and make it more tangible by showing photographs of polar bears on small bits of ice and things like that, but for the vast majority of people it isn't part of their daily lives. They can't actually conceive it… So I don't blame the media. It's the concept itself which is abstract and hard to communicate. (John Gormley, personal interview, April 13, 2015).

The long time-lines involved in climate change also made it difficult for journalists to cover: "It's very difficult to write about something, a front-page story about something that's going to happen potentially in about 20 years' time" (Claire O'Sullivan, personal interview, June 16, 2015). This view was echoed by a veteran environmental journalist:

> "…you're talking about the future rather than the present as such, even though there're elements of the future in the present, in the sense of the typhoons in the Philippines and all that kind of stuff, that may or may not be attributable to the climate change, but it's the kind of stuff that's likely to happen with more regularity as time goes on. So yes, it is a difficult thing to cover because a lot of people are focused on short-term issues and that

includes politicians. And politicians do not have a long-term view in general." (Frank McDonald, personal interview, May 15, 2015).

Apart from the imperceptibility of climate change, in Ireland at least, and the long time-horizons predicted for some impacts, the repetitious nature of climate change as a media topic can be a factor in editorial decisions on coverage. John Gormley recalled speaking at the first COP (in Berlin in 1995) and saying that "we have 10 years to do something about this and then, of course, at Copenhagen we were saying we've only 10 years left…The messages are so doom-ey and gloomy, so people are saying, 'well you said that 10 years ago and we're still around, so, you know, what's the story here?'" (John Gormley, personal interview, April 13, 2015). It can seem, as several interview subjects stated, that climate change is the same story over and over again with slight changes to climate data or small increments to scientific modelling projections:

> "…if you're only having confirmation by ways of scientific evidence then there is a sense from an editor's [point of view]: 'haven't we seen that before, haven't we done that before?' To take it in TV terms, in 2005 we went out to Greenland and we went to the Jakobshavn glacier, which calves the tallest vertical icebergs in the world, and we were out there with the icebergs and we were talking about the melt, but if I was to go back now, I'm sure, or if George [Lee, currently RTÉ's agriculture and environment correspondent] tried to do it now, there would be a sense 'We've done that already, the Arctic ice, we did that, we spent the money on it'. So, there's a repetitious nature to some of the evidence and that militates against editors who are always looking for something new. It doesn't seem to be new. (Paul Cunningham, personal interview, April 24, 2017).

The repetitious nature of the story of climate change as a homogenous entity during the early part of the timeframe under consideration led to difficulties, especially for broadcast journalists such as Paul Cunningham. He spoke about the dearth of visual "hooks": once you had broadcast footage of polar bears and melting Arctic ice, there were few alternatives: "How many times can I use the Polar ice cap? You can't, so you have to find

something new" (Paul Cunningham, personal interview, April 24, 2015). It also posed a challenge for columnists writing about environmental matters on a weekly basis: "…over that period I was essentially trying to find ways of presenting the same argument week after week and trying to find different ways to engage people, and what might work and so on" (John Gibbons, personal interview, May 1, 2015). The news values inherent in journalistic practice affected the nature of climate change coverage. Although IPCC reports and climate data were published at intervals, in essence the "story" of climate change remained the same, even though details and particular data might change: that GHG emissions were causing the global temperature to rise. Furthermore, a relatively small cohort of sources was available to journalists, and visual imagery associated with the topic was becoming hackneyed (Paul Cunningham, personal interview, April 24, 2015). The prospect of pitching a climate change story to an editor given these constraints was summed up by one environmental correspondent:

> "… because if you went up to an editor and said, 'listen, I've got a climate change story' you know they're going, in their mind, 'this is going to have John Sweeney [IPCC author and geographer, Maynooth University], it's going to have a fucking polar bear, it's going to have some Arctic ice, and it's going to have Paul saying "we're all going to die".' (Ibid).

This aspect also has implications for public engagement with the issue. Studies on consumer behaviour have shown that continued exposure to the same message may provoke a negative reaction (Tellis, 1997; Campbell and Keller, 2003), while extended media coverage of the same topic can lead to the exhaustion of new sources and information (Vasterman, 2005). Specialist environmental journalists may even become disenchanted with a news subject over extended periods (Djerf Pierre, 1996). Taken together, these factors (public resistance to oft-repeated message; scarcity of "new angles" for journalists, and disenchantment among journalists) may combine to create "issue fatigue" (Djerf-Pierre, 2012a, p. 501).

The news value of proximity – that events taking place close to the site of publication are selected above those happening in distant locations – also influenced climate change coverage. One environmental reporter mentioned that she would have encountered resistance to suggestions for coverage of distant environmental impacts had she suggested them. She stated that she "would have been laughed out of it" if she had suggested doing a story on the impacts of climate change on the Arctic, for instance. Even more local stories, such as flooding risks in Cork's docklands area, were declined.

> That is it again: if anything is esoteric, if anything is long-term, they [editors] have no interest. But once people can feel it, and it's practically proven, then you could [pitch stories] …When it was just esoteric, it was more difficult. But once it started being translated into: well you might not be able to afford to run two cars, you mightn't be able to afford to work 30 miles away from home, when it was actually impacting on people's lives and their aspirations, then I think it was getting more inches in the paper, you know. (Claire O'Sullivan, personal interview, June 16, 2015).

There is no evidence from these interviews that the journalists interviewed suffered from "issue fatigue"; however, several suggested that their editors became resistant to climate change as a story topic because of its repetitive nature, and it remains a possibility that the public may have done likewise. It was apparent in the interviews that journalists were advocating for the environment in certain situations, especially when pitching stories to their superiors. On occasion during the interviews, the issue of climate coverage and climate action was conflated by the interview subject, giving the impression that they intended coverage as a motivating factor towards action. This throws up concerns of journalistic balance and objectivity.

Although journalism which is perceived to be biased is the source of much criticism of the media (Blumler and Cushion, 2014), it may be more valued by journalists themselves, who strive to be impartial in order to remain credible (Deuze, 2005a) than it is by the public (Gil de Zúñiga and Hinsley, 2013). There is abundant evidence that newsrooms create their own culture, and newspapers and media organisations transmit unspoken attitudes to social issues to their reporters (Breed, 1955; Tuchman, 1972; Reese and Ballinger, 2001), making objectivity impossible in any case.

Environment correspondents "express a great deal of personal interest in environmental issues, but differ in the extent to which they believe they should engage in 'moral partisanship' or 'advocacy' but some see it as their duty to inform publics through taking on an advocacy role (Anderson, 2009, p. 172). Indeed, the presence of an experienced environment or science correspondent can help to dilute other coverage which contains sceptic viewpoints. Even in media organisations which give prominence to sceptic arguments in opinion articles, reporting and commentary written by specialist correspondents either do not contain such views, or ensure that they do not go uncontested (Painter and Gavin, 2015). As journalists become more familiar with their specialised subject field, gaining "interactional expertise": (Hiles and Hinnant, 2014), they gain confidence in explaining the complexities of science to a lay public, even if they stop short of becoming the kind of "knowledge journalist" who synthesises information and often advocates for a particular point of view (Nisbet, 2013b; Nisbet and Fahy, 2015). This stance is related to calls for a journalism of attachment, whereby journalists are exhorted to take a moral stance when confronted by situations (such as the Bosnian War) which throw up stark moral dilemmas (Bell, 1998; Ward, 1998), and to the impossibility of remaining impartial at such times (John Pilger, quoted in McLoughlin, 2016, p.39)

The journalists interviewed for this research fulfilled an advocacy role in so far as they wished to see levels of coverage increased so that the public could be more informed about the issue of climate change. In some cases, they commented negatively on the readiness of their news editors to accept climate-related news stories. Most were aware of the danger of "balance as bias" (Boykoff and Boykoff, 2004) in reporting debates about climate science as if scientific opinion were divided equally on the issue, instead of 97% versus 3%. Indeed, most stated that they never sought such "balance" in their reporting by contacting sources who denied climate science or advocated inaction on climate change. They also exemplified the role of specialist correspondent identified by scholars as those who are "treated more as independent experts, free to make judgments" (Schudson, 2001, p. 163), or who are seen as star reporters, independent and removed from the "vast journalistic sub-proletariat" of ordinary reporters (Bourdieu, 1998), and who have the ability to shape coverage "away from asking basic questions about the science to exposing the political games and pressures." (Carvalho and Burgess, 2005, p. 1465).

Journalists are reputed to be poor at mathematics and their professional culture has prized language skills over numeracy (Harrison, 2016), even though reporters have the knowledge but lack the confidence to deal well with data-heavy topics (Maier, 2003). Journalists' perceived lack of numeracy makes a topic such as climate change inherently unattractive. As a ministerial advisor out it: "It's data heavy, it is big, there's hockey sticks, hockey curves, you have various people out who are saying there's nothing happening" (Liam Reid, personal interview, May 19, 2015). One interviewee, who has high numeracy skills, remarked that he is now tasked with reporting on other data-heavy topics, such is the dearth of numerate newsroom colleagues (Paul Melia, personal interview, August 6,

2017). Thus, the statistical complexity of climate change, added to the other aspects of the topic which do not align with journalists' news values, make it a challenging topic for journalists to write about.

Another disadvantage of climate change as a journalistic topic is negative feedback from a motivated cohort of individuals advocating for views of climate change outside the mainstream. The "neuralgic reaction" from some individuals to climate change coverage was cited by two journalists, one of whom mentioned it as a factor which made climate change a difficult media topic:

> "You are going to get the abusive text, you are going to get the phone calls, you are going to get the 'you don't know who you're talking to', you're going to get the 'didn't you read this document, that document', they're going to start tree rings, they're going to start talking about CO2 levels in the Middle Ages. All of that type of stuff comes up." (Paul Cunningham, personal interview, April 24, 2015).

This section has discussed perspectives from the sociology of journalism practice which argue that climate change is in many ways a challenging topic for journalists, a position supported by the interview data collected for this research. There are other perspectives on the media, particularly those that step outside newsroom culture and work practices, such as media theories from a political economy perspective, which have valuable contributions to make regarding media coverage of climate change; these will be discussed in a later section dealing with individual media organisations and their coverage of the issue. Of course, it is also evident that, despite the challenges discussed in this chapter, the journalists interviewed did manage to cover climate change for their publications. How they, and others seeking to influence coverage, framed the issue is discussed in the next section.

6.4 How journalists frame climate change

The theoretical development of framing as an approach to examining media texts was discussed earlier (see Chapter 3, section 3.4), and examples of framing as applied to media coverage of climate change were also analysed (see Chapter 2, section 2.15). In this section, the testimony of journalists, politicians and political operatives is considered with regard to their framing strategies. It is useful to bear in mind that theorists differ on whether framing is an unconscious activity (Lakoff, 2009), or whether it entails some deliberate elements of selection and exclusion (de Blasio and Sorice, 2013). When it comes to journalists, there may be elements of both dynamics at play: journalists, through frequent repetition as part of their work routines, may utilise certain frames semi-automatically on some stories, while on other unusual or complex stories, they may have to exercise conscious judgment. Some of the journalists interviewed for this thesis tended to adopt framing strategies common in their news organisations. For instance, newspapers such as the *Irish Independent* and *Sunday Independent* had a "house style" when it came to framing most issues. Their reporters used the economic frame, with a special emphasis on financial impacts on individuals or households (Paul Melia, personal interview, August 6, 2017; Cormac Bourke, personal interview, August 1, 2017). Others were more deliberative in their framing approaches, trying our creative approaches in order to satisfy their editors (Paul Cunningham, personal interview, April 24, 2015; Claire O'Sullivan, personal interview, June 16, 2015).

A senior editor also confirmed that a so-called "punter-friendly" approach was common in his media group, suggesting it was almost a template for coverage of many issues

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(Cormac Bourke, personal interview, August 1, 2017). An example cited by one interviewee, which falls outside the scope of this thesis, was the publication of Ireland's National Mitigation Plan (Government of Ireland, 2017) in July, 2017. The document was criticised by the Climate Change Advisory Council for a lack of policy proposals (Climate Change Advisory Council, 2017a). In an example of their policy of relating complex, abstract issues to the everyday lives of their readers, the *Irish Independent* covered the story by highlighting a proposal to reduce the speed limit on motorways as a means of reducing $CO2$ emissions from the transport sector (Paul Melia, personal interview, August 6, 2017).

Opportunity and political framings could also attract the attention of editors. Coverage which emphasised the potential of responses to climate change to create jobs was also put forward by the environment correspondent of the *Irish Independent,* who suggested that stories of entrepreneurial success in the environmental sector were likely to be published. Writing about the politics of climate change was also a means by which the topic could be presented to readers. On occasion, this coverage could relate to Ireland's emissions targets: "there was also a political side to it, there was the question of European targets and Ireland's inability to match those targets and so were able to bash ministers up, saying 'you were going to do X, you were going to do Y'. (Paul Cunningham, personal interview, April 24, 2015). The annual Conferences of the Parties (COPs) also provided an opportunity to present preview articles looking forward to the event, coverage from the event itself and reflective pieces in the event's aftermath. The conferences also provided journalists with access to national politicians. For one journalist, they "were a focus. We also had delegates going to them, so 'who were they?', 'what were they saying?', 'what aspects were they going to be reporting on?'" (Ibid.). For another, however, they failed to

provide an opportunity for coverage: "COPs? No. Just even the word COP, no. Absolutely not." (Claire O'Sullivan, personal interview, June 16, 2015).

Journalists still working in the area stated that climate change could be related to other topics, such as extreme weather, planning, energy and water policy, waste and resource management. One journalist cited the example of proposals to reduce the number of diesel-powered vehicles in Ireland, which is put forward primarily as a health concern.

> "…the push on diesel is more about air quality than climate, but obviously, there's both in it. And we need to kind of, I think, look at more the climate change debate in terms of just an environmental and health debate. Not necessarily that it's climate change, it's doom and gloom for future generations. Climate change includes quality of life for all. Having less cars on the streets of Dublin is good for people in Dublin. It's a nicer place to walk around, it's easier to get around. If we're talking about farming, you know, being less polluting in farming means there's less sewage and the rivers, it's cleaner, there's more wildlife, there's more biodiversity. I think we might need to start framing it like that." (Paul Melia, peraonal interview, August 6, 2017)

A newspaper editor suggested that dealing with environmental issues was a means of bringing climate change to public attention without addressing it directly. The management of resources such as energy and water, the introduction of energy-saving measures in the built environment, changes to motor tax regimes and similar topics can be used to present aspects of climate change: "…you can talk to people about the big, bad wolf of climate change and they don't quite know what it means…the best way to tell people about the bigger picture is to give them something they can understand from their own end. I think that's the general principle, certainly for papers like the *Irish Independent* and the *Sunday Independent"* (Cormac Bourke, personal interview, 2017). One

environment correspondent makes an effort to present stories about planning, energy and flooding in the context of climate change (Paul Melia, personal interview, 2017).

There is a disparity between how journalists describe their own framing strategies and the findings relating to the presence of frames in media texts. Firstly, reporters stress the economic framing of the issue, generally suggesting that successful coverage addresses financial impacts on individuals and family finances. However, the data shows that political frames dominate the coverage of climate change in the Irish print media. This disconnect between the nature of the actual coverage and journalists' perceptions about how they frame it suggest that the political framing may take place at the sub-conscious level, or at least be semi-automatic, the "default frame" so to speak, while other frames, such as the opportunity or economic frames, require conscious decision-making on the part of the reporter. Secondly, it is evident that the primary audience as far as the journalist in concerned is not the reading public but the commissioning editor to whom they report. Their framing strategies are aimed first and foremost at this managerial level, rather than at a wider audience. The requirement to satisfy fellow journalists as a first step in the publication of climate change coverage serves to reinforce journalistic norms and news values and maintain a journalistic culture of coverage (Schultz, 2007; Gade, 2008). A third aspect of journalistic perspectives relates to the de-politicisation and re-politicisation debate referred to in the previous chapter (Chapter 5, section 5.19). Several journalists suggest that climate change may be covered without making the story "about" climate change, i.e. by focusing on constituent issues such as waste, water, public health or flooding. This is akin to the "third way" of communicating about climate change, threading a path between polarising political debates and outright denial (Nisbet, 2013).

6.5 The framing strategies of ministers and their media advisors

In considering the data from interviews with government ministers and their media advisors, it is apparent that a variety of framing strategies were deployed, ranging from a personal responsibility frame to frames more associated with ecomodern discourses. It should be noted that research into the role of media advisors, "handlers" and "spin doctors" comprises a vibrant sub-category of political communications scholarship. The role of media advisors has been declared anathema to "the communicative and discursive standards of a healthy democracy" (McNair, 2004, p. 325). The rise of the industry has been charted (Michie, 1998; Miller and Dinan, 2000) and the impact of the industry's activities on the political sphere has been criticised (Franklin, 2003). Political communications scholar Brian McNair has argued over several books, essays and articles that public relations strategies are necessary in a modern media age and have been unfairly demonised (McNair, 2004). Indeed, the material supplied by PR companies – so-called information subsidies (Gandy, 1982) – is becoming an ever-more important source of information for journalists as their numbers decrease and their workload grows (Brumfiel, 2009; Fahy and Nisbet, 2011). Furthermore, as media organisations rely less on staff journalists and more on freelance contributors, the similarities between these freelance or contract journalists and PR operatives grow. Both are involved in "selling" something, and both rely on their pitching skills to editors (Evans, 2010). It is difficult to argue with McNair when he says that it is impossible to "uninvent" political PR, that it is a fact of political discourse (2004) and therefore must be accounted for in the dynamics of frame competition.

According to one media advisor, there were differing communications strategies on the part of the media teams working with the two Green Party ministers, partly because of the different policy area covered by the ministers' respective departments. The Department of Communications, Energy and Natural Resources was concerned with energy network improvements, renewable energy technology, a new post code system, incentives for electric vehicles and related matters. It was the minister's policy to link many of these policy initiatives to climate change. The Department of Environment, Heritage and Local Government were involved with planning reform, the introduction of a carbon budget and the examination of various policy approaches to carbon trading, and the linking to climate change was not so explicit in departmental communications (Bríd McGrath, personal interview, 2017). It is apparent from this characterisation that the Department of Energy was concerned with positive responses to emissions reduction, while the Department of Environment appeared to be more concerned with more punitive approaches. These differing approaches correspond broadly with the "carrot and stick" strategy to changing public behaviour in relation to climate change (Stiglitz, 2006; Stern, 2007), whereby desired behaviour is rewarded in the form of grants and other incentives and undesired behaviour is discouraged by way of taxes, levies and other disincentives. It appears that, in this case, the Department of Energy was more carrot, while the Department of Environment was more stick.

The media advisor at the Department of Energy followed a strategy of story placement, selecting the most receptive media outlet for a given topic.

> "If you wanted to talk to middle Ireland about some rural broadband thing? Into the Indo [*Irish Independent*]. If you wanted to talk about the way you're reforming TLAC [Top Level Appointments Committee] to get good civil servants? Into the [*Irish*] *Times*. You have good visuals? Onto RTÉ." (Bríd McGrath, personal interview, February 8, 2017).

The deputy government press secretary developed a shorthand for two different approaches to framing climate change-related material: "widgets" (technological, data-dense policy initiatives) and "the missions" (impact of climate change overseas told via "a bit of the missionary-type, Irish development aid approach to life"). (John Downing, personal interview, February 23, 2017).

There was debate within the Green Party as to how best to frame climate change communication. The deputy government press secretary believed the economic frame, emphasising domestic financial impacts and savings from certain measures, and the disaster frame, foregrounding Ireland's vulnerability at the end of long energy supply chain, should be employed. Others believed climate change should be more explicitly mentioned at the primary reason for introducing such policies.

> "My own view and tendency was: the better way to approach it would've been to talk about conserving energy, cutting your heating bill, cutting our lighting and electricity and all of that and by extension cutting Ireland's dependence on gas and oil and imported… particularly the parlous position we were in importing, we're at the end of the chain, most of it coming through Britain. And I felt that it would be better to go that way. There was a debate periodically within the Greens, Eamon Ryan among them, saying 'We're Green and we'll stay green and we'll talk about climate change', deal with it directly rather than trying to sell it by a roundabout route…" (John Downing, personal interview, February 23, 2017).

Here, another difference in approach between the two Green Party ministers emerges. John Downing, who worked more closely with Minister Gormley, favoured communicating about climate change more indirectly – the "roundabout route" – rather than linking climate explicitly to policy initiatives. Minister Ryan proposed explicit linkage of climate change to Green Party policy. It is worth noting that, despite Ryan's emphasis on climate change as a motivating factor behind many of his departmental

initiatives, his media strategy was seen as more successful than Gormley's (Bríd McGrath, personal interview, February 8, 2017).

It was possible to interest some media organisations in coverage of climate change related events, such as COPs, but only if there was conflict involved, as the media wished to report on these events through the political or ideological contest frame (Liam Reid, personal interview, May 19, 2015). Another strategy for interesting media organisations in the issue was to "pay them to do it" (Eamon Ryan, personal interview, February 1, 2017) by sponsoring programme content. However, proactive communications strategies could often have unintended consequences and contribute to a media stereotype of the Green Party. A Green Party minister stated that a video campaign to promote public engagement on the broad issue of climate change was followed up with recommendations for personal behavior change; the approach proved counterproductive.

> "We did try to get them [the media] interested [in climate change]. And to an extent they were. If I could be slightly self-critical here, at the very start…we launched this massive campaign, on which we spent far too much money in my view, in retrospect, on awareness-raising, you know. We got this public relations campaign…It was on TV, ads, comparing our commitment to climate change to the great Michael Collins…And then we kind of matched that with what we can do as individuals, you know what I mean? …We were now going to get Europe to change over to these new lightbulbs which use less energy, I made a few trips… and we did, we got Europe to agree. They were going to have a long time-lag to bring it in, but we wanted to do it unilaterally. But again, this could be in the butt of jokes, you know: 'this is what the Greens are doing'. If you put your mind back to that first year, people were saying, well, the Greens are about lightbulbs and bikes, you know? That's their agenda. And it kind of trivialised the whole climate change thing. You know, that's what it's about. But we were trying to make them see, to make the connection between what they were doing in their daily lives and the big, big issue of climate change. And when you think about it, what other ways have you got to do that?" (John Gormley, personal interview, April 13, 2015).

It is notable that, in the statement above, Gormley moves from an inclusive view of "what we can do" to deal with climate change to a more top-down approach of trying to "make them [the public] see" the necessity for climate action. This strategy facilitates dismissal on the grounds that it is patronising and "talks down" to the public.

6.6 'Realo' versus 'fundi' framings in media coverage of climate change

The media advisors working with the Green Party ministers at this time employed various strategies to interest the media in climate change and other environmental issues, attempting to place stories in particular outlets, to persuade print and broadcast media cover certain issues and initiatives, but they also had to respond to inquiries from the media themselves, necessitating a switch from a proactive role in generating coverage and pursuing their communications agenda to a more passive role in responding to the agendas of others. Sometimes, this involved trying to control the narrative of a particular story ("jumping on grenades", as it is known [Bríd McGrath, personal interview, February 8, 2017]).

> "Apparently, this is quite classic, some of the other guys used to say, some of the other people around government used to say 'We have our proactive plans and we've always been doing this', but in the end, in the end of the end, it always ends up [that you're] reacting, firefighting, trying to manage, trying to dial down, trying to deal." (John Downing, personal interview, February 23, 2017).

One interviewee drew attention to the contrasting approaches of the media advisors of the respective Green Party ministers, suggesting these differing approaches may have influenced the tone, if not the level, of coverage of the Green Party in particular and of

climate change more generally. She characterised Eamon Ryan's media approach as positive, pro-business and focused on potential and economic opportunity, while John Gormley's media team, in her view, were more concerned with negative actions and prohibitions and foregrounding what the Greens were doing as individuals.

> "So there were two sets of messages on the environment going out into the world. Even, on the one hand, Eamon was all 'Yes, we can' and John was all 'You better not do that', so it was just even tonally, they were different, not to mention let's say internally in a political sense...there was different communications strategies being played out in front of us. They [Gormley's media team] were all about carbon credits and all that kind of stuff, and not taking the government jet, and making it all about what the Greens were physically doing themselves on a day to day basis, and was there a garda driver behind them on the bikes with the files, and all that kind of stuff. I never went into that detail" (Bríd McGrath, personal interview, February 8, 2017).

She also believed that employing two former journalists as media advisors may have contributed to an adversarial relationship between Gormely's media team and the press.

> The Gormley guys as far as I could hear and see in the paper, because the stuff was so bilious, we're effing and blinding with their ex-colleagues all day and all night. That's part of what you get from getting a journalist into that position. So you're coming straight out of the newsroom and all of these guys were your friends and you'd hang around press conferences with them and go for dinner parties with them. Suddenly you have the information that they want, that you used to be chasing. (Ibid).

It is apparent there were differing approaches to communication about climate change from the two Green Party ministers and their media advisors. For instance, John Gormley wished to relate the issue of climate change to individual behavior, while Eamon Ryan had come to the view that a broader approach, focusing on the economy's dependency on fossil fuels, is more productive. The emphasis on individual actions serves to make the public feel guilty about their lifestyle choices and resistant to engagement on climate change.

"…if you're so feckin' virtuous and kind of goody two-shoes, it just gets a bit sickening after a while, so I think we've moved on slightly from that phase." (Eamon Ryan, personal interview, February 1, 2017).

These differing communications strategies echo wider debates in the Green movement between so-called "fundis" and "realos" (Doherty, 1992). In some ways, the approach of the Department of the Environment communications effort in concentrating on the personal lifestyle choices of the Green Party parliamentary representatives, on individual emissions reduction actions, on taxation as a policy instrument, is a watered-down version of the 'fundi' position that radical transformation of economic and political systems and individual lifestyles is required in order to protect the environment, while the approach of the Department of Energy in emphasising solutions, often technology based, resonates with the 'realo' view that change can be effected by working with the existing social, political and economic systems. The effectiveness of these strategies is considered in the next section by (i) looking at the presence of coverage of the Green Party in the corpus of 706 climate articles, and (ii) examining the data from the 12 interviews carried out for this research regarding the impact the Greens may have had on the levels and content of climate change coverage.

6.7 The effect of the Green Party in government on coverage of climate change

The scholarship of political science regards Green parties as niche parties who mostly compete on a single issue. They are "issue owners" when it comes to environmental matters, and when (or if) they achieve electoral success, there is an incentive for other parties to de-emphasise their own environmental policies (Abou-chadi, 2014, p. 422). Green parties have had little success in gaining media coverage in national outlets, and, despite efforts to diversify their communications strategies to include the full spectrum of

policy issues, have largely been unsuccessful in dispelling their image as a single-issue party (Hughes, 2016). The Irish Greens were closely identified with environmental policies and constantly sought to persuade the public and other politicians of the importance of climate change as a social and political issue (Boyle, 2006; Minihan, 2015; Bríd McGrath, personal interview, February 8, 2017). It seems axiomatic that having two Green Party ministers focused on climate change would increase media interest in the issue, and a majority of the journalists interviewed strongly believed it did so; perhaps a more interesting question from a media studies and political science point of view is whether a single-issue party (or, at least, a party perceived as single-issue) negatively affects media coverage of their core issue once they have fallen out of favour with the electorate.

6.7.1 The extent of media coverage of the Green Party

Coverage of climate change which featured references to the Green Party was coded for the presence of frames, but the party was also coded as a topic in its own right. There are 118 references to Green Party as a topic, and the party is the main topic in 27 of the 706 articles in the corpus. These references will be examined in more detail below, but in general they comprised reports of announcements or statements by the party's members or analysis of the party's performance or policy positions. The *Irish Times* covered the Greens more than any other publications, with 55 references and 16 stories devoted mainly to the party. This coverage was predominantly written by specialist (political) correspondents, and references to the party were found to be evenly represented both in news reporting and opinion articles.

Table 6.1: Coverage of the Green Party as main and sub topic

Publication	Main topic	Sub-topic
The Irish Times	16	55
Sunday Tribune	4	12
Sunday Independent	3	9
Irish Independent	2	20
Irish Examiner	1	4
Irish Daily Mail	0	2
Sunday Business Post	0	4

In addition to the coding outlined above, a quantitative content analysis was carried out, examining coverage of climate change which mentions the Green Party and all climate change coverage. It can be seen that climate coverage mentioning the Greens broadly follows the pattern of coverage of the issue more generally, albeit at a much lower level, suggests the two topics are linked to some degree. It is notable, however, that the peak in coverage of climate change in December 2009 is not reflected in the coverage linking the issue to the Greens, so the link is not a straightforward one. It is also apparent that coverage of climate change which also contains reference to the Green Party accounts for between 7 and 13% of all media coverage of the issue.
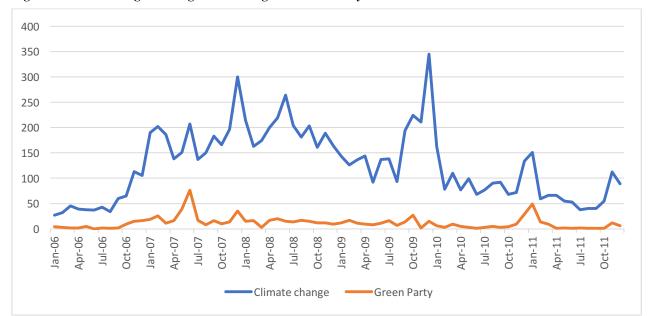
Fig 6.1: Climate change coverage mentioning the Green Party 2006-2011

Data compiled via a LexisNexis search for "climate change" or "global warming" or "greenhouse effect" and "Green Party" from January 2006 to December 2011.

Table 6.2: Percentage of climate change coverage mentioning the Green Party

	2006	2007	2008	2009	2010	2011	Totals
Total number of climate change stories	638	2206	2336	1983	1128	824	9115
Number of stories containing climate change + Green Party	61	287	165	149	80	99	841
% of climate change coverage mentioning Green Party	9.5	13	7	7.5	8	12	9.2

However, it is possible to identify a "Green Party signal" in the coverage of climate change at several points: in June 2007, both general climate change coverage and Green coverage increases, coinciding with the Green Party's entry into government; in December 2007, both metrics are elevated, coinciding with the COP in Bali attended by Minister Gormley, and again in January 2011, both levels increase, coinciding with the collapse of the government of which the Greens were members. The more pronounced alignments of coverage of both climate change and the Greens occur in June 2007, when

the party were about to enter government, and in January 2011, when they were about to leave. This suggests that when there is media interest in the Green Party, climate change is also mentioned. Yet, when there is heighted media interest in climate change, such as at the Copenhagen COP of 2009, there is no corresponding increase in coverage of the Greens.

6.7.2 The nature of Green Party media coverage

In looking more qualitatively at the content of media texts coded as dealing with the Green Party as a topic, it is evident that early coverage relates to various statements and policy announcements in early 2007, such as a proposal to introduce a €20 per tonne carbon levy and to introduce individual carbon quotas. An article in the *Sunday Tribune* predicted they would win 10 or more seats, on the basis that issues such as climate change were near the top of the public agenda, adding: "Even if they don't win all those seats, the party seems guaranteed to win eight or nine seats, potentially leaving it as king-maker after the election." (*Sunday Tribune,* March 18, 2007). Subsequent coverage follows the progress of the party as events unfolded: the agreement between the party and Fianna Fáil on a programme for government, the appointment of two Green Party ministers to the cabinet, the introduction of a carbon budget, various speeches and statements by the two ministers on climate change policy, the party's stance as Fianna Fáil's leader Bertie Ahern was called to give evidence to the Mahon Tribunal into political corruption, the re-negotiation of the programme for government following the global banking crisis and the ultimate collapse of the coalition government in 2011.

There is also a considerable amount of analysis and opinion on the performance of the Greens in government, and on that of the two ministers representing the party at cabinet.

In early coverage, this commentary focused on the wisdom of entering government with Fianna Fáil. A letter to the *Irish Times* (June 15, 2007) describes the party as "an abject creature, shivering at the heel of Fianna Fáil", while several articles portray the Greens as naïve while lauding the political skill of Fianna Fáil leader Bertie Ahern. In this example of a political commentary, Ahern's achievement in forming a coalition government which included the Greens, the Progressive Democrats and four independent deputies, is lauded:

> The Greens' membership accepted a fudge as the price of power. So be it. Welcome to the world of real politics. Now they hold two powerful ministries, and will, finally, get a chance to implement a watered-down version of its own policies, otherwise known as the Fianna Fail election manifesto. Bertie Ahern, we will never tire of saying, is truly a political genius. (*Sunday Independent,* June 17, 2007).

The possibility that the Greens allowed themselves to be used to confer, by association, some credibility on environmental issues on Fianna Fáil, is also raised:

> Ahern's determination to ensure that his third government has a secure D·il majority was clearly one of the motivating factors behind the drive to include both the Greens and the PDs, as well as four of the five Independents. It seems, though, that he was also motivated by a desire to subtly change the image of Fianna Fáil by colouring it with a new shade of green… the party will now hope to benefit from the environmentally friendly image presented by the Greens and to freshen up its image for a new generation of voters. (Stephen Collins, *Irish Times,* June 15, 2007).

There are also examples of personal criticisms of the two Green Party ministers. An article in the *Sunday Tribune* laments the lack of action on climate change mitigation measures, suggesting that there are too many issues "under review" in the Department of the Environment presided over by John Gormley, who, the article states: "sometimes gives the impression that he's so obsessed with saving the planet, the problems of a small, damp island on the edge of Europe are beneath him" (*Sunday Tribune,* August 10, 2008). The proposal in 2009 to ban high wattage incandescent light bulbs on environmental grounds

also drew personal criticism of Minister Gormley. In this example, it is suggested that the ban is essentially meaningless and is compared to a 1940s campaign by Sean McBride to declare Ireland a republic:

> John Gormley, with his 1.9 litre virtuously-powered government car, (no doubt topped up by a squad of lentils inside the engine-block) is the pietistic equivalent today of McBride, with his ban on large light bulbs. Indeed, you could go back a further generation, and compare this moralising folderol with the ban on condoms in 1926. Clearly, the underlying attitude – an interfering certainty that Nanny knows best – is deep within the Irish political psyche. The ban is also a reversion to the dismal and fanciful notion that the Irish are a better people than others: and thus, look! No condoms! No light bulbs! Up the Republic! How brave and adventurous and ethical we are! We may sit piously in the dark, going blind while trying to read by the non-light of hideously expensive, energy-saving plug-in electrical glow-worms, thereby saving the planet from global warming; meanwhile China builds 650 coal-burning power stations, and Ireland is an icefield. (Kevin Myers, *Irish Independent*, January 8, 2009).

The other Green Party minister, Eamon Ryan, Minister for Energy, Communications and Natural Resources, also received personal criticism:

> … if the Greens really want to make a contribution to easing global warming they might consider decommissioning Minister Ryan's mouth (hot air) … Minister Ryan exudes a wonderful air, as if he's saying: "Look at me. I'm a Minister. And it's as much a surprise to me as it is to the rest of ye." He's a more poetic soul, too, than the guys who normally make Minister. At least I like to think the slightly faraway look in the eyes and the slight, bemused smile always playing about his lips is a reflection of a poetic soul. Other, less kind people, might say he looks half-mad. I like to think the best of people. I think, at worst, it's just earnestness. He'd remind you of one of the Famous Five. (*Sunday Independent,* June 24, 2007).

An assessment of the Green Party's performance in government praised the performance of the party representatives:

> Far from being flaky, the likes of John Gormley, Eamon Ryan and Trevor Sargent have been, in the main, rock-solid during extremely perilous times for Ireland Inc.To borrow a line from George Lee, in years to come, when their grandchildren ask what they did during

the worst recession in decades, they can say they held their nerve and did the right thing by the country. (*Sunday Tribune,* February 28, 2010).

The media coverage of climate change in which the Green Party features shows many of the characteristics of climate change coverage generally: it is politically framed, often using the game or strategy frame to assess the success or otherwise of the party, and it deploys some of the same dismissive and sarcastic tone evident in the contested science frame. Climate change is often tangentially mentioned, as one of a list of policies espoused by the Greens; in-depth commentary on the content and implications of such policies is absent. There is an emphasis on reportage rather than analysis; the calls by the Greens for, as an example, an annual reduction of 3% to Ireland's GHG emissions, is repeated, but there is not investigation of the implications of such a policy. Likewise, various pronouncements by the Green Party ministers on the need for climate action, for climate legislation, for a carbon tax have all been reported in the media; one cannot say such matters have not received coverage, but rather that they have not been engaged with.

6.7.3 Journalistic and political perspectives on media coverage of the Green Party

The majority of journalists interviewed were of the view that the entry of the Green Party into government in 2007 had a positive impact on levels of media attention for climate change. One reporter dissented from this view, stating that, in the publication where she was employed, the Greens were "seen as cranks" and that they communicated about climate change in "a very un-newspaper friendly way" that was too abstract and academic, and were therefore viewed as "crazy and just that they were totally out of touch with modern living" and had no effect on increasing interest among the editors at her newspaper in the topic (Claire O'Sullivan, personal interview, June 16, 2015). Another

was undecided ("It did and it didn't" [Frank McDonald, personal interview, May 15, 2015]). Others believed that the presence of two Green ministers in the government meant that the media were required to give more attention to climate change.

> "Without a shadow of a doubt, it did. The very fact that John Gormley was Minister for Environment, that he was sitting around the Cabinet table, that he was therefore able to influence things, that he was able to hold information campaigns…in the run-up to the election Bertie Ahern went to the University of Galway and described himself as an environmentalist, that Fianna Fáil was an environmental party. I mean, you could see that things did change…John Gormley…was a leader who could pull the plug on the government but it also meant that he was getting on air more and it was one of his top priorities and so therefore definitely upped the coverage. And Eamon Ryan once again was in [the Department of] Energy so that was a huge focus and he was able to get more money for doing up your homes and he was always tying in that question of energy usage with the climate change message and John Gormley used to always get tied up in other issues like the incineration, in Dublin, like the Ringsend factory and you could see the battles that he was having inside with the civil servants. (Paul Cunningham, personal interview, April 24, 2015).

As one of the ministerial media advisors put it, some things get coverage simply because a government minister is doing them (Bríd McGrath, personal interview, February 8, 2017). It appears to have been a deliberate policy for Green ministers to be active during their early period in government. The party leader stated: "I was determined that we were going to hit the ground running" (John Gormley, personal interview, April 13, 2015). One of their ministers believes that media coverage of climate change increased in this early period because the party were active in the policy area:

> I think it [having the Greens in government] did [increase media attention for climate change] in the first year until the crash came, because we were doing stuff that was related to the issue, we were producing a carbon tax, we were pushing renewables, we changed the building standards. We were doing stuff that relates to people's homes, so all that Duncan Stewart, DIY up your home, whatever. I think that did. (Eamon Ryan, personal interview, February 1, 2017).

The media strategy of the party was also designed to increase media attention for climate change. A ministerial media advisor stated that it was a requirement for all media communications from the Department of Energy, Communications and Natural Resources to contain a reference to climate change.

> "Number one, what we did, rightly or wrongly, and this was an instruction from the esteemed minister, every single press release, and I mean every single thing, whether it had to do with a post office or broadband or whatever, had at the end of it 'and the ultimate point of this is because we're tackling climate change which is the greatest threat to Ireland da-da-da'. We put it into every press release…that annoyed the Department, but from the minute he walked in the door, basically Eamon Ryan, minister, did not do anything, apart from maybe the Broadcasting Bill in 2009 where he didn't say "…and the ultimate aim of this is to deal with climate change". (Bríd McGrath, personal interview, February 8, 2017).

The presence of the Greens in government also permitted the media to perceive institutional resistance to policy initiatives on the part of the civil service, according to one well respected environment correspondent.

> "…you got a sense that the permanent government wasn't of the same view as him [Gormley] and was merely watching the clock tick down until he was gone and then they could carry on as normal…But when it came to climate change, there was resistance and it was strong, it was because money mattered more than the government policy, and what they would do is that they would sign up to it and say it, but wouldn't necessarily implement it. Blocks would come from places like the Department of Agriculture…so it was not only that you got more coverage [with the Greens in government], but you also got a sense that what is happening within climate change and where the difficulties where, and you were getting a sense of the politics behind, and the real politik that was behind the announcement of any policy per se." (Paul Cunningham, personal interview, April 24, 2015).

Although the data from the interviews undertaken for this research strongly support the notion that the Green Party had a positive influence on media attention for climate change, data from media texts is not so conclusive.

There was less agreement among interviewees about whether, following the financial crisis and their electoral losses in the 2011 general election, the unpopularity of the Green Party negatively affected media attention for climate change. One media advisor was adamant that the decision by the Greens to stay in government in part to ensure the passage of the Climate Change Response Bill into law was misguided and affected media and public engagement with climate change. The controversy over the ban on stag hunting was also a factor in public disenchantment with the Greens and, by extension, with their policy agenda.

> "I think the Greens had to have a climate bill because they had to have a climate bill. And they stayed in government as well to a large part because of that climate bill. I personally don't agree with that. I think for a party that's all about sustainability, I don't understand who told them that the only legislation that ever happens is when you're here in this minute right now and that then once it's on the statute books, that it's on the statute books forever and that the next crowd can't turn up with a Blairite majority and kick out every single thing that you ever did anyway. So they had this view, which maybe people do at this point in history because it was a big historical moment of just "only we can save the world right here right now with only this bill that can only come from us". There's a terrible hubris in that that they will never admit and is part of the disconnect between the Greens and real human beings going around their lives. I think it was a wrong estimation, to be honest. I think it was we went with, everyone talks about this, but at the height of the financial crisis, all you could see the Greens were at in the Dail was was trying to ban one stag hunt." (Bríd McGrath, personal interview, February 8, 2017).

The view that the unpopularity of the Greens also affected public support for action on climate change is partially accepted by one of party's ministers.

"I think this kind of sense was: 'Ah, feck it, these guys are just, they're keeping the government going' that they don't want, 'they're keeping Fianna Fáil in office, which we don't want because Fianna Fáil are bad and they caused the problem, to get a feckin' climate bill over the line'. And I think [there was] some hostility towards us and towards the climate agenda because of that. So there are connections. (Eamon Ryan, personal interview, February 1, 2017).

The second Green Party minister interviewed suggests that all environmental policies were seen as irrelevant once the financial crisis struck, and that the antipathy to the Greens was not specifically related to climate change per se.

"You have to put it in context. The government had unravelled at that stage. The IMF was in here. Our problem was post-2008 was that every single thing we did after 2008 was seen as irrelevant: 'that's all very well, what about the crisis?' That we are in there doing stuff that makes no… how is that going to help people who are struggling? So the context couldn't have been worse, so here are the Greens in cloud cuckoo land again in the middle of a crisis and what are they doing? Introducing a climate change bill. Morons! You know what I mean? That's the context, and that's how it was seen." (John Gormley, personal interview, April 13, 2015).

There were diverse opinions among the journalists interviewed as to the question of whether the Greens "took climate change coverage down with them", so to speak. One columnist suggested that the performance of the Green Party in government negatively affected media coverage of climate change:

"…the backlash [against the Greens] was ferocious, and I think it poisoned the well of coverage. It's like as if, for a while, Green had been the colour of success and now it became the colour of failure and you know the political failure of Fianna Fáil was vast but I think people's kind of visceral dislike of green issues kind of went [makes plane taking-off gesture]. I think it [climate change coverage] was going down anyway, but I think in Ireland it probably went down a bit further because of the Greens. (John Gibbons, personal interview, May 1, 2015).

One of the environment correspondents interviewed agreed that climate change was very closely linked to the Green Party in the media's approach to the issue. It should be noted that there is a tendency on the part of some interviewees to conflate media attention and political attention for climate change, despite attempts to distinguish between the two on the part of the interviewer. However, as was pointed out above, political and policy action on a particular issue generally prompts media attention, so there is a connection. In the answer below, for example, the subject moves from the impact of the disappearance of the Greens from government on media coverage of climate change to the impact of their disappearance on political support for climate policies.

> "…climate change was associated with the Greens and the Greens were associated with a disaster, so it definitely had a pull factor. The message was taken away and it did have a negative impact, but probably the biggest thing was that no one was ever going to be more committed to the climate change message than Green politicians, no matter who they were. Noel Dempsey may have signed up and put in place very good climate policies and we should recognise that, and yet, when it came to say something like Kyoto, I don't think he did a particularly good deal from an Irish national point of view in our allocation. But once John Gormley and Eamon Ryan were gone, there wasn't anyone who was going to fight for climate change as strongly as they were, and so I think that, it did, it had a big impact." (Paul Cunningham, personal interview, April 24, 2015).

Other journalists took a different view. For example, that the financial crisis and subsequent economic recession was largely to blame for the lack of media interest in climate change (Paul Melia, personal interview, August 6, 2017) or that the issue has remained high on the policy and media agenda (Cormac Bourke, personal interview, August 1, 2017; Liam Reid, personal interview, May 19, 2015), thanks in part to a requirement for Ireland to meet EU emissions targets by 2020 (Claire O'Sullivan, personal interview, June 16, 2015).

In summary, there is a broad consensus among journalists, politicians and media advisors that the Green Party's entry into government increased media attention for climate change, and there is considerable support for the view that, given the circumstances of their exit from government, the performance of the party in 2010 served to taint the media's view of climate change as a journalistic topic. The data relating to levels of coverage is not so categoric; there is a link between climate change coverage which mentioned the Green Party and climate change coverage more generally. The two follow the same broad patterns, but it would appear that when the Greens are in the news (as when they entered and left government or attended climate change conferences), coverage for climate change increases, but when climate change is in the news (as for the Copenhagen COP of 2009), the Greens often are not.

6.8 The economic crash and the "crowding-out" effect

Theories of how some issues rise on the media and policy agendas suggest that "information shocks" (Baumgartner and Jones, 1991) or "focusing events" (Kingdon, 1995) are required to bring a dormant issue to the fore. These concepts are similar to the news values of drama and novelty by which journalists judge the newsworthiness of an event or topic (Galtung and Ruge, 1965; Harcup and O'Neill, 2001). Once these events occur, information feedbacks in the form of media coverage is usually required to promote the issue. If these elements diminish, the related topic reverts to its former dormant status, and other issues take its place. Other perspectives suggest that some topics, particularly environmental ones, have an inherent life cycle in the media, quite removed from the dynamics of agenda systems (Downs, 1972). It is a facet of both approaches that an issue does not stay at the top of the media, or the policy, agenda indefinitely. Another factor in

displacing topics from these agendas was identified by Monica Djerf-Pierre in her study of 30 years of television news coverage in Sweden: news of war and financial crisis crowds out environmental news (2012a). In considering the dramatic decline in the coverage of climate change in Irish media from December 2009, this "crowding-out" effect is a more plausible explanation that the attention cycle model. However, the evidence is not clear-cut. The financial crisis began to impact on Ireland from late 2008, and indeed coverage in the UK and Europe suffered a steep decline in November 2008. Levels of coverage in Ireland dropped, but not dramatically so, and reached their highest level during the timeframe under study in December 2009. However, from late December 2009, Irish coverage declined severely.

Many of the interviewees pointed to the economic crash of late 2008-2009 as the key factor for the decline in media coverage of climate change at that time. One correspondent recalled the impact of the banking collapse and the arrival of the troika in Ireland on the area of environmental journalism:

> "…suddenly I couldn't get a story on to save my life. The very idea of being concerned with something that could happen in 100 years was just being eclipsed completely by thousands of people have been thrown out onto streets today, people losing their homes today, it was today's story, so talk about momentum towards deals, anything like that was seen as completely irrelevant in the context of the times. And I was trying…I was struck…I remember at about the end of 2008, there was about three months where I was nearly considering saying 'do you want me do business stories?' because I was offering stories which had regularly got on air and I just couldn't get them on. It didn't matter: TV, radio, online. No one gave a monkey's." (Paul Cunningham, personal interview, April 24, 2015).

This view is shared by those actively involved in trying to attract media coverage for the issue, such as media advisors.

I don't blame the media for not noticing climate change when they thought the world was collapsing around us. Everyone at a particular time maybe from, want to say, early 2009 on were buying the FT, opening the back of it and looking up bond yields. That's what was going on, not carbon things, not how hot is the world today, but bond yields…If you turned up at a particular time and start going on about climate change, eyes rolled, 'shut up, stop saying the same thing again, look at us, we're about to get cut adrift into the ocean or we won't be able to pay the civil servants tomorrow' or whatever. So there became a time when it annoyed people to talk about climate change…We were like a Cormac McCarthy novel, like it was holocaust territory, people were sad, we were losing everything in sport as well even, we've stopped being good at the rugby for a while, I think it was just a sad, insular, depressing time where we thought we lost the sovereignty of the nation and yes, that trumped climate change. (Bríd McGrath, personal interview, February 8, 2017)

From the perspective of news values and journalistic norms, the financial crash in Ireland was an all-consuming story. It had many of the attributes required to make it attractive to journalists: drama, novelty, meaningfulness, and reference to something negative (Galtung and Ruge, 1965; Harcup and O'Neill, 2001). One government minister closely involved in efforts to deal with the financial crisis recalled the intense media focus on the economic story:

"At that point, we were in such feckin' chaos in terms of [laughs] they [the media] didn't give a shit about any climate bill. The only story in town was Troika, IMF, bailout of banks, whatever, bondholders being burnt, whatever, for pretty much from 2008 onwards, October 2008 onwards, there wasn't any other story in Ireland." (Eamon Ryan, personal interview, February 1, 2017).

The decline in climate change coverage does not map neatly onto the timeline of the financial crash in Ireland. For instance, the first major event in the credit crisis was the issuing of a guarantee to cover the liabilities of seven banks operating in the jurisdiction in September 2008, yet coverage of climate change remained relatively steady afterwards. Yes, there is a decrease from June 2008, but it was incremental. In December 2009, in the

run-up to the Copenhagen COP, coverage reached its highest point. It could be argued that the decline post December 2009 is as much related to the deflation of politicians and journalists at the disappointing outcome in Copenhagen as to the effects of the ongoing financial crisis.

Up to this point, media coverage of climate change and of the Green Party in government has been confined to mainstream and familiar narratives, shaped by news values and journalistic norms and influenced by the communications strategies and, to a certain extent, the personal qualities of the two Green Party ministers. In the next section, the extent to which narratives outside these confines was present in climate change coverage, is examined.

6.8 Alternative narratives in Ireland's climate change coverage

The settled science frame – which contains coverage which presents a scientifically accurate depiction of climate change as a pressing issue requiring action – is well represented in Irish coverage of the issue. However, in looking at the range of coverage from the seven national titles examined in this research, it is evident that differing editorial approaches are adopted by different news organisations, each of which foregrounded favoured framing devices. For example, newspapers in the Independent group (the *Irish Independent* and *Sunday Independent*) and the *Irish Examiner* preferred framings which foregrounded the impact of mitigation policies on the finances of individuals. The *Irish Times* accentuated national and global politics. Other researchers have shown that news organisations report on climate change in accordance with their own ideological cultures (Carvalho, 2007; McKnight, 2010). For instance:

When knowledge claims appeared to constitute a threat to ideological principles and arrangements in the political, social and economic realms, *The Times* did not hesitate to harm the reputation of an institution like the IPCC. In "critical discourse moments" like the release of IPCC reports, *The Times* picked individuals at the margins of respected science and magnified their opinions in order to sustain a certain view of the world and a certain social order. This was particularly evident in *The Sunday Times*, whose circulation is twice as large as *The Times*. (Carvalho, 2007, p. 237-238).

This finding accords with perspectives from political economy which suggest that news organisations are commercial entities dependent on advertising, and therefore are incapable of critiquing an economic model that promotes continued consumerism and economic growth. It is suggested that this is a structural problem for media systems in developed economies (Herman & Chomsky, 1988), and also for journalists working in such systems (Lewis, Williams and Franklin, 2008). In an Irish context, it has been shown that the Irish media were incapable critical analysis during the financial crisis (Mercille, 2014a) and I have argued in the previous chapter that, in its coverage of climate change, the Irish media put forward climate solutions based on market incentives, technological innovation and increased efficiency and avoided coverage of more radical or structural reforms. In addition, concentration of media ownership by wealthy individuals, it is argued, further constrains the Irish media from questioning the established political and economic order (McCullagh, 2008).

The perspectives of political economy were represented among the interview subjects, with several pointing to media ownership as a constraining influence on coverage. The journalists interviewed tended to rate or rank other media organisations in journalistic terms, assessing the coverage of various news outlets in Bourdieusian terms of capital within the journalistic field. From this viewpoint, the *Irish Times* and RTÉ (at least when

Paul Cunningham was working as environment correspondent) had the most journalistic capital, while the *Irish Daily Mail,* which was seen as a subversive force, had least. Columnist and blogger John Gibbons, who combines the roles of journalist and activist, was able to place the tone and content of coverage in a wider perspective:

> "The [*Daily*] *Mail* and the *Express*, they're obsessed by weather stories, by health stories. Everything gives you cancer or prevents cancer, and I think there seem to be a whole string of health and weather stories, and weather extremes, but clearly there's no interest in the underlying science whatsoever…And I think they're just blow with the wind, and I think their ownership, most of these newspapers we're talking about are owned by expat billionaires, and I do think expat billionaires have a particular issue with, how to say, global good housekeeping. I think that's reasonable to say, and in many cases, these media owners are also owners or heavily involved in a variety of corporate activities that, again, feel threatened by regulation, and I think their focus is, 'Don't pay tax and destroy regulation'. And I think when they see climate change, they hear, 'Regulation'. Like the IFA, and therefore they're fighting it, not for what it is, but for what they perceive it to be as a threat to their interests."

The *Irish Daily Mail* was perceived by many interviewees as pursuing an editorial policy with regard to climate change that sought to undermine the legitimacy of proponents of climate action by, for example, foregrounding the expense of attending climate change conferences, or by submitting freedom of information requests on the number of parliamentary questions submitted, and the number of reports commissioned by the Green Party and calculating the number of trees required to manufacture the paper used for such purposes. The press advisors to John Gormley recounted an attempt by the *Irish Daily Mail* to establish where Minister Gormley was staying for the Copenhagen COP so the newspaper could focus on the cost of rooms, suites or meals (Liam Reid, personal interview, May 19, 2015), while the press advisor to Eamon Ryan stated that the Irish edition of the paper published reports from the UK edition concerning UK climate proposals, but simply substituted the names of Green Party politicians for the names of

the UK Labour Party ministers (Bríd McGrath, personal interview, February 8, 2017) appearing in the original UK edition reports. Other researchers have found that the *Mail* group is seen as untrustworthy and deliberately contrarian on this issue (Lockwood, 2009, p. 8), and seeks to portray climate change as a means of introducing "stealth" environmental taxes (Hibberd and Nguyen, 2013).

The *Irish Daily Mail* contained relatively elevated levels of the contested science and morality frames (see Chapter 5, section 5.6, figure 5.11), and the texts coded to these frames contained a range of sceptic arguments and representations of climate change as a religion, suggesting that acceptance of the existence of anthropogenic global warming was a matter of faith rather than of science. Other studies have found that the *Mail* engages in a range of sceptic rhetorical repertoires, such as the "settler" (rejecting alarmism on grounds of "common sense") and comic nihilism (unserious, blithe rejection of climate science) repertoires (Ereaut and Segnit, 2006). It is clear from the frame analysis detailed in Chapter 5, and from the statements of journalists and political media advisors interviewed for this thesis, that the *Irish Daily Mail* engaged in an editorial strategy in its climate change coverage that was markedly different from those pursued by other media organisations. Much of this coverage was presented as a campaign to expose wasteful use of taxpayer's money, or to question orthodoxy on behalf of the common citizen; both these approaches also had the effect of delegitimising climate science and undermining public appetite for climate action. A close relationship between the willingness of a news organisation to publish sceptic views and its ideological alignment has been established (Carvalho, 2005, 2007; Carvalho and Burgess, 2005), although ideological orientation does not correspond neatly with levels of sceptic coverage (Painter and Gavin, 2015). The

Mail coverage, though presented as common sense consumer advocacy, nonetheless served the interests of its political and economic agenda.

Another alternative narrative was evident in media texts dealing with agriculture. For instance, the contribution of agriculture to Ireland's emissions profile is frequently mentioned. Agriculture contributes 33.1% of Ireland's total GHG emissions (Government of Ireland, 2017, p. 80), compared to an EU-28 average of 10% (Eurostat, 2017) and a global average of 20% (IPCC AR5). Over half of Ireland's agricultural emissions derive from enteric fermentation in ruminant animals. In the content coded to the agriculture frame, an alternative narrative about agriculture's role in Ireland's emissions emerges, with farming organisations suggesting (i) that the measurement of emissions does not adequately account for carbon sinks such as grassland and forestry found on Irish farms, (ii) proposed emissions reduction measures (such as those in legislation proposed by the Green Party in 2010) run counter to other government policy, which encourages increases in food and dairy production, and (iii) emissions reduction efforts in Irish agriculture are misguided, as any shortfall in beef or milk production in Ireland would be filled by increased production elsewhere, perhaps in territories such as Brazil, where regulations are of a lower standard and agriculture is less carbon-efficient.

The narrative put forward by the Irish Farmer's Association (IFA) and the Irish Creamery and Milk Suppliers' Association (ICMSA) that farming and the agri-food business are important to the Irish economy and therefore any measures inhibiting the growth, or endangering the viability of these sections would run counter to the national interest, is similar to other economic arguments against mitigation measures. However, it does contain an implied domestication perspective, suggesting that measures adopted by

Ireland alone will count for little in a global context, and even that well-intentioned policies may be taken advantage of by less scrupulous rivals in the beef or dairy industry. The climate change legislation proposed by the Green Party in 2010 was singled out for particular criticism from farming organisations, as it committed Ireland to emissions reductions targets in excess of those envisaged by the European Union (*Irish Examiner,* December 18, 2010). This narrative also casts Ireland as the victim of unfair emissions measurement systems at EU level (Lynch, 2014).

The two examples analysed above – the faux concern for taxpayers' money of the *Mail* and the special pleading of the agriculture lobby – are variants of familiar media tropes. The *Mail*'s approach is a form of climate scepticism, as is the approach of the farming organisations: both are kinds of distraction from more substantive issues. In the first instance, the *Mail*'s emphasis on expenses is an attempt to portray climate change policy generation as a wasteful exercise, while ignoring the predicted impacts of climate change itself; in the second, the efforts for special concessions for Ireland's agriculture sector also fail to take wider perspectives into account. However, other opportunities for more profoundly alternative narratives have not been availed of by the media. In the frame analysis presented in Chapter 5, it is clear that the opportunity frame is a salient feature of Irish coverage, and offers possibilities for competing narratives about mitigation and adaptation to be presented. Yet the text coded to this frame adheres to conventional narratives suggesting that new technologies, efficiencies and market mechanisms can be mobilised to combat climate change, thereby missing an opportunity to communicate alternative narratives to the public.

6.9 Conclusion

In this chapter, the analytic focus moved from outside the media to an inside view of the frame competition regarding climate change. The perspective changed from observation of coverage trends and frames as manifest in media texts to analysis based on the views of working journalists, politicians active in the climate change policy area and media advisors tasked with influencing media coverage of climate politics.

It is evident that media coverage of this issue is influenced to a great degree by news values. Climate change does not display many of the characteristics journalists look for in events or topics that influence their place on the news agenda. All of the journalist interviewees testified that climate change was an inherently difficult topic to cover. It is not immediate, its effects are not visible yet in Ireland, it is complex and data-heavy, and journalists see themselves are possessing poor numeracy skills. Perhaps most importantly, it is repetitive, with a repeating narrative which changes only in relation to details of data.

A further influence on the coverage is the necessity for journalists to consider the attitude of their editors (rather than their readers) as a primary concern when framing coverage. This dynamic contains climate change within a journalistic culture, and newsroom norms may take precedence over professional or even societal ones. Furthermore, journalists need "hooks" on which to hang their coverage. In other words, they need something to report on. Elsewhere, climate change-related legislation or policy announcements provide such hooks. Ireland, however, is seen as a "laggard" (Torney and Little, 2017) when it comes to policy responses to climate change, and these opportunities for coverage do not often arise. Consequently, coverage hooks become restricted to international conferences and the release of scientific reports. These news hooks in turn promote certain media

frames: conferences invite political framings, while IPCC reports lend themselves readily to disaster frames (Painter, 2013, 2014).

Journalists themselves offered a timeline of coverage as they experienced it in their workplace: a general lack of interest on the part of editors in the early 2000s followed by a surge of interest from 2006 onwards. The Stern Report (2006), the release of the movie *An Inconvenient Truth* (2006) and the release of the Fourth Assessment Report of the IPCC (2007) provided raw material and pretext for coverage of the issue. This account again emphasises the need for "news hooks" on which to hang coverage and also links to the news value of "continuity", whereby a topic already in the news is more likely to receive coverage than a completely novel topic. In 2006 (the Stern Report, *An Inconvenient Truth*) and 2007 (AR4, the Green Party entering government and attending the Bali COP), climate change was in the news, and news organisations were more disposed to cover it. However, according to one environment correspondent, "by 2008, it was gone" (Paul Cunningham, personal interview, 2015).

In the absence of news hooks, and seeking to gain approval from their editors for story proposals, journalists often framed their articles in ways which they knew would be congruent with the general approach of their news organisation. At the Independent group, which sees itself as representing "middle Ireland" (Cormac Bourke, personal interview, August 1, 2017), economic frames were favoured, while at the *Irish Daily Mail,* contrarian tactics were often employed. This replication of newsroom culture, taking place at the level of individual news editor or reporter, in turn served to amplify the ideological stance of the wider news organisation and led to media-wide coverage of the issue that emphasised approaches and solutions from within the economic and political status quo.

Journalists are motivated to provide climate change coverage to their news organisations, and showed considerable ingenuity in overcoming institutional apathy towards the subject. A frequently used strategy was to connect climate change to coverage of other, related topics such as air pollution, water quality, waste management, flooding and planning. This disaggregation of climate change had the effect of depoliticising it, of reducing it to constituent issues about which there is little or no disagreement. The academy is divided on whether this tactic is necessary to build broad coalitions across political divides, or whether such political sanitisation of climate change in fact discourages deep engagement by the public.

The divergent approaches of the media advisors to the two Green Party ministers in government from 2007 to 2011 also influenced the media's coverage of climate change. In the case of the Minister for Communications, Energy and Natural Resources, the media message emphasised the necessity of dealing with climate change through a pro-business, ecomodern approach, and coverage of this minister's policy initiatives, public statements and appearances was positive (Bríd McGrath, personal interview, February 8, 2017). The Minister for the Environment, Heritage and Local Government foregrounded the personal lifestyle choices of the Green Party members of parliament, and his policies involved more negative measures, such as the introduction of bans and taxes. This invited the media to explore possible divergence between his public statements and his private behaviour, and resulted in more negative coverage. The employment of two former journalists as media advisors to this minister contributed to an adversarial relationship between the media and the minister's press team, fuelling further negative coverage of climate change-related policy measures (Ibid.).

The presence of two Green Party ministers in cabinet had a complex effect on media coverage. Journalists interviewed for this research stated that a Green voice in government provided them with more "news hooks" on which to hang coverage, and the data supports the view that, when coverage of the Green Party increased, so also did coverage of climate change. However, the Green Party "signal" in the coverage of climate change is weak, and only 9.2% of climate change coverage mentions the Green Party. As mentioned above, some of this coverage could be negative, and, given the circumstances in which the Green Party left government, it is likely that they had a negative effect on the media's attention for climate change at that time.

The journalists, politicians and media operatives interviewed for this research agree that the financial crisis which began in mid-2008 had a significant negative impact on media attention for climate change. The news values to which journalists subscribe mean that more immediate, dramatic and negative events take precedence in the news agenda over events which do not exhibit these characteristics. However, when the views of interviewees are considered in the light of the data on media attention for climate change, a more complex picture emerges. Although the effects of the financial crisis began to be felt in Ireland from the summer of 2008 (RTE News, 2008), media coverage of climate change did not decline until December, 2009, in line with international trends. This suggests the "crowding-out" effect (Djerf-Pierre, 2012a) may be a more drawn-out process that previously suggested. The importance of the December 2009 climate change conference in Copenhagen may have been a factor in maintaining coverage levels.

There may be a further dimension to the crowding-out effect. The initial research into this aspect of media dynamics concluded that news of armed conflict and financial crises pushed environmental issues off the media agenda (Ibid.). It may be the case that attempts to communicate via the media on environmental issues at such times are counterproductive. In November, 2010, the "troika" of the International Monetary Fund, the European Central Bank and the European Commission, instituted an "Economic Adjustment Programme" for Ireland, known colloquially as "the bailout". At that time, the Green Party was trying to steer a Climate Change Bill through parliament. It is evident from the statements of journalists and ministerial media advisors working at that time that, not only had media attention for climate change-related matters declined, but that attempts to increase media interest for climate change at a time of financial crisis provoked an antagonistic response. Not only were the media uninterested in climate change, they viewed attempts to promote it up the media agenda as naïve and even unpatriotic (Bríd McGrath, personal interview, February 8, 2017).

In the next chapter, it is intended to place these findings regarding the influence of the Green Party on coverage, and the perspectives of journalists, politicians and media advisors, in the context of this research project as a whole. The conclusions drawn from the investigation of Ireland's media coverage of climate change, and possible avenues for further research suggested by these conclusions, will also be discussed.

Chapter 7
Conclusion

7.1 Introduction

This research set out to answer the question: what were the framing strategies used by Irish journalists, politicians and political advisors around climate change in the period 2007 to 2016? It is evident from the scholarship of agenda-setting and agenda systems that journalists, policymakers, politicians and other claims makers become engaged in a competition to promote certain issues to the top of the media and policy agenda, and to impose a framing of that issue favourable to their position (McCombs and Shaw, 1972; Baumgartner and Jones, 1991; Kingdon, 1995; McCombs, 2004; Nisbet and Huge, 2006). Some theorists assign greater agency to certain contestants in this competition than to others. For instance, theories of media effects, such as agenda-setting, framing and priming (discussed in chapter 3), claim that the media wield considerable power in influencing the public and policy arenas. Agenda systems theorists suggest that policy sub-systems or sub-governments are the most important agents in the process of pressing for responses to social problems. Other perspectives, such as the mediated issue development model suggested by Nisbet and Huge, plot something of a middle path, giving roughly equal weight to the policy and media aspects of the process. Journalists, politicians and other "issue enterpreneurs" (Ashe, 2013) are involved in a complex competitive process to increase the salience of an issue and to impose their chosen framing on the issue discourse.

In this chapter, it is intended to discuss the findings of this thesis and to set them in a wider context. Firstly, the limitations of this research are set out, and subsequently, the contribution to knowledge of this work is discussed. The findings of this thesis

concerning the extent of climate change coverage in the Irish print media, the perspective of journalists and editors, of media advisors and government ministers are then analysed and discussed. The influence of the Green Party on media coverage of climate change is also discussed. The relevance of Nisbet and Huge's mediated issue development to the Irish context is analysed. Finally, some best-practice recommendations for those communicating about climate change are presented.

7.2 Acknowledgement of the limitations of this research

At the outset of this chapter, it is important to acknowledge any limitations in the research design, methodology or data in this research (Ioannidis, 2007). The most important limitation relates to the data available for analysis. The LexisNexis database is not comprehensive, and the record for certain newspaper titles is poor. For instance, the content of the *Evening Herald* newspaper is recorded for just a few months, and was therefore excluded from analysis. Other titles, such as the *Irish Examiner* and the *Irish Daily Mail* are recorded for relatively recent years only. Every effort to compensate for these lacunae was taken in calculating average levels of coverage over the period concerned. The LexisNexis database is also deficient when it comes to recording article authorship; some 30% of articles do not have the relevant metadata to enable author identification. Where such articles are quoted, searches of the relevant media organisation's website were undertaken. This process was only partially successful, and despite considerable effort, the lack of authorship data remains a limitation of this research.

The data reduction methods used in this thesis may also constitute a limitation. In selecting articles of 500 words or more, many shorter news stories were excluded. Their

inclusion, it could be argued, would contribute to the understanding of the nature of Ireland's media coverage of climate change. However, it is possible to defend the decision to analyse longer articles on the grounds that they are likely to be more complex texts, containing more frames and therefore more suited to a qualitative content analysis. Also, shorter articles were accounted for in the initial quantitative content analysis. Despite efforts to mitigate against the factors described here, it must be acknowledged that these three elements – imperfect data records, inconsistent recording of authorship and analytic focus on longer climate articles – constitute limitations of this research. The decision to omit news sources from the data coding instrument may also be construed as a limitation; however, as I have argued (in section 4.11), despite the power of sources to influence news content, the power to frame the news remains with the journalist. Thus, a framing analysis is an appropriate means of examining the dynamics of the competition between strategic actors to influence media frames.

7.3 The contribution to knowledge

This thesis, I would argue, makes a contribution to our knowledge of how the media operates in relation to climate change, and how the competition to impose dominant framing via the media plays out. Firstly, this thesis measures media attention for climate change among seven national newspapers over a 10-year period, addressing a key knowledge gap. Secondly, the frame analysis presented here sets out how such coverage is framed, both in terms of dominant and secondary frames, again adding to our understanding of framing of climate change in the Irish context.

The framing strategies of journalists covering climate change are uncovered by this frame analysis, and a further level of analysis is added by interviews with key

environmental journalists and newspaper editors. This allows for insights into how journalists and editors think about climate change and approach the topic professionally. These perspectives have been lacking in research into media coverage of climate change, and the analysis presented here allows for a greater understanding of the influence of news values and newsroom cultures on climate change coverage, as well as permitting insights into how individual media organisations approach and frame the issue.

The perspectives of media advisors presented here also contributes to our understanding of the frame competition around climate change. The data from interviews with three media advisors provides valuable insights into the communications strategies of political operatives and allows for an assessment of the effectiveness of their differing approaches to framing the issue of climate change.

The interviews with two former government ministers provide a rare and privileged perspective on the approaches to communicating with the media about climate change adopted by key figures in the environmental space during the period under examination. The analysis of their differing framing strategies, and of the reaction of the media to these approaches, goes some way to addressing a key knowledge gap concerning the frame competition around climate change.

Lastly, the investigation into the extent to which having a Green Party in government affects media interest in climate change adds to our understanding of influencing factors on levels of media attention. The perspectives of journalists, editors, media advisors and

ministers on the question of Green Party influence on media coverage are also of value in understanding the relationship between the media and environmental politics.

This research deepens our understanding of how the media cover climate change by focusing on the competitive framing environment around the topic. Other studies focus on media texts to make points about the nature of media discourse or media framings (for example, Boykoff & Boykoff, 2004, 2007; Eide & Ytterstad, 2011; McCright & Dunlap, 2014; Schmidt, Ivanova, & Schäfer, 2013), but do not examine the contest between other actors and the media themselves to impose a dominant frame. Although other studies bring interviews with working journalists to bear on their analysis (Boykoff, 2008; Boykoff and Mansfield, 2008; Jennings and Hulme, 2010), none that I am aware of includes the perspectives of government ministers and their media advisors. These privileged insights allow for a more detailed examination of the framing process, and allow the reader to see the mechanics of the process, as it were, whereby politicians and their "media handlers" attempt to influence the media by conveying information about climate change through certain frames, while the media, adhering closely to their professional norms and news values, mostly resist such strategies and impose their own, more familiar journalistic frames.

7.4 The extent and nature of print media coverage of climate change

It is evident from the data presented in this thesis that print media coverage of climate change in Ireland largely conforms to international norms, both in levels of coverage and in coverage patterns. However, coverage in Ireland was found to be below the European average according to one international monitoring project. Coverage of climate change accounted for an average of 0.843% of total news coverage, and

coverage of the issue exhibited dramatic peaks and troughs. Coverage peaked at times of

UN climate change conferences and the release of UN climate reports, but suffered

severe fall-offs in coverage at other times. The financial crisis of late 2008 had a delayed

effect, with coverage remaining quite strong until December 2009 (the time of the

Copenhagen climate conference), after which it experienced a dramatic decline. These

levels and patterns are largely in accord with trends established in other territories

(Schmidt, Ivanova and Schäfer, 2013; McAllister *et al.*, 2017).

However, a frame analysis of a representative sample of this coverage reveals that some

aspects of Ireland's print media coverage of climate change are unexpected: for

instance, the relatively sparse representation of the agriculture frame is noteworthy. The

agriculture frame accounted for just 3.1% of all frames, suggesting that the Irish media

has not yet fully engaged with examining or questioning the role of agriculture in

Ireland's emissions profile. When the agriculture frame is present, the content coded to

this frame is concerned with targets and emissions measurement; there is little or no

questioning of the policy of encouraging further growth and intensification in the

agriculture sector, regardless of the impact on emissions.

The frame analysis also finds that Ireland's coverage is largely political – the political

and ideological contest frame comprises 24.28% of all frames. Again, at first glance,

this seems to be in line with international norms (O'Neill, H. Williams, *et al.*, 2015).

However, closer analysis reveals that much of this coverage is concerned with party

political jostling for advantage, while deeper political issues remain unaddressed.

Other findings of the frame analysis show a considerable representation of the morality frame (9%), suggesting that Irish coverage presents strong arguments concerning climate justice and just transition to a low-carbon society. However, most of the coverage presented in the morality and ethics frame contains sceptic representations of climate change as akin to a religion or an unquestionable dogma.

In general, Ireland's coverage of climate change in the print media is normative in terms of levels and trends. However, once closer attention is paid to the nature of such coverage, it is clear that Ireland's coverage remains at a superficial level, avoiding deep engagement with the social, political and moral implications of climate change. The surface nature of the coverage is reflected in the focus on targets, measurements, dismissive scepticism and party political considerations.

7.5 The perspectives of journalists and editors

Journalists find climate change a difficult story to cover, predominantly because it does not align well with the news values of the profession. Several journalists remarked that the long time-horizons of climate change made it difficult to convince news editors of the immediate need for coverage, while the relative lack of visible impacts in Ireland contributed to the difficulty in securing space in the newspaper for the topic.

It is noteworthy that, although the data from newspaper coverage shows that political framings were by far the most common, the journalists interviewed suggested that they themselves tried to present climate change through the economic frame by means of linking the impacts of climate change or of mitigation or adaptation measures to individual impacts. In fact, several interviewees downplayed the role of politics in their

coverage of the issue. The two newspaper editors interviewed also suggested that climate change coverage in their particular titles was focused on impacts, often financial impacts, rather than on political considerations.

This points to a disconnect between the nature of the actual coverage of climate change and the journalists' own perception of how they, and their newspaper titles, present it. Environmental journalists, when asked to reflexively analyse their framing strategies, suggest that the economic frame is most successful. This is how journalists, when having to pitch stories to their editors, frame climate change. However, much climate change coverage is reactive, covering set-piece events and conferences, and thus bypasses the process whereby the reporter researches and pitches a story for inclusion in his organisation's publication. Left to their own devices, journalists favour economic framings, but when assigned to cover events, revert to political ones. As discussed above, the data makes it clear that significant peaks in coverage occur around UN climate conferences; these are essentially political gatherings, and the political or ideological contest frame is prominent in the coverage at these times (O'Neill et al., 2015). These events are the main drivers of climate change coverage, and call forth political framings from journalists.

Journalists also frame climate change in ways that appeal to their editors. Thus, the newsroom culture of a particular media organisation has a considerable influence on the frames that are eventually transmitted to the public. The need to satisfy editors as to the newsworthiness of climate change stories also means that the topic remains contained in a journalistic culture, at a remove from the scientific reality of climate change and from its social and political aspects. The institutional cultures of the Independent Group and

the *Irish Examiner*, for instance, perceive climate change through the lens of impacts on individual and family incomes, while the *Irish Times* culture emphasises climate politics and a global perspective.

It is also apparent that the topic of climate change is in the process of being segmented into constituent sub-frames, such as planning, flooding, resource management and waste management. These sub-frames are more easily aligned with traditional news values, are smaller in scale, more local in relevance, and can be linked to the larger whole of climate change by the journalist.

7.6 The perspectives of ministers and media advisors

The framing strategies of politicians and political operatives were investigated by means of semi-structured interviews with two Green Party ministers, their respective media advisors and the former deputy government press secretary. The two Green Party ministers interviewed for this thesis had differing approaches to communicating about climate change. The differences were apparent both from their own responses to interview questions and from the perspectives of their media advisors. John Gormley, the former Minister for the Environment, Heritage and Local Government, sought to emphasise actions individuals could take to mitigate climate change. Among the initiatives his department introduced were a transition to an emission-based motor tax regime, changes to energy-efficient light bulbs and a carbon tax on fossil fuels. He also initiated a public information campaign linking climate change to individual lifestyle choices, and suggested that the Green Party ministers choose hybrid vehicles over conventional cars as their ministerial transport. Given this foregrounding of individual emissions reduction actions, it was predictable that the media would seek to expose any

hypocrisy in Gormley's personal behaviour or in that of the other Green Party representatives. The *Irish Daily Mail* in particular engaged in a campaign in undermining the legitimacy of the Green Party's position on climate change by seeking to highlight any party activity that caused excessive (or indeed any) GHG emissions. Furthermore, the employment by Gormley of two former journalists as media advisors may have been counterproductive, as it led to an abrasive relationship between the media and the minister and his staff. A further complication factor in assessing Gormley's communications strategy is his role as party leader, which required him to engage with the media on party issues such as ministerial and Seanad appointments, the Greens' relationship in government with Fianna Fáil, and its reaction to various pronouncements by Fianna Fáil Taoisigh (partly leaders) Bertie Ahern and Brian Cowen. The media's coverage of Gormley, therefore, is based on more than his performance and qualities as a minister.

Eamon Ryan, the former Minister for Communications, Energy and Natural resources, emphasised narratives of ecological modernisation in his communications with the media. Each departmental communication contained a mention of climate change, but technological solutions, rather than individual actions, were foregrounded. Ryan's activities in office concerned expansion of the energy grid, the introduction of new postal codes, the establishment of investment incentives for renewable energy and the introduction of electric vehicles. These were presented in a positive, business-friendly context.

Similarly, the media advisors to both ministers had different approaches. John Downing, the deputy government press secretary, found that he was not called upon to deal with

media queries concerning climate change; the bulk of his dealing with the media concerned politics. Liam Reid, who worked more closely with Gormley on media relations, was required to head off or otherwise deal with negative coverage of the party leader. Whatever framing strategies they may have favoured were secondary to "reacting, firefighting, trying to manage, trying to dial down, trying to deal." (John Downing, personal interview, February 23, 2017).

Bríd McGrath, who worked with Ryan, had more success with a framing of economic opportunity in her communications with the media. She also employed a tactic of strategic placement of stories, allocating events, announcements and policy proposals to a series of specialist publications and specialist correspondents. She also stated that not having worked as a journalist was an advantage, as journalists treated her more professionally and her relationship with them was less hostile than those of her colleagues.

In summary, Gormley and his team sought to communicate climate change as a real danger the solution to which lay partly in changing individual behaviour. The emphasis on personal behaviour invited media scrutiny of Gormley's own behaviour. Ryan and his advisor stressed the economic and opportunity frames, which was a more successful media strategy as it avoided the stereotype of environmentalists "talking down" to their audience, or lecturing them from on high.

7.7 Dynamics of the frame competition

The competitive framing environment around climate change in the timeframe of this study was a complex one. The framing strategies of the media, government ministers

and their advisors were discussed above in isolation; in this section, how they performed when coming into contact with one another is discussed. Gormley attempted to frame the issue as one in which individual lifestyle choices were a key means of tackling rising emissions. This is similar to the responsibility frame identified in studies of generic frames (Semetko and Valkenburg, 2000). In a significant contribution during our interview, Gormley, speaking about a public information campaign, said that "…we were trying to make them see, to make the connection between what they were doing in their daily lives and the big, big issue of climate change" (John Gormley, personal interview, April 13, 2015). Ryan, on the other hand, emphasised the economic and opportunity frames. Gormley's media advisors were forced into reactive strategies by the responsibility framing adopted by their minister, while Ryan's advisor was able to be more proactive and strategic in her framing.

The media, meanwhile, reported on climate change largely as a political or ideological contest. They engaged in what could be called meta-coverage: they did not, to any great degree, adopt the frames put forward by politicians or media advisors, but reported on the two competing framing strategies through their own preferred game or strategy frame. Thus, the substantive issues of the impact of personal actions, or of the economic impacts or opportunities of climate change were not engaged with, but rather a meta-narrative of how these tactics were succeeding relative to one another in the political arena was presented. The media did not undertake journalism which considered the problem and investigated the relative merits of proposed solutions; instead they covered only the politics of climate policy, essentially writing about the contest between Gormley and Ryan interpretations of the issue – meta-coverage that bypassed the topic itself.

7.8 Mediated issue development and the Irish context

The theories of agenda systems considered earlier (Chapter 3, sections 3.7 to 3.13) seek to explain why some issues rise to the top of the public and policy agenda, while others do not. In most of these theoretical models, the media are seen as relatively passive and stable components, without the power of agency. However, one model, the mediated issue development model (Nisbet and Huge, 2006), allows for a more active and influential role on the part of the media. To recap briefly, according to this model (analysed in detail in section 3.13), four factors contribute to the rise of a particular issue: the type of policy venue involved, the media lobbying activities of interested parties, the influence of professional norms and news values on the journalists reporting on the issue, and the context of the issue relative to other competing issues.

The mediated issue development model has considerable explanatory power when it comes to understanding the progress of climate change as a media, public and policy issue in Ireland. Many of the elements suggested by the authors as being necessary for an issue to rise to the top of the media, public and policy agenda are present in the Irish case. For instance, as has been shown in this thesis, there is considerable competition to frame the issue of climate change in an advantageous way by strategic actors, such as Green Party politicians, agricultural organisations, business organisations and environmental NGOs.

Nisbet and Huge also argued that, in order to be "successful", an issue must transition from specialist reporting, such as in the science or environment sections, into general and political reporting. In Ireland, such a transition has partially occurred, as climate

change is largely reported as a political issue. However, such coverage is confined to party political issues rather than more profoundly political or ideological considerations.

Furthermore, the mediated issue model envisages a media environment in which news organisations are large enough to have separate science, environment, politics and general news sections or departments. In the Irish context, only the *Irish Times* publishes science and environment sections, and these extend only to one or two pages on a weekly basis. As the interviews carried out for this thesis show, environment correspondents are expected to cover both the scientific and political aspects of climate change.

The policy venue in which debates over a particular issue take place is also an important factor, the authors argue. When an issue is confined to technical or scientific venues, media coverage is low; but when the issue moves to more overtly political arenas, the possibility of conflict arises, and media coverage increases. In the case of Ireland, the response to climate change during the period considered by this thesis has been characterised by a lack of policy debate and an absence of policy proposals (Climate Change Advisory Council, 2017b; Torney and Little, 2017).

The mediated issue development model also suggests that journalistic norms and news values have a considerable influence on the progress of an issue to the top of the public and policy agendas. When an issue is covered by specialist correspondents, it tends to be framed in scientific or technical terms. However, once it begins to be covered by political correspondents and general news reporters, it is more likely to be presented in the strategy frame and media coverage increases. In the case of Ireland, news values and

journalistic norms have had a significant influence on both the levels and nature of climate change coverage. Journalists interviewed for this thesis have stated that climate change does not align well with the news values by which news topics are evaluated. However, the strategy frame (or the political frame as it is called in this thesis) dominates press coverage.

The authors also suggest that an issue such as climate change will be judged in context relative to other competing issues. It is clear that Irish coverage of climate change was adversely affected by the collapse of the country's banking system, the imposition of a financial rescue package by the "troika" of the European Commission, the European Central Bank and the International Monetary Fund, and by the global financial crisis of late 2008-2009.

In conclusion, it is clear that mediated issue development can contribute to an understanding of Ireland's print media coverage of climate change. However, the model is not wholly suited to the Irish context because (i) the policy venue debates envisaged by the model have been absent in Ireland; (ii) Irish media organisations are not large enough to accommodate the reporting transitions put forward by the authors, and (iii) it was not possible for climate change to maintain its position on the media agenda in the context of the dramatic deterioration of the country's financial position.

7.9 Recommendations for best practice in covering and communicating about climate change

Some conclusions may be drawn from the findings and subsequent discussion and analysis presented in this thesis with regard to best practice for those communicating

about climate change. These best practice recommendations are based solidly on the research presented here, and relate both to journalists covering the issue, and to those wishing to increase or influence the nature of media coverage.

Firstly, it is evident that employing a dedicated environmental correspondent serves to increase the level of coverage of climate change in a media organisation. The decline in the levels of coverage in the *Irish Times* in the absence of an environment correspondent, is apparent from the data presented here, as is the increase in the levels of coverage of climate change published by the *Irish Independent* since the appointment of an active and engaged correspondent. The coverage of climate change by the national broadcaster, RTÉ, was found to decline following the departure of a dedicated environment correspondent (Cullinane and Watson, 2014).

Furthermore, employing a dedicated correspondent may change the nature of a media organisation's coverage. Specialist correspondents have more autonomy in the newsroom, are freer to express opinions and are treated as independent experts whose judgment can guide coverage (M. Schudson, 2001; Hiles and Hinnant, 2014). The correspondents interviewed for this thesis exhibited considerable resourcefulness and ingenuity in pitching stories to their editors and in deploying a range of framing strategies. They were also more active in generating original news material rather than reporting from events. Thus, specialist correspondents may help move news organisations away from an over-reliance on the strategy and conflict frames towards more positive and engaging framings, such as the opportunity and morality frames.

Secondly, a strong argument may be made that a reporting strategy based on coverage of the constituent elements of climate change, rather than the issue as a hegemonic whole, may be successful. Data from the interviews with journalists and editors suggest that topics such as planning, air pollution, water quality, environmental protection, energy efficiency measures and technological advances may align more closely with the news values of editors. These topics may then be linked with the larger issue of climate change in the text of the news article.

Furthermore, it is apparent that journalists assigned to cover set-piece events such as international climate change conferences or the release of climate reports revert to familiar political or disaster frames in their reports, whereas journalists who propose original, "off-diary" coverage have more freedom to deploy a wider range of framing strategies. Journalism which reacts to events is characterised by a more limited range of frames, while proactive, original journalism is more diverse in its framing.

For those wishing to influence media coverage of climate change, it is clear from the evidence presented in this thesis that some framing strategies are more successful than others. The responsibility frame, deployed by the former Minister for the Environment, John Gormley, proved counterproductive, and produced a hostile reaction, particularly from news outlets publishing content sceptical about climate change. The economic and opportunity frames proved more successful when employed by the former Minister for Communications, Eamon Ryan. However, it proved difficult for those seeking to influence media coverage to persuade journalists to abandon their preferred conflict and strategy framings, suggesting that, while external actors may increase levels of coverage, influencing the nature of coverage may prove more difficult.

It is also evident that a flexible approach, tailoring communications material (and how such information is framed) to specific news outlets can attract coverage. The media advisor to the Minister for Communications employed such a strategy, directing differing material to television, newspapers, specialist outlets and websites (Bríd McGrath, personal interview, February 8, 2017).

This approach was in contrast to her colleagues (John Downing and Liam Reid) working with the Minister for the Environment. These media advisors spent considerable amounts of time attempting to discourage or minimise negative coverage. Both had worked previously as journalists for print newspapers. While this experience gave them valuable insights into news routines and journalism practice, it also meant they had existing relationships with the political, environment and news journalists they now dealt with as media advisors (John Downing, personal interview, February 23, 2017; Bríd McGrath, personal interview, February 8, 2017). This state of affairs in turn meant it was difficult to maintain an appropriate professional distance from those journalists they engaged with, and calls into question the advisability of employing former journalists as press advisors.

Journalists covering climate change offered recommendations for improving both the level of coverage, and its content. Improved scientific literacy among journalists would help in being able to summarise complex documents (Claire O'Sullivan, personal interview, June 16, 2015), and less newsroom pressure would allow reporters to investigate the issue more deeply (Kevin O'Sullivan, personal interview, August 14, 2017). Journalists should ignore sceptic arguments (Frank McDonald, personal

interview, May 15, 2015), attend to the local implications of international events and concentrate on the disparity between goals and targets and actions deployed to achieve them (Paul Cunningham, personal interview, April 24, 2015). All, however, emphasised the difficulties in communicating the complexities of the issue.

The perspectives of media advisors in relation to media practice is also valuable. Those seeking media coverage must provide effective communication, rather than "blame the conduit guys", who may be uninterested in climate change and are often "cut and paste merchants" (Bríd McGrath, personal interview, February 8, 2017). This viewpoint links to arguments about a lack of material on which journalists can base their reports. Perhaps, instead of attempting wholesale changes in the way the media operates, it may be more productive for actors to tailor their communications to appeal to the media as they are currently constituted. The media need something to report on. Few newsrooms, especially in Ireland, have the resources to carry out investigations *ab initio*. In his comparison between climate change coverage in 1988 and 2012, Sheldon Ungar pointed to a key difference between the two periods. In 1988, there were multiple "inputs" relating to climate change: events, speeches, hearings, reports and protests (Ungar, 2014). In short, there were matters the media could report on, pretext under which climate change could be covered. In Ireland, given the lack of action on climate change, there are relatively few occasions for coverage: sparse legislation, a dearth of policy initiatives and few parliamentary debates. If there is little action on climate change by way of reports, policy initiatives, parliamentary debates or climate legislation, then the news hooks on which journalists can hang stories are missing. Climate change is inherently repetitive, and, as a range of social theorists have noted, focusing events are required to promote issues up the agenda ladder. Journalists need these focusing events

also, as a pretext under which climate change related material can be published. The environmental journalists interviewed for this thesis are ready to take advantage of any inputs from the policy or politics spheres as a means by which climate change information can be put before the public.

7.10 Implications for further research

The competition to establish dominant frames in relation to intractable social and political issues is a complex process. This research has analysed the dynamics of this contest as it relates to climate change, and as it involved journalists, government ministers and their media advisors. The role of other actors in this process, such as NGOs, lobbyists, industry figures and civil society, has not been examined in this thesis, and could be acknowledged by further research.

Likewise, research into the nature of climate change coverage as presented through other media in Ireland – social media, local press, specialist publications, blogs – could further uncover the dynamics of the frame competition. The role of the farming press and the provincial press, in particular the *Farmers' Journal*, might repay examination in relation to urban vs rural framings of climate change and in light of the *Journal*'s role in promoting the sceptic Irish Climate Science Forum (Gibbons, 2017).

The diverging communications strategies of the two government ministers interviewed for this thesis could also be examined in greater detail. Their alignment with the "realo" and "fundi" perspectives of the wider green movement, and a content analysis of their official departmental communications, could form the basis of further scholarly

investigation, and might also be widened to include investigations of the communications strategies of Greens in other countries.

This thesis provides a basis for further research concerning the changing role of sceptics in the frame competition around climate change. The identification of new rhetorical strategies employed by sceptics – the "honest broker" and the "climate dismissives" – could form part of a more modern typology of denial to update previous ones, such as Rahmsdorf's 2004 model.

Lastly, the results and analysis provided here could form the starting point for several cross-national studies on media coverage of climate change. For instance, a study of media coverage of climate change in other European states affected by the global financial crisis of 2008-2009, such as Portugal, Spain and Greece could be examined. The influence of Green parties in other countries might also be examined with a view to establishing the effect of Greens in power on national media coverage of environmental issues.

Bibliography

't Hart, P. and Tindall, K. (2009) 'Leadership by the famous: celebrity politics in democracy', in Kane, J., Patapan, H., and 't Hart, P. (eds) *Dispersed Democratic Leadership*. Oxford University Press.

Aalberg, T., van Aelst, P. and Curran, J. (2010) 'Media Systems and the Political Information Environment: A Cross-National Comparison', *The International Journal of Press/Politics*, 15(3), pp. 255–271.

Abbott, A. (1988) *The System of Profession: An Essay on the Division of Expert Labor*. Chicago: University of Chicago Press.

Abou-chadi, T. (2014) 'Niche Party Success and Mainstream Party Policy Shifts – How Green and Radical Right Parties Differ in Their Impact', *British Journal of Political Science*, 46(2), pp. 417–436.

Adamic, L. A. and Glance, N. (2005) 'The political blogosphere and the 2004 U.S. election', *Proceedings of the 3rd international workshop on Link discovery - LinkKDD '05*, pp. 36–43.

Van Aelst, P. and Walgrave, S. (2011) 'Minimal or Massive? The Political Agenda-Setting Power of the Mass Media According to Different Methods', *The International Journal of Press/Politics*, 16(3), pp. 295–313.

Ahchong, K. and Dodds, R. (2012) 'Anthropogenic climate change coverage in two Canadian newspapers, the Toronto Star and the Globe and Mail, from 1988 to 2007', *Environmental Science and Policy*. 15(1), pp. 48–59.

Ahern, B., Harney, M. and Sargent, T. (2007) 'Programme for Government, 2007-2012'. Dublin: Government of Ireland.

Aldridge, M and Evetts, J. (2003) 'Rethinking the concept of professionalism: The case of journalism', *Journal of Sociology*, 54(4), pp. 547–564.

Alier, J. M. (2009) 'Socially Sustainable Economic De growth', *Development and Change*, 40(6), pp. 1099–1119.

Alterman, E. (2008) 'Out of Print: The Death and Life of the American Newspaper', *The New Yorker*.

Altschull, J. H. (1995) *Agents of Power: The media and public policy*. White Plains, New York: Prentice Hall.

An Taisce (2015) 'Worst possible start to COP21 for Ireland as Taoiseach drops ball on Day 1', *Press statement released by An Taisce, November 30, 2015. Available at http://www.antaisce.org/articles/worst-possible-start-to-cop21-for-ireland-as-taoiseach-drops-ball-on-day-1*.

Anderson, A. (2009) 'Media , Politics and Climate Change : Towards a New Research Agenda', *Sociology Compass*, 2(3), pp. 166–182.

Anderson, A. (2011) 'Sources, media, and modes of climate change communication: the role of celebrities', *Wiley Interdisciplinary Reviews: Climate Change*, 2(4), pp. 535–546.

Anderson, A. (1997) *Media, culture and the environment*. Routledge.

Anderson, K. and Peters, G. (2016) 'Act Now, Not Tomorrow', *New Scientist*, pp. 19–20.

Anderson, K. and Peters, G. (2016) 'The trouble with negative emissions', *Science*, pp. 182–183.

Antilla, L. (2005) 'Climate of scepticism: US newspaper coverage of the science of climate change', *Global Environmental Change*, 15(4), pp. 338–352.

Antilla, L. (2010) 'Self-censorship and science: a geographical review of media coverage of climate tipping points', *Public Understanding of Science*, 19(2), pp. 240–256.

Arlt, D., Hoppe, I. and Wolling, J. (2011) 'Climate change and media usage: Effects on problem awareness and behavioural intentions', *International Communication Gazette*, 73, pp. 45–63.

Ashe, T. (2013) *How the Media Report Scientific Risk and Uncertainty: A Review of the Literature*. Oxford: Reuters Institute for the Study of Journalism

Atwater, T. (1985) 'Media agenda-setting with environmental issues', *Journalism Quarterly*, 62(2), pp. 393–397.

Aykut, S. C., Comby, J.-B. and Guillemot, H. (2012) 'Climate change controversies in French mass media 1990–2010', *Journalism Studies*, 13(2), pp. 157–174.

Bacon, W. and Nash, C. (2012) 'Playing the media game: the relative (in) visibility of coal industry interests in media reporting of coal as a climate change issue in Australia', *Journalism Studies*, 13(2), pp. 37–41.

Bailey, K. D. (1987) *Methods of Social Research*. 3rd edn. New York: The Free Press.

Barriball, K. L. and While, A. (1994) 'Collecting data using a semi-structured interview: a discussion paper.', *Journal of Advanced Nursing*, 19(2), pp. 328–335.

Baumgartner, F. R. and Jones, B. D. (1991) 'Agenda Dynamics and Policy Subsystems', *The Journal of Politics*, 53(4), pp. 1044–1074.

Baumgartner, F. R. and Jones, B. D. (1993) *Agendas and instability in American politics*. Chicago: University of Chicago Press.

Bazeley, P. and Jackson, K. (2013) *Qualitative data analysis with NVivo*. Thousand Oaks, California: Sage Publications.

Beam, R. A., Weaver, D. H. and Brownlee, B. J. (2009) 'Changes in Professionalism of U.S. Journalists in the Turbulent Twenty-First Century', *Journalism & Mass Communication Quarterly*, 86(2), pp. 277–298.

Béland, D. and Howlett, M. (2016) 'The Role and Impact of the Multiple-Streams Approach in Comparative Policy Analysis', *Journal of Comparative Policy Analysis: Research and Practice*, 18(3), pp. 221–227.

Bell, A. (1994) 'Media (mis)communication on the science of climate change', *Public*

Understanding of Science, 3, pp. 259–275.

Bell, D. (1986) *Is the Irish Press independent? Essays on ownership and control of the provincial, national and international press in Ireland*. [Dublin, Co. Dublin]: Media Association of Ireland.

Bell, M. (1998) 'The journalism of attachment', in Kieran, M (ed) *Media Ethics*. London: Routledge, pp. 15–22.

Benford, R. D. (2010) 'Framing Global Governance from Below: Discursive Opportunities and Challenges in the Transnational Social Movement Era', in Bjola, C. and Kornprobst, M. (eds) *Arguing global governance: agency, lifeworld and shared reasoning*. London; New York: Routledge, pp. 67–84.

Bennett, W. L. (1996) 'An introduction to journalism norms and representations of politics', *Political Communication*, 13(4), pp. 373–384.

Van Den Berg, H. (2005) 'Reanalyzing Qualitative Interviews from Different Angles: The Risk of Decontextualization and Other Problems of Sharing Qualitative Data', *Forum: Qualitative Social Research*, 6(1) [Online journal].

Besio, C. and Pronzini, A. (2010) 'Unruhe und Stabilität als Form der massenmedialen Kommunikation über Klimawandel', *Der Klimawandel*, pp. 283–299.

Best, J. (2002) 'Constructing the Sociology of Social Problems: Spector and Kitsuse Twenty-Five Years Later', *Sociological Forum*, 17(4), pp. 699–706.

Billett, S. (2010) 'Dividing climate change : global warming in the Indian mass media', *Climatic Change*, 99(1), pp. 1–16.

Bimber, B. and Davis, R. (2003) *Campaigning online: The Internet in U.S. elections*. Oxford: Oxford University Press.

de Blasio, E. and Sorice, M. (2013) 'The framing of climate change in Italian politics and its impact on public opinion', *International Journal of Media and Cultural Politics*, 9(1), pp. 59–69.

Blumler, J. G. and Cushion, S. (2014) 'Normative perspectives on journalism studies: Stock-taking and future directions', *Journalism: Theory, Practice & Criticism*, 15(3), pp. 259–272.

Booker, C. (2009) *The Real Global Warming Disaster: Is the Obsession with 'Climate Change' Turning Out to be the Most Costly Scientific Blunder in History?* London: Continuum.

Booker, C. and North, R. (2007) *Scared to Death: From BSE to Global Warming — How Scares Are Costing Us the Earth*. London: Continuum.

Booth, W. C., Colomb, G. G. and Williams, J. M. (2008) *The Craft of Research*. 3rd edn, *The Craft of Research*. 3rd edn. Chicago & London: University of Chicago Press.

Borah, P. (2011) 'Conceptual Issues in Framing Theory: A Systematic Examination of a Decade's Literature', *Journal of Communication*, 61(2), pp. 246–263.

Bosch, T. (2012) 'Blogging and tweeting climate change in South Africa', *Ecquid Novi-African*

Journalism Studies, 33(February 2015), pp. 44–53.

Boucher-Hayes, P. (2017) 'Irish Climate Science Forum'. RTE.

Bourdieu, P. (1998) *On Television and Journalism*. London: Pluto Press.

Bourdieu, P. (2005) 'The Political Field, the Social Science Field, and Journalistic Field', in Benson, R. and Neveu, E. (eds) *Bourdieu and the Journalistic Field*. Cambridge: Polity Press, pp. 29–47.

Bowe, B. J. *et al.* (2012) 'Framing of climate change in newspaper coverage of the East Anglia e-mail scandal', *Public Understanding of Science*, 23(2), pp. 157–169.

Boyd, A. D. and Paveglio, T. B. (2012) 'Front page or "buried" beneath the fold? Media coverage of carbon capture and storage', *Public Understanding of Science*, 23(4), pp. 411–427.

Boykoff, M. T. (2007a) 'Flogging a dead norm? Newspaper coverage of anthropogenic climate change in the United States and United Kingdom from 2003 to 2006', *Area*, 39(4), pp. 470–481.

Boykoff, M. T. (2007b) 'From convergence to contention: United States mass media representations of anthropogenic climate change science', *Transactions of the Institute of British Geographers*. Wiley Online Library, 32(4), pp. 477–489.

Boykoff, M. T. (2008) 'The cultural politics of climate change discourse in UK tabloids', *Political geography*, 27(5), pp. 549–569.

Boykoff, M. T. (2009) 'We Speak for the Trees: Media Reporting on the Environment', *Annual Review of Environment and Resources*, 34(1), pp. 431–457.

Boykoff, M. T. (2011) *Who Speaks for the Climate? Making Sense of Media Reprting on Climate Change*. Cambridge: Cambridge University Press.

Boykoff, M. T. and Boykoff, J. M. (2004) 'Balance as bias: global warming and the US prestige press', *Global Environmental Change*, 14(2), pp. 125–136.

Boykoff, M. T. and Boykoff, J. M. (2007) 'Climate change and journalistic norms: A case-study of US mass-media coverage', *Geoforum*, 38(6), pp. 1190–1204.

Boykoff, M. T. and Goodman, M. K. (2009) 'Conspicuous redemption? Reflections on the promises and perils of the "Celebritization" of climate change', *Geoforum*. 40(3), pp. 395–406.

Boykoff, M. T. and Mansfield, M. (2008) '"Ye Olde Hot Aire": reporting on human contributions to climate change in the UK tabloid press', *Environmental Research Letters*, 3, p. 1-8.

Boykoff, M. T. and Roberts, J. T. (2007) 'Media coverage of climate change: Current trends, strengths, weaknesses', *Human Development Report*, 2008, pp. 1-53.

Boykoff, M. T. and Yulsman, T. (2013) 'Political economy, media, and climate change: sinews of modern life', *Wiley Interdisciplinary Reviews: Climate Change*, 4(5), pp. 359–371.

Boyle, D. (2006) *A Journey to Change: 25 Years of the Green Party in Irish Politics*. Dublin: Nonsuch.

Brand, K.-W. (2010) 'Social Practices and Sustainable Consumption: Benefits and Limitations

of a New Theoretical Approach', in Gross, M. & H. H. (ed.) *Environmental Sociology: European Perspecitive and Interdisciplinary Challenges*. Netherlands: Springer, pp. 217–235.

Breed, W. (1955) 'Social Control in the Newsroom: A Functional Analysis', *Social Forces*, 33(17).

Breen, M. (2012) 'The international politics of Ireland's EU/IMF bailout', *Irish Studies in International Affairs*, 23(1), pp. 75–87.

Broddason, T. (1994) 'The sacred side of professional journalism', *European Journal of Communication*, 9(3), pp. 227–248.

Brossard, D., Shanahan, J. and McComas, K. (2004) 'Are issue-cycles culturally constructed? A comparison of French and American coverage of global climate change', *Mass Communication & Society*, 7(3), pp. 359–377.

Brüggemann, M. (2014) 'Between frame setting and frame sending: How journalists contribute to news frames', *Communication Theory*, 24, pp. 61–82.

Brulle, R. J., Carmichael, J. and Jenkins, J. C. (2012) 'Shifting public opinion on climate change: An empirical assessment of factors influencing concern over climate change in the U.S., 2002-2010', *Climatic Change*, 114(2), pp. 169–188.

Brumfiel, G. (2009) 'Science journalism: Supplanting the old media?', *Nature News*, pp. 274–277.

Brundidge, J. (2010) 'Toward a Theory of Citizen Interface with Political Discussion and News in the Contemporary Public Sphere', *International Journal of Communication*, 4, pp. 1056–1078.

Bryant, J. and Miron, D. (2004) 'Theory and research in mass communication', *Journal of Communication*, 54(4), pp. 662–704.

Campbell, M. C. and Keller, K. L. (2003) 'Brand Familiarity and Advertising Repetition Effects', *Journal of Consumer Research*, 30(2), pp. 292–304.

Carlson, M. (2009) 'Dueling, dancing, or dominating? Journalists and their sources', *Sociology Compass*, 3(4), pp. 526–542.

Carlson, M. (2016) 'Sources as News Producers', in Witschge, T. (ed.) *The SAGE Handbook of Digital Journalism*. London: Sage Publications, pp. 236–249.

Carvalho, A. (2005) 'Representing the Politics of the Greenhouse Effect: Discursive Strategies in the British Media', *Critical Discourse Studies*, 2(1), pp. 1–29.

Carvalho, A. (2007) 'Ideological cultures and media discourses on scientific knowledge: re-reading news on climate change', *Public understanding of science*, 16(2), pp. 223–243.

Carvalho, A. and Burgess, J. (2005) 'Cultural circuits of climate change in UK broadsheet newspapers, 1985–2003', *Risk analysis*. Wiley Online Library, 25(6), pp. 1457–1469.

Carvalho, A., van Wessel, M. and Maeseele, P. (2016) 'Communication practices and political engagement with climate change: a research agenda', *Environmental Communication*, 11(1), pp.

122–135.

Castilla, E. B., Rodríguez, L. T. and País, E. (2014) 'Political polarization and climate change : The editorial strategies of The New York Times and El País newspapers', 5(1), pp. 71–91.

Cavanagh, S. (1997) 'Content analysis: concepts, methods and applications', *Nurse Researcher*, 4(3), pp. 5–13.

Cawley, A. (2012) 'Sharing the Pain or Shouldering the Burden?', *Journalism Studies*, 13(4), pp. 600–615.

Chalaby, J. (1996) 'Journalism as an Anglo-American Invention. A comparison of the development of French and Anglo-American journalism', *European Journal of Communication*, 3, pp. 303–326.

Chang, J. J. *et al.* (2016) 'Who Is Responsible for Climate Change? Attribution of Responsibility, News Media, and South Koreans' Perceived Risk of Climate Change', *Mass Communication and Society*, 19(5), pp. 566–584.

Chong, D. and Druckman, J. N. (2007a) 'A Theory of Framing and Opinion Formation in Competitive Elite Environments', *Journal of Communication*, 57(1), pp. 99–118.

Chong, D. and Druckman, J. N. (2007b) 'Framing Theory', *Annual Review of Political Science*, 10(1), pp. 103–126.

Clifford, G. (2016) 'Turf matters - and so do promises made to voters', *Irish Independent*, 7 May.

Climate Change Advisory Council (2017a) 'Letter to Minister Denis Naughten', pp. 1–4.

Climate Change Advisory Council (2017b) *Periodic Review Report 2017*.

Cobb, R. W. and Elder, C. D. (1972) *Participation in American Politics: The Dynamics ofAgenda-Building*. Boston: Allyn and Bacon.

Cohen, B. (1963) *The Press and Foreign Policy*. Princeton, New Jersey: Princeton University Press.

Cohen, M. D., March, J. G. and Olsen, J. P. (1972) 'A Garbage Can Model of Organizational Choice', *Administrative Science Quarterly*, 17(1), pp. 1–25.

Cook, J. *et al.* (2013) 'Quantifying the consensus on anthropogenic global warming in the scientific literature', *Environmental Research Letters*, 8(2), p. 24024.

Cooke, K. (2014) 'Ireland's turf war plan is "bad news for climate"', *Climate News Network*, 29 January.

Corbett, J. B. and Durfee, J. L. (2004) 'Testing public (un) certainty of science media representations of global warming', *Science Communication*. Sage Publications, 26(2), pp. 129–151.

Cottle, S. (2009) 'Global crises in the news: Staging new wars, disasters and climate change', *International Journal of Communication*, 3, pp. 494–516.

Crabtree, B. F. and Miller, W. L. (1999) *Doing qualitative research*. 2nd edn. Thousand Oaks,

California: Sage Publications.

Crutzen, P. J. (2006) 'The "anthropocene"', in *Earth system science in the anthropocene*. Berlin, Heidelberg: Springer, pp. 13–18.

Cullinane, M. and Watson, C. (2014) 'Irish Public Service Broadcasting and the Climate Change Challenge', *Report for RTE Audience Council*. Dubin, (February), pp. 1–30.

Culloty, E. *et al.* (no date) 'CCIM: Climate Change in the Irish Media', *Forthcoming. Report for Ireland's Environmental Protection Agency*.

Cunningham, P. (2008) *Ireland's Burning: How Climate Change Will Affect You*. Dublin: Poolbeg Press.

D'Angelo, P. (2002) 'News framing as a multiparadigmatic research program: A response to entman', *Journal of Communication*, 52(4), pp. 870–888.

Dahl, T. (2015) 'Contested Science in the Media: Linguistic Traces of News Writers ' Framing Activity', *Written Communication*, 32(1), pp. 39–65.

DARA Climate Vulnerability Monitor (2012).

Davies, W., Wright, S. and Alstine, J. Van (2016) 'Framing a " climate change frontier ": international news media coverage surrounding natural resource development in Greenland', *Environmental Values*, pp. 1–28.

Davis, A. (2007) 'Investigating Journalist Influences on Political Issue Agendas at Westminster', *Political Communication*, 24(2), pp. 181–199.

Davis, R. (1999) *The web of politics: The Internet's impact on the American political system*. New York: Oxford University Press.

Dearing, J. W. and Rogers, E. M. (1996) *Agenda Setting*. Thousand Oaks, California: Sage Publications.

Denham, B. E. (2014) 'Intermedia Attribute Agenda Setting in the New York Times: The Case of Animal Abuse in U.S. Horse Racing', *Journalism & Mass Communication Quarterly*, 91(1), pp. 17–37.

DeSmog (2016) *Richard Tol, DeSmog*.

Deuze, M. (2005a) 'Popular journalism and professional ideology: tabloid reporters and editors speak out', *Media, Culture & Society*, 27(6), pp. 861–882.

Deuze, M. (2005b) 'What is journalism?: Professional identity and ideology of journalists reconsidered', *Journalism*, 6(4), pp. 442–464.

Deuze, M. (2008) 'The Professional Identity of Journalists in the Context of Convergence Culture', *Observatorio (OBS*)*, 2(4), pp. 103–117.

Devitt, C. and Neill, E. O. (2017) 'The framing of two major flood episodes in the Irish print news media : Implications for societal adaptation to living with flood risk', *Public Understanding of Science*, 26(7), pp. 872–888.

Dewey, J. (1922) 'Public Opinion', *The New Republic*, pp. 286–288.

Diefenbach, T. (2009) 'Are case studies more than sophisticated storytelling?: Methodological problems of qualitative empirical research mainly based on semi-structured interviews', *Quality and Quantity*, 43, pp. 875–894.

DiFrancesco, D. A. and Young, N. (2011) 'Seeing climate change: the visual construction of global warming in Canadian national print media', *Cultural Geographies*, 18, pp. 517–536.

Dinan, D. (2010) 'Institutions and governance: A new Treaty, a newly elected parliament and a new commission', *Journal of Common Market Studies*, 48(SUPPL. 1), pp. 95–118.

Ding, D. *et al.* (2011) 'Support for climate policy and societal action are linked to perceptions about scientific agreement', *Nature Climate Change*, 1(9), pp. 462–466.

Dirikx, A. and Gelders, D. (2010) 'To frame is to explain: a deductive frame-analysis of Dutch and French climate change coverage during the annual UN Conferences of the Parties.', *Public Understanding of Science*, 19(6), pp. 732–742.

Djerf-Pierre, M. (2012a) 'The crowding-out effect: Issue dynamics and attention to environmental issues in television news reporting over 30 years', *Journalism Studies*, 13(4), pp. 499–516.

Djerf-Pierre, M. (2012b) 'When attention drives attention: Issue dynamics in environmental news reporting over five decades', *European Journal of Communication*, 27, pp. 291–304.

Djerf Pierre, M. (1996) 'Green News: environmental reporting in television 1961-1994', *Unpublished thesis. Department of Journalism and Mass Communication, University of Gothenburg*.

Doherty, B. (1992) 'The fundi-realo controversy: An analysis of four European green parties', *Environmental Politics*, 1(1), pp. 95–120.

Dotson, D. M. *et al.* (2012) 'Media Coverage of Climate Change in Chile: A Content Analysis of Conservative and Liberal Newspapers', *Environmental Communication*, 6(1), pp. 64–81.

Doulton, H. and Brown, K. (2009) 'Ten years to prevent catastrophe?. Discourses of climate change and international development in the UK press', *Global Environmental Change*, 19, pp. 191–202.

Downs, A. (1972) 'Up and down with ecology - the issue attention cycle', *Public Interest*. Edited by D. L. Protess and M. E. McCombs. London; New York: Routledge, 28, pp. 38–50.

Dumont, P. and Back, H. (2006) 'Why so few, and why so late? Green parties and the question of governmental participation', *European Journal of Political Research*, 45(SUPPL. 1), pp. 35–68.

Dunwoody, S. and Griffin, R. J. (2011) 'Judgmental Heuristics and News Reporting Reporting', in Gowda, R. and Fox, J. C. (eds) *Judgments, Decisions and Public Policy*. Cambridge: Cambridge University Press, pp. 177–198.

Dunwoody, S. and Peters, H. P. (1992) 'Mass media coverage of technological and environmental risks: A survey of research in the United States and Germany', *Public*

Understanding of Science, 1(2), pp. 199–230.

Durant, R. F. and Diehl, P. F. (1989) 'Agendas, Alternatives, and Public Policy: Lessons from the US Foreign Policy Arena', *Journal of Public Policy*, 9(2), pp. 179–205.

Eide, E. and Ytterstad, a. (2011) 'The Tainted Hero: Frames of Domestication in Norwegian Press Representation of the Bali Climate Summit', *The International Journal of Press/Politics*, 16, pp. 50–74.

Entman, R. (1989) *Democracy Without Citizens: Media and the Decay of American Politics*. New York; London: Oxford University Press.

Entman, R. (1993) 'Framing: Towards Clarification of a Fractured Paradigm', *Journal of Communication*, 43(4), pp. 51–58.

Entman, R. M. (1993) 'Framing: Toward clarification of a fractured paradigm', *Journal of communication*. Wiley Online Library, 43(4), pp. 51–58.

Entman, R. M. (2004) *Projections of power: Framing news, public opinion, and US foreign policy*. Chicogo: University of Chicago Press.

Environmental Protection Agency (2013) *Addressing Climate Change Challenges in Ireland*.

Environmental Protection Agency (2014) *Ireland's Greenhouse Gas Emission Projections, 2013-2030*.

Environmental Protection Agency (no date) *What Impact will Climate Change Have for Ireland*.

EPA Ireland (2017) *Ireland's Provisional Greenhouse Gas Emissions in 2016*.

Ereaut, G. and Segnit, N. (2006) 'Warm Words How are we telling the climate story and can we tell it better ?', *Public Policy Research*, 2006(August), p. 32.

Escobar, M. P. and Demeritt, D. (2014) 'Flooding and the framing of risk in British broadsheets, 1985-2010', *Public Understanding of Science*, 23(4), pp. 454–471.

European Commission (2011) *Climate change - Eurobarometer Report*.

European Commission (2015) *Special Eurobarometer 435: Climate Change*.

Eurostat (2017) *Greenhouse gas emissions statistics*.

Evans, T. (2010) 'We are all in PR now', *British Journalism Review*, 21(2), pp. 31–36.

Fahy, D. and Nisbet, M. C. (2011) 'The science journalist online: Shifting roles and emerging practices', *Journalism*, 12(7), pp. 778–793.

Fahy, D. and Nisbet, M. C. (2017) 'The Ecomodernists: Journalists who are reimagining a sustainable future', in Berglez, P., Olausson, U., and Ots, M. (eds) *What Is Sustainable Journalism?: Integrating the Environmental, Social, and Economic Challenges of Journalism*. London: Peter Lang.

Fahy, D., O'Brien, M. and Poti, V. (2010) 'From boom to bust: a post-Celtic Tiger analysis of the norms, values and roles of Irish financial journalists', *Irish Communications Review*, 12(1), pp. 5–20.

Feldpausch-Parker, A. M. *et al.* (2015) 'Spreading the News on Carbon Capture and Storage: A

State-Level Comparison of US Media', *Environmental Communication*, 7(3), pp. 336–354.

Fisher, D. R. (2010) 'COP-15 in Copenhagen: How the Merging of Movements Left Civil Society Out in the Cold', *Global Environmental Politics*, 10(2), pp. 11–17.

Flood, S. (2012) 'Climate Change and Potential Economic Impacts in Ireland : The Case for Adaptation', *Unpublished thesis. Department of Geography. Maynooth University.*, p. 247.

Flynn, R. (2016) *Media Pluralism Monitor 2016: Ireland*.

Foust, C. R. and O'Shannon Murphy, W. (2009) 'Revealing and Reframing Apocalyptic Tragedy in Global Warming Discourse', *Environmental Communicationf*, 3(2), pp. 151–167.

Fox, E. and Rau, H. (2016) 'Climate Change Communication in Ireland', in *Oxford Research Encyclopedia of Climate Science*, pp. 1–32.

Franklin, B. (2003) 'A good day to bury bad news?: Journalists, sources and the packaging of politics.', in Cottle, S (ed) *News, public relations and power*, pp. 45–62. Thousand Oaks, California: Sage Publications.

Franscis, P. (2015) 'Laudato Si': On Care for our Common Home'. London: Catholic Truth Society.

Fraser, A., Murphy, E. and Kelly, S. (2013) 'Deepening neoliberalism via austerity and "reform": The case of Ireland', *Human Geography*, 6, pp. 38–53.

Friedson, E. (2001) *Professionalism. The Third Logic*. Chicago: University of Chicago Press.

Fritz, N. J. and Altheide, D. L. (1987) 'The Mass Media and the Social Construction of the Missing Children Problem', *The Sociological Quarterly*, 28(4), pp. 473–492.

Gade, P. J. (2008) 'Journalism guardians in a time of great change: Newspaper editors' perceived influence in integrated news organizations', *Journalism & Mass Communication Quarterly*, 85(2), pp. 371–392.

Gallagher, M. and Marsh, M. (2007) *How Ireland voted 2007: the full story of Ireland's general election*. Basingstoke: Palgrave Macmillan.

Gallagher, M. and Marsh, M. (2011) *How Ireland Voted 2011: The full story of Ireland's earthquake election*. Basingstoke: Palgrave Macmillan.

Galston, W. A. (2003) 'If political fragmentation is the problem, is the Internet the solution?', in Anderson, D. M. and Cornfield, M. (eds) *The civic web: Online politics and Democratic values*. Lanham, Maryland: Rowman & Littlefield, pp. 33–45.

Galtung, J. and Ruge, M. H. (1965) 'The Structure of Foreign News. The Presentation of the Congo, Cuba and Cyprus Crises in Four Norwegian Newspapers', *Journal of Peace Research*, 2(1), pp. 64–91.

Gamson, W. A. and Modigliani, A. (1989) 'Media Discourse and Public Opinion on Nuclear Power : A Constructionist Approach', *American Journal of Sociology*, 95(1), pp. 1–37.

Gandy, O. H. (1982) *Beyond agenda setting: Information subsidies and public policy*. Abex Publishing Corporation.

Gans, H. J. (1979) *Deciding what's news: A study of CBS evening news, NBC nightly news, Newsweek, and Time*. Evanston, Illinois: Medill School of Journalism Visions of the American Press. Northwestern University Press.

Gardner, H. E., Csikszentmihalyi, M. & Damon, W. (2001) *Good Work, When Excellence and Ethics Meet*. New York: Basic Books.

Gascoigne, T. and Metcalfe, J. (1997) 'Incentives and impediments to scientists communicating through the media.', *Science Communication*, 18(3), pp. 265–282.

Gavin, N. T. (2010) 'Pressure group direct action on climate change: The role of the media and the web in britain - a case study', *British Journal of Politics and International Relations*, 12, pp. 459–475.

Gavin, N. T., Leonard-Milsom, L. and Montgomery, J. (2011) 'Climate change, flooding and the media in Britain.', *Public Understanding of Science*, 20(3), pp. 422–438.

Gavin, N. T. and Marshall, T. (2011) 'Mediated climate change in Britain: Scepticism on the web and on television around Copenhagen', *Global Environmental Change*, 21(3), pp. 1035–1044.

Geall, S. (2014) *Changing political climates: Chinese environmental journalism and sustainable development. PhD thesis, University of Manchester.*

Georgescu-Roegen, N. (1971) *The Entropy Law and the Economic Process*. Cambridge, Massachussetts: Harvard University Press.

Gibbons, J. (2015) *Never mind the bullocks, Enda isn't cowed at COP, Think Or Swim blog.* Available online at http://www.thinkorswim.ie/2657-2/

Gibbons, J. (2017) *New Climate Science Denial Group Launches in Ireland, Desmog UK*. Available online at https://www.desmog.uk/2017/05/05/new-climate-science-denial-group-launches-ireland

Giddens, A. (2009) *The Politics of Climate Change*. Malden, Massachussetts: Polity Press.

Gieber, H. (1964) 'News is What Newspapermen Make It', in Dexter, L. A. and White, D. M. (eds) *People, Society and Mass Communications*. New York: Free Press, pp. 173–182.

Gil de Zúñiga, H. and Hinsley, A. (2013) 'The press versus the public: What is "good journalism?"', *Journalism Studies*, 14(6), pp. 926–942.

Glasgow University Media Group (1976) *Bad News*. London: Robert Kennedy Publishing (RKP).

Goffman, E. (1974) *Frame analysis: An essay on the organization of experience*. New York: Harper and Rowe.

Gordon, J. C., Deines, T. and Havice, J. (2010) 'Global Warming Coverage in the Media: Trends in a Mexico City Newspaper', *Science Communication*, 32, pp. 143–170.

Gordon, R. L. (1975) *Interviewing: Strategy, Techniques and Tactics*. Dorsey Press, Illinois.

Government of Ireland (2010) *Wildlife (Amendment) Act 2010*.

Government of Ireland (2015) *Climate Action and Low Carbon Development Act 2015*.

Government of Ireland (2017) *National Mitigation Plan*.

Grundmann, R. and Krishnamurthy, R. (2010) 'The discourse of climate change: a corpus-based approach', *Critical Approaches to Discourse Analysis Across Disciplines*, 4(2), pp. 113–133.

Grundmann, R. and Scott, M. (2014) 'Disputed climate science in the media: do countries matter?', *Public Understanding of Science*, 23(2), pp. 220–35.

Gubrium, J. F. & Holstein, J. A. (2002) 'From the individual interview to the interview society', in J. F. Gubrium & J. A. Holstein (ed.) *Handbook of Interview Research*. Thousand Oaks, California.

Gupta, J. (2010) 'A history of international climate change policy climate change policy', *Wiley Interdisciplinary Reviews: Climate Change*, 1(5), pp. 636–653.

Gusfield, J. (1981) *The Culture of Public Problems: Drinking-driving and the symbolic order*. Chicago: University of Chicago Press.

Habermas, J. (1989) *The Structural Transformation of the Public Sphere: An Inquiry into a Category of Bourgeois Society*. Cambridge, Massachussetts: MIT Press.

Hachten, W.A. and Hatchen, H. (1981) 'The World News Prism: Changing Media. Clashing Ideologies', in. Ames: Iowa State University Press, pp. 60–77.

Hall, S. *et al.* (1978) *Policing the Crisis: Mugging, the State abnd Law and Order*. London: Macmillan.

Hallin, D. C. (1985) 'The American news media: A critical theory perspective.', in Forester, J. (ed.) *Critical Theory and Public Life*. Massuchussetts: The MIT Press, pp. 121–146.

Hallin, D. C. and Mancini, P. (2004) *Comparing Media Systems: Three Models of Media and Politics*. Cambridge: Cambridge University Press.

Hansen, A. (ed.) (1993) *The Mass Media and Environmental Issues*. Leicester: Leicester University Press.

Hansen, A. (2011) 'Communication, media and environment: Towards reconnecting research on the production, content and social implications of environmental communication', *International Communication Gazette*, 73(1–2), pp. 7–25.

Harbinson, R., Mugara, R. and Chawla, A. (2006) 'Whatever the weather: Media attitudes to reporting climate change', *Report. Panos Institute, London.* London, p. 20.

Harcup, T. and O'Neill, D. (2001) 'What Is News? Galtung and Ruge revisited', *Journalism Studies*, 2(2), pp. 261–280.

Harman, G. (2014) 'New argument from climate change deniers: global warming is a good thing', *Guardian.co.uk*, 8 May.

Harrison, P. A. *et al.* (2016) 'Climate change impact modelling needs to include cross-sectoral interactions', *Nature Climate Change*, 6(9), pp. 885–890.

Harrison, S. (2016) 'Journalists, Numeracy and Cultural Capital', *Numeracy*, 9(2). [Online

journal].

Hart, P. S. and Feldman, L. (2014) 'Threat Without Efficacy? Climate Change on U.S. Network News', *Science Communication*, 36, pp. 325–351.

Head, B. (2009) 'The age of Government 2.0', *Information Age*, pp. 23–25.

Heim, K. (2013) 'Tweeting the news: Adding Twitter and social media to journalism.', in *Conference of the International Communication Association, London, UK, 17–21 June*. London.

Henderson-Sellers, A. (1998) 'Climate whispers: media communication about climate change', *Climatic Change*, 40(3–4), pp. 421–456.

Heravi, B. R., Harrower, N. and Boran, M. (2014) 'Social Journalism Survey : First National Survey on Irish Journalists ' use of Social Media', *Report. The Digital Humanities and Journalism Group, Insight Centre for Data Analytics, National University of Ireland, Galway*. Galway, pp. 1–32.

Herman, Edward S & Chomsky, N. (1988) *Manufacturing Consent: The Political Economy of the Mass Media.* New York: Pantheon Books.

Hermida, A. *et al.* (2011) 'The active recipient: Participatory journalism through the lens of the Dewey-Lippmann debate', in *International Symposium on Online Journalism*, pp. 0–21.

Hester, J. B. and Gibson, R. (2003) 'The Economy and Second-level Agenda-setting: a Time-Series Analysis of Economic News and Public Opinion About the Economy', *Journalism and Mass Communication Quarterly*, 80(1), pp. 73–90.

Hibberd, M. and Nguyen, A. (2013) 'Climate change communications & young people in the Kingdom : A reception study', *International Journal of Media & Cultural Politics*, 9(1), pp. 27–46.

Hiles, S. S. and Hinnant, A. (2014) 'Climate Change in the Newsroom: Journalists' Evolving Standards of Objectivity When Covering Global Warming', *Science Communication*, 36, pp. 428–453.

Hilgartner, S. and Bosk, C. L. (1988) 'The Rise and Fall of Social Problems: A Public Arenas Model', *The American Journal of Sociology*, 94(1), pp. 53–78.

Hindman, M. (2008) 'What is the Online Public Sphere Good For?', in Turrow, J. and Lokman, T. (eds) *The Hyperlinked Society: Questioning Connections in the Digital Age*. Ann Arbor, Michigan: University of Michigan Press, pp. 268–288.

Hirji, Z. (2017) 'Climate Contrarian Gets Fact-Checked by MIT Colleagues in Open Letter to Trump', *Inside Climate News*, 6 March.

Hoffman, A. J. (2011) 'Talking Past Each Other? Cultural Framing of Skeptical and Convinced Logics in the Climate Change Debate', *Organization & Environment*, 24(1), pp. 3–33.

Holt, D. and Barkemeyer, R. (2012) 'Media coverage of sustainable development issues - attention cycles or punctuated equilibrium?', *Sustainable Development*, 20(1), pp. 1–17.

Hoover, R. S. and Koerber, A. L. (2011) 'Using NVivo to answer the challenges of qualitative

research in professional communication: Benefits and best practices: Tutorial', *IEEE Transactions on Professional Communication*, 54(1), pp. 68–82.

Horgan, J. (2001) *Irish Media: a critical history since 1922*. London: Routledge.

Horgan, J. and Flynn, R. (2017) *Irish Media: A Critical History*. Dublin: Four Courts Press.

Howard, E. (2015) 'Paris climate summit in numbers', *theguardian.com*, 30 November.

Howlett, M. (1997) 'Issue-Attention and Punctuated Equilibria Models Reconsidered : An Empirical Examination of the Dynamics of Agenda-Setting in Canada', *Canadian Journal of Political Science*, 30(1), pp. 3–29.

Hoyos, G. (2014) 'No more great expectations : Media response to Obama ' s climate action plan', *Interactions: Studies in Communication & Culture*, 5(1), pp. 93–106.

Hsieh, H. and Shannon, S. (2005) 'Three approaches to qualitative content analysis', *Qualitative Health Research*, 15(9), pp. 1277–88.

Hughes, C. (2016) 'It's not easy (not) being green: Agenda dissonance of Green Party press relations and newspaper coverage', *European Journal of Communication*, 31(6), pp. 625–641.

Hulme, M. (2000) 'Mediated messages about climate change: reporting the IPCC Fourth Assessment in the UK print media', in Boyce, T. and Lewis, J. (Eds) *Climate Change and the Media*, pp. 1–24. London: Peter Lang.

Hulme, M. (2009) *Why we disagree about climate change: Understanding controversy, inaction and opportunity*. Cambridge: Cambridge University Press.

Inhofe, J. (2012) *The Greatest Hoax: How the Global Warming Conspiracy Threatens Your Future*. New York: WND Books.

Ioannidis, J. P. A. (2007) 'Limitations are not properly acknowledged in the scientific literature', *Journal of Clinical Epidemiology*, 60(4), pp. 324–329.

IPCC (2014) 'Climate Change 2014 Synthesis Report Summary Chapter for Policymakers', *Ipcc*.

Ireland, G. of (2017) *Draft National Mitigation Plan*.

Irish Academy of Engineering (2009) *Ireland at Risk: Critical Infrastructure - Adaptation for Climate Change*.

Irish Peatland Conservation Council (2009) *Climate Change and Irish Peatlands*.

Iyengar, S. (1991) *Is Anyone Responsible? How Television Frames Political Issues*. Chicago & London: University of Chicago Press.

Iyengar, S. (1996) 'Framing Responsibility for Political Issues', *Annals of the American Academy of Political and Social Science*, 546(1), pp. 59–70.

Iyengar, S. and Kinder, D. R. (1987a) *News That Matters: Television and American Opinion*. Chicago: University of Chicago Press.

Iyengar, S. and Kinder, D. R. (1987b) *News that matters: Television and public opinion*. Chicago & London: University of Chicago Press.

Jacques, P. J., Dunlap, R. E. and Freeman, M. (2008) 'The organisation of denial: Conservative think tanks and environmental scepticism', *Environmental politics*, 17(3), pp. 349–385.

Jaspal, R. and Nerlich, B. (2014) 'Fracking in the UK press: Threat dynamics in an unfolding debate.', *Public Understanding of Science*, 23(3), pp. 348–63.

Jennings, N. and Hulme, M. (2010) 'UK newspaper (mis)representations of the potential for a collapse of the Thermohaline Circulation', *Area*, 42(4), pp. 444–456.

Jensen, C. B. and Spoon, J. J. (2011) 'Testing the "Party Matters" Thesis: Explaining Progress towards Kyoto Protocol Targets', *Political Studies*, 59(1), pp. 99–115.

Jones, B. D. and Baumgartner, F. R. (2005) *The Politics of Attention: How Government Prioritizes Problems*. Chicago: University of Chicago Press.

Jones, B. D. and Baumgartner, F. R. (2012) 'From There to Here: Punctuated Equilibrium to the General Punctuation Thesis to a Theory of Government Information Processing', 40(1), pp. 1–19.

Jones, M. D. (2014) 'Cultural characters and climate change: How heroes shape our perception of climate science', *Social Science Quarterly*, 95(1), pp. 1–39.

Jones, S. (2011) *BBC Trust Review of Impartiality and Accuracy of the BBC's Coverage of Science*. London.

Kahan, D. M. *et al.* (2012) 'The Polarizing Impact of Science Literacy and Numeracy on Perceived Climate Change Risks', *Nature Climate Change*, 2(10), pp. 732–735.

Katz, E. (1987) 'Communications Research Since Lazarsfeld', *Public Opinion Quarterly*, 51(2), pp. S25–S45.

Kenny, E. (2015) 'National Statement by An Taoiseach Enda Kenny'.

Keskitalo, E. C. H., Westerhoff, L. and Juhola, S. (2012) 'Agenda-setting on the environment: The development of climate change adaptation as an issue in European states', *Environmental Policy and Governance*, 22(6), pp. 381–394.

Killingworth, M. J. and Palmer, J. S. (2012) *Ecospeak: Rhetoric and environmental politics in America*. Carbondale, Illinois: Southern Illinois University Press.

Kingdon, J. W. (1995) *Agendas, Alternatives and Public Policies*. 2nd edn. New York: HarperCollins.

Kirilenko, A. P. and Stepchenkova, S. O. (2014) 'Public microblogging on climate change: One year of Twitter worldwide', *Global Environmental Change*, 26, pp. 171–182.

Kirk, N. *et al.* (2016) *Digital News Report 2016 (Ireland)*.

Kitzinger, J. (2007) 'Framing and frame analysis', in Devereux, E. (ed.) *Media studies: key issues and debates*. London: Sage Publications, pp. 132–162.

Klein, N. (2014) *This Changes Everything: Capitalism vs The Climate*. London; New York: Penguin.

Kleis Nielsen, R. and Levy, D. A. L. (2011) *The Changing Business of Journalism and its Role*

in Democracy, 2011 International Communication Association Conference.

Koteyko, N., Jaspal, R. and Nerlich, B. (2013) 'Climate change and "climategate" in online reader comments: A mixed methods study', *Geographical Journal*, 179(1), pp. 74–86.

Krippendorf, K. (1980) *Content Analysis: An Introduction to Its Methodology*. Newbury Park, California: SAGE Publications.

Krippendorf, K. (1989) 'Content analysis', in Barnouw, E. et al. (eds) *International Encyclopedia of Communication*. New York, pp. 403–407.

Krippendorff, K. (2004) *Content Analysis: An Introduction to Its Methodology*. 2nd edn. Thousand Oaks, California: Sage Publications.

Krovel, R. (2011) 'Journalistic Narratives of Success and Failure at the Bali Climate Change Conference in 2007', *Intercultural Commincations Studies*, 2, pp. 89–105.

Kuo, Y.-C. (2008) 'Negotiating researchers' presence and reflexivity: Researching overseas students' identities', *Reflecting Education*, 4(2), pp. 51–67.

Laidley, T. (2013) 'Climate, class and culture: Political issues as cultural signifiers in the US', *Sociological Review*, 61, pp. 153–171.

Laitila, T. (1995) 'Journalistic codes of ethics in Europe.', *European Journal of Communication*, 10(4), pp. 527–544.

Lakoff, G. (2009) *Why Environmental Understanding, or 'Framing,' Matters: An Evaluation of the EcoAmerica Summary Report*, *Huffingtonpost.com*.

Laksa, U. (2014) 'National Discussions, Global Repercussions: Ethics in British Newspaper Coverage of Global Climate Negotiations', *Environmental Communication*, 8(3), pp. 368–387.

Lam, A. (2000) 'Tacit Knowledge, Organisational Learning and Societal Institutions: An Integrated Framework', *Organizational Studies*, 21(3), pp. 487–513.

Lawson, N. (2008) *An Appeal to Reason: A Cool Look at Global Warming*. London: Duckworth Overlook.

Lazarsfeld, P. F., Berelson, B. and Gaudet, H. (1948) *The people's choice: how the voter makes up his mind in a presidential campaign*. New York: Colombia University Press.

Leggett, J. K. (2001) *The Carbon War: Global Warming and the End of the Oil Era*. New York: Routledge.

Lewis, J. M. W., Williams, A. and Franklin, R. A. (2008) 'A Compromised Fourth Estate? UK News Journalism, Public Relations and News Sources', *Journalism Studies*, 9(1), pp. 1–20.

Lippmann, W. (1922) *Public Opinion*. New York: Harcourt, Brace.

Liu, X., Lindquist, E. and Vedlitz, A. (2011) 'Explaining Media and Congressional Attention to Global Climate Change, 1969-2005: An Empirical Test of Agenda-Setting Theory', *Political Research Quarterly*, 64(2), pp. 405–419.

Lockwood, A. (2008) 'Seeding doubt: how sceptics use new media to delay action on climate change', in *New Media, New Democracy? Association for Journalism Education conference,*

Sheffield University. Sheffield, pp. 1–6.

Lockwood, A. (2009) 'Preparations for a Post-Kyoto Media Coverage of Uk Climate Policy', in Boyce, T. and Lewis, J. (eds) *Climate Change and the Media*. New York: Peter Lang, pp. 186–199.

Logue, P. and Gallagher, C. (2017) 'Sunday Times drops Kevin Myers and apologises for offensive article', *Irish Times*, 30 July.

Lorenzoni, I. and Pidgeon, N. F. (2006) 'Public views on climate change: European and USA perspectives', *Climatic Change*, 77(1–2), pp. 73–95.

Louw, E. (2005) *The media and political process*. Thousand Oaks, California: Sage Publications.

Lowes, T. (2013) 'Ming, lies and our obliterated raised bogs', *Village Magazine*.

Luntz, F. (2002) 'The environment: a cleaner, safer, healthier America' in Straight Talk, pp. 131-146. Alexandria: VA: The Luntz Research Companies.

Lynch, S. (2014) 'EU climate summit to agree revision of Irish emission targets', *Irish Times*, 14 October.

Lyytimäki, J. (2011) 'Mainstreaming climate policy: The role of media coverage in Finland', *Mitigation and Adaptation Strategies for Global Change*, 16, pp. 649–661.

Lyytimäki, J. and Tapio, P. (2009) 'Climate change as reported in the press of Finland: From screaming headlines to penetrating background noise', *International Journal of Environmental Studies*, 66 (6), pp. 723–735.

Maier, S. R. (2003) 'Numeracy in the Newsroom: A Case Study of Mathematical Competence and Confidence', *Journalism & Mass Communication Quarterly*, 80(4), pp. 921–936.

Manis, J. G. (1976) *Analyzing social problems*. New York: Praeger Publishers.

Matthes, J. (2009) 'What's in a Frame? A Content Analysis of Media Framing Studies in the World's Leading Communication Journalis, 1990-2005', *Journalism & Mass Communication Quarterly*, 86(2), pp. 349-367.

May, S. R. M. and Pitts, R. (2000) 'Communicating the science behind global environmental change issues.', in Smith, J. (ed.) *The Daily Globe: Environmental Change, the Public and the Media.* London: Earthscan Publications, pp. 15–25.

Mazur, A. (1981) 'Media coverage and public opinion on scientific controversies', *Journal of Communication*, 31(2), pp. 106–115.

Mazur, A. (1998) 'Global Environmental Change in the News', *International Scoiology*, 13(4), pp. 457–472.

Mazur, A. and Lee, J. (1993) 'Sounding the global alarm: Environmental issues in the US national news', *Social Studies of Science*, 23(4), pp. 681–720.

McAllister, L. *et al.* (2017) *World Newspaper Coverage of Climate Change or Global Warming, 2004-2017, Center for Science and Technology Policy Research, Cooperative Institute for*

Research in Environmental Sciences, University of Colorado, web. Available online at http://sciencepolicy.colorado.edu/icecaps/research/media_coverage/world/index.html

McComas, K. and Shanahan, J. (1999) 'Telling stories about global climate change measuring the impact of narratives on issue cycles', *Communication Research*, 26(1), pp. 30–57.

McCombs, M. E. (2004) *Setting the Agenda: the Mass Media and Public Opinion*. Cambridge: Polity Press.

McCombs, M. E. and Shaw, D. L. (1972) 'The Agenda-Setting Function of Mass Media', *The Public Opinion Quarterly*, 36(2), pp. 176–187.

McCright, A. M. and Dunlap, R. E. (2003) 'Defeating Kyoto: The Conservative Movement's Impact on U.S. Climate Change Policy', *Social Problems*, 50(3), pp. 348–373.

McCright, A. M. and Dunlap, R. E. (2014) 'Challenging Global Warming as a Social Problem : An Analysis of the Conservative Movement ' s Counter-Claims State', 47(4), pp. 499–522.

McCullagh, C. (2008) 'Modern Ireland, modern media, same old story?', in O'Sullivan, S. (ed.) *Contemporary Ireland: a sociological map*. UCD Press, pp. 136–151.

McDonald, F. (2007) 'Drama and tears in Bali as US finally gives in', *Irish Times*, 17 December.

McElwain, L. and Sweeney, J. (2007) *Key Meteorological Indicators of Climate Change in Ireland*, Environmental Protection Agency, Johnstown Castle Estate, Wexford, Ireland.

McGee, H. (2015a) 'Paris climate talks: Irish have sent out mixed messages', *Irish Times*, 10 December.

McGee, H. (2015b) 'Renewed government effort to enforce turf-cutting ban', *The Irish Times*, 11 February.

McGee, H. (2016) '"Only God controls the weather", Danny Healy-Rae tells climate change debate', *Irish Times*, 4 May.

McGee, H. and Marlowe, L. (2015) 'COP21: Kenny criticises "unrealistic" climate targets', *Irish Times*, 1 December.

McKibben, B. (1989) *The End of Nature*. New York: Random House.

McKnight, D. (2010) 'A change in the climate? The journalism of opinion at News Corporation', *Journalism*, 11, pp. 693–706.

McLoughlin, G. (2016) 'War, Objectivity and the Journalism of Attachment', in McLoughlin, G. (ed.) *The War Correspondent*. London: Pluto Press, pp. 6–8.

McNair, B. (2004) 'PR must die: spin, anti-spin and political public relations in the UK, 1997–2004', *Journalism Studies*, 5(3), pp. 325–338.

McNally, B. (2015) 'Media and Carbon Literacy: Shaping Opportunities for Cognitive Engagement with Low Carbon Transition in Irish Media, 2000-2013', *Razon y Palabra*, September(91), pp. 2000–2013.

McNamara, P. *et al.* (2017) *Reuters Digital News Report 2017: Ireland*.

McQuail, D. (2010) *Mass Communication Theory*. 6th edn. Los Angeles, London: Sage Publications.

Meadows, D. H. *et al.* (1972) *The Limits to Growth*. New York: Universe Books.

Meadows, D. H., Randers, J. and Meadows, D. L. (2004) *Limits to growth: The 30-year update*. White River Junction, Vermont: Chelsea Green Publishing.

Melia, P. (2015) 'Climate change is not our priority - Taoiseach', *Irish Independent*, 1 December.

Melia, P. (2017) 'Ireland set to miss its 2020 emissions target by "a substantial margin"', *Irish Independent*, 26 July.

Mercado, M. T. (2012) 'Media Representations of Climate Change in the Argentinean Press', *Journalism Studies*, 13(2), pp. 193–209.

Mercille, J. (2014a) 'The role of the media in fiscal consolidation programmes: The case of Ireland', *Cambridge Journal of Economics*, 38(2), pp. 281–300.

Mercille, J. (2014b) 'The Role of the Media in Sustaining Ireland's Housing Bubble', *New Political Economy*, 19(2), pp. 282–301.

Merrill, J. C. and Lowenstein, R. L. (1979) *Media, messages, and men: New perspectives in communication.* New York: Longman.

Metag, J. (2016) 'Content Analysis Methods for Assessing Climate Change Communication and Media Portrayals', in *Oxford Research Encyclopedia of Climate Science*, pp. 1–2.

Michie, D. (1998) *The invisible persuaders: How Britain's spin doctors manipulate the media*. Sydney: Transworld Publishers.

Miller, D. and Dinan, W. (2000) 'Thje Rise of the PR Industry in Britain, 1979-98', *European Journal of Communication*, 15(1), pp. 5–35.

Miller, J. M. and Krosnick, J. A. (1996) 'News media impact on the ingredients of presidential evaluations: A program of research on the priming hypothesis', in Mutz, D. C., Sniderman, P. M., and Brody, R. A. (eds) *Political persuasion and attitude change*. University of Michigan Press, pp. 79–100.

Minihan, M. (2015) *A Deal with the Devil: The Green Party in Government*. Dublin: Maverick House.

Monbiot, G. (2011) 'The superhuman cock-ups of Christopher Booker', *Guardian.co.uk*, 13 October.

Mormont, M. and Dasnoy, C. (1995) 'Source strategies and the mediatization of climate-change', *Media, Culture & Society*, 17(1), pp. 49-64.

Morse, J. (1991) 'Approaches to Qualitative-Quantitative Mehtodological Triangulation', *Nursing Research*, 40(1), pp. 120–123.

Moser, S. C. and Dilling, L. (2004) 'Making climate hot: communicating the urgency and challenge of global climate change', *Environment, Science and Policy for Sustainable*

Development, 46(10), pp. 32–46.

Mouffe, C. (2005) *On the Political: Thinking in Action*. London; New York: Routledge.

Mullally, G. *et al.* (2013) 'Fear and loading in the Anthropocene: Narratives of transition and transformation.', in *Sustainability in Society conference, University College Cork.*

Mutz, D. and Martin, P. (2001) 'Facilitating Communication across Lines of Political Difference: The Role of Mass Media', *American Political Science Review*, 95(1), pp. 97–114.

Nanz, P. and Steffek, J. (2004) 'Global Governance, Participation and the Public Sphere', *Government and Opposition: an International Journal of Comparative Politics*, 39(2), pp. 314–355.

National Aeronautics and Space Administration (2008) *What's in a Name? Global Warming vs. Climate Change, NASA website*.

Nelkin, D. (1987) 'Selling science: how the press covers science and technology', *Physics Today*, 43, pp. 41–49.

Nerlich, B. (2010) '"Climategate": Paradoxical metaphors and political paralysis', *Environmental Values*, 19(4), pp. 419–442.

Neuman, W. R., Just, M. R. and Crigler, A. N. (1992) *Common Knowledge: News and the Construction of Political Meaning*. Chicago & London: University of Chicago Press.

Newell, P. (2000) *Climate for change: non-state actors and the global politics of the greenhouse effect*. Cambridge: Cambridge University Press.

Newman, N. (2009) *The rise of social media and its impact on mainstream journalism*. Working paper. Oxford: The Reuters Institute for the Study of Journalism. Available online at https://reutersinstitute.politics.ox.ac.uk/our-research/rise-social-media-and-its-impact-mainstream-journalism

Newman, N., Levy, D. A. L. and Nielsen, R. K. (2015) *Reuters Institute Digital News Report 2015*. Oxford.

Niblock, S. (2007) 'From "Knowing How" To "Being Able"', *Journalism Practice*, 1(1), pp. 20–32.

Nicholas, D., Rowlands, I. and Huntington, P. (2008) *Information Behaviour of the Researcher of the Future: CIBER briefing paper, University College London*. London.

Nielsen, K. H. and Schmidt Kjærgaard, R. (2011) 'News Coverage of Climate Change in Nature News and Science NOW during 2007', *Environmental Communication*, 5(1), pp. 25–44.

Nisbet, E. C. *et al.* (2013) 'Attitude Change in Competitive Framing Environments? Open-/Closed-Mindedness, Framing Effects, and Climate Change', *Journal of Communication*, 63, pp. 766–785.

Nisbet, M. C. (2009) 'Communicating climate change: Why frames matter for public engagement', *Environment: Science and Policy for Sustainable Development*, 51(2), pp. 12–23.

Nisbet, M. C. (2010) 'Knowledge into Action: Framing the Debates over Climate Change and

Poverty', in D'Angelo, P. and Kuypers, J. A. (eds) *Doing News Framing Analysis: Empirical and Theoretical Perspectives*. New York; London: Routledge, pp. 43–46.

Nisbet, M. C. (2011) *Climate Shift: Clear vision for the next decade of public debate*. Washington, D.C.: American University, School of Communication.

Nisbet, M. C. (2013a) 'Environmental Advocacy in the Obama Years', in Vig, N. and Kraft, M. (eds) *Environmental Policy: New Directions for the Twenty-First Century*. 9th edn. Congressional Quarterly, pp. 58–78.

Nisbet, M. C. (2013b) 'Nature's Prophet: Bill McKibben as Journalist, Public Intellectual and Activist'. Harvard, Massachussetts: oan Shorenstein Center for Press, Politics, and Public Policy. Discussion Paper Series.

Nisbet, M. C., Brossard, D. and Kroepsch, A. (2003) 'Framing Science: The Stem Cell Controversy in an Age of PressPolitics', *The Harvard International Journal of Press/Politics*, 8(2), pp. 36–70.

Nisbet, M. C. and Fahy, D. (2015) 'The Need for Knowledge-Based Journalism in Politicized Science Debates', *The Annals of the American Academy of Political and Social Science*, 658(1), pp. 223–234.

Nisbet, M. C. and Huge, M. (2006) 'Attention Cycles and Frames in the Plant Biotechnology Debate: Managing Power Participation through the Press/Policy Connection', *The Harvard International Journal of Press/Politics*, 11(2), pp. 3–40.

Nisbet, M. C. and Scheufele, D. a. (2009) 'What's next for science communication? promising directions and lingering distractions', *American Journal of Botany*, 96(10), pp. 1767–1778.

Nosty, B. D. (2014) 'Media and climate change : From content analysis to analysis content . The interdisciplinary construction of a new paradigm', *Interactions: Studies in Communication & Culture*, 5(1), pp. 7–23.

Noveck, B. S. (2000) 'Paradoxical partners: Electronic communication and electronic democracy', *Democratization*, 7(1), pp. 18–35.

Nuccitelli, D. (2014) 'Climate contrarians accidentally confirm the 97% global warming consensus', *Guardian.co.uk*, 5 June.

O'Brien, M. (2017) *The Fourth Estate: Journalism in 20th century Ireland*. Manchester: Manchester University Press.

O'Donnell, T. M. (2000) 'Of loaded dice and heated arguments: Putting the Hansen-Michaels global warming debate in context', *Social Epistemology*, 14(2–3), pp. 109–127.

O'Neill, S. (2013) 'Image matters: Climate change imagery in US, UK and Australian newspapers', *Geoforum*, 49, pp. 10–19.

O'Neill, S. *et al.* (2013) 'On the use of imagery for climate change engagement', *Global Environmental Change*, 23(2), pp. 413–421.

O'Neill, S., Williams, H. T. P., *et al.* (2015) 'Dominant frames in legacy and social media

coverage of the IPCC Fifth Assessment Report', *Nature Climate Change*, 5(4), pp. 380–385.

O'Neill, S., Williams, H., *et al.* (2015) 'Dominant frames in legacy and social media coverage of the IPCC Fifth Assessment Report - supplementary material', *Nature Climate Change*, 2, pp. 1–9.

O'Neill, S. and Boykoff, M. T. (2012) 'The role of new media in engaging the public with climate change', in Whitmarsh, L., Lorenzoni, I., and O'Neill, S. (eds) *Engaging the public with climate change: Communication and behaviour change*. London: Routledge, pp. 233–251.

O'Neill, S. and Smith, N. (2014) 'Climate change and visual imagery', *Wiley Interdisciplinary Reviews: Climate Change*, 5(1), pp. 73–87.

O'Sullivan, K. (2017a) 'Ireland failing "spectacularly" in response to climate change', *Irish Times*, 30 September.

O'Sullivan, K. (2017b) 'Ireland taking a "shameful" approach to emissions targets', *Irish Times*, 13 October.

O Faharta, C. (2016) 'Ireland's CO2 emissions thrid highest in EU', *Irish Examiner*, 23 November.

Obergassel, W. *et al.* (2016) *Phoenix from the Ashes—An Analysis of the Paris Agreement to the United Nations Framework Convention on Climate Change*. Wuppertal.

Olausson, U. (2009) 'Global warming — global responsibility ? Media frames of collective action and scientific uncertainty', *Public Understanding of Science*, 18(4), pp. 421–436.

Olausson, U. and Berglez, P. (2014) 'Media Research on Climate Change: Where Have We Been and Where Are We Heading?', *Environmental Communication*, 8(2), pp. 139–141.

Olsen, W. (2004) 'Triangulation in Social Research: Qualitative and Quantitative Methods Can Really Be Mixed', *Developments in Sociology*, pp. 1–30.

Oreskes, N. and Conway, E. M. (2010) 'Defeating the merchants of doubt.', *Nature*, 465(7299), pp. 686–687.

Oreskes, N. and Conway, E. M. (2010) *Merchants of Doubt*. London: Bloomsbury Publishing.

Ortlipp, M. (2008) 'Keeping and using reflective journals in the qualitative research process', *The Qualitative Report*, 13(4), pp. 695–705.

Ostini, J. and Fung, A. Y. H. (2002) 'Beyond the Four Theories of the Press : A New Model of National Media Systems', *Journalism*, 5(1), pp. 41–56.

Painter, J. (2011) *Poles Apart The international reporting of climate scepticism*. Oxford: Reutrers Institute for the Stidy of Journalism.

Painter, J. (2013) *Climate Change in the Media : Reporting Risk and Uncertainty*. Oxford: I B Tauris.

Painter, J. (2014) *Disaster Averted? Television Coverage of the 2013/14 IPCC's Climate Change Reports*. Oxford: The Reuters Institute for the Study of Journalism. Available online at https://reutersinstitute.politics.ox.ac.uk/our-research/disaster-averted-television-coverage-

201314-ipccs-climate-change-reports.

Painter, J. (2015) *Media representations of uncertainty about climate change*. University of Westminister.

Painter, J. and Ashe, T. (2012) 'Cross-national comparison of the presence of climate scepticism in the print media in six countries, 2007–10', *Environmental Research Letters*, 7(4), p. 44005.

Painter, J. and Gavin, N. T. (2015) 'Climate Skepticism in British Newspapers, 2007 – 2011', *Environmental Communication*, 10(4), pp. 37–41.

Palcic, D. and Reeves, E. (2013) 'State-Owned Enterprise Policy and the Loss of Economic Sovereignty: The Case of Ireland', *Public Organization Review*, 13(2), pp. 117–130.

Pan, Z. and Kosicki, G. M. (1997) 'Priming and media impact on the evaluations of the president's performance', *Communication Research*, 24(1), pp. 3–33.

Pan, Z. and Kosicki, G. M. (2001) 'Framing as a strategic action in public deliberation', in Reese, S. D., Gandy, O., and Grant, A. (eds) *Framing public life: Perspectives on media and our understanding of the social world*. Mahwah, New Jersey: Lawrence Erlbaum, pp. 35–65.

Panis, K. and Bulck, H. Van Den (2014) 'In the footsteps of Bob and Angelina : Celebrities' diverse societal engagement', *Communications*, 39(1), pp. 23–42.

Pape, J. *et al.* (2011) 'Developing Policies and Instruments for Sustainable Household Consumption: Irish Experiences and Futures', *Journal of Consumer Policy*, 34(1), pp. 25–42.

Parisi, P. (1997) 'Towards a "Philosophy of Framing": News Narratives for Public Journalism', *Journalism & Mass Communication Quarterly*, 74(4), pp. 673–686.

Parsons, M. (2010) 'Keeping the stag hunt issue running', *Irish Times*, 1 May.

Patton, M. (2002) *Qualitative research & evaluation methods*. 3rd edn. Thousand Oaks, California: Sage Publications.

Pepermans, Y. and Maeseele, P. (2014) 'Democratic Debate and Mediated Discourses on Climate Change: From Consensus to De/politicization', *Environmental Communication*, 8(2), pp. 216–232.

Peters, B. (2008) 'The Functional Capacity of Contemporary Public Spheres', in Wessler, H. (ed.) *Public Deliberation and Public Culture*. Basingstoke: Palgrave Macmillan, pp. 121–133.

Peters, H. P. (1995) 'The Interaction of Journalists and Scientific Experts: Co-operation and Conflict between two Professional Cultures', *Media, Culture and Society*, 17, pp. 31–48.

Pew Research Centre (2010) *New Media, Old Media*. Available online at http://www.journalism.org/2010/05/23/new-media-old-media/

Phillips, A. (2015) *Journalism and its audiences, podcastacademy.org*.

Pielke, R. J. (2010) *The climate fix: what scientists and politicians won't tell you about global warming*. Washington, DC: Basic Books.

Pihl-Thingvad, S. (2015) 'Professional ideals and daily practice in journalism', *Journalism*, 16(3), pp. 392–411.

Pinnegar, J. K., Buckley, P. and Englehard, G. (2017) 'Impacts of Climate Change in the UK and Ireland', in Phillips, B. F. and Perez-Ramirez, M. (eds) *Climate Change Impacts on Fisheries and Aquaculture: A Global Analysis*. New York: John Wiley & Sons.

Poberanska, M. (2013) *Contemporary Mass Media and the Communication Of Anthropogenic Climate Change in the Russian Federation, Unpublished thesis*. University of Nottingham.

Poggenpoel, M. and Myburgh, C. (2003) 'The Researcher as Research Instrument in Educational Research: A Possible Threat to Trustworthiness?', *Education*, 124(2), pp. 418–423.

Polanyi, M. (1958) *Personal knowledge: Towards a post-critical philosophy*. London: Routledge.

Porter, A. J. and Hellsten, I. (2014) 'Investigating participatory dynamics through social media using a multideterminant "frame" Approach: The case of climategate on YouTube', *Journal of Computer-Mediated Communication*, 19, pp. 1024–1041.

Porter, K. E. and Hulme, M. (2013) 'The emergence of the geoengineering debate in the UK print media: a frame analysis', *The Geographical Journal*, 179(4), pp. 342–355.

Preston, P. and Silke, H. (2014) 'Ireland—From Neoliberal Champion to "the Eye of the Storm"', *Javnost - The Public*, 21(4), pp. 5–23.

Price, V. and Tewksbury, D. (1997) 'News values and public opinion: A theoretical account of media priming and framing', in *Progress in communication sciences*, pp. 173–212.

Radtke, D. (2017) 'Sunday shows largely fail to mention climate change in Hurricane Irma coverage', *Media Matters for America*, 10 September.

Rafter, K. (2014) 'Voices in the crisis: The role of media elites in interpreting Ireland's banking collapse', *European Journal of Communication*, 29(5), pp. 598–607.

Rahmstorf, S. (2004) 'The climate sceptics', *Potsdam Institute for Climate Impact Research*, pp. 76–82.

Readfearn, G. (2017) 'Trump's potential science adviser William Happer: hanging around with conspiracy theorists', *The Guardian*, 21 February.

Rebich-Hespanha, S. *et al.* (2015) 'Image Themes and Frames in US Print News Stories about Climate Change', *Environmental Communication*, 9(4), pp. 491–519.

Reed, M. (2016) '"This loopy idea" an analysis of UKIP's social media discourse in relation to rurality and climate change', *Space and Polity*, 0(0), pp. 1–16.

Reese, S. D. (2003) 'Prologue - framing public life: a bridging model for media research', in Reese, S. D., Gandy, O. H., and Grant, A. E. (eds) *Framing Public Life. Perspectives on media and our understanding of the social world*. Mahwah, New Jersey: Lawrence Erlbaum.

Reese, S. D. and Ballinger, J. (2001) 'The Roots of a Sociology of News: Remembering Mr. Gates and Social Control in the Newsroom', *Journalism & Mass Communication Quarterly*, 78(4), pp. 641–658.

Riffe, D. (2004) 'An Editorial Comment', *Journalism & Mass Communication Quarterly*,

81(Spring 2004).

Robbins, D. (2015) 'The UN meets MoJo: how journalists covered the Paris COP', *Blog post for the Institute for Future Media and Journalism (FuJo), Dublin City University*. Institute for Future Media and Journalism, Dublin City University.

Robbins, D. (2016) 'Morality versus Politics: the Irish Media and Laudato Si'', *Studies: An Irish Quarterly Review*, 105(420), pp. 441–450.

Rosengren, K. E. (1981) 'Advances in Content Analysis', *Sage Annual Review of Communication Research*, 9(1), p. 283.

RTE (2014) 'RTE News announces George Lee as New Agriculture and Environment correspondent', *RTE Press Centre*, 13 March.

RTE News (2008) 'Lenihan admits "serious problem" in economy', *RTE News website*, 24 June.

Russell, A. (2013) 'Innovation in hybrid spaces: 2011 UN Climate Summit and the expanding journalism landscape', *Journalism*, 14, pp. 904–920.

Russill, C. (2008) 'Tipping Point Forewarnings in Climate Change Communication: Some Implications of an Emerging Trend', *Environmental Communication*, 2(2), pp. 133–153.

Sampei, Y. and Aoyagi-Usui, M. (2009) 'Mass-media coverage, its influence on public awareness of climate-change issues, and implications for Japan's national campaign to reduce greenhouse gas emissions', *Global Environmental Change*, 19(2), pp. 203–212.

Sampson, J. P. (2012) 'A guide to quantitative and qualitative dissertation research', *Educational Psychology and Learning Sytems Faculty Publications*, pp. 1–93.

Saris, W. E. and Sniderman, P. M. (eds) (2004) 'The structure of political argument and the logic of issue framing', in *Studies in Public Opinion: Attitudes, Nonattitudes, Measurement Error, and Change*. Princeton and London: Princeton University Press, pp. 133–165.

Schäfer, M. S. *et al.* (2014) 'What drives media attention for climate change? Explaining issue attention in Australian, German and Indian print media from 1996 to 2010', *International Communication Gazette*, 76(2), pp. 152–176.

Schäfer, M., Berglez, P., Wessler, H., Eide, E., Nerlich, B. and O'Neill, S. (2016) Investigating Mediated Climate Change Communication: A Best-Practice Guide. Research Reports No 6. Jönköping: School of Education and Communication, Jönköping University.

Schäfer, M. S. and Schlichting, I. (2014) 'Media Representations of Climate Change: A Meta-Analysis of the Research Field', *Environmental Communication*, 8(2), pp. 142–160.

Schein, E. H. (1988) 'Organizational culture', *Journal of the American Psychological Association*, 45(2), p. 109.

Schein, E. H. (2010) *Organisational culture and leadership*. San Francisco: John Wiley & Sons.

Scheufele, D. (1999) 'Framing as a theory of media effects', *Journal of communication*, 49(1), pp. 103–122.

Scheufele, D. A. (2000) 'Agenda-Setting, Priming, and Framing Revisited: Another Look at

Cognitive Effects of Political Communication', *Mass Communication & Society*, 3(2 & 3), pp. 297–316.

Scheufele, D. A. and Tewksbury, D. (2007) 'Framing, agenda setting, and priming: The evolution of three media effects models', *Journal of Communication*, 57(1), pp. 9–20.

Schlesinger, P. (1978) *Putting 'Reality' Together*. London, New York: Methuen.

Schmidt, A., Ivanova, A. and Schäfer, M. S. (2013) 'Media attention for climate change around the world: A comparative analysis of newspaper coverage in 27 countries', *Global Environmental Change*, 23(5), pp. 1233–1248.

Schnattschneider, E. E. (1960) *The semi-sovereign people*. New York: Holt, Reinhart and Winston.

Schneider, S., Nullmeier, F. and Hurrelmann, A. (2007) 'Exploring the Communicative Dimension of Legitimacy: Text Analytical Approaches', in Hurrelmann, A., Schneider, S., and Steffek, J. (eds) *Legitimacy in an Age of Global Politics*. London: Palgrave Macmillan UK, pp. 126–155.

Schudson, M. (1989) 'The sociology of news production', *Media, Culture & Society*, 11(3), pp. 263–282.

Schudson, M. (1995) *The Power of News*. Massuchussetts: Harvard University Press.

Schudson, M. (2001) 'The objectivity norm in American journalism', *Journalism*, 2(2), pp. 149–170.

Schudson, M. (2001) 'The objectivity norm in American journalism*', *Journalism*. SAGE Publications, 2(2), pp. 149–170.

Schudson, M. (2008a) 'The " Lippmann-Dewey Debate " and the Invention of Walter Lippmann as an Anti-Democrat 1986-1996', *International Journal of Communication*, 2, pp. 1031–1042.

Schudson, M. (2008b) *Why Democracies Need an Unlovable Press*. Cambridge: Polity Press.

Schudson, M. (2011) *The Sociology of News*. 2nd e3diti. New York; London: W. W. Norton.

Schultz, I. (2007) 'The Journalistic Gut Feeling', *Journalism Practice*, 1(2), pp. 190–207.

Segerberg, A. and Bennett, W. L. (2011) 'Social media and the organization of collective action: Using Twitter to explore the ecologies of two climate change protests', *The Communication Review*, 14(3), pp. 197–215.

Semetko, H. A. and Valkenburg, P. M. (2000) 'Framing European politics: a content analysis of press and television news', *Journal of Communication*, 50(2), pp. 93–109.

Shanahan, J. and Good, J. (2000) 'Heat and hot air : influence of local temperature on journalists' coverage of global warming', *Public Understanding of Science*, 9, pp. 285–295.

Shehata, A. and Hopmann, D. (2012) 'Framing climate change: A study of US and Swedish press coverage of global warming', *Journalism Studies*, 13(2), pp. 175–192.

Shoemaker, P. J. and Reese, S. D. (1996) *Mediating the Message: Theories of Influences on Mass Media Content*. White Plains, N.Y: Longman.

Siebert, F. S. (1956) *Four theories of the press: The authoritarian, libertarian, social responsibility, and Soviet communist concepts of what the press should be and do.* Champaign, Illinois: University of Illinois Press.

Smith, H. W. (1975) *Strategies of social research: The methodological imagination*. Eaglewood Cliffs, New Jersey: Prentice Hall.

Smith, N. W. and Joffe, H. (2009) 'Climate change in the British press: the role of the visual', *Journal of Risk Research*, 12(5), pp. 647–663.

Sönke, K. *et al.* (2015) *Global climate risk index 2016: Who suffers most from Extreme weather events? Weather-related loss events in 2014 and 1995 to 2014*. Bonn: Germanwatch.

Spector, M. and Kituse, J. I. (1977) *Constructing social problems*. Menlo Park: Cummings.

Srivastava, A. and Thomson, S. B. (2009) 'Framework Analysis : A qualitative methodology for applied policy research', *Journal of Administration & Governance*, 4(2), pp. 72–79.

Steffek, J. (2009) 'Discursive legitimation in environmental governance', *Forest Policy and Economics*, 11(5–6), pp. 313–318.

Steffen, W., Crutzen, P. J. and McNeill, J. R. (2007) 'The Anthropocene: Are Humans Now Overwhelming the Great Forces of Nature', *AMBIO: A Journal of the Human Environment*, 36(8), pp. 614–621.

Stern, N. (2006) *Stern Review on the Economics of Climate Change*. Cambridge: Cambridge University Press.

Stern, N. (2007) *The Economics of Climate Change*. Cambridge: Cambridge University Press.

Stern, N. (2016) 'Economics: Current climate models are grossly misleading', *Nature*, 530(7591), pp. 407–409.

Stiglitz, J. E. (2006) 'A New Agenda for Global Warming', *Economists' Voice*, pp. 1–3.

Stoddart, M. C. J. and Smith, J. (2016) 'The Endangered Arctic, the Arctic as Resource Frontier: Canadian News Media Narratives of Climate Change and the North', *Canadian Review of Sociology*, 53(3), pp. 316–336.

Sunstein, C. (2007) *Republic.com 2.0*. Princeton, New Jersey: Princeton University Press.

Sunstein, C. R. (2001) *Republic.com*. Princeton, New Jersey: Princeton University Press.

Sweeney, J. (2000) 'A three-century storm climatology for Dublin 1715–2000', *Irish Geography*, 33(1), pp. 1–14.

Sweeney, J. *et al.* (2003) *Climate Change: Scenarios & Impacts for Ireland. Final Report*. Environmental Protection Agency, Johnstown Castle, Co. Wexford, Ireland.

Sweeney, J. *et al.* (2007) *Climate Change – Refining the Impacts for Ireland*. Environmental Protection Agency, Johnstown Castle, Co. Wexford, Ireland.

Takahashi, B. (2011) 'Framing and sources: a study of mass media coverage of climate change in Peru during the V ALCUE', *Public Understanding of Science*, 20(4), pp. 543–557.

Tankard, J. *et al.* (1991) 'Media frames: Approaches to conceptualization and measurement', in

Association for Education in Journalism and Mass Communication. Communication Theory and Methodology Division, Boston, MA. Boston, MA.

Tankard, J. W. J. (2001) 'The Empirical Approach to the Study of Media Framing', in Reese, S. D., Gandy, O. H., and Grant, A. E. (eds) *Framing Public Life*. Mahwah, New Jersey and London: Lawrence Erlbaum, pp. 95–106.

Tellis, G. J. (1997) 'Effective frequency: One exposure or three factors?', *Journal of Advertising Research*, 37(4), pp. 75–80.

Tenkasi, R. V. and Hay, G. W. (2004) 'Actionable Knowledge and Scholar-Practitioners: A Process Model of Theory-Practice Linkages', *Systemic Practice and Action Research*, 17(3), pp. 177–206.

Tesch, R. (1990) *Qualitative research: Analysis types and software tools*. Bristol, Pensylvania: Falmer.

Thorsen, E. (2013) 'Blogging on the ice: Connecting audiences with climate-change sciences', *International Journal of Media & Cultural Politics*, 9(1), pp. 87–101.

Thurmond, V. A. (2001) 'The Point of Triangulation', *Journal of Nursing Scholarship*, 33(3), pp. 253–258.

Tillinghast, W. and McCann, M. (2013) 'Climate Change in Four News Magazines: 1989-2009', *Online Jopurnal of Commication and Media Technologies*, 3(1), pp. 22-49.

Tol, R. S. J. (2010) 'Climate Change Response Bill 2010'. www.irisheconomy.ie.

Tol, R. S. J. (2014) 'Quantifying the consensus on anthropogenic global warming in the literature: Rejoinder', *Energy Policy*, 73, p. 709.

Torney, D. (2017) 'If at first you don't succeed: the development of climate change legislation in Ireland', *Irish Political Studies*, 32(2), pp. 247–267.

Torney, D. and Little, C. (2017) 'Symposium on the politics of climate change in Ireland', *Irish Political Studies*, 32(2), pp. 191-198.

Truetzschler, W. (2007) 'The Irish Media Landscape', in Terzis, G. (ed.) *European Media Governance: National and Regional Dimensions*. Bristol: Intellect Books, p. 33.

Trumbo, C. (1996) 'Constructing climate change: claims and frames in US news coverage of an environmental issue', *Public Understanding of Science*, 5(3), pp. 269–283.

Tuchman, G. (1972) 'Objectivity as Strategic Ritual: An Examination of Newsmen's Notions of Objectivity', *American Journal of Sociology*, 77(4), p. 660.

UNFCCC (2017) *National greenhouse gas inventory data for the period 1990-2015, Framework Convention on Climate Change*.

Ungar, S. (1992) 'The rise and (relative) decline of global warming as a social problem', *The Sociological Quarterly*, 33(4), pp. 483–501.

Ungar, S. (2000a) 'Knowledge, ignorance and the popular culture: climate change versus the ozone hole', *Public Understanding of Science*, 9(3), pp. 297–312.

Ungar, S. (2000b) 'Knowledge, ignorance and the popular culture: climate change versus the ozone hole', *Public Understanding of Science*, 9, pp. 297–312.

Ungar, S. (2014) 'Media Context and Reporting Opportunities on Climate Change: 2012 versus 1988', *Environmental Communication: A Journal of Nature and Culture*, 8(2), pp. 233–248.

US General Accounting Office (1996) *Content Analysis: A Methodology for Structuring and Analyzing Written Material*.

Valkenburg, P. M., Semetko, H. A. and de Vreese, C. H. (1999) 'The Effects of News Frames on Readers' Thoughts and Recall', *Communication Research*, 26(5), pp. 550–569.

Vasterman, P. L. M. (2005) 'Media-hype: Self-reinforcing news waves, journalistic standards and the construction of social problems', *European Journal of Communication*, 20(4), pp. 508–530.

Vestergård, G. L. (2011) 'From journal to headline: The accuracy of climate science news in Danish high quality newspapers', *Journal of Science Communication*, 10(2) [Online journal].

Villar, A. and Krosnick, J. A. (2011) 'Global warming vs. climate change, taxes vs. prices: Does word choice matter?', *Climatic Change*, 105(1), pp. 1–12.

Vliegenthart, R. and van Zoonen, L. (2011) 'Power to the frame: Bringing sociology back to frame analysis', *European Journal of Communication*, 26(2), pp. 101–115.

Vos, T. P. (2012) '"Homo journalisticus": Journalism education's role in articulating the objectivity norm', *Journalism*, 13(4), pp. 435–449.

Vreese, C. H. De (2005) 'News framing: Theory and typology', *Information Design Journal*, 13(1), pp. 51–62.

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

Ward, S. J. (1998) 'An Answer to Martin Bell: objectivity and attachment in journalism', *Harvard International Journal of Press/Politics*, 3(3), pp. 121–125.

Wasserman, I. C. and Kram, K. E. (2009) 'Enacting the Scholar— Practitioner Role', *The Journal of Applied Behavioral Science*, 45(1), pp. 12–38.

Wayne, G. P. (2015) 'Global warming vs climate change', *Skeptical Science website*, 1 July.

Weaver, D. H. (2007) 'Thoughts on agenda setting, framing, and priming', *Journal of Communication*, 57(1), pp. 142–147.

Weaver, D. and Wilhoit, G. C. (1994) 'Daily newspaper journalists in the 1990s', *Newspaper Research Journal*, 15(3), pp. 2–22.

Weber, R. P. (1990) *Basic content analysis*. Newbury Park, California: SAGE Publications.

Weigold, M. F. (2001) 'Communicating Science: A Review of the Literature', *Science Communication*, 23(2), pp. 164–193.

Weingart, P., Engels, A. and Pansegrau, P. (2000a) 'Risk of communication: discourses on climate change in science, politics and the mass media', *Public Understanding of Science*, (9),

pp. 261–283.

Weingart, P., Engels, A. and Pansegrau, P. (2000b) 'Risks of communication: discourses on climate change in science, politics, and the mass media', *Public Understanding of Science*, 9(3), pp. 261–283.

Westlund, O. (2013) 'Mobile news: A review and model of journalism in an age of mobile media', *Digital Journalism*, 1(1), pp. 6–26.

White, D. M. (1950) 'The Gatekeeper: A Case Study in the Selection of News', *Journalism Quarterly*, 27, pp. 383–9.

Wilhelm, A. G. (1998) 'Virtual sounding boards: How deliberative is on-line political discussion?', *Information, Communication & Society*, 1(3), pp. 313–338.

Wilkins, L. (1993) 'Between facts and values: Print media coverage of the greenhouse effect, 1987-1990', *Public Understanding of Science*, 2(1), pp. 71–84.

Willig, I. (2012) 'Newsroom ethnography in a field perspective', *Journalism*, 14(3), pp. 372–387.

Wilson, K. M. (1995) 'Mass media as sources of global warming knowledge', *Mass Communications Review*, 22(1 & 2), pp. 75–89.

Wilson, K. M. (2000) 'Drought, debate, and uncertainty: measuring reporters' knowledge and ignorance about climate change', *Public Understanding of Science*, 9(1), pp. 1–13.

Wilson Rowe, E. (2009) 'Who is to Blame? Agency, Causality, Responsibility and the Role of Experts in Russian Framings of Global Climate Change', *Europe-Asia Studies*, 61(4), pp. 593–619.

Winter, J. P., Eyal, C. and Rogers, A. (1982) 'Issue-Specific Agenda-Setting The Whole as Less Than the Sum of the Parts', *Canadian Journal of Communication*, 8(2), pp. 1–10.

Wozniak, A., Wessler, H. and Lück, J. (2016) 'Who Prevails in the Visual Framing Contest About the United Nations Climate Change Conferences?', *Journalism Studies*. Taylor & Francis, 18(11), pp. 1433–1452.

Yang, G. (2010) 'Brokering Environment and Health in China: issue entrepreneurs of the public sphere', *Journal of Contemporary China*, 19(63), pp. 101–118.

Young, N. (2013) 'Working the fringes: the role of letters to the editor in advancing non-standard media narratives about climate change', *Public Understanding of Science*, 22(4), pp. 443–459.

Young, N. and Dugas, E. (2011) 'Representations of Climate Change in Canadian National Print Media: The Banalization of Global Warming', *Canadian Review of Sociology*, 48(1), pp. 517–536.

Zamith, R., Pinto, J. and Villar, M. E. (2012) 'Constructing Climate Change in the Americas: An Analysis of News Coverage in U.S. and South American Newspapers', *Science Communication*, 35(3), pp. 334-357.

Zelizer, B. (2004) *Taking Journalism Seriously: News and the Academy*. Thousand Oaks, California: Sage.

Zhou, Y. and Moy, P. (2007) 'Parsing framing processes: The interplay between online public opinion and media coverage', *Journal of Communication*, 57(1), pp. 79–98.

Appendix A: corpus of 706 climate articles coded

Story	Publication Date	Publication	SectionPage number
1	Jan 31, 2007	Irish Independent	FEATURES
2	Jan 13, 2007	Irish Independent	ANALYSIS
3	Jan 31, 2007	Irish Times	WORLD; Pg. 12
4	Jan 28, 2007	S Independent	ANALYSIS
5	Jan 26, 2007	Irish Times	FINANCE; Story of the Week; Pg. 6
6	Jan 24, 2007	Irish Times	IRELAND; NDP 2007-2013; Pg. 12
7	Jan 21, 2007	S Independent	ANALYSIS
8	Jan 16, 2007	Irish Times	OPINION; Opinion; Pg. 16
9	Jan 13, 2007	Irish Times	MAGAZINE; Pg. 14
10	Jan 11, 2007	Irish Times	SCIENCE TODAY; Pg. 15
11	Jan 07, 2007	S Tribune	BUSINESS; Pg. B05
12	Feb 21, 2007	Irish Independent	EDUCATION
13	Feb 26, 2007	Irish Times	FRONT PAGE; Pg. 1
14	Feb 24, 2007	Irish Times	WEEKEND; About Us; Pg. 9
15	Feb 18, 2007	S Independent	LIFESTYLE; Fashion
16	Feb 16, 2007	Irish Times	IRELAND; Science Conference; Pg. 9
17	Feb 10, 2007	Irish Times	MAGAZINE; Modern Moment; Pg. 62
18	Feb 08, 2007	Irish Times	IRELAND; Pg. 10
19	Feb 04, 2007	S Independent	SPORT; Horse Racing
20	Feb 03, 2007	Irish Times	WORLD; UN Climate Report; Pg. 15
21	Feb 02, 2007	Irish Times	WORLD; Other World Stories; Pg. 15
22	Mar 17, 2007	Irish Independent	FEATURES
23	Mar 03, 2007	Irish Independent	NATIONAL NEWS
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25	Mar 24, 2007	Irish Times	WORLD; Other World Stories; Pg. 12
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441	Jun 26, 2011	S Business Post	OTHER
442	Jun 20, 2011	Irish Examiner	OPINION
443	Jun 06, 2011	Irish Times	WORLD; Other World Stories; Pg. 8
444	Jul 16, 2011	Irish Independent	
445	Jul 20, 2011	Irish Times	WORLD; Pg. 13
446	Jul 07, 2011	Irish Times	IRELAND; Dail Report; Pg. 8
447	Aug 29, 2011	Irish Times	WORLD; Pg. 8
448	Aug 13, 2011	Irish Times	OPINION; Opinion; Pg. 12

449	Sep 17, 2011	Irish Independent	
450	Sep 21, 2011	Irish Times	WORLD; Other world stories; Pg. 12
451	Sep 01, 2011	Irish Times	WORLD; Pg. 12
452	Oct 29, 2011	Irish Times	WEEKEND; Pg. 1
453	Oct 14, 2011	Irish Times	WORLD; Other world stories; Pg. 14
454	Oct 01, 2011	Irish Times	WEEKEND; Heritage & Habitat; Pg. 6
455	Nov 30, 2011	Irish Times	IRELAND; Dail Report; Pg. 8
456	Nov 26, 2011	Irish Times	WEEKEND; Heritage & Habitat; Pg. 6
457	Nov 13, 2011	S Business Post	LIVING
458	Nov 06, 2011	S Business Post	AGENDA
459	Nov 06, 2011	S Business Post	IRELAND
460	Nov 04, 2011	Irish Times	IRELAND; Other stories; Pg. 9
461	Dec 12, 2011	Irish Independent	World News
462	Dec 19, 2011	Irish Examiner	OPINION
463	Dec 16, 2011	Irish Times	INNOVATION; Pg. 47
464	Dec 12, 2011	Irish Times	OPINION; Opinion; Pg. 16
465	Dec 06, 2011	Irish Times	WORLD; Pg. 9
466	Jan 27, 2012	Irish Independent	Residential Property
467	Jan 29, 2012	S Business Post	LIVING
468	Jan 19, 2012	Irish Times	WORLD; Pg. 9
469	Jan 07, 2012	Irish Times	WEEKEND; Pg. 4
470	Feb 25, 2012	Irish Times	WEEKEND; Arts & Books; Pg. 13
471	Feb 16, 2012	Irish Times	WORLD; Other world stories; Pg. 10
472	Feb 02, 2012	Irish Times	IRELAND; Regional News; Pg. 2
473	Mar 30, 2012	Irish Times	WORLD; Pg. 12
474	Mar 13, 2012	Irish Times	WORLD; Other world stories; Pg. 11
475	Apr 06, 2012	Irish Independent	Film
476	Apr 21, 2012	Irish Daily Mail	EDITORIAL; OPINION, COLUMNS; Pg. 14,15
477	May 31, 2012	Irish Independent	NATIONAL NEWS
478	May 23, 2012	Irish Times	FEATURES; Other Features; Pg. 15
479	May 01, 2012	Irish Times	HEALTH; Your Health; Pg. 14
480	Jun 30, 2012	Irish Times	MAGAZINE; Pg. 10
481	Jun 23, 2012	Irish Daily Mail	EDITORIAL; OPINION, LEADING ARTICLES; Pg. 14
482	Jun 18, 2012	Irish Times	WORLD; Pg. 11
483	Jun 07, 2012	Irish Times	WORLD; Other world stories; Pg. 15
484	Sep 06, 2012	Irish Independent	BUSINESS; World Business
485	Sep 27, 2012	Irish Times	OPINION; Opinion; Pg. 16
486	Sep 21, 2012	Irish Daily Mail	NEWS; Pg. 2
487	Sep 13, 2012	Irish Times	SCIENCE TODAY; Pg. 13
488	Sep 02, 2012	S Business Post	HOME
489	Aug 22, 2012	Irish Daily Mail	FEATURES; Pg. 42
490	Aug 13, 2012	Irish Times	OPINION; Opinion; Pg. 14
491	Jul 29, 2012	S Independent	NATIONAL NEWS
492	Jul 21, 2012	Irish Times	WEEKEND; News Review; Pg. 5
493	Jul 11, 2012	Irish Times	WORLD; Other world stories; Pg. 11

494	Jul 05, 2012	Irish Times	OPINION; Opinion; Pg. 16
495	Nov 21, 2012	Irish Independent	FEATURES
496	Dec 31, 2012	Irish Examiner	OPINION
497	Dec 24, 2012	Irish Examiner	OPINION
498	Dec 10, 2012	Irish Times	OPINION; Pg. 14
499	Dec 05, 2012	Irish Daily Mail	NEWS; Pg. 4,5
500	Nov 30, 2012	Irish Times	OPINION; Opinion; Pg. 18
501	Nov 18, 2012	S Business Post	AGENDA
502	Nov 11, 2012	S Independent	ANALYSIS
503	Nov 03, 2012	Irish Times	OPINION; Opinion; Pg. 13
504	Oct 18, 2012	Irish Times	PROPERTY; Residential Property; Pg. 10
505	Oct 09, 2012	Irish Times	FINANCE; Business News; Pg. 3
506	Mar 26, 2013	Irish Independent	FEATURES; Pg. 26
507	Jan 26, 2013	Irish Independent	REVIEW;FEATURES; Pg. 12,13
508	Jan 01, 2013	Irish Independent	NEWS; Pg. 23
509	Mar 23, 2013	Irish Times	SATURDAY MAGAZINE; Pg. 28
510	Mar 11, 2013	Irish Daily Mail	EDITORIAL; OPINION, LEADING ARTICLES; Pg. 12
511	Mar 04, 2013	Irish Examiner	OPINION
512	Feb 24, 2013	S Business Post	LIVING
513	Feb 18, 2013	Irish Times	WORLD; Changing climate; Pg. 9
514	Feb 13, 2013	Irish Times	IRELAND; Managing floods; Pg. 4
515	Feb 05, 2013	Irish Times	IRELAND; News Agenda; Pg. 4
516	Jan 27, 2013	S Independent	FEATURES; Pg. 26
517	Jan 19, 2013	Irish Examiner	OPINION
518	Jan 14, 2013	Irish Times	FINANCE; Innovation; Pg. 5
519	Jan 06, 2013	S Independent	SPORT; Pg. 12
520	Jun 06, 2013	Irish Independent	BUSINESS; Pg. 11
521	Apr 15, 2013	Irish Independent	NEWS; Pg. 14
522	Jun 27, 2013	Irish Times	FEATURES; Pg. 14
523	Jun 17, 2013	Irish Times	OPINION; Pg. 16
524	Jun 10, 2013	Irish Daily Mail	NEWS; OPINION, COLUMNS; Pg. 17
525	Jun 02, 2013	S Business Post	COMMENT
526	May 22, 2013	Irish Times	FINANCE; Pg. 12
527	May 12, 2013	S Independent	FEATURES; Pg. 29
528	May 04, 2013	Irish Times	WORLD; Pg. 11
529	Apr 28, 2013	S Business Post	LIVING
530	Apr 19, 2013	Irish Times	FINANCE; Pg. 5
531	Apr 08, 2013	Irish Daily Mail	FEATURES; Pg. 18
532	Apr 01, 2013	Irish Examiner	IRELAND
533	Aug 22, 2013	Irish Independent	BUSINESS;NEWS; Pg. 7
534	Sep 29, 2013	S Independent	BUSINESS; Pg. 6
535	Sep 23, 2013	Irish Times	SPORT; Pg. 5
536	Sep 10, 2013	Irish Times	FINANCE; Pg. 1
537	Sep 01, 2013	S Business Post	HOME
538	Aug 22, 2013	Irish Times	FEATURES; Pg. 13

539	Aug 08, 2013	Irish Times	IRELAND; Pg. 4
540	Jul 21, 2013	S Independent	BUSINESS; Pg. 6
541	Jul 06, 2013	Irish Times	SATURDAY MAGAZINE; Pg. 19
542	Nov 25, 2013	Irish Independent	NEWS; FRONT PAGE; Pg. 24
543	Oct 11, 2013	Irish Independent	FEATURES; Pg. 30,31
544	Dec 23, 2013	Irish Examiner	BUSINESS
545	Dec 10, 2013	Irish Times	IRELAND; Pg. 7
546	Dec 05, 2013	Irish Times	FEATURES; Pg. 14
547	Nov 24, 2013	S Business Post	HOME
548	Nov 20, 2013	Irish Times	OPINION; Pg. 16
549	Nov 16, 2013	Irish Times	WEEKEND; Pg. 12
550	Nov 02, 2013	Irish Daily Mail	EDITORIAL; Pg. 14,15
551	Oct 26, 2013	Irish Times	IRELAND; Pg. 22
552	Oct 20, 2013	S Business Post	SMALL BUSINESS
553	Oct 10, 2013	Irish Times	IRELAND; Pg. 2
554	Oct 02, 2013	Irish Times	OPINION; Pg. 16
555	Mar 12, 2014	Irish Independent	EDITORIAL; OPINION, COLUMNS; Pg. 35
556	Feb 17, 2014	Irish Independent	NEWS; Pg. 21
557	Jan 23, 2014	Irish Independent	BUSINESS; Pg. 6
558	Mar 23, 2014	S Independent	BUSINESS;NEWS; Pg. 7
559	Mar 08, 2014	Irish Daily Mail	SPORT; Pg. 8
560	Mar 01, 2014	Irish Times	WEEKEND; Pg. 6
561	Feb 17, 2014	Irish Times	OPINION; Pg. 16
562	Feb 14, 2014	Irish Times	WORLD; Pg. 13
563	Feb 09, 2014	S Independent	NEWS; Pg. 4
564	Feb 05, 2014	Irish Times	IRELAND; Pg. 8
565	Jan 26, 2014	S Independent	EDITORIAL; OPINION, LEADING ARTICLES; Pg. 24
566	Jan 19, 2014	S Independent	LIVING;FEATURES; Pg. 40
567	Jan 07, 2014	Irish Times	IRELAND; Pg. 4
568	Jun 12, 2014	Irish Independent	NEWS; Pg. 26
569	May 06, 2014	Irish Independent	NEWS; Pg. 21
570	Apr 14, 2014	Irish Independent	NEWS; Pg. 4,5
571	Apr 02, 2014	Irish Independent	BUSINESS; Pg. 34,35
572	Jun 23, 2014	Irish Times	FINANCE; Pg. 6
573	Jun 15, 2014	S Business Post	LIVING
574	Jun 03, 2014	Irish Daily Mail	FEATURES; Pg. 38
575	May 25, 2014	S Independent	NEWS; Pg. 16
576	May 14, 2014	Irish Times	LETTERS; Pg. 17
577	May 05, 2014	Irish Daily Mail	NEWS; Pg. 10
578	Apr 29, 2014	Irish Daily Mail	NEWS; Pg. 19
579	Apr 23, 2014	Irish Times	IRELAND; Pg. 7
580	Apr 19, 2014	Irish Times	WEEKEND; Pg. 4
581	Apr 13, 2014	S Independent	NEWS; Pg. 36
582	Apr 07, 2014	Irish Examiner	IRELAND
583	Apr 01, 2014	Irish Times	IRELAND; Pg. 2

584	Sep 22, 2014	Irish Independent	NEWS; Pg. 12,13
585	Sep 06, 2014	Irish Independent	SPORT; OPINION COLUMNS; Pg. 67
586	Aug 02, 2014	Irish Independent	WEEKEND;NEWS; Pg. 30
587	Sep 28, 2014	S Independent	NEWS; Pg. 31
588	Sep 23, 2014	Irish Times	OPINION; Pg. 16
589	Sep 14, 2014	S Business Post	HOME
590	Sep 11, 2014	Irish Examiner	IRELAND
591	Sep 03, 2014	Irish Examiner	OPINION
592	Aug 16, 2014	Irish Times	WEEKEND; Pg. 4
593	Jul 28, 2014	Irish Times	FINANCE; Pg. 5
594	Jul 15, 2014	Irish Daily Mail	NEWS; Pg. 15
595	Jul 06, 2014	S Independent	BUSINESS; Pg. 24
596	Nov 18, 2014	Irish Independent	FEATURES; Pg. 35
597	Nov 03, 2014	Irish Independent	FEATURES; Pg. 32
598	Oct 09, 2014	Irish Independent	NEWS; Pg. 8
599	Dec 19, 2014	Irish Times	WORLD; Pg. 10
600	Dec 10, 2014	Irish Times	IRELAND; Pg. 11
601	Dec 04, 2014	Irish Times	WORLD; Pg. 12
602	Nov 26, 2014	Irish Daily Mail	FEATURES; Pg. 32,33
603	Nov 16, 2014	S Independent	NEWS; Pg. 16
604	Nov 06, 2014	Irish Times	FEATURES; Pg. 16
605	Oct 28, 2014	Irish Times	FEATURES; Pg. 11
606	Oct 25, 2014	Irish Times	IRELAND; Pg. 5
607	Oct 21, 2014	Irish Times	FINANCE; Pg. 3
608	Oct 14, 2014	Irish Times	IRELAND; Pg. 4
609	Oct 01, 2014	Irish Times	OPINION; Pg. 14
610	Feb 17, 2015	Irish Independent	FARMING;FEATURES; Pg. 11
611	Jan 15, 2015	Irish Independent	BUSINESS; Pg. 3
612	Mar 24, 2015	Irish Times	FINANCE; Pg. 8
613	Mar 15, 2015	S Independent	FEATURES; Pg. 29
614	Mar 05, 2015	Irish Times	OPINION; Pg. 18
615	Feb 28, 2015	Irish Examiner	SUPPLEMENTS
616	Feb 21, 2015	Irish Times	WEEKEND; Pg. 5
617	Feb 05, 2015	Irish Examiner	OPINION
618	Jan 25, 2015	S Independent	LIVING;NEWS; Pg. 8,9
619	Jan 20, 2015	Irish Times	WORLD; Pg. 9
620	Jan 10, 2015	Irish Times	WEEKEND; Pg. 6
621	Jun 26, 2015	Irish Independent	FEATURES; Pg. 27
622	Jun 09, 2015	Irish Independent	NEWS; Pg. 16,17
623	Apr 28, 2015	Irish Independent	FARMING;FEATURES; Pg. 30
624	Jun 25, 2015	Irish Examiner	IRELAND
625	Jun 19, 2015	Irish Times	WORLD; Pg. 12
626	Jun 14, 2015	S Independent	NEWS; Pg. 26
627	Jun 09, 2015	Irish Times	WORLD; Pg. 9
628	May 31, 2015	S Business Post	COMMERCIAL REPORTS

629	May 22, 2015	Irish Examiner	WORLD
630	May 16, 2015	Irish Daily Mail	NEWS; Pg. 10,11
631	Apr 25, 2015	Irish Times	OPINION; Pg. 14
632	Apr 12, 2015	S Independent	NEWS; Pg. 26
633	Apr 04, 2015	Irish Times	WEEKEND; Pg. 5
634	Sep 22, 2015	Irish Independent	FARMING;NEWS; Pg. 28
635	Jul 11, 2015	Irish Independent	
636	Sep 29, 2015	Irish Times	FINANCE; Pg. 1
637	Sep 26, 2015	Irish Times	SPORT; Pg. 6
638	Sep 24, 2015	Irish Examiner	SUPPLEMENTS
639	Sep 20, 2015	S Business Post	COMMERCIAL REPORTS
640	Sep 16, 2015	Irish Times	WORLD; Pg. 10
641	Sep 05, 2015	Irish Times	WEEKEND; Pg. 4
642	Aug 27, 2015	Irish Times	WORLD; Pg. 9
643	Aug 16, 2015	S Business Post	LIVING
644	Aug 08, 2015	Irish Times	WEEKEND; Pg. 6
645	Aug 02, 2015	S Independent	LIVING;FEATURES; Pg. 24
646	Jul 26, 2015	S Business Post	MARKETS
647	Jul 22, 2015	Irish Examiner	IRELAND
648	Jul 13, 2015	Irish Times	FINANCE; Pg. 3
649	Jul 02, 2015	Irish Times	FINANCE; Pg. 1
650	Nov 26, 2015	Irish Independent	NEWS; Pg. 26,27
651	Nov 07, 2015	Irish Independent	NEWS; Pg. 28,29
652	Oct 17, 2015	Irish Independent	NEWS; Pg. 23
653	Nov 29, 2015	S Business Post	
654	Nov 27, 2015	Irish Times	WORLD; Pg. 11
655	Nov 24, 2015	Irish Times	FEATURES; Pg. 12
656	Nov 16, 2015	Irish Times	WORLD; Pg. 12
657	Nov 12, 2015	Irish Times	WORLD; Pg. 12
658	Nov 06, 2015	Irish Times	THE TICKET; Pg. 5
659	Oct 31, 2015	Irish Times	WEEKEND; Pg. 6
660	Oct 28, 2015	Irish Times	FINANCE; Pg. 5
661	Oct 22, 2015	Irish Daily Mail	NEWS; Pg. 2
662	Oct 11, 2015	S Business Post	SMALL BUSINESS
663	Oct 05, 2015	Irish Times	FINANCE; Pg. 5
664	Dec 19, 2015	Irish Independent	NEWS; Pg. 27
665	Dec 14, 2015	Irish Independent	NEWS; Pg. 20,21
666	Dec 08, 2015	Irish Independent	NEWS; Pg. 6,7
667	Dec 31, 2015	Irish Examiner	IRELAND
668	Dec 27, 2015	S Independent	NEWS; Pg. 3
669	Dec 20, 2015	S Independent	LIVING;NEWS; Pg. 72
670	Dec 16, 2015	Irish Times	FINANCE; Pg. 6
671	Dec 14, 2015	Irish Times	IRELAND; Pg. 5
672	Dec 13, 2015	S Business Post	
673	Dec 13, 2015	S Independent	NEWS; Pg. 38

674	Dec 11, 2015	Irish Times	IRELAND; Pg. 6
675	Dec 09, 2015	Irish Times	IRELAND; Pg. 4
676	Dec 07, 2015	Irish Times	IRELAND; Pg. 5
677	Dec 06, 2015	S Independent	NEWS; Pg. 15
678	Dec 06, 2015	S Independent	NEWS; Pg. 30
679	Dec 03, 2015	Irish Times	IRELAND; Pg. 9
680	Dec 02, 2015	Irish Times	FINANCE; Pg. 16
681	Dec 01, 2015	Irish Times	IRELAND; Pg. 2
682	Mar 12, 2016	Irish Independent	REVIEW;NEWS; Pg. 19
683	Feb 27, 2016	Irish Independent	REVIEW;NEWS; Pg. 18
684	Feb 16, 2016	Irish Independent	FARMING;BUSINESS; Pg. 16
685	Jan 30, 2016	Irish Independent	WEEKEND;NEWS; Pg. 8
686	Jan 12, 2016	Irish Independent	FARMING;NEWS; Pg. 4
687	Jan 05, 2016	Irish Independent	FARMING;NEWS; Pg. 18
688	Mar 28, 2016	Irish Times	IRELAND; Pg. 8
689	Mar 21, 2016	Irish Times	FEATURES; Pg. 12
690	Mar 15, 2016	Irish Daily Mail	NEWS; Pg. 4
691	Mar 10, 2016	Irish Times	FEATURES; Pg. 12
692	Mar 05, 2016	Irish Times	WEEKEND; Pg. 4
693	Feb 27, 2016	Irish Times	WEEKEND; Pg. 4
694	Feb 25, 2016	Irish Examiner	OPINION
695	Feb 17, 2016	Irish Times	LETTERS; Pg. 15
696	Feb 11, 2016	Irish Times	LETTERS; Pg. 17
697	Feb 04, 2016	Irish Times	FEATURES; Pg. 16
698	Jan 30, 2016	Irish Times	WEEKEND; Pg. 6
699	Jan 24, 2016	S Independent	NEWS; Pg. 16
700	Jan 18, 2016	Irish Times	IRELAND; Pg. 6
701	Jan 16, 2016	Irish Times	WORLD; Pg. 13
702	Jan 10, 2016	S Business Post	
703	Jan 08, 2016	Irish Examiner	OPINION
704	Jan 06, 2016	Irish Times	LETTERS; Pg. 15
705	Jan 04, 2016	Irish Examiner	BUSINESS
706	Jan 01, 2016	Irish Examiner	BUSINESS

Appendix B: Climate change coverage as a percentage of total news coverage

Month	All stories	CC stories	%
Jan-07	9588	190	1.98
Feb-07	9537	202	2.12
Mar-07	10737	186	1.73
Apr-07	10056	138	1.37
May-07	10290	151	1.47
Jun-07	8889	207	2.33
Jul-07	8848	137	1.55
Aug-07	10272	150	1.46
Sep-07	12054	183	1.52
Oct-07	12018	166	1.38
Nov-07	11735	196	1.67
Dec-07	10699	300	2.80
Jan-08	12243	214	1.75
Feb-08	11906	163	1.37
Mar-08	12745	174	1.37
Apr-08	15325	200	1.31
May-08	16582	219	1.32
Jun-08	14329	264	1.84
Jul-08	14961	204	1.36
Aug-08	14659	181	1.23
Sep-08	15224	203	1.33
Oct-08	14981	161	1.07
Nov-08	14572	189	1.30
Dec-08	13348	164	1.23
Jan-09	14120	143	1.01
Feb-09	12949	126	0.97
Mar-09	13512	136	1.01
Apr-09	13824	144	1.04
May-09	13511	92	0.68
Jun-09	12734	137	1.08
Jul-09	12640	138	1.09
Aug-09	11821	93	0.79
Sep-09	11977	194	1.62
Oct-09	13203	224	1.70
Nov-09	12006	211	1.76
Dec-09	10607	345	3.25
Jan-10	11223	163	1.45
Feb-10	11194	78	0.70
Mar-10	12577	110	0.87
Apr-10	11803	77	0.65
May-10	12407	99	0.80
Jun-10	12133	68	0.56

Jul-10	12219	77	0.63
Aug-10	12106	90	0.74
Sep-10	13973	92	0.66
Oct-10	12151	68	0.56
Nov-10	12049	72	0.60
Dec-10	12571	134	1.07
Jan-11	11676	151	1.29
Feb-11	10771	59	0.55
Mar-11	11716	66	0.56
Apr-11	11107	66	0.59
May-11	11984	55	0.46
Jun-11	11559	53	0.46
Jul-11	11978	38	0.32
Aug-11	11444	40	0.35
Sep-11	11169	40	0.36
Oct-11	11351	55	0.48
Nov-11	11554	112	0.97
Dec-11	12126	89	0.73
Jan-12	12582	55	0.44
Feb-12	10950	36	0.33
Mar-12	15590	45	0.29
Apr-12	19740	52	0.26
May-12	20856	38	0.18
Jun-12	20767	82	0.39
Jul-12	17204	75	0.44
Aug-12	16796	47	0.28
Sep-12	17046	51	0.30
Oct-12	18262	47	0.26
Nov-12	17642	74	0.42
Dec-12	17279	78	0.45
Jan-13	20163	88	0.44
Feb-13	18930	84	0.44
Mar-13	20275	76	0.37
Apr-13	19691	89	0.45
May-13	20297	68	0.34
Jun-13	19863	80	0.40
Jul-13	19534	39	0.20
Aug-13	20274	55	0.27
Sep-13	19336	95	0.49
Oct-13	20338	81	0.40
Nov-13	20367	86	0.42
Dec-13	17336	64	0.37
Jan-14	19824	79	0.40
Feb-14	18393	108	0.59
Mar-14	20504	87	0.42

Apr-14	19279	145	0.75
May-14	20467	79	0.39
Jun-14	18522	76	0.41
Jul-14	19066	64	0.34
Aug-14	18825	44	0.23
Sep-14	18297	129	0.71
Oct-14	19111	108	0.57
Nov-14	21073	96	0.46
Dec-14	17053	64	0.38
Jan-15	21895	103	0.47
Feb-15	18419	61	0.33
Mar-15	18779	77	0.41
Apr-15	18605	61	0.33
May-15	21178	71	0.34
Jun-15	17555	120	0.68
Jul-15	17672	89	0.50
Aug-15	17862	83	0.46
Sep-15	17543	135	0.77
Oct-15	18903	116	0.61
Nov-15	17255	161	0.93
Dec-15	15369	161	1.05
Jan-16	17741	345	1.94
Feb-16	17465	123	0.70
Totals	1661116.00	12847.00	0.77

Appendix C: monthly totals of climate articles per title
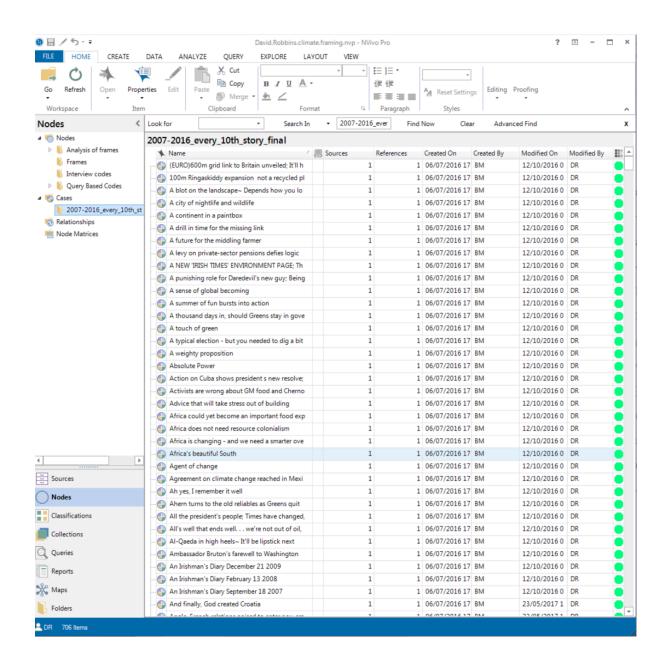
Month	IT	II	SI	ST	Ex	SBP	IDM	Total	Average	Europe
Jan-07	127	36	17	10	0	0	0	190	47.5	138.2
Feb-07	132	42	15	13	0	0	0	202	50.5	140
Mar-07	119	44	14	9	0	0	0	186	46.5	146.6
Apr-07	82	32	15	9	0	0	0	138	34.5	123.8
May-07	101	31	15	4	0	0	0	151	37.75	132
Jun-07	115	56	19	17	0	0	0	207	51.75	149.3
Jul-07	79	26	13	19	0	0	0	137	34.25	131.8
Aug-07	81	38	3	15	9	4	0	150	25	99.8
Sep-07	89	25	9	19	27	14	0	183	30.5	113.2
Oct-07	76	31	2	15	27	15	0	166	27.67	121.4
Nov-07	112	38	7	5	32	20	0	196	32.67	128.9
Dec-07	143	60	21	10	42	24	0	300	50	132.9
Jan-08	106	29	14	7	42	16	0	214	35.67	114
Feb-08	87	22	7	7	25	15	0	163	27.17	93.8
Mar-08	95	26	2	9	21	19	0	174	29	110.5
Apr-08	113	24	5	7	30	11	0	200	33.33	100
May-08	110	56	3	3	29	11	0	219	36.5	95.6
Jun-08	139	35	13	6	41	15	0	264	44	104
Jul-08	120	22	7	5	25	14	0	204	34	108.4
Aug-08	87	17	8	12	23	13	0	181	30.17	71.4
Sep-08	112	31	3	4	30	7	0	203	33.83	84.9
Oct-08	78	20	6	0	35	10	0	161	26.83	82.4
Nov-08	100	30	3	7	28	14	0	189	31.5	84
Dec-08	90	22	8	4	22	9	0	164	27.33	84.7
Jan-09	86	14	5	3	21	13	0	143	23.83	29.3
Feb-09	61	27	4	1	16	17	0	126	21	31.7
Mar-09	70	26	3	3	23	11	0	136	22.67	45
Apr-09	74	33	2	2	26	7	0	144	24	35.1
May-09	58	9	3	2	15	5	0	92	15.33	36.4
Jun-09	82	23	2	3	19	8	0	137	22.83	29.7
Jul-09	75	27	3	2	23	8	0	138	23	45.2
Aug-09	46	7	4	7	21	8	0	93	16	33.3
Sep-09	108	37	5	3	34	7	0	194	32.33	48.7
Oct-09	137	38	5	7	29	8	0	224	37.33	52.6
Nov-09	118	34	9	5	33	12	0	211	35.17	57.3
Dec-09	184	54	10	13	60	24	0	345	57.5	88.3
Jan-10	86	32	0	1	17	14	0	163	27.17	47
Feb-10	38	16	5	4	11	4	0	78	13	41.4
Mar-10	54	21	3	4	25	3	0	110	18.33	34
Apr-10	42	14	0	4	14	3	0	77	12.83	26.6
May-10	56	11	2	1	25	4	0	99	16.5	32.4
Jun-10	32	15	2	3	15	1	0	68	11.33	24.5
Jul-10	37	12	3	1	23	1	0	77	12.83	27.4

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Aug-10	36	17	5	5	23	4	0	90	15	26.4
Sep-10	43	22	2	6	15	4	0	92	15.33	27.7
Oct-10	36	9	1	1	16	5	0	68	11.33	24
Nov-10	36	15	1	3	16	1	0	72	12	25.8
Dec-10	62	22	14	7	25	4	0	134	22.33	28.8
Jan-11	75	22	4	10	26	14	0	151	25.17	26.8
Feb-11	27	9	2	0	16	5	0	59	11.8	18.5
Mar-11	35	13	1	0	14	1	0	66	13.2	20.6
Apr-11	40	11	1	0	7	7	0	66	13.2	17.7
May-11	29	6	1	0	14	5	0	55	11	18.5
Jun-11	31	4	1	0	16	1	0	53	10.6	23
Jul-11	18	8	1	0	7	4	0	38	7.6	19
Aug-11	20	10	0	0	8	2	0	40	8	15.1
Sep-11	22	8	0	0	8	2	0	40	8	15.9
Oct-11	37	6	1	0	7	1	0	55	11	23.1
Nov-11	49	16	2	0	13	32	0	112	22.4	26.2
Dec-11	49	11	5	0	20	4	0	89	17.8	28
Jan-12	31	9	4	0	8	3	0	55	11	15.9
Feb-12	19	3	5	0	8	1	0	36	7.2	25.1
Mar-12	28	8	0	0	3	2	0	45	9	22
Apr-12	13	18	0	0	10	5	0	52	10.4	25.4
May-12	21	9	0	0	3	4	1	38	6.33	16.8
Jun-12	36	17	2	0	12	3	12	82	13.67	21.1
Jul-12	40	9	5	0	12	4	5	75	12.5	26
Aug-12	29	4	1	0	8	2	3	47	7.83	14.5
Sep-12	26	10	2	0	4	1	8	51	8.5	22.3
Oct-12	22	12	2	0	3	2	6	47	7.83	24.5
Nov-12	39	10	2	0	11	11	1	74	12.33	30.2
Dec-12	36	12	6	0	13	4	7	78	13	28.8
Jan-13	40	24	4	0	11	5	4	88	14.67	25.3
Feb-13	45	9	4	0	10	5	11	84	14	22.4
Mar-13	34	18	4	0	8	8	4	76	12.67	53
Apr-13	39	18	3	0	17	3	9	89	14.83	43.3
May-13	33	13	5	0	8	5	4	68	11.33	44.2
Jun-13	30	24	2	0	10	7	7	80	13.33	29
Jul-13	20	7	5	0	4	1	2	39	6.5	36.3
Aug-13	23	9	4	0	14	0	5	55	9.167	50.8
Sep-13	37	18	3	0	17	10	10	95	15.83	56.5
Oct-13	38	15	5	0	9	8	6	81	13.5	49.8
Nov-13	47	19	3	0	7	3	7	86	14.33	58
Dec-13	28	16	4	0	8	2	6	64	10.67	34
Jan-14	31	16	6	0	16	4	6	79	13.17	48.3
Feb-14	34	30	7	0	12	10	15	108	18	55.4
Mar-14	29	26	3	0	11	6	12	87	14.5	44.7
Apr-14	48	40	7	0	30	6	14	145	24.17	43.9

May-14	33	20	6	0	8	1	11	**79**	**13.17**	36.5
Jun-14	35	15	1	0	13	7	5	**76**	**12.67**	34.7
Jul-14	22	16	2	0	20	1	3	**64**	**10.67**	37.3
Aug-14	16	17	3	0	1	4	3	**44**	**7.33**	28.9
Sep-14	46	42	4	0	13	8	16	**129**	**21.5**	46.5
Oct-14	48	31	3	0	13	8	5	**108**	**18**	48.8
Nov-14	38	23	7	0	12	4	12	**96**	**16**	74.5
Dec-14	32	13	3	0	9	2	5	**64**	**10.67**	58.4
Jan-15	45	31	15	0	15	3	1	**103**	**17.16**	55.66
Feb-15	25	13	2	0	17	1	3	**61**	**10.16**	44.25
Mar-15	28	12	5	0	18	5	9	**77**	**12.83**	62.33
Apr-15	26	13	4	0	14	0	4	**61**	**10.16**	58.08
May-15	22	15	5	0	24	2	3	**71**	**11.83**	74.08
Jun-15	53	28	4	0	22	1	12	**120**	**20**	68.33
Jul-15	36	17	2	0	19	8	7	**89**	**14.83**	60
Aug-15	36	15	7	0	12	4	9	**83**	**13.83**	53.41
Sep-15	52	23	8	0	30	5	17	**135**	**22.5**	79.16
Oct-15	51	22	0	0	29	3	11	**116**	**19.33**	120.41
Nov-15	67	47	10	0	27	0	10	**161**	**26.83**	106.75
Dec-15	143	72	33	0	69	0	28	**345**	**57.5**	159.83
Jan-16	61	46	12	0	47	0	13	**179**	**29.83**	86.83
Feb-16	45	31	5	0	37	0	5	**123**	**20.5**	85.16
Totals	6438	2437	580	317	1945	677	357	**12751**		

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Appendix D: how stories and interviews were coded in Nvivo

Step 1: articles were imported into the Nvivo software and set up as a series of 'nodes'.

Step 2: articles were coded according to descriptive variables into a 'classification sheet'.

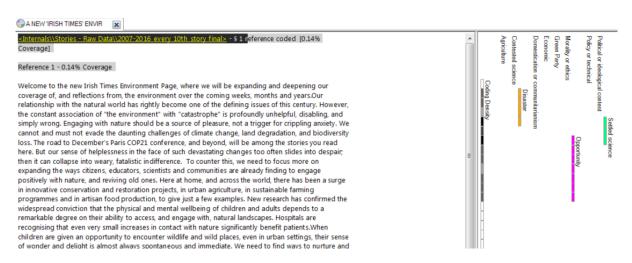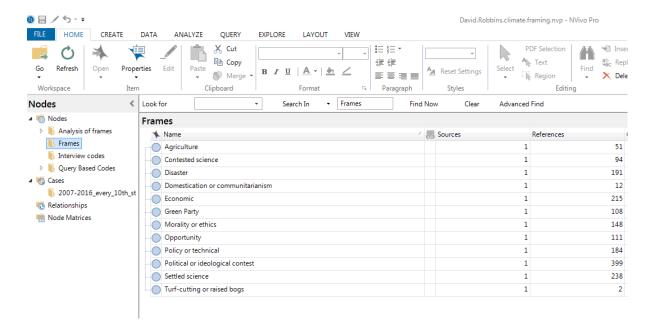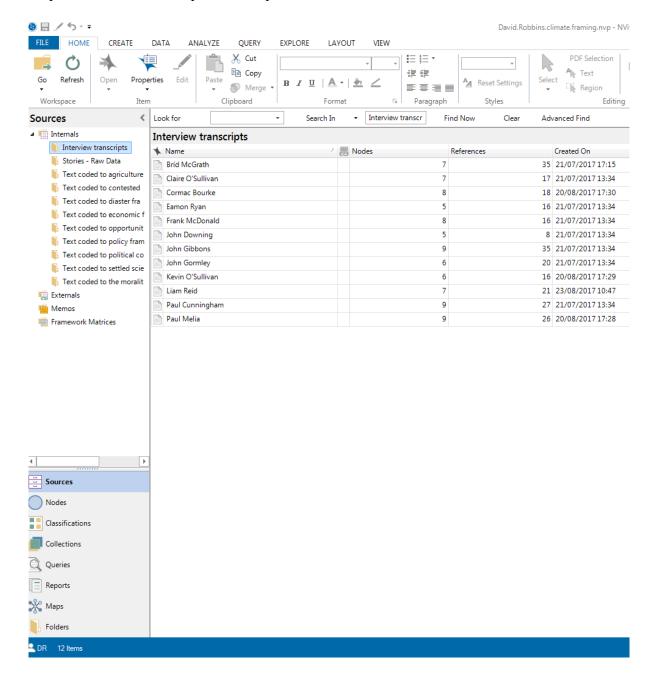|	A : Publication Date	B : Month of publication	C : Publication	D ...	E : Word count	F : SectionPa...	G : Story t...	H : Author	I : Science	J : Dominant frame	K : Climate focus
1 : (EURO)600m grid lin...	September 21, 2012 Fr	September	Irish Daily Mail	2012	594	NEWS; Pg. 2	Complex	General reporter	Settled	Policy or technical	Secondary focus
2 : 100m Ringaskiddy e...	September 11, 2014 T	September	Irish Examiner	2014	667	NEWS; Pg. 3	Complex	No byline	Settled	Policy or technical	Secondary focus
3 : A blot on the landsca...	October 01, 2011 Satu	October	The Irish Times	2011	1043	WEEKEND; Heri	Column	Regular columnist	Settled	Policy or technical	Secondary focus
4 : A city of nightlife and...	March 01, 2008 Saturd	March	The Irish Times	2008	1059	WEEKEND; Abo	Feature	Staff writer (non-news)	Settled	Opportunity	Secondary focus
5 : A continent in a pain...	February 25, 2012 Sat	February	The Irish Times	2012	735	WEEKEND; Arts	Feature	Non-journalist guest expert	Settled	Not Applicable	Secondary focus
6 : A drill in time for the ...	August 14, 2008 Thurs	August	The Irish Times	2008	730	SCIENCE TODA	Complex	Specialist correspondent	Settled	Policy or technical	Main focus
7 : A future for the middl...	September 23, 2010 T	September	Irish Examiner	2010	535	SUPPLEMENTS	Opinion	No byline	Settled	Agriculture	Secondary focus
8 : A levy on private-sec...	May 07, 2011 Saturday	May	Irish Examiner	2011	581	IRELAND	Opinion	No byline	Settled	Economic	Secondary focus
9 : A NEW 'IRISH TIME...	October 31, 2015 Satu	October	The Irish Times	2015	931	WEEKEND; Pg.	Feature	Specialist correspondent	Settled	Opportunity	Secondary focus
10 : A punishing role for...	March 21, 2016 Monda	March	The Irish Times	2016	1188	FEATURES; Pg.	Feature	No byline	Settled	Not Applicable	Secondary focus
11 : A sense of global b...	December 27, 2007 Th	December	The Irish Times	2007	927	OPINION; Pg. 17	Opinion	No byline	Settled	Political or ideological c	Secondary focus
12 : A summer of fun bu...	May 13, 2009 Wednes	May	The Irish Times	2009	3975	FEATURES; Pg.	Feature	Staff writer (non-news)	Settled	Not Applicable	Secondary focus
13 : A thousand days in...	February 28, 2010 Sun	February	Sunday Tribune	2010	2563	NEWS; Pg. N10	Opinion	Specialist correspondent	Settled	Green Party	Secondary focus
14 : A touch of green	January 14, 2008 Mon	January	The Irish Times	2008	1232	INNOVATION; T	Feature	No byline	Settled	Economic	Main focus
15 : A typical election - ...	June 15, 2009 Monday	June	The Irish Times	2009	982	OPINION; Opinio	Opinion	No byline	Settled	Political or ideological c	Secondary focus
16 : A weighty proposition	July 09, 2007 Monday	July	The Irish Times	2007	1454	INNOVATION; P	Complex	No byline	Settled	Economic	Secondary focus
17 : Absolute Power	March 04, 2008 Tuesd	March	The Irish Times	2008	1677	FEATURES; Pg.	Feature	No byline	Settled	Political or ideological c	Secondary focus
18 : Action on Cuba sho...	December 19, 2014 Fri	December	The Irish Times	2014	1051	WORLD; Pg. 10	Feature	No byline	Settled	Political or ideological c	Secondary focus
19 : Activists are wrong ...	February 04, 2016 Thu	February	The Irish Times	2016	754	FEATURES; Pg.	Column	Regular columnist	Settled	Political or ideological c	Secondary focus
20 : Advice that will tak...	January 27, 2012 Frida	January	Irish Independen	2012	587	Residential Prop	Opinion	Non-journalist guest expert	Settled	Economic	Secondary focus
21 : Africa could yet bec...	December 03, 2010 Fri	December	The Irish Times	2010	525	WORLD; Other	Complex	No byline	Settled	Economic	Secondary focus
22 : Africa does not nee...	August 29, 2008 Friday	August	The Irish Times	2008	1286	OPINION; Opinio	Opinion	Non-journalist guest expert	Settled	Morality or ethics	Secondary focus
23 : Africa is changing -...	October 17, 2015 Satu	October	Irish Independen	2015	844	NEWS; Pg. 23	Feature	No byline	Settled	Policy or technical	Secondary focus
24 : Africa's beautiful S...	February 01, 2009 Sun	February	Sunday Busines	2009	1185	AGENDA	Feature	Regular columnist	Contested	Economic	Secondary focus
25 : Agent of change	December 06, 2009 Su	December	Sunday Busines	2009	1689	PROFILE	Feature	No byline	Settled	Political or ideological c	Main focus
26 : Agreement on clim...	December 12, 2010 Su	December	Sunday Busines	2010	635	IRELAND	Complex	No byline	Settled	Policy or technical	Main focus
27 : Ah yes, I remember...	May 09, 2008 Friday	May	The Irish Times	2008	653	FINANCE; Tech	Feature	No byline	Settled	Not Applicable	Secondary focus
28 : Ahern turns to the o...	June 09, 2007 Saturda	June	Irish Independen	2007	711	NATIONAL NEW	Complex	No byline	Settled	Political or ideological c	Secondary focus
29 : All the president's p...	January 25, 2015 Sund	January	Sunday Indepen	2015	2725	LIVING;NEWS;	Opinion	No byline	Settled	Political or ideological c	Secondary focus
30 : All's well that ends ...	September 06, 2012 T	September	Irish Independen	2012	898	BUSINESS; Worl	Opinion	No byline	Settled	Economic	Secondary focus
31 : Al-Qaeda in high h...	October 02, 2007 Tues	October	Irish Independen	2007	712	FEATURES	Column	Regular columnist	Settled	Policy or technical	Secondary focus
32 : Ambassador Bruto...	October 26, 2009 Mon	October	The Irish Times	2009	1043	WORLD; Other	Feature	Specialist correspondent	Settled	Political or ideological c	Secondary focus
33 : An Irishman's Diary...	December 21, 2009 M	December	The Irish Times	2009	1048	OPINION; An Iris	Feature	No byline	Contested	Economic	Secondary focus
34 : An Irishman's Diary...	February 13, 2008 We	February	The Irish Times	2008	835	OPINION; An Iris	Feature	Regular columnist	Settled	Policy or technical	Main focus
35 : An Irishman's Diary...	September 18, 2007 T	September	The Irish Times	2007	888	OPINION; An Iris	Feature	Regular columnist	Not Applicable	Not Applicable	Secondary focus
36 : And finally, God cre...	May 24, 2008 Saturday	May	Irish Independen	2008	1409	LIFESTYLE; Tra	Feature	Non-journalist guest expert	Settled	Not Applicable	Secondary focus
37 : Anglo-French relati...	March 28, 2008 Friday	March	The Irish Times	2008	624	WORLD; Pg. 10	Simple	No byline	Settled	Policy or technical	Secondary focus
38 : Another green world~	July 26, 2015 Sunday	July	Sunday Busines	2015	1458	MARKETS	Complex	No byline	Settled	Opportunity	Secondary focus
39 : Another view of the...	June 07, 2008 Saturda	June	The Irish Times	2008	819	WEEKEND; Heri	Column	Regular columnist	Settled	Turf-cutting	Main focus
40 : Answer to the ener...	October 07, 2008 Tues	October	The Irish Times	2008	864	WORLD; Other	Column	Specialist correspondent	Settled	Opportunity	Main focus
41 : Apocalypse wow	November 20, 2009 Fri	November	The Irish Times	2009	1793	THE TICKET; Pg	Feature	Specialist correspondent	Settled	Disaster	Secondary focus
42 : Apocalypse wow!	November 21, 2009 Sa	November	Irish Independen	2009	1099	ENTERTAINME	Feature	Specialist correspondent	Settled	Disaster	Secondary focus
43 : ...	June 27, 2010 Sunday	June	Sunday Busines	2010	1264	AGENDA	Feature	No byline	Settled	Disaster	Secondary focus

Step 3: each article was coded for the presence of frames.

<Internals\\Stories - Raw Data\\2007-2016 every 10th story final> - § 1 reference coded [0.14% Coverage]

Reference 1 - 0.14% Coverage

Welcome to the new Irish Times Environment Page, where we will be expanding and deepening our coverage of, and reflections from, the environment over the coming weeks, months and years. Our relationship with the natural world has rightly become one of the defining issues of this century. However, the constant association of "the environment" with "catastrophe" is profoundly unhelpful, disabling, and simply wrong. Engaging with nature should be a source of pleasure, not a trigger for crippling anxiety. We cannot and must not evade the daunting challenges of climate change, land degradation, and biodiversity loss. The road to December's Paris COP21 conference, and beyond, will be among the stories you read here. But our sense of helplessness in the face of such devastating changes too often slides into despair; then it can collapse into weary, fatalistic indifference. To counter this, we need to focus more on expanding the ways citizens, educators, scientists and communities are already finding to engage positively with nature, and reviving old ones. Here at home, and across the world, there has been a surge in innovative conservation and restoration projects, in urban agriculture, in sustainable farming programmes and in artisan food production, to give just a few examples. New research has confirmed the widespread conviction that the physical and mental wellbeing of children and adults depends to a remarkable degree on their ability to access, and engage with, natural landscapes. Hospitals are recognising that even very small increases in contact with nature significantly benefit patients. When children are given an opportunity to encounter wildlife and wild places, even in urban settings, their sense of wonder and delight is almost always spontaneous and immediate. We need to find ways to nurture and

Agriculture
Contested science
Domestication or communitarianism
Economic
Green Party
Morality or ethics
Policy or technical
Political or ideological contest
Coding Density
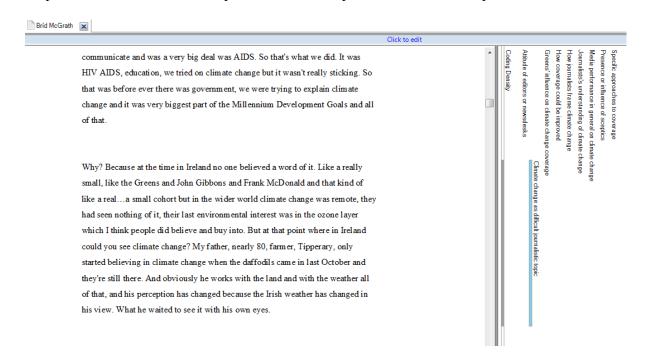Disaster
Settled science
Opportunity

Step 4: the text coded to each frame appears then as a separate 'node', and text captured

on each frame appearing in multiple articles can be recalled and analysed.

Step 5: Interview transcripts were imported into Nvivo.

Step 6: the text of each transcript was coded as it pertained to certain topics.

Step 7: each of these topics was created as a 'node' and the text coded to them could be recalled and analysed.